



# Louisiana Trustee Implementation Group Final Phase II Restoration Plan #3.2: Mid-Barataria Sediment Diversion

SEPTEMBER 2022

# Table of Contents

	Page
<b>Figures</b> .....	<b>iii</b>
<b>Tables</b> .....	<b>v</b>
<b>Acronyms and Abbreviations</b> .....	<b>vi</b>
<b>Executive Summary</b> .....	<b>ES-1</b>
<b>1.0 Introduction</b> .....	<b>1-1</b>
1.1 Background and Summary of the Settlement.....	1-3
1.2 DWH NRDA Trustees, Trustee Council, and Trustee Implementation Groups.....	1-4
1.3 Authorities and Regulations .....	1-5
1.3.1 OPA Compliance and NRDA Evaluation Criteria.....	1-5
1.3.2 Compliance with Other Laws .....	1-6
1.4 Restoration Goals and Objectives.....	1-7
1.5 Alternatives Evaluated in this Plan.....	1-9
1.6 No-Action Alternative.....	1-13
1.7 Coordination with Other Gulf Restoration Programs.....	1-14
1.8 Public Participation .....	1-17
1.8.1 PDARP/PEIS and SRP/EA #3 Public Engagement and Outreach .....	1-18
1.8.2 Public Outreach Associated with the RP and EIS.....	1-18
1.8.3 CPRA Public Engagement.....	1-21
1.8.4 Revisions to the RP between Draft and Final.....	1-24
1.8.5 Administrative Record.....	1-25
1.9 Document Organization .....	1-25
<b>2.0 Restoration Planning Process</b> .....	<b>2-1</b>
2.1 Summary of Injuries Addressed in this Final RP .....	2-1
2.2 Additional Injuries Addressed by Other Plans .....	2-3
2.3 Screening for a Reasonable Range of Alternatives.....	2-4
2.3.1 Selection of a Mid-Barataria Sediment Diversion for Further Analysis.....	2-4
2.3.2 Process for Screening Alternatives for the Proposed MBSD Project.....	2-7
2.3.3 Proposed MBSD Project Location Alternatives .....	2-9
2.3.4 Proposed MBSD Project Operations.....	2-11
2.3.5 Sediment Diversion Outfall Features .....	2-14
2.4 Alternatives Not Considered for Further Evaluation in this Final RP.....	2-15
2.5 Alternatives Considered for Further Evaluation in this RP .....	2-16

<b>3.0</b>	<b>OPA Evaluation of the Alternatives .....</b>	<b>3-1</b>
3.1	Summary of OPA NRDA Evaluation Criteria.....	3-1
3.2	OPA Evaluation of the Alternatives.....	3-1
3.2.1	Alternative 1: Sediment Diversion with a Variable Flow up to a Maximum of 75,000 cfs .....	3-2
3.2.2	Alternatives 2–6.....	3-52
3.2.3	No-Action Alternative .....	3-78
3.2.4	Overall OPA Evaluation Conclusions .....	3-79
<b>4.0</b>	<b>Compliance with Other Laws and Regulations .....</b>	<b>4-1</b>
<b>5.0</b>	<b>Public Comments and Responses.....</b>	<b>5-1</b>
<b>6.0</b>	<b>Overview of Changes in the Final Restoration Plan.....</b>	<b>6-1</b>
<b>7.0</b>	<b>List of Preparers and Reviewers.....</b>	<b>7-1</b>
<b>8.0</b>	<b>List of Repositories.....</b>	<b>8-1</b>
<b>9.0</b>	<b>References .....</b>	<b>9-1</b>
<b>Appendix A: Monitoring and Adaptive Management Plan for the Proposed MBSD Project .....</b>		<b>A-1</b>
<b>Appendix B: Mitigation and Stewardship Plan for the Proposed MBSD Project.....</b>		<b>B-1</b>
<b>Appendix C: Marine Mammal Intervention Plan.....</b>		<b>C-1</b>
<b>Appendix D: Alternatives Considered but Not Carried Forward for Detailed Evaluation .....</b>		<b>D-1</b>
<b>Appendix E: Public Comments and Responses .....</b>		<b>E-1</b>

# Figures

	Page
Figure ES-1. Conceptual Representation of the Benefits of the Proposed MBSD Project.....	ES-3
Figure 1-1. Location of Proposed MBSD Project Area.....	1-10
Figure 1-2. Design Features and Construction Footprint of the Proposed MBSD Project and Its Alternatives.....	1-12
Figure 3-1. Alternative 1 Would Create New Deltaic Landforms and Build and Sustain Land (area shown in blue) in the Barataria Basin as Sediment Is Deposited.....	3-7
Figure 3-2. Percentage of Acres in the Barataria Basin Created by Alternative 1 Would Increase over Time, Even Though Total Land Gained Peaks after 30 Years.....	3-8
Figure 3-3. Alternative 1 Would Typically Deliver the Highest Diversion Flows in the Winter and Spring, and Operate under Base Flow Conditions in the Summer and Fall.....	3-9
Figure 3-4. Operation of the Diversion Would Maintain a Seasonal Fluctuation in Salinity Characteristic of Estuaries.....	3-9
Figure 3-5. Alternative 1 Would Increase the Average NO <sub>3</sub> Fraction of TN at Northern/Mid-Basin CRMS Station 3985 and CRMS Station 0276 Nearest the Diversion Compared to the No-Action Alternative.....	3-11
Figure 3-6. Alternative 1 Would Increase the Average PO <sub>4</sub> Fraction of TP at Northern/Mid-Basin CRMS Station 3985 and CRMS Station 0276 Nearest the Diversion Compared to the No-Action Alternative.....	3-12
Figure 3-7. While Wetland Habitat Declines under Both Alternatives, More Brackish and Saline Habitat Is Lost over Time, and More Freshwater/Intermediate Habitats Are Retained or Created under Alternative 1 than the No-Action Alternative.....	3-13
Figure 3-8. Operation of the Diversion Will Maintain a Diversity of Habitat Types under Alternative 1, Although the Relative Amount of Brackish and Saline Habitats Are Lower under Alternative 1 than the No-Action Alternative by 2070.....	3-14
Figure 3-9. Oyster HSIs for Eastern Oysters Decrease in the Barataria Basin under Alternative 1 Compared to the No-Action Alternative due to Increased Freshwater Associated with the Diversion, Assuming Unlimited Availability of Substrate.....	3-35
Figure 3-10. Habitat Suitability Decreases for Small Juvenile Brown Shrimp in the Mid-Barataria Basin under Alternative 1 Compared to the No-Action Alternative Modeling Scenario because of Increased Freshwater Associated with the Diversion.....	3-37
Figure 3-11. Integrated, High-Level Overview of the Types of Benefits that Are Expected for Major Natural Resources Categories under the Implementation of Alternative 1.....	3-39
Figure 3-12. Land-Building Sediment Process in a Hypothetical Diversion off the Mississippi River as a Balance of Sources and Sinks with Organic and Inorganic Processes.....	3-40
Figure 3-13. Conceptual Representation of Alternative 1 Benefits.....	3-48
Figure 3-14. Simplified Illustration of How Increases in Topography and Land Acreage in the Delta Formation Area under Alternative 1 Influence Storm Surge Elevation along a 50-mile Cross-section of the Project Area, as Compared to the No-Action Alternative.....	3-50
Figure 3-15. Difference in Storm Surge Elevations between the No-Action Alternative and Alternative 1 in 2040 (left) and 2070 (right) where Blue Shading (north of the diversion) Depicts Areas with Reduced Storm Surge, while Yellow-to-Red Shading (south of the diversion) Depicts Areas with Increased Storm Surge.....	3-51



Figure 3-16. Cumulative Sediment Load Delivered (MT) to the Barataria Basin by 2070 is Lowest under Alternative 2 and Highest under Alternative 3, with Alternative 1 Falling in-between These Alternatives..... 3-54

Figure 3-17. Increases in Land Area in the Barataria Basin Would Be Lowest under Alternative 2 and Highest under Alternative 3, with Alternative 1 Falling in-between These Alternatives..... 3-55

Figure 3-18. All Alternatives Are Projected to Increase the Area of Freshwater and Intermediate Marsh Habitats, and Decrease the Area of Brackish and Saline Marshes, in the Barataria Basin Relative to the No-Action Alternative; Data Shown Are Modeling Results for 2050, the Peak of Projected Land Cover in the Barataria Basin. .... 3-56

Figure 3-19. Habitat for Oysters is Projected to Be Substantially Lower under Alternatives 1, 2, and 3 Compared to the No-Action Alternative; and Basinwide Changes in Habitat Are Projected to Be Broadly Similar under All Alternatives..... 3-67

Figure 3-20. Differences in Oyster Habitat Suitability between Alternative 2 (50,000 cfs) and Alternative 1 (75,000 cfs) – Top Panel – and between Alternative 3 (150,000 cfs) and Alternative 1 (75,000 cfs) – Lower Panel..... 3-68

Figure 3-21. Overall Juvenile Brown Shrimp Habitat Suitability Is Projected to Be Substantially Lower under Alternatives 1, 2, and 3 Compared to the No-Action Alternative; and Basinwide Changes in Habitat Are Projected to Be Quite Similar under Alternatives 2–6..... 3-69

Figure 3-22. Geographic Areas (“polygons”) Used for Spatial Analysis of Brown Shrimp Collateral Injuries..... 3-70

Figure 3-23. Near the Diversion (top panel), Habitat Suitability for Juvenile Brown Shrimp Is Projected to Be Similar under Alternatives 1, 2, and 3; however, in the Lower Basin (bottom panel), Habitat Suitability Is Highest under Alternative 2 (50,000 cfs), Intermediate under Alternative 1 (75,000 cfs), and Lowest under Alternative 3 (150,000 cfs)..... 3-71

Figure 3-24. All Alternatives Are Projected to Sustain a Diversity of Marsh Habitat Types by 2070, but the Amount of Brackish and Saline Habitat Retained is Lowest under Alternative 3. .... 3-74

Figure 3-25. Summary of OPA NRDA Evaluation Criteria across Restoration Alternatives ..... 3-86

# Tables

	Page
Table 1-1. Restoration Funding in Dollars for the Louisiana Restoration Area.....	1-4
Table 1-2. Summary of Proposed Restoration Alternatives Evaluated in this Final RP .....	1-11
Table 1-3. Summary of Public Engagement Activities and Number of People Reached to Discuss Sediment Diversions in the Barataria Basin, including the Proposed MBSD Project, from 2016 to 2020 <sup>a</sup> .....	1-22
Table 1-4. Summary of Public Engagement to Discuss Sediment Diversions in the Barataria Basin, including the proposed MBSD Project, from January 2021 through July 2022. ....	1-24
Table 2-1. Comparisons of Published Pre- and Post-Spill Erosion Rates in Louisiana.....	2-3
Table 3-1. Alternative 1 Would Deliver a Total of Approximately 280 MMT of Sand and Fine Sediments to the Barataria Basin Every Year, for the 2030–2070 Modeled Period.....	3-5
Table 3-2. Metrics Demonstrating How Alternative 1 of the Proposed MBSD Project Meets LA TIG Goals for this Project.....	3-20
Table 3-3. Alternative 1 Would Reduce Mean Annual Survival Rates due to Low-Salinity Exposure for a Simulated Dolphin Population Compared to the No-Action Alternative .....	3-33
Table 3-4. Influence of Alternative 1 on Annual Days of Tidal Flooding Decreases over Time.....	3-52
Table 3-5. 2020 Estimated Cost to Carry Out Different Proposed MBSD Project Alternatives .....	3-57
Table 3-6. Metrics Demonstrating How Alternatives 1–6 of the Proposed MBSD Project Meet LA TIG Goals for this Project.....	3-59
Table 3-7. Differences in Projected Duration (continuous days) of Low-Salinity Exposure (less than 5 ppt) for Simulated BBES Dolphin Populations among Alternatives 1, 2, and 3 and the No-Action Alternative in the First Decade of Diversion Operation.....	3-66
Table 3-8. Differences in Projected Median Survival Rates due to Low-Salinity Exposure of Simulated BBES Dolphin Populations among Alternatives 1, 2, and 3 and the No-Action Alternative <sup>a</sup> ....	3-66
Table 3-9. Benefits to Nearshore Ecosystems Vary with Diversion Capacity – the Most Benefits over the No-Action Alternative Are Achieved under Alternative 3 (150,000 cfs) and the Least under Alternative 2 (50,000 cfs) .....	3-73
Table 4-1. Current Status of Compliance with State and Federal Laws .....	4-1
Table 7-1. List of Preparers and Reviewers .....	7-1
Table 8-1. List of Repositories.....	8-1

## Acronyms and Abbreviations

ac	acre
AHP	Above Head of Passes
AWG	Alternatives Working Group
BBES	Barataria Bay Estuarine System
BLM	Bureau of Land Management
BMP	best management practice
BP	BP Exploration and Production Inc.
CCC	Coastal Communities Consulting
CEMNVN	United States Army Corps of Engineers, Mississippi Valley Division, New Orleans District
CEQ	Council on Environmental Quality
CFR	Code of Federal Regulations
cfs	cubic feet per second
CI	confidence interval
cm	centimeter
CMAR	Construction Management At-Risk
CMP	Coastal Master Plan
Coastal Master Plan	Louisiana’s Comprehensive Master Plan for a Sustainable Coast
CPRA	Coastal Protection and Restoration Authority
CRMS	Coastwide Reference Monitoring System
CWA	Clean Water Act
CWPPRA	Coastal Wetlands Planning, Protection, and Restoration Act
CWPPRA Project BA-33	Coastal Wetlands Planning, Protection, and Restoration Act Delta Building Diversion at Myrtle Grove Project
CWPPRA Project BA-143	Coastal Wetlands Planning, Protection, and Restoration Act Caminada Headland Restoration Project
Draft EIS	Draft Environmental Impact Statement
Delft3D model	Delft 3D Basinwide Model
DOI	United States Department of the Interior
Draft RP	Draft Phase II Restoration Plan #3.2: Mid-Barataria Sediment Diversion
DWH	<i>Deepwater Horizon</i>
EA	Environmental Assessment
E&D	engineering and design
EIS	Environmental Impact Statement
EO	Executive Order

ESA	Endangered Species Act
FAST-41	Fixing America's Surface Transportation Act
FCT	Federal Coordination Team
Final EIS	Final Environmental Impact Statement
Final PDARP/PEIS	<i>Deepwater Horizon Oil Spill: Final Programmatic Damage Assessment and Restoration Plan and Final Programmatic Environmental Impact Statement</i>
Final Phase II RP #3.2	Final Phase II Restoration Plan #3.2: Mid-Barataria Sediment Diversion
Final RP	Final Phase II Restoration Plan #3.2: Mid-Barataria Sediment Diversion
FR	Federal Register
ft	feet
GEBF	Gulf Environmental Benefit Fund
HAB	harmful algal bloom
HSI	Habitat Suitability Index
Incident	2010 <i>Deepwater Horizon</i> oil spill and associated oil spill response efforts
LA TIG	Louisiana Trustee Implementation Group
LCA	Louisiana Coastal Area
m	meter
MAM	Monitoring and Adaptive Management
MBSD	Mid-Barataria Sediment Diversion
mi	mile
MMPA	Marine Mammal Protection Act
MMT	million metric ton
MSFCMA	Magnuson-Stevens Fishery Conservation and Management Act
MT	metric ton
m yr <sup>-1</sup>	meters per year
m <sup>2</sup> m <sup>-1</sup> y <sup>-1</sup>	square meters per meter per year
NEPA	National Environmental Policy Act
NFWF	National Fish and Wildlife Foundation
NGO	nongovernmental organization
NMFS	National Marine Fisheries Service
NO <sub>3</sub>	nitrate
NOA	Notice of Availability
NOAA	National Oceanic and Atmospheric Administration
NOGC	New Orleans and Gulf Coast Railway
NOI	Notice of Intent



NOV-NFL	New Orleans to Venice Non-Federal Levee
NPS	National Park Service
NRDA	Natural Resource Damage Assessment
OPA	Oil Pollution Act of 1990
OTF	outfall transition feature
PDARP	Programmatic Damage Assessment and Restoration Plan
PEIS	Programmatic Environmental Impact Statement
PEPC	DOI's Planning, Environment and Public Comment (database)
PO <sub>4</sub>	phosphate
ppt	parts per thousand
Proposed MBSD Project	Proposed 75,000 cfs capacity Mid-Barataria Sediment Diversion Project
RESTORE Act	Resources and Ecosystems Sustainability, Tourist Opportunities, and Revived Economies of the Gulf Coast States Act
RM	river mile
ROD	Record of Decision
RP	Restoration Plan
SAV	submerged aquatic vegetation
SOP	Standard Operating Procedure
SRP/EA #3	Strategic Restoration Plan and Environmental Assessment #3: Restoration of Wetlands, Coastal, and Nearshore Habitats in the Barataria Basin, Louisiana
TIG	Trustee Implementation Group
TN	total nitrogen
TP	total phosphorus
TWI	The Water Institute of the Gulf
USACE	United States Army Corps of Engineers
USC	United States Code
USDA	United States Department of Agriculture
USEPA	United States Environmental Protection Agency
USFWS	United States Fish and Wildlife Service
VOICE	Voices of Impacted Communities and Environments (Southeast Louisiana)

## Executive Summary

The *Deepwater Horizon* (DWH) oil spill resulted in the oiling of more than 1,100 kilometers of wetlands, nearly all of which were located in coastal Louisiana (DWH NRDA Trustees, 2016). The heaviest oiling occurred in the Barataria Basin, resulting in substantial injuries to natural resources in the basin (DWH NRDA Trustees, 2016). The impact of those injuries was intensified by the fragile nature of the basin. Already suffering from significant coastal erosion, marshes in the Barataria Basin that experienced heavy oiling subsequently experienced double or triple the rate of marsh loss. Recognizing that the resulting loss of marsh productivity affected resources throughout the northern Gulf of Mexico ecosystem, the State of Louisiana and the federal Trustees that negotiated the DWH Natural Resource Damages settlement allocated \$4 billion, almost half of the total settlement amount, to restoring Louisiana's wetland, coastal, and nearshore habitats.

The DWH Natural Resource Damage Assessment Trustees began analyzing strategies for restoring these coastal losses as part of the settlement process. In the [\*Deepwater Horizon Oil Spill: Final Programmatic Damage Assessment and Restoration Plan and Final Programmatic Environmental Impact Statement\*](#) (Final PDARP/PEIS), the Trustees noted that, “[c]onsidering the scale of impacts from the oil spill, the Trustees also understand the importance of increasing the resiliency and sustainability of this highly productive Gulf ecosystem through restoration” (DWH NRDA Trustees, 2016, page 5-25). To address these large-scale impacts, they agreed that “[d]iversions of Mississippi River water into adjacent wetlands have a high probability of providing these types of large-scale benefits for the long-term sustainability of deltaic wetlands” (DWH NRDA Trustees, 2016, page 5-25). In deciding that sediment diversions were a wetland restoration technique worth exploring, the Trustees also identified multiple potential benefits from such projects. These benefits included helping “maintain the Louisiana coastal landscape and its ability to overcome other environmental stressors by stabilizing wetland substrates; reducing coastal wetland loss rates; increasing habitat for freshwater fish, birds, and benthic communities; and reducing storm risks, thus providing protection to nearby infrastructure” (DWH NRDA Trustees, 2016, page 5-25).

Building on the Final PDARP/PEIS, the federal and state trustees responsible for the restoration of resources in the State of Louisiana (the Louisiana Trustee Implementation Group, or LA TIG) began evaluating restoration strategies that could restore for injuries to natural resources in the Barataria Basin, which resulted in the [\*Strategic Restoration Plan and Environmental Assessment #3: Restoration of Wetlands, Coastal, and Nearshore Habitats in the Barataria Basin, Louisiana\*](#) (SRP/EA #3). In that document, the LA TIG ultimately determined that a combination of “marsh creation and ridge restoration plus a large-scale sediment diversion would provide the greatest level of benefits to injured Wetlands, Coastal, and Nearshore Habitats and to the large suite of injured resources that depend in their life cycle on productive and sustainable wetland habitats” (LA TIG, 2018, page 3-32) in the basin and in the broader northern Gulf of Mexico. The wetlands and marsh habitats that were significantly affected by heavy oiling throughout Barataria Basin were already under stress due to the historic loss of its deltaic connection with the Mississippi River. Implementing a restoration technique here that not only builds wetlands and marsh complexes but does so by re-establishing the deltaic processes that originally built the marsh is especially appropriate (LA TIG, 2018, pages 1-13, 2-6, 2-19, 3-7, and 3-8). Thus, re-establishing

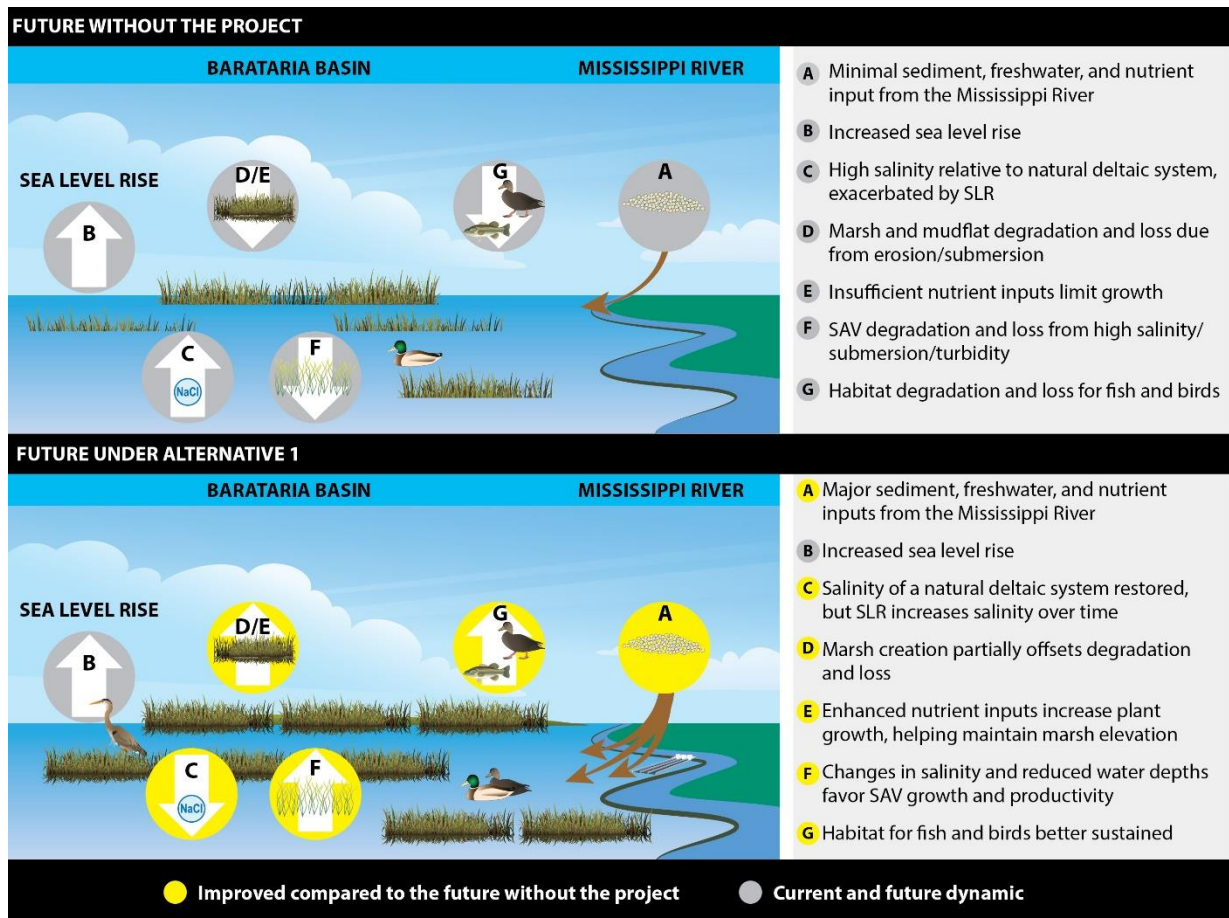
deltaic processes to Barataria Basin with a large-scale sediment diversion would provide system-wide benefits to that ecosystem that would not be realized with any other restoration technique (LA TIG, 2018, pages 2-19 and 3-8).

Since finalizing the SRP/EA #3, the LA TIG has evaluated a variety of potential alternatives for a large-scale sediment diversion in the Barataria Basin. This Final Restoration Plan (Final RP), along with the Final Environmental Impact Statement (Final EIS) being simultaneously released, encapsulate that evaluation. This RP takes advantage of decades of analysis of sediment diversion strategies that have been undertaken by the State of Louisiana, as well as extensive modeling and scientific analysis of potential diversion alternatives. The Trustees believe that the detailed scientific review of potential benefits and impacts from the Project that are evaluated here and in the EIS present a robust statement of the science behind the Trustees' recommended path forward.

Ultimately, the Trustees' analysis has determined that, as with many environmental restoration projects, there would be ecological tradeoffs associated with any of the large-scale sediment diversion alternatives. The benefits would be significant and would primarily derive from the creation of thousands of acres of marsh that, with a steady supply of Mississippi River sediment, would be sustained over decades even in the face of rising sea levels and coastal erosion. After 50 years of operation of a diversion with a capacity of 75,000 cubic feet per second (cfs) (the Proposed MBSD Project, or Alternative 1 in this RP), over 20% of the marsh in the Barataria Basin is projected to have been created or sustained by the diversion. The Trustees believe that a sediment diversion is the only way to achieve a self-sustaining marsh ecosystem in the Barataria Basin.

This sustained marsh is expected to benefit many fish and wildlife species in the basin, including red drum, largemouth bass, blue crab, white shrimp, Gulf menhaden, and migratory waterfowl. These benefits to fish and wildlife species would translate to benefits to recreational users who watch, fish, or hunt those species. In addition, these benefits would not only accrue in the Barataria Basin but, through the transport of marsh productivity, also in the offshore ecosystems of the northern Gulf of Mexico. Figure ES-1 provides a conceptual representation of these benefits, highlighting how key ecological dynamics in the Proposed MBSD Project area would improve, particularly when compared to a future without this project.

The Trustees recognize that any of the large-scale sediment diversion alternatives considered would also result in collateral injuries to some natural resources. Reconnecting the river to the basin to restore an estuary that has been degrading and becoming more saline for almost a century would produce significant changes to current conditions in the Barataria Basin, which will negatively affect some of the species that currently reside in the basin. The primary driver of this change would be a reduction in salinity; any of the large-scale sediment diversion alternatives considered would result in a substantial reduction in salinity in portions of the basin. That reduction in salinity would negatively impact fish and wildlife species that rely on higher saline waters and have moved further into the estuary as salinities have increased due to the severed connection between the river and the basin. Key species that would be adversely affected include dolphins, brown shrimp, and oysters.



**Figure ES-1. Conceptual Representation of the Benefits of the Proposed MBSD Project.** Under future conditions without the Project, a lack of connectivity to the Mississippi River, in combination with sea level rise, leads to the degradation and loss of wetland habitat and submerged aquatic vegetation. Alternative 1 delivers sediment, freshwater, and nutrients to the basin, helping restore and sustain mudflats, aquatic vegetation, and wetlands, which benefits fish and bird species that rely on these habitats. Some symbols adapted and used in this figure are through the courtesy of the Integration and Application Network (<https://ian.umces.edu/symbols/>).

The large-scale sediment diversion alternatives considered would also affect storm hazards and tidal flooding in the vicinity of the diversion. The diversion would restore and expand marshes and thereby reduce storm surge and flooding in the communities north of the diversion. At the same time, flows through the diversion and the additional marsh created or sustained by the diversion are expected to somewhat accelerate tidal flooding in communities south of the diversion that remain outside of levee protection (from Myrtle Grove south to Grand Bayou). During the first several decades of operation of the diversion, these communities could experience increases in the intensity and duration of flooding impacts; however, within 50 years, sea level rise and subsidence would overtake the effects of the diversion and return as the primary forces driving flooding in these communities. Also, the additional marsh created or sustained by the diversion is expected to somewhat increase storm surge in communities south of the diversion. As part of evaluating the public health and safety impacts of the Project, the LA TIG considered impacts to communities with environmental justice concerns, including Ironton, the community closest to the diversion structure.



The different large-scale diversion alternatives evaluated in this Final RP result in different levels of impacts and benefits. After considering these impacts and benefits, the Trustees have selected as their Preferred Alternative a diversion with a maximum capacity of 75,000 cfs (with the actual flow through the diversion dependent on the flow of the Mississippi River). The Trustees fully evaluated a smaller-capacity diversion with a maximum capacity of 50,000 cfs and found that such a diversion would provide substantially less benefit in marsh preservation and restoration and correspondingly less associated benefits to nearshore marine ecosystems, water column resources (including fish and shellfish), birds and terrestrial wildlife, recreational use, and offshore ecosystems. Not only would the smaller 50,000 cfs diversion achieve substantially fewer benefits to the overall coastal ecosystem, it would do so with only a small reduction in collateral injury, impacts on public health and safety, and cost, making it overall a less desirable alternative to the LA TIG. The LA TIG also fully evaluated a larger-capacity diversion with a maximum capacity of 150,000 cfs. While the marsh creation benefits of such a large diversion would be significantly greater than the 75,000 cfs alternative, the projected collateral injuries and impacts to public health and safety would also increase to levels unacceptable to the Trustees. The Trustees also considered three additional alternatives that consisted of diversions with capacities of 75,000 cfs, 50,000 cfs, and 150,000 cfs with marsh terraces in the outfall area to potentially enhance wetland creation. However, marsh terraces are anticipated to provide little additional benefit to injured resources and would result in increased costs, and thus none of these alternatives was preferred by Trustees.

This Final RP incorporates revisions to both the Monitoring and Adaptive Management Plan and the Mitigation and Stewardship Plan, reflecting the Trustees' consideration of public comments received on the Draft Phase II Restoration Plan #3.2: Mid-Barataria Sediment Diversion (Draft RP). The Trustees are committed to these plans as key components of the Proposed MBSD Project. These plans include proactive strategies to engage and work with the communities, individuals, and stakeholders that rely on and value the resources that would be impacted.

## References

- DWH NRDA Trustees. 2016. *Deepwater Horizon* Oil Spill: Final Programmatic Damage Assessment and Restoration Plan and Final Programmatic Environmental Impact Statement. Available: <http://www.gulfspillrestoration.noaa.gov/restoration-planning/gulf-plan>. Accessed September 29, 2020.
- LA TIG. 2018. Strategic Restoration Plan and Environmental Assessment #3: Restoration of Wetlands, Coastal, and Nearshore Habitats in the Barataria Basin, Louisiana. Available: [https://www.gulfspillrestoration.noaa.gov/sites/default/files/2018\\_03\\_LA\\_TIG\\_Final\\_SRP\\_EA\\_508-Compliant.pdf](https://www.gulfspillrestoration.noaa.gov/sites/default/files/2018_03_LA_TIG_Final_SRP_EA_508-Compliant.pdf). Accessed September 28, 2020.

# 1.0 Introduction

The *Deepwater Horizon* (DWH) oil spill Louisiana Trustee Implementation Group<sup>1</sup> (LA TIG) prepared this Final Phase II Restoration Plan #3.2: Mid-Barataria Sediment Diversion (Final Phase II RP #3.2 or Final RP) to restore the natural resource injuries and losses caused by the April 20, 2010 DWH oil spill and associated oil spill response efforts (collectively, the Incident). Initially addressed in context of restoration for injuries from the DWH oil spill, large-scale sediment diversions were evaluated as a restoration approach in the [Deepwater Horizon Oil Spill: Final Programmatic Damage Assessment and Restoration Plan and Final Programmatic Environmental Impact Statement \(PDARP/PEIS\)](#) (2016). Thereafter, in the 2018 *Strategic Restoration Plan and Environmental Assessment #3: Restoration of Wetlands, Coastal, and Nearshore Habitats in the Barataria Basin, Louisiana* (SRP/EA #3), the LA TIG identified a large-scale sediment diversion project in the Barataria Basin as a restoration technique that should move forward for detailed planning and analysis under the Oil Pollution Act of 1990 (OPA). In SRP/EA #3, the LA TIG considered a range of strategic alternatives that would restore ecosystem-level injuries in the Gulf of Mexico through the restoration of critical wetlands, and coastal and nearshore habitat resources and services in the Barataria Basin. The LA TIG selected a high-level strategic alternative that included a sediment diversion, marsh creation, and ridge restoration projects. In SRP/EA #3, the LA TIG also selected a Mid-Barataria sediment diversion (MBSD<sup>2</sup>) as the specific sediment diversion project to move forward for further analysis. See Section 2.3 for more in-depth discussion of the processes and analyses that led to the LA TIG's selection of this project for further planning.

The concept of using a river diversion to help restore the Barataria Basin has been scoped, evaluated, and discussed with stakeholders since 1984, when the United States Army Corps of Engineers (USACE) published a feasibility report on a river diversion project in the Barataria and Breton Sound basins (USACE, 1984). In 1998, the Louisiana Coastal Wetlands Conservation and Restoration Task Force and the Wetlands Conservation and Restoration Authority proposed several large diversions in the Barataria Basin for marsh and barrier island restoration in a report entitled *Coast 2050: Toward a Sustainable Coastal Louisiana* (Louisiana Coastal Wetlands Conservation and Restoration Task Force and the Wetlands Conservation and Restoration Authority, 1998). The Coastal Wetlands Planning, Protection, and Restoration Act (CWPPRA)

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<sup>1</sup> The LA TIG is the group responsible for restoring natural resources and services within the Louisiana Restoration Area that were injured by the Incident. The LA TIG includes five Louisiana State Trustee agencies and four federal Trustee agencies: the Louisiana Coastal Protection and Restoration Authority (CPRA); the Louisiana Department of Natural Resources; the Louisiana Department of Environmental Quality; the Louisiana Oil Spill Coordinator's Office; the Louisiana Department of Wildlife and Fisheries; the United States Department of Commerce, represented by the National Oceanic and Atmospheric Administration (NOAA); the United States Department of the Interior (DOI), represented by the United States Fish and Wildlife Service (USFWS), the National Park Service (NPS) and the Bureau of Land Management (BLM); the United States Department of Agriculture (USDA); and the United States Environmental Protection Agency (USEPA).

<sup>2</sup> In this document, the term "MBSD" is used to refer to the general concept of a sediment diversion in the Barataria Basin, while the term "Proposed MBSD Project" refers specifically to Alternative 1, the 75,000 cfs capacity diversion evaluated in this RP.

Task Force approved the initiation of a feasibility study in 2001 for the Delta Building Diversion at Myrtle Grove Project (CWPPRA Project BA-33); this study examined a range of diversion capacities, from 2,500 cubic feet per second (cfs) to 15,000 cfs. Concurrently, the USACE prepared a feasibility study for the Louisiana Coastal Area (LCA) Program to identify large-scale ecosystem restoration projects for the Louisiana coast (USACE, 2004) in which projects were evaluated through the use of ecological models; the USACE selected the Medium Diversion at Myrtle Grove as one of five, near-term critical restoration features (USACE, 2004). Due to funding limitations, the CWPPRA Task Force transferred CWPPRA Project BA-33 to the USACE for further study under the LCA Program, where the USACE led a multidisciplinary team to develop hydrodynamic and salinity models of the basin under different diversion scenarios. CPRA also worked with several nongovernmental organizations (NGOs) in 2009 to support additional modeling of the proposed sediment diversion to answer key stakeholder questions about potential project impacts (CPRA, 2011). In 2012, CPRA completed its legislatively mandated development of *Louisiana's Comprehensive Master Plan for a Sustainable Coast* (Coastal Master Plan or CMP), which was unanimously approved by the Louisiana legislature (CPRA, 2012). The CMP was updated and unanimously approved by the Louisiana legislature again in 2017 (CPRA, 2017). The 2017 CMP included a MBSD with a 75,000 cfs capacity. A more detailed history of the MBSD and the associated planning studies and evaluations are provided in Section 3.2.1.4 in this Final RP and in Section 1.2 of the Mid-Barataria sediment diversion Final Environmental Impact Statement (Final EIS).<sup>3</sup>

This Final RP presents the LA TIG's evaluation of a proposed 75,000 cfs capacity Mid-Barataria sediment diversion (i.e., the Proposed MBSD Project) and five alternatives to this project under OPA. This Final RP does not include the National Environmental Policy Act (NEPA) analysis. Under OPA Natural Resource Damage Assessment (NRDA) regulations, Trustees typically choose to combine its RP and the required NEPA analysis into a single document [33 Code of Federal Regulations (CFR) 990.23(a), (c)(2)]. In this case, however, prior to evaluation of the Proposed MBSD Project by the LA TIG as a proposed restoration project under OPA, the USACE initiated scoping for the MBSD Project Environmental Impact Statement (EIS), which was initiated through a permit application for the project by CPRA. To increase efficiency, reduce redundancy, and be consistent with federal policy and Title 40 CFR § 1506.3, the four federal Trustees in the LA TIG (i.e., NOAA, DOI, USEPA, and USDA) decided to participate as cooperating agencies in the development of a single MBSD Final EIS. As the lead agency, the USACE has primary responsibility for preparing the EIS [40 CFR § 1501.5(a)].<sup>4</sup> The LA TIG is relying on the EIS to evaluate potential environmental effects of the restoration alternatives proposed in this Final Phase II RP #3.2. The LA TIG intends to adopt the Final EIS upon signature of a Record of Decision (ROD).

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<sup>3</sup> The Final EIS can be found at <http://www.mvn.usace.army.mil/Missions/Regulatory/Permits/Mid-Barataria-Sediment-Diversion-EIS/>.

<sup>4</sup> The EIS is being prepared using the 1978 Council on Environmental Quality (CEQ) NEPA regulations. In 2020, CEQ revised the 1978 NEPA regulations. Consistent with the 2020 revised CEQ NEPA regulations, NEPA reviews initiated prior to the effective date of the 2020 CEQ regulations (September 14, 2020) may be conducted using the 1978 regulations. Given that the preparation of this EIS began on April 27, 2017, when the Notice of Intent (NOI) to prepare a Draft EIS was published at 82 Federal Register (FR) 19361, USACE has decided to proceed under the 1978 regulations. CEQ has subsequently reconsidered portions of the 2020 revised CEQ regulations and restored key provisions of the 1978 NEPA regulations.

This Final RP provides the public with the LA TIG's evaluation of the Proposed MBSD Project and its alternatives under the requirements of OPA. The Final EIS is a companion to this Final RP and provides the NEPA analysis for the action proposed by the LA TIG. This Final RP is intended to inform decision-makers and members of the public about this proposed restoration action.

## 1.1 Background and Summary of the Settlement

On April 20, 2010, the DWH mobile drilling unit exploded, caught fire, and eventually sank in the Gulf of Mexico, resulting in a massive release of oil from the Macondo well, causing loss of life and extensive natural resource injuries. Initial efforts to cap the well following the explosion were unsuccessful, and for 87 days following the explosion, the well continuously and uncontrollably discharged oil and natural gas into the northern Gulf of Mexico. By the time the well was capped, the resulting ecological impacts were unprecedented in scale: the spill released an estimated 134 million gallons of oil into the Gulf of Mexico ecosystem and created a surface oil slick as large as the State of Virginia (DWH NRDA Trustees, 2016a).

The DWH oil spill occurred within a northern Gulf of Mexico ecosystem where ecological resources and habitats are closely linked: energy, nutrients, and organisms move between habitats in this region, such that injuries to one habitat or species can have cascading impacts across the entire ecosystem (DWH NRDA Trustees, 2016a). As part of the injury assessment for the DWH oil spill, the DWH NRDA Trustees (described below in Section 1.2) documented injuries to species including fish, shellfish, birds, marine mammals, and sea turtles. These injuries ranged from decreased growth rates to reproductive effects and mortality. Many of these injured species depend on the nearshore marsh and estuarine habitats exemplified by those in the Barataria Basin for one or more of their life stages.

On February 19, 2016, the DWH NRDA Trustees issued a Final PDARP/PEIS detailing a programmatic RP to fund and implement restoration across the Gulf of Mexico region in the future as restoration funds became available. That document describes restoration types, approaches, and techniques that meet the Trustees' programmatic restoration goals, as described in the Final PDARP/PEIS. On March 29, 2016, in accordance with OPA and NEPA, the DWH NRDA Trustees published a Notice of Availability (NOA) in the Federal Register (FR) of a Record of Decision (ROD) for the Final PDARP/PEIS (81 FR 17438). Based on the DWH NRDA Trustees' injury determination established in the Final PDARP/PEIS, the ROD sets forth the basis for the DWH NRDA Trustees' decision to select Alternative A: Comprehensive Integrated Ecosystem Alternative. As described in the PDARP/PEIS, "Alternative A is an integrated restoration portfolio that emphasizes the broad ecosystem benefits that can be realized through coastal habitat restoration in combination with resource-specific restoration in the ecologically interconnected northern Gulf of Mexico ecosystem." The DWH NRDA Trustees' selection of Alternative A includes the funding allocations established in the Final PDARP/PEIS.

On April 4, 2016, the United States District Court for the Eastern District of Louisiana entered a Consent Decree resolving civil claims by the DWH oil spill Trustees against BP Exploration and Production Inc. (BP) arising from the DWH oil spill: *United States v. BPXP et al.*, Civ. No. 10-4536, centralized in MDL 2179, *In re: Oil Spill by the Oil Rig "Deepwater Horizon" in the Gulf of Mexico, on April 20, 2010* (E.D. La.). This historic settlement resolved the Trustees' claims against BP for natural resource damages under OPA.



Under the Consent Decree, BP agreed to pay (over a 15-year period) a total of up to \$8.1 billion in natural resource damages (which includes \$1 billion that BP previously committed to pay for Early Restoration projects), and up to an additional \$700 million (some of which is in the form of accrued interest) for adaptive management or to address injuries to natural resources that are presently unknown but may come to light in the future. Each Restoration Area has a specific monetary allocation to each of the 13 Restoration Types specified in the Consent Decree. The DWH settlement funding allocation for the Louisiana Restoration Area by Restoration Type is described in Section 5.10.2 of the PDARP/PEIS and presented below in Table 1-1.

**Table 1-1.**  
**Restoration Funding in Dollars for the Louisiana Restoration Area**

<b>Major Restoration Categories and Restoration Types</b>	<b>Louisiana Restoration Area Funding Allocation (\$)</b>
<b>1. Restore and Conserve Habitat</b>	
Wetlands, Coastal, and Nearshore Habitats	4,009,062,700
Habitat Projects on Federally Managed Lands	50,000,000
<b>2. Restore Water Quality</b>	
Nutrient Reduction (nonpoint source)	20,000,000
<b>3. Replenish and Protect Living Coastal and Marine Resources</b>	
Sea Turtles	10,000,000
Submerged Aquatic Vegetation (SAV)	22,000,000
Marine Mammals	50,000,000
Birds	148,500,000
Oysters	26,000,000
<b>4. Provide and Enhance Recreational Opportunities</b>	
Provide and Enhance Recreational Opportunities	38,000,000
<b>5. Monitoring, Adaptive Management, Administrative Oversight, and Comprehensive Planning</b>	
Monitoring and Adaptive Management (MAM)	225,000,000
Administrative Oversight and Comprehensive Planning	33,000,000

## 1.2 DWH NRDA Trustees, Trustee Council, and Trustee Implementation Groups

The DWH NRDA Trustees are the government entities authorized under OPA to act on behalf of the public to (1) assess the natural resource injuries resulting from the DWH oil spill, and then (2) plan and implement restoration to address those injuries. The DWH NRDA Trustees are responsible for the governance of restoration planning throughout the entire Gulf Coast. The DWH NRDA Trustees organized a Trustee Council composed of designated Natural Resource Trustee Officials, or their alternates, for each of the DWH NRDA Trustee agencies.

The following federal and state agencies are designated DWH NRDA Trustees:

- DOI, as represented by the NPS, USFWS, and BLM
- NOAA, on behalf of the United States Department of Commerce

- USDA
- USEPA
- CPRA, the Louisiana Department of Natural Resources, the Louisiana Department of Environmental Quality, the Louisiana Oil Spill Coordinator's Office, and the Louisiana Department of Wildlife and Fisheries
- Mississippi Department of Environmental Quality
- Alabama Department of Conservation and Natural Resources, and Geological Survey of Alabama
- Florida Department of Environmental Protection, and Florida Fish and Wildlife Conservation Commission
- Texas Parks and Wildlife Department, Texas General Land Office, and Texas Commission on Environmental Quality.

As specified in the Consent Decree and PDARP/PEIS, the DWH NRDA funds were distributed geographically to address the diverse suite of injuries that occurred at both regional and local scales. Specific amounts of money were allocated to seven geographically defined Restoration Areas: each of the five Gulf States (Alabama, Florida, Louisiana, Mississippi, and Texas), Regionwide, and the Open Ocean. The DWH Consent Decree established that each Restoration Area would be governed by a Trustee Implementation Group (TIG). As described in the Consent Decree and specified in the Trustee Council Standard Operating Procedures (SOPs) (DWH NRDA Trustees, 2016b), these TIGs are composed of individual DWH Trustee agency representatives.

TIG members work together to accomplish restoration activities for their respective Restoration Areas, including interacting with the public and stakeholders, and to plan for, select, and implement specific restoration actions under the PDARP/PEIS. Each TIG makes all restoration decisions for the funding allocated to its Restoration Area and ensures that its actions are fully consistent with OPA and NEPA requirements, the PDARP/PEIS, the Consent Decree, and the Trustee Council SOP. The LA TIG oversees restoration planning in the Louisiana Restoration Area.

## 1.3 Authorities and Regulations

### 1.3.1 OPA Compliance and NRDA Evaluation Criteria

As an oil pollution incident, the DWH oil spill is subject to the provisions of OPA, 33 United States Code (USC) § 2701 *et seq.* A primary goal of OPA is to make the environment and public whole for injuries to natural resources and services resulting from incidents involving an oil discharge or substantial threat of an oil discharge. The DWH Trustee Council was established under the authority of OPA.

The NRDA regulations under OPA (15 CFR § 990) establish a process for restoration planning, including the development and evaluation of restoration alternatives and the development of RPs. These OPA NRDA regulations establish criteria for identifying and evaluating restoration alternatives (see Section 3.1). Restoration activities under OPA are intended to return injured natural resources and services to their baseline condition (i.e., primary restoration), and to compensate the public for interim losses from the time of the incident until the time resources

and services recover to baseline conditions (i.e., compensatory restoration). To meet these goals, the restoration activities need to produce benefits that are related to or have a nexus (i.e., connection) to the natural resource injuries and service losses resulting from the spill.

### 1.3.2 Compliance with Other Laws

The selected alternative would be implemented in accordance with all applicable laws and regulations concerning the protection of environmental, cultural, and historical resources. The Proposed MBSD Project's compliance with NEPA, the Marine Mammal Protection Act (MMPA), and Fixing America's Surface Transportation Act (FAST-41) are described below; and compliance with other authorities is discussed in Section 4. Restoration projects must also meet any additional requirements specified in the DWH ROD, such as ensuring that federal environmental compliance responsibilities and procedures follow the *Trustee Council Standard Operating Procedures for Implementation of the Natural Resource Restoration for the Deepwater Horizon (DWH) Oil Spill* (DWH NRDA Trustees, 2016b).

#### 1.3.2.1 NEPA

Federal trustees must comply with NEPA, 42 USC § 4321 *et seq.*, and its implementing regulations (40 CFR Parts 1500–1508) when planning restoration projects, as well as NEPA procedures specific to their own agency. NEPA provides a framework for federal agencies to determine if their proposed actions have significant environmental effects, consider these effects when choosing between alternative approaches, and inform and involve the public in the environmental review process. For major federal actions that would significantly affect the quality of the human environment, NEPA requires federal agencies to prepare a detailed, interdisciplinary EIS that assesses the environmental effects of the actions and alternatives to such actions before deciding whether to undertake them.

In June 2016, CPRA submitted a permit application to the USACE, Mississippi Valley Division, New Orleans District (CEMVN) for the Proposed MBSD Project. In its role as permitting authority under the Clean Water Act (CWA) and the Rivers and Harbors Appropriation Act of 1899, the CEMVN is the lead federal agency in developing an EIS for the Proposed MBSD Project. First evaluated as a restoration approach in the PDARP/PEIS (2016), a large-scale sediment diversion in Barataria Basin was further evaluated in SRP/EA #3. The SRP/EA #3 was prepared concurrent with the USACE initiating the MBSD EIS and focused on evaluating alternatives for strategic restoration of the Barataria Basin. The SRP/EA #3 (Phase I) preferred alternative included a large-scale sediment diversion as a key component of a suite of restoration approaches for the basin, acknowledging that a Phase II evaluation of any specific proposed large-scale sediment diversion would involve the preparation of an EIS. Following from the LA TIG selection of a strategic approach in the basin that incorporated a large-scale sediment diversion, in April 2017, the LA TIG issued a notice that described its decision to support the development of a single MBSD EIS to satisfy NEPA requirements for both the USACE and the LA TIG federal Trustees (see 82 FR 19659). This decision increased public transparency, and provided efficiency and reduced redundancy, by avoiding development of two separate NEPA analyses for the same project. Federal agencies of the LA TIG participated in the development of the EIS as cooperating agencies, and state member agencies participated in the EIS as commenting agencies. The LA TIG intends to rely on the EIS to inform its decision under OPA and to fulfill the requirements of the federal

Trustees under NEPA. Following completion of the Final EIS, the federal Trustees of the LA TIG intend to adopt the Final EIS by signature on a ROD, which will document the LA TIG's decision.

#### 1.3.2.2 MMPA

MMPA compliance for the Proposed MBSD Project has been addressed in accordance with Section 20201 of Title II of Public Law No. 115–123 (the “Bipartisan Budget Act of 2018”), which specifically addresses the Proposed MBSD Project. As directed by the Bipartisan Budget Act of 2018 (Public Law 115-123), NOAA’s National Marine Fisheries Service (NMFS) issued an MMPA waiver for the MBSD, Mid-Breton Sound Sediment Diversion, and Calcasieu Ship Channel Salinity Control Measures Projects (NMFS, 2018a) on March 15, 2018 (NMFS, 2018b). Section 20201 of Title II of Public Law No. 115–123 also requires that the State of Louisiana, in consultation with NMFS: “(1) to the extent practicable and consistent with the purposes of the projects, minimize impacts on marine mammal species and population stocks; and (2) monitor and evaluate the impacts of the projects on such species and population stocks.” Proposed measures developed in recognition of the impacts on marine mammals can be found in Appendices A, B, and C.

#### 1.3.2.3 FAST-41

In addition to the compliance requirements described above, the Proposed MBSD Project has been added to the inventory of “covered projects” pursuant to the requirements set forth in Title 41 of FAST-41. FAST-41 created a new governance structure, set of procedures, and funding authorities to improve the timeliness, predictability, and transparency of the federal environmental review and authorization process for covered infrastructure projects. It works to streamline the permitting process within the structure of existing federal environmental reviews and authorizations. FAST-41 calls for the designation of a lead federal agency and promotes early consultation and enhanced interagency coordination by requiring the development of a project-specific plan and timetable for the completion of environmental reviews and authorizations. As a “covered project,” the Proposed MBSD Project has been placed on the Permitting Dashboard, and each federal agency with a role in the review and authorization of the Proposed MBSD Project has agreed to a coordinated project review schedule, aimed at eliminating redundancy and duplication in the environmental review process, and timely action on all necessary authorization decisions.

#### 1.3.2.4 Other Laws, Regulations, and Permits

Compliance with other federal, state, and municipal laws and regulations is addressed further in Section 4. Before implementation, all necessary state and federal permits, authorizations, and any required consultations will be secured.

## 1.4 Restoration Goals and Objectives

The purpose of restoration, as discussed in this Final RP and detailed more fully in the *Deepwater Horizon Oil Spill: Final Programmatic Damage Assessment and Restoration Plan and Final Programmatic Environmental Impact Statement* (Final PDARP/PEIS; DWH NRDA Trustees, 2016a), is to make the environment and the public whole for injuries resulting from the Incident by implementing restoration actions that return injured natural resources and services to the condition they would have been in but for the spill, and to compensate for interim losses. Restoration actions are undertaken in accordance with OPA and associated NRDA regulations.



The Final PDARP/PEIS noted that “injuries affected such a wide array of linked resources over such an enormous area that the effects of the DWH spill must be described as constituting an ecosystem-level injury.” Because of this ecosystem-level injury, the Trustees’ preferred restoration alternative was a “comprehensive, integrated ecosystem restoration portfolio....” The Trustees further note in the Final PDARP/PEIS that:

[t]his investment of funds particularly focuses on restoring Louisiana coastal marshes as an essential element of the preferred alternative. Given both the extensive impacts to Louisiana marsh habitats and species and the critical role that these habitats play across the Gulf of Mexico for many injured resources and for the overall productivity of the Gulf (Gosselink and Pendleton, 1984), coastal and nearshore habitat restoration is the most appropriate and practicable mechanism for restoring the ecosystem-level linkages disrupted by this spill.

The Proposed MBSD Project in this Final RP provides a critical element of the Trustees’ preferred portfolio for comprehensive, integrated ecosystem restoration in the Final PDARP/PEIS.

The LA TIG developed the goals and objectives for the Proposed MBSD Project through an iterative restoration planning process, beginning with the restoration goals in the Final PDARP/PEIS, then developing SRP/EA #3 for the restoration of habitat and services in the Barataria Basin, and ending with project-specific goals; this is described more fully below.

As described in the Final PDARP/PEIS, the goals for the Wetlands, Coastal, and Nearshore Habitats Restoration Type include the following:

- Restore a variety of interspersed and ecologically connected coastal habitats in each of the five Gulf states to maintain ecosystem diversity, with a particular focus on maximizing ecological functions for the range of resources injured by the spill, such as oysters, estuarine-dependent fish species, birds, marine mammals, and nearshore benthic communities.
- Restore for injuries to habitats in geographic areas where the injuries occurred, while considering approaches that provide resilience and sustainability.
- While acknowledging the existing distribution of habitats throughout the Gulf of Mexico, restore habitats in appropriate combinations for any given geographic area. Consider design factors such as connectivity, size, and distance between projects to address injuries to associated living coastal and marine resources; and restore the ecological functions provided by those habitats.

In SRP/EA #3, the LA TIG considered these Final PDARP/PEIS goals and selected a Mid-Barataria sediment diversion as the specific, large-scale sediment diversion project to move forward immediately for further analysis (LA TIG, 2018c). Large-scale sediment diversions can create significant additional marsh areas; help enhance degraded marshes; and provide necessary sediment, freshwater, and nutrients to maintain both existing and created marshes. The LA TIG noted that the Mid-Barataria sediment diversion has been included in the Coastal Master Plan and has been the subject of long discussions among experts as one of the most promising potential diversions in terms of its potential to create and help sustain marsh/wetlands complexes on an

ecosystem scale. The CMP is the State of Louisiana’s publicly vetted and scientifically founded approach to coastal restoration, which includes the goal of promoting sustainable ecosystems – a goal compatible with overall Final PDARP/PEIS goals.

By re-establishing deltaic processes, the biological, chemical, and physical processes in the formation of a river delta, the Proposed MBSD Project is expected to enhance the ecological productivity of the estuary and improve food web dynamics that would provide benefit to the northern Gulf of Mexico ecosystem. The Proposed MBSD Project is critical to achieving the overall goals of the Wetlands, Coastal, and Nearshore Habitats Restoration Type in the Final PDARP/PEIS, which include providing benefits across the interconnected northern Gulf of Mexico ecosystem, and placing particular emphasis on coastal and nearshore habitat restoration in the historical Mississippi River delta plain in Louisiana.

The Proposed MBSD Project-specific statement of purpose and need is:

To restore for injuries caused by the DWH oil spill by implementing a large-scale sediment diversion in the Barataria Basin that will reconnect and re-establish sustainable deltaic processes between the Mississippi River and the Barataria Basin through the delivery of sediment, freshwater, and nutrients to support the long-term viability of existing and planned coastal restoration efforts. The proposed project is needed to help restore habitat and ecosystem services injured in the northern Gulf of Mexico as a result of the DWH oil spill.

Consistent with this statement of purpose and need, the LA TIG identified the following specific restoration goals and objectives for the Proposed MBSD Project:

- Deliver freshwater, sediment, and nutrients to the Barataria Basin through a large-scale sediment diversion from the Mississippi River.
- Reconnect and re-establish sustainable deltaic processes between the Mississippi River and the Barataria Basin (e.g., sediment retention and accumulation, new delta formation).
- Create, restore, and sustain wetlands and other deltaic habitats and associated ecosystem services.

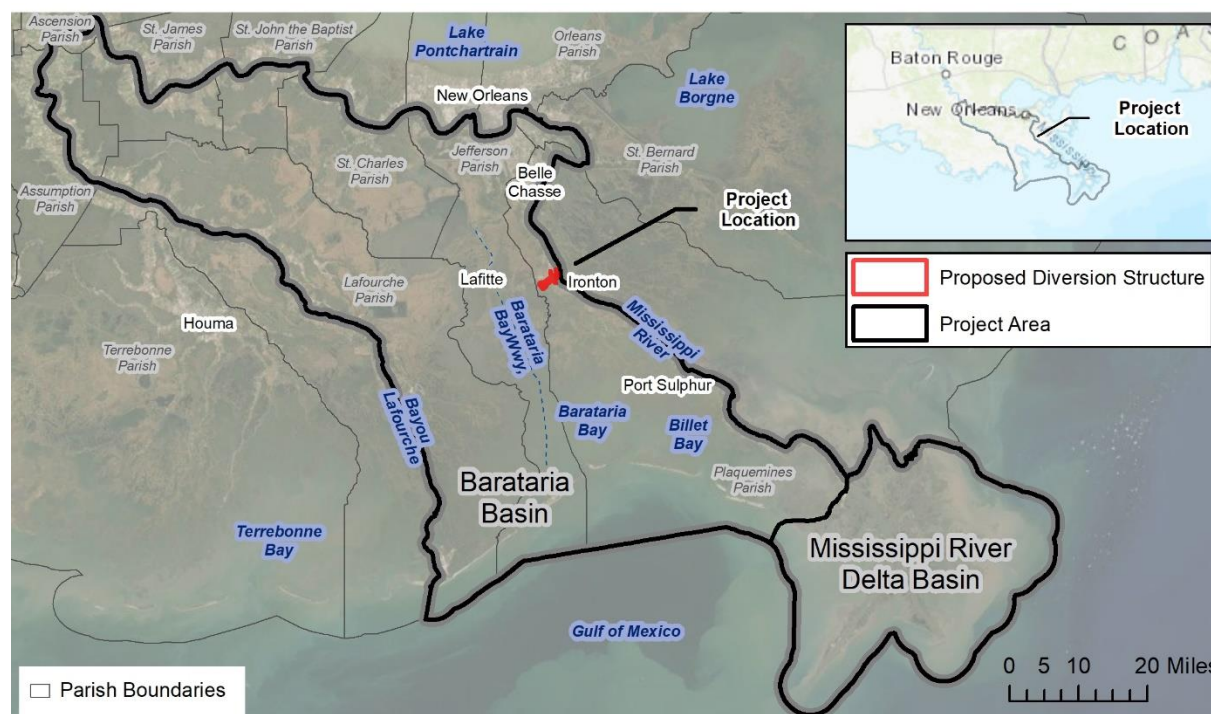
## 1.5 Alternatives Evaluated in this Plan

This Final RP evaluates a large-scale, 75,000 cfs capacity<sup>5</sup> sediment diversion in the Mid-Barataria Basin (referred to in this plan as the Proposed MBSD Project), as well as five alternatives for this project. The alternatives for the Proposed MBSD Project are all focused on the same geographical location and have similar structural features, but the alternatives vary in size and maximum flows that can pass through the diversion, as well as the use of marsh terracing; consequently, their potential benefits and impacts also vary.

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<sup>5</sup> The actual flow rate through the diversion would depend on the flow of the Mississippi River; more details about diversion operation under the Proposed MBSD Project are provided in Section 3.2.1.

The structural features of the Proposed MBSD Project and its alternatives are located in south Louisiana on the west bank of the Mississippi River at River Mile (RM) 60.7, just north of the Town of Ironton. The anticipated outfall area for sediment, freshwater, and nutrients conveyed from the river is located within the Mid-Barataria Basin (see Figure 1-1). The area of the Proposed MBSD Project and its alternatives includes the hydrologic boundaries of the Barataria Basin and the lower Mississippi River Delta Basin, also known as the birdfoot delta. The Mississippi River itself, beginning near RM 60.7 and extending to the mouth of the river, is also included in the Proposed MBSD Project area. Further detailed information regarding the features of the Proposed MBSD Project and its alternatives can be found in Chapters 2 and 3 of the Final EIS (USACE, 2022).



**Figure 1-1. Location of Proposed MBSD Project Area.** [Includes the Barataria Basin, the western portion of the lower Mississippi River Delta Basin (i.e., the birdfoot delta), the Mississippi River from RM 60.7 to the mouth, and a portion of the northern Gulf of Mexico]

The Proposed MBSD Project and its alternatives consist of a controlled sediment and freshwater intake diversion structure in Plaquemines Parish on the right-descending bank of the Mississippi River at RM 60.7. The Proposed MBSD Project and its alternatives would reconnect and re-establish sustainable deltaic processes between the Mississippi River and the Barataria Basin through a conveyance system that would discharge sediment, freshwater, and nutrients from the Mississippi River into the outfall area within the Mid-Barataria Basin in Plaquemines and Jefferson parishes (see Figure 1-2). The Proposed MBSD Project and its alternatives would support the long-term viability of existing and planned coastal restoration efforts, and enhance productivity and the food web, benefitting the northern Gulf of Mexico ecosystem.

The Proposed MBSD Project and its alternatives include a diversion operations plan that specifies conditions for the diversion to be opened and closed (see Chapter 2 and the Final EIS for more details). Construction would require a minimum of three to five years to complete, depending on the extent of needed ground modifications and soil stabilization measures.

In this Final RP, the Proposed MBSD Project and five alternatives are evaluated under OPA NRDA regulations (Table 1-2). As described in more detail in Chapter 3, the Proposed MBSD Project (Alternative 1) and Alternatives 2 and 3 vary by the maximum flow through the diversion, ranging from 50,000 cfs to 150,000 cfs; and Alternatives 4–6 include marsh terrace outfall features (Table 1-2). All of the proposed alternatives include a base flow of up to 5,000 cfs to help moderate and stabilize seasonal fluctuations in salinity that could negatively affect certain marsh areas and types; modeling suggested that a base flow with a maximum of 5,000 cfs would be sufficient to moderate seasonal salinities within the outfall area and immediately adjacent marshes (USACE, 2022, Section 2.4.3.3).

**Table 1-2.**  
**Summary of Proposed Restoration Alternatives Evaluated in this Final RP**

Proposed Restoration Alternatives	Maximum Flow-Through Diversion	Flow in Mississippi River Needed to Trigger Maximum Flow-Through Diversion <sup>a</sup>	On/Off Trigger for Full Diversion Operations <sup>a, b</sup>	Maximum Base Flow <sup>c</sup>	Outfall Features
1	75,000 cfs	≥ 1,000,000 cfs	450,000 cfs	Up to 5,000 cfs	Outfall transition feature (OTF)
2	50,000 cfs	≥ 1,000,000 cfs	450,000 cfs	Up to 5,000 cfs	OTF
3	150,000 cfs	≥ 1,000,000 cfs	450,000 cfs	Up to 5,000 cfs	OTF
4–6 (Alternatives 1, 2, or 3 with marsh terracing)	75,000 cfs, 50,000 cfs, and 150,000 cfs	≥ 1,000,000 cfs	450,000 cfs	Up to 5,000 cfs	OTF plus marsh terracing

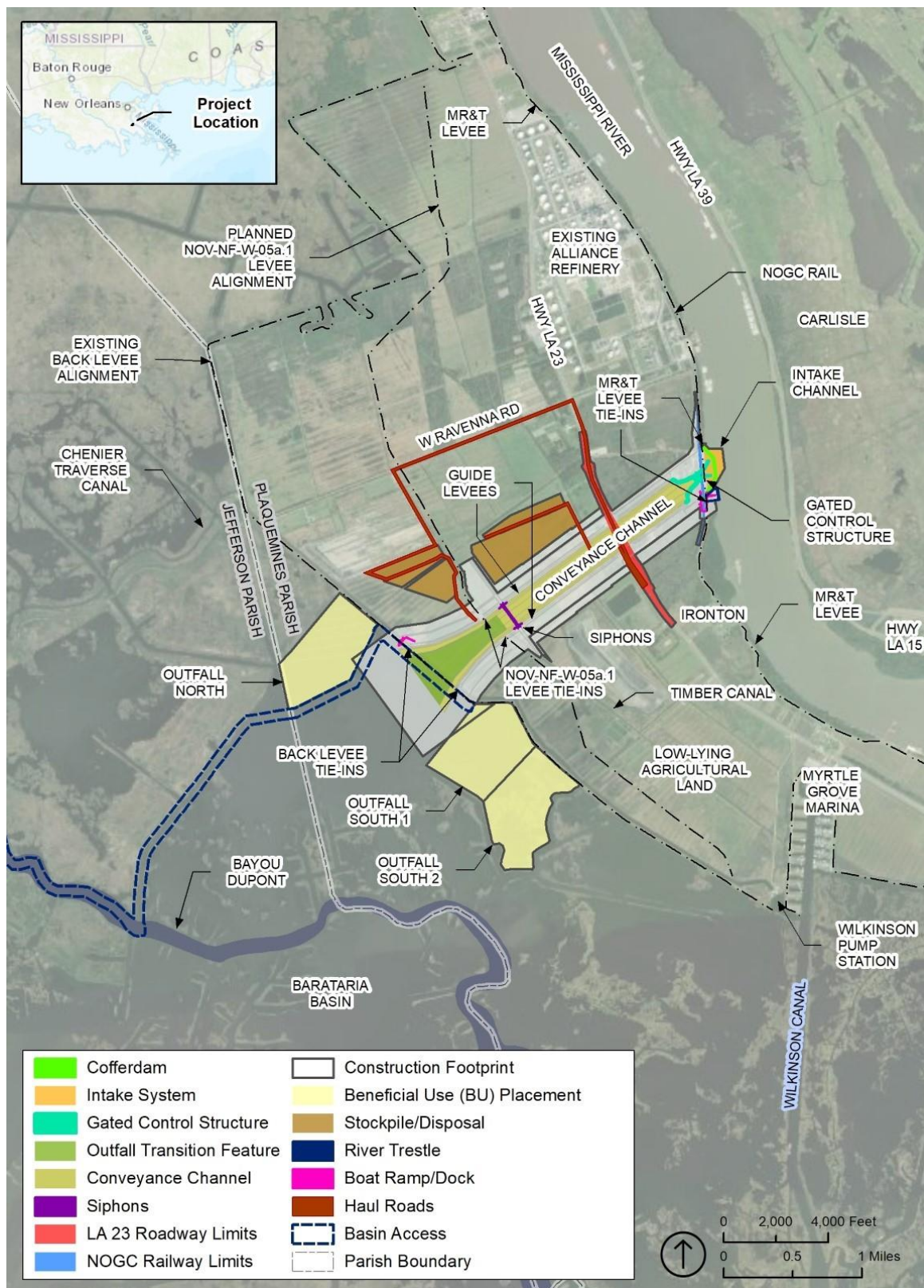
<sup>a</sup> Flow measured at Belle Chasse gauge.

<sup>b</sup> Trigger of opening from and closing to base flow.

<sup>c</sup> Depending on river flow and head differential.

Alternative 1 would have a maximum diversion flow of 75,000 cfs, which would occur when the Mississippi River gauge in Belle Chasse reaches 1,000,000 cfs or higher. The diversion would operate at up to 5,000 cfs (base flow) when the river is below 450,000 cfs at Belle Chasse; at river flows above 450,000 cfs, the diversion would be opened fully, allowing flows beginning at approximately 25,000 cfs and maxing out at 75,000 cfs when the river reaches 1,000,000 cfs (see Table 1-2). Alternative 2 would have a maximum diversion flow of 50,000 cfs, while Alternative 3 would have a maximum diversion flow of 150,000 cfs. Alternatives 2 and 3 would be operated with the same on/off triggers and base flows described for Alternative 1 (Table 1-2).





**Figure 1-2. Design Features and Construction Footprint of the Proposed MBSD Project and Its Alternatives.** NOGC = New Orleans and Gulf Coast Railway, NOV-NFL = New Orleans to Venice Non-Federal Levee.

Alternatives 4–6 are similar to Alternatives 1–3, respectively, but also would include marsh terrace outfall features. The terraces would be chevron or “v” shaped, and oriented toward the discharge current from the diversion. The marsh terrace features would aid in overall sediment retention, would help protect newly deposited sediment from erosion, and would be designed to avoid interfering with the ability of the basin to receive diversion flows. The alternatives are discussed further and evaluated in Chapter 3 of this Final RP.

For all alternatives, when the diversion is operating above base flow, the flow rate would be controlled by the difference in water surface elevation between the Mississippi River and the Barataria Basin (the “head differential”). When the Mississippi River flow and water level are high, this high head differential would push a higher volume of water and sediment through the diversion into the Barataria Basin. When the Mississippi River flow and water level are low, there would be less energy to push water and sediment through the diversion. When the water surface elevations in the Mississippi River and Barataria Basin are such that there would be a negative head differential, the diversion gates would be closed to avoid backwatering.

The Proposed MBSD Project and its alternatives also include a MAM Plan and a Mitigation and Stewardship Plan (see Appendices A and B, respectively), both of which have been revised in response to public comments. The Project also now includes a Marine Mammal Intervention Plan, which was developed in response to public comments (Appendix C). These plans serve as an integral part of the proposed restoration action. The MAM Plan (Appendix A) includes (1) methods for specific types of monitoring, (2) key performance measures/indicators for assessing the success of the Proposed MBSD Project in meeting its objectives, and (3) decision criteria and processes for modifying (“adapting”) current or future management actions. The Mitigation and Stewardship Plan (Appendix B) includes actions to help to address collateral impacts of construction and operation of the Proposed MBSD Project. The Marine Mammal Intervention Plan (Appendix C) outlines a spectrum of potential response actions for dolphins affected by the operation of the diversion, ranging from recovery/relocation to no intervention to euthanasia. As part of the project, CPRA will have responsibility for ensuring implementation of the measures outlined in each of these Appendices.

## 1.6 No-Action Alternative

As required by OPA NRDA regulations, the Final PDARP/PEIS considers a “natural recovery alternative in which no human intervention would be taken to directly restore injured natural resources and services to baseline” [15 CFR § 990.53(b)(2)]. Under a natural recovery alternative (i.e., No-Action Alternative), the Trustees would not perform any additional restoration to accelerate the recovery of injured natural resources or to compensate for lost services. The Trustees would allow natural recovery processes to occur, which would result in one of four outcomes for the injured resources: (1) gradual recovery, (2) partial recovery, (3) no recovery, or (4) further deterioration. Although injured resources could presumably recover to baseline or near baseline conditions under this scenario, recovery would take much longer compared to a scenario in which restoration actions were undertaken. The Final PDARP/PEIS (DWH NRDA Trustees, 2016a, page 5-92) notes that interim losses of natural resources, and the services that natural resources provide, would not be compensated under a No-Action Alternative. Given that technically feasible restoration approaches are available to compensate



for interim natural resource and service losses, the Trustees rejected the No-Action Alternative from further OPA evaluation in the Final PDARP/PEIS.

In SRP/EA #3, the LA TIG noted that the loss of deltaic processes in this estuarine ecosystem has resulted in a steady decline in the health of natural resources in the Barataria Basin, which is indicated by metrics such as decreased plant health, high rates of erosion, and higher salinities farther north in the basin (McKee et al., 2004; Alber et al., 2008; Wilson and Allison, 2008; Couvillion et al., 2011; Silliman et al., 2012, 2016; Khanna et al., 2013; McClenachan et al., 2013; Zengel et al., 2014, 2015; Rangoonwala et al., 2016; Turner et al., 2016; Beland et al., 2017). Further, the coastal habitats of the northern Gulf of Mexico support resources throughout the Gulf (Gunter, 1967; Nixon, 1980; Boesch and Turner, 1984; Baltz et al., 1993; Houde and Rutherford, 1993; Deegan et al., 2002). Thus, for the wetlands, coastal, and nearshore habitats in the Barataria Basin that are the focus of this Final RP, the LA TIG concluded that a No-Action Alternative would result in further deterioration of injured resources within and beyond the Barataria Basin.

Based on these determinations, tiering this Final RP from the Final PDARP/PEIS and SRP/EA #3, and incorporating those analyses by reference, the LA TIG did not further evaluate natural recovery as a viable alternative under OPA. For these reasons, the LA TIG rejects the No-Action Alternative as a viable means of compensating the public for the injuries to natural resources, lost recreational use, and water quality injuries caused by the DWH oil spill; and natural recovery is not considered further in this Final RP.

NEPA requires consideration of a No-Action Alternative in EISs [40 CFR § 1502.14(c)]. This No-Action Alternative may be used as a basis for comparison of the potential environmental consequences of the action alternatives(s). Therefore, “no action” is evaluated as an alternative in the MBSD EIS. While the LA TIG has rejected the No-Action-Alternative for this Final RP, the OPA analysis provided in Chapter 3 integrates information about the EIS No-Action Alternative because it provides a baseline against which the benefits and collateral injuries of the Proposed MBSD Project and alternatives can be compared.

## 1.7 Coordination with Other Gulf Restoration Programs

As discussed in the Final PDARP/PEIS (Section 1.5.6), the DWH NRDA Trustees are committed to coordinating with other Gulf of Mexico restoration programs to maximize the overall ecosystem impact of DWH NRDA restoration efforts. During the course of the restoration planning process, the LA TIG has coordinated and will continue to coordinate with other DWH oil spill and Gulf of Mexico restoration programs, including the Resources and Ecosystems Sustainability, Tourist Opportunities, and Revived Economies of the Gulf Coast States Act (RESTORE Act), as implemented by the Gulf Coast Ecosystem Restoration Council, the Gulf Environmental Benefit Fund (GEBF) managed by the National Fish and Wildlife Foundation (NFWF), and other state and federal restoration funding sources.

The LA TIG reviews the implementation of projects in other coastal restoration programs to create synergies, where feasible, with those programs to ensure the most effective use of available funds for maximum coastal ecosystem benefit. This coordination ensures that funds are allocated for critical restoration projects across the affected regions of the Gulf of Mexico and within appropriate coastal Louisiana areas. The LA TIG will continue to collaborate and partner

with other restoration programs to maximize cost savings and restoration benefits to the resources in coastal Louisiana that were injured by the DWH oil spill.

In Louisiana, for example, CPRA partnered with GEBF to accelerate the planning of sediment diversion projects. This funding also included an Independent Technical Review of the diversion planning effort and a Diversion Advisory Panel. GEBF funding also allowed CPRA to accelerate the engineering and design (E&D) of the Proposed MBSD Project identified in SRP/EA #3 at a cost of approximately \$118 million, which is currently under way. This GEBF funding has reduced the total amount of funding that the LA TIG needs to plan for and implement the Proposed MBSD Project.

In addition, GEBF funding has been used in the Barataria Basin to:

- Accelerate the engineering, design, and construction; and monitor Increment II of the Caminada Headland Restoration Project (CWPPRA Project BA-143) at a cost of approximately \$146 million. To date, this is the largest restoration project ever undertaken by CPRA. Construction was completed in early 2017 and monitoring of the project is ongoing.
- Improve adaptive management of river diversions and barrier islands in the Barataria Basin through the implementation of the System-Wide Assessment and Monitoring Program and the Barrier Island Comprehensive Monitoring Program.

In the Barataria Basin, funds from the RESTORE Act have been used to:

- Commence E&D of the West Grand Terre Beach Nourishment and Stabilization Project at a cost of approximately \$7.3 million. These barrier islands were heavily impacted by the DWH oil spill. This project, once fully implemented, will restore and enhance dune and back-barrier marsh habitats on the key barrier island of West Grand Terre to provide storm surge and wave attenuation, thereby addressing Gulf shoreline erosion, diminished storm surge protection, and the subsidence of back-barrier marshes.
- Develop a large-scale program to build the technical knowledge base needed to develop a plan that moves the Nation toward a more holistic management scheme for the lowermost Mississippi River, which seeks to both enhance the great economic value of the river while also elevating the importance of ecological maintenance and restoration of the landscape through which it flows, at a cost of approximately \$9.3 million. This planning effort will advance the science developed under the Louisiana Coastal Area Mississippi River Hydrodynamic and Delta Management Study to form the foundation for any future river management analysis by creating an integrated science-based management strategy for the lower Mississippi River to improve navigation, reduce flood risk, and provide for a more sustainable deltaic ecosystem.
- Implement the Jean Lafitte Canal Backfilling Project at a cost of approximately \$8.7 million. Canals constructed to access well sites and pipelines constructed on lands that ultimately became the Jean Lafitte National Historical Park and Preserve

resulted in wetland loss, groundwater and surface water alteration, saltwater intrusion, and soil compaction; and contributed to the introduction and spread of invasive species. NPS will restore freshwater wetland and shallow water habitats, and improve hydrologic exchange and aquatic organism access between these remnant canals (16.5 miles) and adjacent wetland areas by using material from spoil banks to fill the canals and thereby removing a barrier inhibiting this exchange.

The DWH NRDA Trustees implemented several projects in the Barataria Basin beginning in 2014 under the Early Restoration framework agreement with BP<sup>6</sup>:

- Louisiana Oyster Cultch Project: this project involved (1) the placement of oyster cultch onto public oyster seed grounds throughout coastal Louisiana, but specific to the Barataria Basin, along public oyster seed grounds in Hackberry Bay; and (2) the construction of an oyster hatchery facility in Grand Isle. The Trustees received approximately \$14.8 million for the implementation of this project.
- Lake Hermitage Marsh Creation Project: this project created approximately 104 acres (ac) of new brackish marsh in the Barataria Basin using hydraulically dredged sediment. The 104-ac fill area was also planted with native marsh vegetation to accelerate the benefits of the project. The Trustees received approximately \$13.2 million for the implementation of this project.
- Louisiana Outer Coast Project: this project involved the restoration of beach, dune, and back-barrier marsh habitats; as well as improving habitat for brown pelicans, terns, skimmers, and gulls at four barrier islands in Louisiana. Specific to the Barataria Basin, this project included the restoration of Chenier Ronquille and Shell Island. (The project also includes the restoration of North Breton Island in the Breton Sound Basin and Caillou Lake Headlands in the Terrebonne Basin.) The Trustees received approximately \$318.4 million for the implementation of this project.

As part of the post-settlement process, the LA TIG produced several DWH RPs, which have resulted in the approval of over \$1 billion in restoration projects, including MAM activities, since 2016<sup>7</sup>:

- Final Restoration Plan #1: Restoration of Wetlands, Coastal, and Nearshore Habitats; Habitat Projects on Federally Managed Lands; and Birds. In this RP, the LA TIG selected six restoration projects to proceed with E&D activities (Phase I) and evaluated design alternatives for construction of these projects (Phase II).
- *Final Restoration Plan and Environmental Assessment #2: Provide and Enhance Recreational Opportunities*. This RP and Environmental Assessment (EA) describes

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<sup>6</sup> Additional information about restoration project planning, environmental compliance, and outreach for all projects led by Louisiana's Trustees is available at <http://www.gulfspillrestoration.noaa.gov/restoration-areas/louisiana>.

<sup>7</sup> For additional information about the LA TIG DWH RPs, see <https://la-dwh.com/restoration-plans/> or <https://www.gulfspillrestoration.noaa.gov/restoration-areas/Louisiana>.

and selects projects intended to restore for lost recreational use opportunities caused by the Incident.

- Strategic Restoration Plan and Environmental Assessment #3: Restoration of Wetlands, Coastal, and Nearshore Habitats in the Barataria Basin, Louisiana. This RP and EA, which is described in more detail above, analyzes strategic restoration alternatives associated with the restoration of wetlands, coastal, and nearshore habitat resources and services in the Barataria Basin, which were heavily impacted by the Incident.
- *Final Restoration Plan and Environmental Assessment #4: Nutrient Reduction (Nonpoint Source) and Recreational Use.* This RP and EA describes and proposes restoration project alternatives that the LA TIG considered to improve water quality by reducing nutrients from nonpoint sources and to compensate for recreational use services lost as a result of the Incident.
- *Final Restoration Plan and Environmental Assessment #5: Living Coastal and Marine Resources (LCMR) – Marine Mammals and Oysters.* This RP and EA describes and proposes marine mammal and oyster projects to replenish and protect living coastal and marine resources in the Louisiana Restoration Area.
- *Final Restoration Plan and Environmental Assessment #6: Restore and Conserve Wetlands, Coastal, and Nearshore Habitats.* This RP and EA describes and proposes three projects to create or restore marsh, beach, and dune habitats; and protect shoreline habitat.
- *Final Restoration Plan and Environmental Assessment #7: Wetlands, Coastal, and Nearshore Habitats and Birds.* This RP and EA includes three proposed wetlands, coastal, and nearshore habitat projects [one project being selected to proceed with E&D activities (Phase I) and two projects selected for construction (Phase II)]; and two bird restoration projects, both of which were selected to proceed with E&D activities (Phase I).
- *Final Restoration Plan and Environmental Assessment #8: Wetlands, Coastal and Nearshore Habitats.* This RP and EA proposes four projects, including two marsh creation and ridge restoration projects, an E&D project that would be used for marsh creation, and an E&D project that would be used to support beach, dune, supratidal, intertidal, and subtidal habitat restoration.

## 1.8 Public Participation

Public input is an integral part of NEPA, OPA, and the DWH oil spill restoration planning efforts. The purpose of public reviews is to facilitate public discussion regarding restoration project alternatives, allow the Trustees to solicit and consider public comments, and ensure that the final plans consider relevant issues. Described below are public engagement and outreach by the DWH NRDA Trustees related to the PDARP/PEIS and SRP/EA #3, concurrently by USACE and the LA TIG related to the Draft EIS and Draft RP, and by CPRA related to the Proposed MBSD Project.

### 1.8.1 PDARP/PEIS and SRP/EA #3 Public Engagement and Outreach

The DWH NRDA Trustees conducted an extensive public outreach process as part of the development of the PDARP/PEIS<sup>8</sup> and SRP/EA #3. Pursuant to the PDARP/PEIS (82 FR 19659), the LA TIG published Notice of Intent (NOI) to prepare the Draft SRP/EA #3 for the Barataria Basin in Louisiana in April 2017. Upon releasing the Draft SRP/EA #3, the LA TIG made it available for public review and comment for 45 days and held a public meeting to further solicit input. After review, consideration, and response to public comments, the Final SRP/EA #3 was completed in March 2018.

### 1.8.2 Public Outreach Associated with the RP and EIS

NEPA regulations require input from the public, stakeholders, and government agencies throughout the EIS development process, which is consistent with the OPA NRDA planning process outlined in 40 CFR § 990.23(c)(1)(ii). CEMVN published an initial NOI to prepare an EIS for the MBSD in the FR on October 4, 2013.<sup>9</sup> Thereafter, on April 27, 2017, CEMVN published a Supplemental NOI in the FR to initiate the EIS process, including initiating the public scoping process for the EIS. Concurrent with the CEMVN's NOI for the EIS, the LA TIG issued a NOI regarding the MBSD Restoration Plan on April 28, 2017 (82 FR 19659).

CEMVN provided official public notice of scoping meetings and announced the 60-day formal public scoping period on July 5, 2017. Scoping meeting dates and locations were published in local newspapers (i.e., *Plaquemines Gazette*, *The Times Picayune*, and *The Advocate*), and press releases were issued on July 4, 5, 11, 14, and 17, 2017. Three public scoping meetings were held in Lafitte, Belle Chasse, and Port Sulphur on July 20, 25, and 27, 2017, respectively; over 300 residents attended these meetings.

#### 1.8.2.1 Public Comments on the Draft RP and Draft EIS

The LA TIG and CEMVN coordinated a public review process for both the Draft RP and the related Draft EIS.<sup>10</sup> A Notice of Availability (NOA) for the Draft EIS was published in the FR on March 5, 2021. Concurrent with the CEMVN's NOA for the Draft EIS, the LA TIG issued an NOA in the FR for the Draft RP on March 5, 2021 (86 FR 12915) and in the Louisiana Register on February 20, 2021 (Louisiana Register, 2021). The NOAs encouraged all interested persons and organizations to review the Draft EIS and Draft RP and to submit any comments regarding the Proposed MBSD Project, the Draft EIS, and/or Draft RP. The Public NOA of the Draft EIS and Draft RP and

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<sup>8</sup> The process for PDARP/PEIS public outreach is described more fully in Chapter 8 of the PDARP/PEIS, available at <https://www.gulfspillrestoration.noaa.gov/restoration-planning/gulf-plan>. More discussion on public outreach and involvement can also be found in previous phases of DWH NRDA restoration, including in the Early RPs, available at <http://www.gulfspillrestoration.noaa.gov/restoration/early-restoration>.

<sup>9</sup> Following receipt of a Department of the Army permit application for the Proposed MBSD Project from CPRA, CEMVN developed a coordinated project plan, per the requirements of FAST-41, and made it available on the Permitting Dashboard and CEMVN websites on March 17, 2017.

<sup>10</sup> The public review period for the USACE MBSD Draft EIS ran concurrent with public review of the Draft RP. All public meetings and materials were coordinated such that materials about both the Draft RP and the Draft EIS were presented in the same meeting. Complete information on public commenting opportunities for the USACE MBSD Draft EIS is available at <http://www.gulfspillrestoration.noaa.gov/restoration-areas/louisiana>.

notification of the public meetings was emailed to all individuals and stakeholders on the USACE Project mailing lists. Public meetings were also advertised in the New Orleans Advocate on March 5, 2021, and the Plaquemines Gazette on March 9, 2021. Additional details regarding the public meetings were advertised in the New Orleans Advocate on March 21 and 28, 2021, and the Plaquemines Gazette on March 23 and 30, 2021. Portions of the public notice were translated to Spanish and Vietnamese.

The initial 60-day public review and comment period established by the NOAs for the Draft EIS and Draft RP began on March 5, 2021, and was proposed to end on May 4, 2021. However, the 60-day public comment period was extended by an additional 30 days (for a total of 90 days) to June 3, 2021. All comments submitted electronically, orally, by voice mail, or by mail via the U.S. Postal Service on or before June 3, 2021 were considered.

The Draft EIS and supporting documents were available for public review on the USACE Project website at: <http://www.mvn.usace.army.mil/Missions/Regulatory/Permits/Mid-Barataria-Sediment-Diversion-EIS/>, or upon request. The Draft RP and supporting documents were available at: <https://www.gulfspillrestoration.noaa.gov/restoration-areas/louisiana>. Printed copies of the Draft EIS and the Draft RP were provided for public review at eight public libraries in Belle Chasse, Buras, Cut Off, Harvey, Lafitte, New Orleans, Paradis, and Port Sulphur. At these same locations, the Executive Summary for both the Draft EIS and the Draft RP summarizing the details of the documents into a concise, easy-to-read, document were available in English, Spanish, and Vietnamese. The LA TIG also distributed hard copies of the Draft RP and executive summaries in Vietnamese and Spanish, as well as USB drives with these same documents on them, to additional repositories listed in Section 8 of this RP. Individuals wishing to view hard copies of the Draft EIS and Draft RP were advised to contact the locations regarding viewing hours and COVID-19 restrictions.

USACE and the LA TIG coordinated with the Southeast Louisiana VOICE (Voices of Impacted Communities and Environments) organizations to understand the needs of the local communities, including Indigenous communities, regarding the best ways to reach out to these communities prior to the release of the Draft EIS and the Draft RP and during the public comment period. Recommendations for where to make the Draft EIS and the Draft RP available, as well as translation of material related to the Draft EIS and RP, were implemented. Spanish, Vietnamese, and Khmer translators interpreted the meeting and comments in real time during the public meetings. USACE engaged with community groups to distribute information and materials about the Proposed MBSD Project. CPRA also engaged with communities that would be affected.

The public was invited to comment on the proposed MBSD Draft EIS and the Draft RP in any of the following ways:

- Electronic comments at: <https://parkplanning.nps.gov/MBSD>
- Electronic comments via email at: CEMVN-Midbarataria@usace.army.mil
- Written comments by mail to: U.S. Army Corps of Engineers, New Orleans District



- Oral comments via the toll-free phone number at: 866-211-9205
- Oral or written comments during any of the virtual public meetings held on April 6, 7, and 8, 2022.

These various methods were available to accept comments from the public at any time during the public review and comment period timeframe. Any comments received in other languages were translated into English by interpreters. Comments only needed to be submitted via one of these methods to become part of the record. All comments submitted were reviewed by both the CEMVN and the LA TIG and considered as part of their respective decision-making processes.

#### 1.8.2.2 Jointly Held Public Meetings

The CEMVN and LA TIG jointly conducted three public meetings to solicit comments on the Draft EIS and Draft RP on April 6, April 7, and April 8, 2021, and 9 a.m., 1 p.m., and 6 p.m., respectively. Due to COVID-19 related restrictions in place at the time, the meetings were held virtually using an internet/web-based conferencing application and/or via phone line. Language interpretation and translation in Spanish, Vietnamese, and Khmer were provided at each of the virtual public meetings.

At the beginning of the public comment period, CEMVN posted to its Project webpage several pre-recorded videos consisting of an explanation of how to comment on the Draft EIS and/or Draft RP, an update on the Proposed MBSD Project design, information concerning the ongoing restoration planning efforts and the Draft RP, and details about how to navigate and review the contents of the Draft EIS on [CEMVN's Project webpage](#). These presentations were consolidated and played at the beginning of each of the three public meetings. This consolidated pre-recorded presentation was also translated into Spanish, Vietnamese, and Khmer and available on the Project webpage. In addition, dedicated toll-free numbers were provided during the public comment period on the Draft EIS and Draft RP through which Spanish, Vietnamese, and Khmer-speaking individuals could listen to the translated pre-recorded presentation rather than watching the presentation on a computer.

Representatives from the CEMVN listened to public comments regarding the Draft EIS during each of the three virtual public meetings. Similarly, representatives from the LA TIG agencies including CPRA, NOAA, the DOI, the USEPA, and the USDA, listened to public comments regarding the Draft EIS and Draft RP during each of the three virtual public meetings. Webinar panel members provided clarifications and information during the public comment portion of the webinar.

Interested parties that were unable to participate in the virtual public meetings could access recordings of the virtual meeting webinars, the pre-recorded video presentations (in English, Vietnamese, Spanish, and Khmer), the Draft EIS, a link to the Draft RP, written transcripts of the public meetings, and additional information on the Proposed MBSD Project on CEMVN's Project webpage at: <http://www.mvn.usace.army.mil/Missions/Regulatory/Permits/Mid-Barataria-Sediment-Diversion-EIS/>.

### 1.8.2.3 Virtual Community Conversations

In addition to the official public meetings regarding the Draft RP and Draft EIS, the LA TIG, CPRA, and the Environmental Law Institute partnered to host dialogues—facilitated by the Restore the Mississippi River Delta—to provide information on the Proposed MBSD Project.

These virtual meetings provided the public with an informal opportunity to learn and ask questions about the project and the permitting process. CPRA and other LA TIG members guided participants through the Draft EIS and Draft RP. They also discussed how participants can participate in the upcoming formal public meetings and submit formal public comments.

These meetings were not an opportunity to comment publicly on the Draft RP and Draft EIS. These virtual community conversations were a chance to better understand the two documents and the Proposed MBSD Project through a dialogue with the participating organizations.

These meetings were held on March 22, March 23, April 20, and May 25, 2021. Recordings of these conversations were posted on the LA TIG's website (see <https://www.gulfspillrestoration.noaa.gov/2021/03/louisiana-trustees-see-comments-proposed-mid-barataria-sediment-diversion>).

### 1.8.3 CPRA Public Engagement

Public engagement has been a vital element of developing the Proposed MBSD Project and the mitigation and stewardship measures that would be implemented concurrent with the Project, if the Project is approved and funded. Between 2016 and the issuance of the Final EIS, CPRA participated in outreach and engagement activities across coastal Louisiana to encourage community members, local leaders, and the general public to engage in conversations about the proposed Project and to solicit feedback on CPRA's Mitigation and Stewardship Plan (Appendix B). These public involvement efforts included CPRA's Coastal Connections events held throughout the Project area, CPRA's outreach to communities and groups projected to be impacted by the Project, including communities with environmental justice concerns, and CPRA's outreach to local governments and local government officials.

CPRA held over 30 Coastal Connections meetings across coastal Louisiana, including in Belle Chasse, Braithwaite, Empire, Ironton, Lafitte, Myrtle Grove, Phoenix, and Port Sulphur. The meetings were hosted in a variety of venues, including auditoriums, libraries, camps, bait shops, and restaurants to ensure accessibility and encourage participation. Information about these meetings was shared through various communication channels, including social media, email-blasts, and CPRA's sediment diversion program website (<https://coastal.la.gov/our-work/key-initiatives/diversion-program/>), as well as outreach to NGOs, local governments, and other community leaders.

CPRA met with fishers and industry representatives by hosting Coastal Connections events with specific industries or fisheries, and by attending the oyster, shrimp, and/or crab task force meetings. For example, in 2017, the CPRA Sediment Diversion Team held a meeting with Coastal Communities Consulting (CCC), a non-profit organization that primarily serves Vietnamese, Khmer (Cambodian), and Croatian fishers in Southeast Louisiana with 175 people attending the meeting. The CPRA Sediment Diversion Team worked with CCC to translate several resource

materials (such as the MBSD Project and general sediment diversion FAQs) into Vietnamese for community members. CPRA also engaged the fishing community through the Louisiana Seafood Future (<https://www.laseafoodfuture.com/>) and used that process to inform the mitigation and stewardship measures included in the Mitigation and Stewardship Plan (Appendix B). CPRA also met with members of the navigation community, who rely on the Mississippi River for transport of goods and services, to present updates and request feedback regarding the Project. These outreach and engagement efforts provided the public with an opportunity to ask questions and obtain information about the Proposed MBSD Project.

CPRA also engaged the community of Ironton due to its close proximity to the Project site and interest of its residents. Ironton residents received information and participated in the outreach meetings identified above, and additional meetings were held in the community to discuss specific information related to the community. CPRA hosted multiple meetings at the St. Paul Missionary Baptist Church to discuss general Project updates as well as community-specific information like construction timelines, accessibility, and job opportunities that could result from Project construction and/or operation, if the Project is approved and funded.

Additionally, CPRA hosted meetings and briefings with local governments and local government officials, such as the Plaquemines and St. Bernard Parish Presidents, council members, and boards. CPRA also worked closely with NGOs, community organizations, and other educational groups and organizations to distribute information about the Project and gather feedback.

Table 1-3 summarizes the outreach contacts by CPRA between 2016 and the end of 2020, prior to issuance of the Draft RP and Draft EIS.

**Table 1-3.**  
**Summary of Public Engagement Activities and Number of People Reached to Discuss Sediment Diversions in the Barataria Basin, including the Proposed MBSD Project, from 2016 to 2020<sup>a</sup>**

Number and Type of Public Engagement Activities	Number of People Reached
51 Community events	2,506 community members and residents
13 Media events	1,737 listeners
19 CPRA board meetings and events	986 board members and public attendees
35 Coastal Connections	692 community members and residents
5 Conferences	555 attendees
28 Parish leadership and outreach	378 council members, committee members, and residents
16 Environmental nongovernmental organizations	353 representatives, members, and attendees
5 Business group meetings	178 members and attendees
8 Task force meetings	85 task force members
9 Governor's Advisory Commission	80 members and attendees
5 Federal agency meetings (e.g., USACE, United States Geological Survey, SeaGrant)	39 staff

<sup>a</sup> All activities occurred prior to, and are separate from, the public engagement process associated with this RP; see Section 1.8.2 for more details about the RP public comment process.

In anticipation of the Draft RP and Draft EIS release, CPRA began additional outreach efforts in January 2021, continuing through the end of the comment period in June 2021, to assist interested community members in accessing the Draft RP and Draft EIS and to solicit feedback on the Draft Mitigation and Stewardship Plan that was published with these documents. Further, following publication of the Draft RP and Draft EIS in March 2021 and continuing through publication of the Final EIS, CPRA conducted additional outreach with the communities projected to be impacted by the Project to discuss the anticipated impacts and the mitigation and stewardship measures that would be included in the Final Mitigation and Stewardship Plan. Based on feedback received through these various meetings and survey responses, CPRA refined the mitigation and stewardship measures and developed the Final Mitigation and Stewardship Plan (Appendix B).

CPRA employed several methods to share information on the Proposed MBSD Project and gather feedback regarding the proposed mitigation and stewardship measures. CPRA developed a survey tool with questions targeted to the property owners and residents in Myrtle Grove, Woodpark, Suzie Bayou, Deer Range, Lake Hermitage, Happy Jack, and Grand Bayou. The survey was used to elicit feedback from residents and assist them in identifying mitigation and stewardship measures best able to support them and their communities.

The Grand Bayou community, home to the Atakapa-Ishak/Chawasha Tribe, expressed that continuing to meet with the community as a group, organized by their leadership, would best meet their needs and enable them to provide feedback. In the Spring of 2021, CPRA met with the community to review mitigation and stewardship measures specific to the Grand Bayou community and distribute the survey. Thereafter, CPRA collected the surveys and held a subsequent meeting with representatives of the community to further discuss additional, specific mitigation measures. CPRA continued to work with the Tribe and community members to develop additional mitigation measures, all of which were requested by the community, and which are included in the Final Mitigation and Stewardship Plan (Appendix B).

In the winter of 2022, CPRA developed a series of webinars, housed on CPRA's Sediment Diversion Program website, that shared more detailed information on the mitigation and stewardship measures planned for each community. CPRA sent a mailer with community-specific information and instructions for accessing the webinars to each property in the communities south of the Project from Myrtle Grove to Grand Bayou and Happy Jack. CPRA then hosted meetings with individual property owners, during which CPRA answered questions and further explained the specific mitigation and stewardship measures included in the Final Mitigation and Stewardship Plan.

Also in January of 2022, CPRA participated in a community meeting, in conjunction with NGOs, largely focused on Ironton's community needs post-Hurricane Ida. CPRA's Sediment Diversion Program team provided an update on the status of the Project and the Final Mitigation and Stewardship Plan, and facilitated a discussion regarding post-Hurricane Ida reconstruction needs and efforts in their community. As explained in the Final Mitigation and Stewardship Plan, CPRA plans for continuing engagement with the Ironton community throughout Project construction, if the Project is approved and funded (see Section 6.3.8 in the Final Mitigation and Stewardship Plan, Appendix B).

Later in 2022, CPRA launched a second survey to gain feedback on implementation of the mitigation and stewardship measures from the commercial fishing community, specifically those who fish for brown shrimp, crab, oyster, or finfish (fisheries aligned with CPRA’s Mitigation and Stewardship Plan). CPRA engaged NGOs and other community organizations (e.g., the Mississippi River Delta Coalition and CCC) to assist with developing and distributing the survey and informational materials, which were also available in Vietnamese. A webinar was developed and posted on CPRA’s Sediment Diversion Program website to provide information, and community members were encouraged to watch the webinar before completing the survey. CPRA distributed the survey to known fishers and dealers and posted it on CPRA’s Sediment Diversion Program website.

Table 1-4 summarizes the outreach contacts by CPRA between January 2021 and July 2022.

**Table 1-4.  
Summary of Public Engagement to Discuss Sediment Diversions in the Barataria Basin, including the proposed MBSD Project, from January 2021 through July 2022.**

Number and Type of Public Engagement Activities
24 Community events
13 Media events
2 CPRA board meetings and events
129 Individual meetings with community residents
2 Conferences
18 Parish leadership and outreach
8 Environmental NGOs
5 Business group meetings
3 Task force meetings
1 Governor’s Advisory Commission meeting
33 Federal, state, local, and agency meetings (for example, USACE, USGS, and SeaGrant)*

\* Note: Due to COVID-related restrictions, many of these contacts were virtual so CPRA was not able to provide specific attendance estimates for these outreach efforts.

CPRA maintains a Project website (<https://midbasin.coastal.la.gov/>) to house information and materials that support outreach and engagement efforts. Webinars, surveys, informational materials, and meeting notices are posted on the website.

### 1.8.4 Revisions to the RP between Draft and Final

The LA TIG revised the Draft RP after considering the public comments received. The LA TIG also made minor editorial and technical revisions to the document to address issues found through internal review of the Draft RP. None of the revisions affected the LA TIG’s conclusions about the Proposed Project or its alternatives, or its selection of a Preferred Alternative. An overview of the LA TIG’s revisions are included in Chapter 6.

### 1.8.5 Administrative Record

During the development of this Final RP, the Trustees fulfilled their responsibilities to maintain an Administrative Record per 15 CFR § 990.45. If the Proposed Project is permitted and funded, the Trustees will continue after release of the Final RP to add documents concerning implementation and monitoring of the Proposed Project to the Administrative Record.<sup>11</sup>

## 1.9 Document Organization

This Final RP is organized as follows:

**Chapter 1 (Introduction):** this chapter provides introductory information and context for the Final RP.

**Chapter 2 (Restoration Planning Process):** this chapter includes background on the restoration planning decisions by the LA TIG, the relationship of this Final RP to SRP/EA #3 and the Final PDARP/PEIS, a summary of injuries to resources resulting from the DWH oil spill that the LA TIG intends to address in this Final RP, and the identification of restoration alternatives to address those injuries.

**Chapter 3 (OPA Evaluation of the Alternatives):** this chapter includes a description and evaluation of the Proposed MBSD Project and alternatives under the OPA NRDA evaluation criteria, including the estimated costs to carry out the alternatives, Trustee restoration goals and objectives, the likelihood of success, how to prevent future injuries and avoid collateral injuries, how the project will benefit multiple resources, and public health and safety.

**Chapter 4 (Compliance with Other Laws and Regulations):** this chapter includes a compilation of additional federal and state laws that may apply to the Proposed MBSD Project and its alternatives.

**Chapter 5 (Public Comments and Responses):** this chapter provides a brief summary of the public comments received and the process used to develop responses. Note that Appendix E provides the list of summary public concerns and responses as well as a more detailed description of the comment response process.

**Chapter 6 (Overview of Changes in the Final Restoration Plan):** this chapter summarizes revisions made between the Draft and Final RP.

**Chapter 7 (List of Preparers and Reviewers):** this chapter identifies individuals who substantively contributed to the development of this document.

**Chapter 8 (List of Repositories):** this chapter includes a list of facilities that will receive copies of the Final RP for review by the public.

**Chapter 9 (References):** this chapter includes all references that are cited in the text.

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<sup>11</sup> The Administrative Record for all TIG planning documents can be found at <https://www.doi.gov/deepwaterhorizon/adminrecord>.



**Appendix A (Monitoring and Adaptive Management Plan for the Proposed MBSD Project):** this appendix provides the approaches that will be used to monitor and adaptively manage the Proposed MBSD Project.

**Appendix B (Mitigation and Stewardship Plan for the Proposed MBSD Project):** this appendix sets forth the specific measures that will be undertaken to mitigate the anticipated impacts of the implementation of the Proposed MBSD Project as well as various stewardship measures that will be undertaken as part of the Project.

**Appendix C (Marine Mammal Intervention Plan):** this appendix outlines a spectrum of response actions for dolphins affected by the operation of the Proposed MBSD Project, ranging from recovery/relocation to no intervention to euthanasia.

**Appendix D (Alternatives Considered but Not Carried Forward for Detailed Evaluation):** this appendix provides details about alternatives that were considered by the Trustees and USACE but were not carried forward for detailed analysis in this plan, including the rationale behind their exclusion from further analysis.

**Appendix E (Public Comments and Responses):** this appendix provides a summary of the public comments received on the Draft RP and the Draft EIS, and the LA TIG's and USACE's responses to these comments.

## 2.0 Restoration Planning Process

This chapter provides additional detail on the restoration planning process that the LA TIG undertook for the Proposed MBSD Project and its alternatives.

### 2.1 Summary of Injuries Addressed in this Final RP

This Final RP focuses on restoring wetlands, coastal, and nearshore habitats in the Barataria Basin. These habitats are critical components of the broader northern Gulf of Mexico ecosystem and suffered the greatest degree of oiling in Louisiana due to the Incident. Coastal and nearshore habitats provide food, shelter, and nursery grounds for numerous ecologically and economically important species, including fish, shrimp, shellfish, sea turtles, birds, and marine mammals. The Final PDARP/PEIS (DWH NRDA Trustees, 2016a) documented the nature, degree, and extent of injuries from the Incident to both natural resources and the services they provide. In the following bullets, key relevant injury information from the Final PDARP/PEIS is presented, which helps establish the nexus for restoration planning for these particular resources in the Barataria Basin.

- The Incident resulted in over 1,100 kilometers of wetland oiling Gulf-wide. Approximately 95% of this marsh oiling occurred in coastal Louisiana, with the heaviest oiling in the Barataria Basin (PDARP/PEIS, Table 4.6-2; Nixon et al., 2015). The heaviest oiling occurred in marshes dominated by *Spartina alterniflora*, a perennial deciduous grass, and *Juncus roemerianus*, a flowering plant species (Visser et al., 1998; Lin and Mendelsohn, 2012; Silliman et al., 2012). These marshes provide critical habitats for estuarine-dependent species throughout the Gulf of Mexico.
- Gulf salt marshes are highly productive. The marsh edge habitat provides spawning, nursery, and feeding grounds for juvenile fish and invertebrates of ecological and commercial importance. The marsh edge was severely oiled and injured, and the impacts of this oiling were documented in the Barataria Basin. For example, growth rates of juvenile brown and white shrimp along this oiled marsh edge were reduced by up to 50% compared to those collected near shorelines that did not experience oiling (e.g., Rozas et al., 2014; van der Ham and de Mutsert, 2014). Growth rates of red drum along heavily oiled marsh shorelines were also reduced by approximately 50% in 2010 relative to non-oiled shorelines, and these reduced growth rates persisted through at least 2013 (e.g., Powers and Scyphers, 2016).
- The impacts of DWH oiling were ecosystem-wide, spanning multiple trophic levels. The negative effects of oiling on plants and lower trophic levels from the nearshore food web (e.g., amphipods, shrimp, snails) caused a cascade of impacts on higher trophic levels.
  - Areas with heavy oiling experienced reduced plant cover and aboveground biomass compared to areas with little or no oiling (DWH NRDA Trustees, 2016a; Hester et al., 2016).

- Amphipods are a primary source of prey for many fish and invertebrates that utilize the marsh edge; heavy oiling reduced the availability of this important prey species because the oiling resulted in growth and biomass reductions (DWH NRDA Trustees, 2016a; Powers and Scyphers, 2016).
- Marsh periwinkles are also an important part of the marsh-estuarine food chain. At the oiled marsh shoreline edge, densities of periwinkles were reduced by 80% to 90% compared to non-oiled areas, and reduced by 50% in the oiled marsh interior (DWH NRDA Trustees, 2016a; Zengel et al., 2016). Shoreline cleanup actions further reduced adult snail density and snail size (DWH NRDA Trustees, 2016a; Zengel et al., 2016).
- Forage fish were directly impacted by the oiling, including reductions in the biomass and hatch success of Gulf killifish, which lay their eggs on the marsh surface (DWH NRDA Trustees, 2016a; Powers and Scyphers, 2016).
- Predatory fish species such as southern flounder, which are closely associated with marsh sediment, were also directly negatively impacted by the oil (DWH NRDA Trustees, 2016a; Powers and Scyphers, 2016).
- The PDARP/PEIS states that substantial injury to marsh birds likely occurred. Birds that were present in the marsh habitat during the DWH spill were likely exposed to oil via multiple pathways. Heavily oiled marsh areas had extensive oiling on vegetation and soils, and contained oil-contaminated prey. Through walking, perching, or foraging, birds likely came into contact with and possibly ingested oil at levels that were detrimental to their health (DWH NRDA Trustees, 2016a).
- Marsh grasses help maintain the habitat in the Barataria Basin by protecting the marsh edge from erosion. Extensive oiling and loss of marsh vegetation in the Barataria Basin created an acceleration of land loss following the oil spill. The accelerated erosion due to the spill resulted in the permanent loss of coastal wetlands over large portions of the Barataria Basin (see Table 2-1; Silliman et al., 2012, 2015, 2016; McClenachan et al., 2013; Zengel et al., 2015; Turner et al., 2016).
- The marsh edge serves as the gateway for the movement of organisms and nutrients between intertidal and subtidal estuarine environments. Injuries to a specific resource in the nearshore marine ecosystem could cause direct and indirect effects on offshore resources. For example, Gulf killifish, a key connector of energy between marsh and open Gulf waters, are among the largest of the Gulf forage fish and are preyed upon by wildlife, birds, and many sport fish. Water column resources injured by the spill include species from all levels in the northern Gulf of Mexico food web, including estuarine-dependent species (DWH NRDA Trustees, 2016a).
- Other examples of impacts on specific species and resources, as described in the PDARP/PEIS, demonstrate that the DWH oil spill created an ecosystem-level injury to the Gulf of Mexico that necessitates an ecosystem-level restoration strategy (e.g., DWH NRDA Trustees, 2016a).

**Table 2-1.**  
**Comparisons of Published Pre- and Post-Spill Erosion Rates in Louisiana**

Erosion Rate	Time Period	Source
<b>Barataria Basin locations</b>		
Reference sites: 0.8–1.3 m yr <sup>-1</sup> Heavily oiled sites: 2–3 times higher than reference sites	Post-DWH spill (spring 2010–fall 2012)	Zengel et al., 2015 <sup>a</sup>
Reference sites: ~ 1.38 m yr <sup>-1</sup> Oil-impacted sites: ~ 3.0 m yr <sup>-1</sup>	7–22 months after DWH spill (October 2010–January 2012)	Silliman et al., 2012 <sup>a</sup>
Low-oil sites: 1.0 m yr <sup>-1</sup> High-oil sites: 1.33 m yr <sup>-1</sup>	8–29 months after DWH spill (November 2010–August 2012)	McClenachan et al., 2013 <sup>a</sup>
Non-oiled sites: 0.53 m <sup>2</sup> m <sup>-1</sup> yr <sup>-1</sup> > 60% oiled sites: 0.66 m <sup>2</sup> m <sup>-1</sup> yr <sup>-1</sup>	Pre-spill (2006–2010) (baseline for future oiled sites)	Beland et al., 2017 <sup>b</sup>
Non-oiled sites: 0.71 m <sup>2</sup> m <sup>-1</sup> yr <sup>-1</sup> > 60% oiled sites: 1.74 m <sup>2</sup> m <sup>-1</sup> yr <sup>-1</sup>	Post-oiling from DWH spill (2010–2013)	Beland et al., 2017 <sup>b</sup>
Non-oiled sites: 0.63 m <sup>2</sup> m <sup>-1</sup> yr <sup>-1</sup> > 60% oiled sites: 0.81 m <sup>2</sup> m <sup>-1</sup> yr <sup>-1</sup>	Post-oiling from DWH spill (2013–2016)	Beland et al., 2017 <sup>b</sup>
<b>Terrebonne Basin and Barataria Basin locations</b>		
Un-oiled islands: 1.53 m yr <sup>-1</sup> Oiled islands: 3.07 m yr <sup>-1</sup>	1–33 months after DWH spill (May 2010–December 2012)	Turner et al., 2016 <sup>B</sup>
<b>Louisiana sites (multiple locations)</b>		
No oiling: 1.4 ± 0.5 m yr <sup>-1</sup> 90–100% plant stem oiling: 4.0 ± 1.4 m yr <sup>-1</sup>	7–42 months after the DWH spill (fall 2010–fall 2013)	Silliman et al., 2015 <sup>a</sup>

<sup>a</sup> Study cited in the PDARP/PEIS.

<sup>b</sup> Study published after the release of the PDARP/PEIS.

m yr<sup>-1</sup> = meters per year; m<sup>2</sup> m<sup>-1</sup> yr<sup>-1</sup> = square meters per meter per year.

## 2.2 Additional Injuries Addressed by Other Plans

The restoration described in this Final RP is intended to benefit resources that suffered the injuries described above in Section 2.1. However, the LA TIG also acknowledges that additional injuries to natural resources occurred in the Barataria Basin and in the Louisiana Restoration Area from DWH. Resource injuries caused by the DWH oil spill that are not addressed in this Final RP have been partially addressed by previous RPs and will be the focus of future RPs issued by the LA TIG.<sup>12</sup> For example:

- The PDARP/PEIS estimated that the oil spill resulted in significantly higher adult mortality and higher rates of lost pregnancies for bottlenose dolphins in the Barataria Bay than rates observed prior to the spill (DWH NRDA Trustees, 2016a). The LA TIG has begun to address restoration of marine mammals in *DWH Final RP/EA #5: Living Coastal and Marine Resources – Marine Mammals and Oysters* (LA TIG, 2020a).
- The PDARP/PEIS notes that subtidal oysters were killed as a result of the Incident (DWH NRDA Trustees, 2016a). As described in Section 1.7, the Louisiana Oyster Cultch Project implemented under the Early Restoration framework agreement

<sup>12</sup> Links to all draft and final LA TIG RPs can be found at <https://la-dwh.com/restoration-plans/>.

addressed oyster injuries in the Barataria Basin. As noted above, the LA TIG also has developed RP/EA #5, which addressed the restoration of oysters.

- The PDARP/PEIS describes lethal and sublethal injuries to birds from oil exposure, including injuries to offshore sea birds, shorebirds, waterfowl, marsh birds, and colonial nesting birds (DWH NRDA Trustees, 2016a). The LA TIG has addressed restoration of birds in *RP #1: Restoration of Wetlands, Coastal, and Nearshore Habitats; Habitat Projects on Federally Managed Lands; and Birds*. The LA TIG has also addressed restoration for birds in *RP/EA #1.1: Queen Bess Island Restoration* (LA TIG, 2019). While the restoration alternatives described in this Final RP may also provide additional habitats for certain functional groups of birds, additional plans to address birds are expected in the future, including *RP/EA #7: Wetlands, Coastal, and Nearshore Habitats and Birds* (LA TIG, 2020b).
- The PDARP/PEIS describes losses to the public's use of natural resources for outdoor recreation, such as boating, fishing, and beachgoing (DWH NRDA Trustees, 2016a). The LA TIG has addressed restoration of lost recreational use within Louisiana in *RP/EA #2: Provide and Enhance Recreational Opportunities* (LA TIG, 2018a) and *RP/EA #4: Nutrient Reduction (Nonpoint Source) and Recreational Use* (LA TIG, 2018b). The restoration alternatives described in this Final RP may also provide additional benefits to some recreational uses; the LA TIG may issue additional plans to address restoration of lost recreational use in the future.

## 2.3 Screening for a Reasonable Range of Alternatives

Under OPA NRDA regulations, alternatives considered in an RP should demonstrate a clear relationship to the resources and services injured. The DWH Trustee Council SOP Section 9.4.1.4 provides that "Screening will adhere to project selection criteria consistent with OPA regulations (15 CFR § 990.54), the PDARP/PEIS, and any additional evaluation criteria established by a TIG and identified in a restoration plan or public notice." The process used by the LA TIG to first select a Mid-Barataria sediment diversion, and to screen and identify a reasonable range of project-specific alternatives for analysis, is described below.

### 2.3.1 Selection of a Mid-Barataria Sediment Diversion for Further Analysis

This Final RP tiers from two previous RPs: the PDARP and SRP/EA #3. This section briefly describes how the LA TIG utilized the analyses and planning processes included in the development of these RPs to select a large-scale sediment diversion in the Mid-Barataria Basin for further planning and evaluation under this Final RP.

#### 2.3.1.1 PDARP/PEIS

On February 19, 2016, the DWH NRDA Trustees issued a Final PDARP/PEIS outlining a programmatic RP to fund and implement restoration across the Gulf of Mexico region into the future as restoration funds became available. The PDARP/PEIS identified a need for ecosystem-scale restoration to offset ecosystem-scale losses. The document placed an emphasis on coastal and nearshore habitat restoration in the historic Mississippi River delta plain in Louisiana because of the connectivity between deltaic wetlands and aquatic productivity in the northern Gulf of Mexico ecosystem.

On March 29, 2016, in accordance with OPA and NEPA, the DWH NRDA Trustees published a Notice of Availability of the ROD for the Final PDARP/PEIS (81 FR 17438). Based on the DWH NRDA Trustees' injury determination explained in the Final PDARP/PEIS, the ROD set forth the basis for the DWH NRDA Trustees' decision to select Alternative A: Comprehensive Integrated Ecosystem Alternative. This alternative emphasized the restoration of wetland complexes and noted that "Considering the scale of impacts from the oil spill, the Trustees also understand the importance of increasing the resiliency and sustainability of this highly productive Gulf ecosystem through restoration. Diversions of Mississippi River water into adjacent wetlands have a high probability of providing these types of large-scale benefits for the long-term sustainability of deltaic wetlands" (DWH NRDA Trustees, 2016a). More information about Alternative A can be found in Sections 5.5 and 5.10 of the Final PDARP/PEIS (DWH NRDA Trustees, 2016a).

Following publication of the Final PDARP/PEIS, individual TIGs became responsible for developing RPs that propose specific projects consistent with the Final PDARP/PEIS and Consent Decree. All RPs are released in draft form for public review and comment prior to finalization. Individual projects in these RPs contribute to one or more of the goals established for the relevant Restoration Type in the PDARP/PEIS and are based on one or more of the restoration approaches analyzed for the relevant Restoration Type in the PDARP/PEIS.

The LA TIG has conducted the restoration planning process for the Proposed MBSD Project and its alternatives in accordance with the PDARP/PEIS and Consent Decree.

#### 2.3.1.2 Final SRP/EA #3 for Restoration of Wetlands, Coastal, and Nearshore Habitats in the Barataria Basin, LA

The LA TIG elected to develop a strategic RP for the Barataria Basin (SRP/EA #3) that evaluated a suite of restoration techniques and approaches to determine how to best support restoring ecosystem-level injuries in the Gulf of Mexico through restoration in the Barataria Basin. The LA TIG selected the Barataria Basin as the geographic scope for SRP/EA #3 because, in addition to the high rates of erosion in the basin, wetlands in the Barataria Basin experienced some of the heaviest and most persistent oiling and associated response activities from the DWH oil spill (LA TIG, 2018c). In developing strategic restoration alternatives to address ecosystem-level injuries, the LA TIG considered the restoration approaches identified in the PDARP/PEIS for the Wetlands, Coastal, and Nearshore Habitats Restoration Type. The LA TIG focused SRP/EA #3 on two approaches: creating, restoring, and enhancing coastal wetlands; and restoring and preserving Mississippi-Atchafalaya River processes (LA TIG, 2018c). The LA TIG determined that these approaches provide the most direct link to restoring, creating, and maintaining coastal wetland habitats in the Barataria Basin.

To evaluate the potential alternatives, SRP/EA #3 included a screening process for individual projects. During this process, the LA TIG considered all projects submitted through the Louisiana and federal Trustees' project portals.<sup>13</sup> It also considered all relevant projects included in

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<sup>13</sup> The LA TIG accepts restoration proposals for the DWH oil spill from the public. Projects can be submitted through the portal at <https://la-dwh.com/project-submission/>. The federal Trustees maintain a similar project portal at <https://www.gulfspillrestoration.noaa.gov/restoration/give-us-your-ideas/suggest-a-restoration-project>.



Louisiana's 2017 CMP. The CMP guides the State of Louisiana's work toward achieving comprehensive coastal protection and restoration, and to combat Louisiana's coastal land loss crisis. The LA TIG considered projects in the 2017 CMP because it is the State of Louisiana's most current, publicly vetted, and scientifically founded approach to coastal restoration, based on a holistic understanding of the coastal environment over the next 50 years. The 2017 CMP also includes the goal of promoting sustainable ecosystems, which is compatible with overall PDARP/PEIS goals.

In SRP/EA #3, the LA TIG noted that the CMP documented the relative benefits and importance of large-scale sediment diversions compared to other land-building alternatives. For example, the 2012 CMP included a comparison of three restoration project types to a future without action scenario: large-scale sediment diversions, multiple small diversions, and a no diversions/mechanical land-building only alternative (CPRA, 2012). This comparison demonstrated that large-scale sediment diversions are critical to maximizing and maintaining land-building. In the "no diversions" alternative considered in SRP/EA #3, the total land expected to be created or maintained was half of the land expected to be gained by the large-scale sediment diversion. Modeling also indicated that a large-scale sediment diversion could both build marsh and reduce landscape-scale elevation deficit, slowing further wetland losses due to climate-predicted changes (e.g., subsidence, sea level rise) (Wang et al., 2014). Similarly, multiple small diversions were expected to create less land than a large-scale sediment diversion (Wang et al., 2014). The LA TIG also noted that project-specific computer modeling suggested that a large-scale MBSD could build and maintain significantly more marsh over 50 years than the marsh creation projects considered. The LA TIG also found that implementing a restoration technique in the Barataria Basin that not only builds wetlands and marsh complexes but does so by restoring the deltaic processes that originally built the marsh is especially appropriate (LA TIG, 2018c). Thus, the LA TIG concluded that re-establishing deltaic processes to the Barataria Basin with a large-scale sediment diversion would provide system-wide benefits to that ecosystem that could not be realized with any other restoration technique (LA TIG, 2018, pages 2-19 and 3-8). Also see Section 2.4 for a discussion of the unique benefits provided by sediment diversions.

In the Final SRP/EA #3, the LA TIG selected a large-scale MBSD and one marsh creation project<sup>14</sup> in the Barataria Basin to carry forward for further evaluation in Phase II RPs and NEPA analyses (LA TIG, 2018c). These particular projects were selected based on the following:

- The location of the projects in the Mid-Barataria Basin, which places them in close proximity to some of the most heavily oiled portions of the Louisiana coastline.
- The cost efficiency of undertaking a large-scale marsh creation project using a nearby Mississippi River borrow source prior to sediment diversion construction so that the borrow source has time to replenish before the sediment diversion begins operation. If the Mississippi River borrow source were dredged for marsh creation after the MBSD was operational, it would not be able to replenish and would therefore decrease the effectiveness of sediment capture by the diversion.

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<sup>14</sup> Phase II restoration planning has been completed for the Upper Barataria Marsh Creation Project.

- The proximity of the two projects to one another, which would maximize the synergistic benefits of the two projects because the marsh creation increment would be able to capture additional sediment from the diversion. In contrast, another potential project considered by the LA TIG (the Ama Sediment Diversion) was located in the upper portion of the Barataria Basin and would not synergistically benefit other marsh creation projects.
- The likelihood of success based on the adequacy and availability of information for the two projects. For example, the MBSD has been studied in different iterations of the 2012 and 2017 CMP and multiple other studies, including in the Louisiana Coastal Area Hydrodynamic and Delta Management Study (Little and Biedenbarn, 2014). It also has undergone project-specific E&D at CPRA.

### 2.3.2 Process for Screening Alternatives for the Proposed MBSD Project

This RP focuses on identifying and evaluating restoration alternatives for the Proposed MBSD Project. The screening process narrowed down possible locations, operational regimes, and diversion outfall management approaches to arrive at a reasonable range of alternatives.

The LA TIG chose to engage in a coordinated alternatives evaluation process with CEMVN so that a consistent set of alternatives could be evaluated in the RP and the EIS for the Proposed MBSD Project. As described previously, the environmental review required by NEPA for this RP is occurring through the EIS for the Proposed MBSD Project, which is also being used to inform the decisions of the USACE regarding a CWA Section 10/404 permit application and request for Section 408 permissions. As part of that EIS development process, CEMVN led an Alternatives Working Group (AWG), in coordination with the LA TIG and CPRA, to identify a reasonable range of alternatives to be carried forward for (1) further analysis in the EIS as part of the NEPA review process, and (2) further analysis in this RP as part of the OPA evaluation process. The intent was to eliminate alternatives that did not meet the identified purpose and need, and corresponding restoration objectives for the Proposed MBSD Project; were technically infeasible; or were not in accordance with applicable laws, regulations, or permits.

Throughout the collaborative process of alternative development and evaluation, the LA TIG considered the following factors:

- The purpose and need of the Proposed MBSD Project.
- NEPA regulations.
- Requirements of the CWA, OPA, and OPA NRDA regulations.
- The interests, needs, and requirements of the LA TIG under OPA.
- Recommendations in the 2017 CMP.
- Public and agency scoping comments regarding the EIS.

In general, the alternative formulation process consisted of the following sequence of steps:

- Develop screening criteria to evaluate the effectiveness of different alternatives in meeting the purpose and need established in the EIS.
- Identify potential alternatives, including functional and operational/design alternatives; and consider prior studies and analyses, and public and agency scoping comments.
- Evaluate potential alternatives through an iterative process, applying the screening criteria and other factors and considerations derived from the purpose and need established in the MBSD EIS, and public and agency scoping comments relevant to the specific analysis.
- Formulate and select project alternatives for detailed analysis in the EIS and RP.

#### 2.3.2.1 Development of Screening Criteria

The screening criteria for potential alternatives used by the LA TIG were as follows:

- Criterion 1: reconnects and re-establishes deltaic processes between the Mississippi River and the Barataria Basin to achieve the Proposed MBSD Project's purpose and need in a sustainable manner.
- Criterion 2: delivers sediment, freshwater, and nutrients in a sustainable manner.
- Criterion 3: supports the long-term viability of existing and planned coastal restoration efforts.
- Criterion 4: helps restore habitat and ecosystem services in the northern Gulf of Mexico injured by the DWH oil spill, and is consistent with SRP/EA #3.
- Criterion 5: is consistent with the Louisiana CMP.

In the screening process, additional consideration was given to E&D feasibility, cost of implementation, and timeliness of meeting objectives.

#### 2.3.2.2 Identification of Potential Alternatives

As explained previously, an OPA screening for project alternatives was performed as a part of SRP/EA #3 (i.e., SRP/EA #3 screened potential projects and alternatives other than sediment diversions that could potentially provide some of the same functions as the Proposed MBSD Project). This Final RP does not replicate the evaluation of "functional alternatives" to the Proposed MBSD Project that involved project types other than a large-scale sediment diversion (see Section 2.4). Rather, this Final RP focuses on identifying potential restoration alternatives for the Proposed MBSD Project that involve different locations, operations, or design features.

To identify and evaluate potential alternatives, the LA TIG reviewed and considered:

- Relevant information and analysis in the PDARP/PEIS and SRP/EA #3.
- Previous studies of restoration needs and proposed projects in the Barataria Basin (e.g., Louisiana Coastal Area Ecosystem Restoration Study, the Louisiana CMP, and

others; see Section 3.2.1.4 of this document, and Section 1.2 of the Final EIS for a more detailed discussion of the studies that have been conducted to support the development of this project).

- Information and modeling input provided by CPRA.
- Public and agency scoping comments.

The LA TIG examined different alternatives for a large-scale sediment diversion and developed additional considerations for evaluating the effectiveness of these potential alternatives at achieving the Proposed MBSD Project's goals and objectives. These alternatives included considerations of alternative locations, different capacity alternatives, alternative "triggers" for initiating flow above base flow through the diversion, and alternatives for a base flow through the diversion. The final step involved examining different alternatives for the diversion outfall area and evaluating the effectiveness of these potential alternatives at achieving the Proposed MBSD Project's goals and objectives.

An overview of the outcomes of this evaluation process is provided below. Additional details of the process and outcome of this evaluation are provided in Chapter 2 of the Final EIS.

### 2.3.3 Proposed MBSD Project Location Alternatives

The LA TIG selected the Barataria Basin as the geographic scope for the Final SRP/EA #3 because wetlands in the Barataria Basin experienced some of the heaviest and most persistent oiling and associated response activities from the DWH oil spill. It is also an "area of critical need" due to its significant and continuing land loss (DWH NRDA Trustees, 2016a). Thus, location alternatives for a large-scale sediment diversion outside of the Barataria Basin did not meet the LA TIG's goals and objectives for this Final RP. Therefore, the LA TIG evaluated multiple potential location alternatives for a large-scale sediment diversion within the Barataria Basin.

The LA TIG first reviewed the results of previous studies that had considered several general locations for a sediment diversion from the Mississippi River into the Barataria Basin. These locations are expressed as RM Above Head of Passes (AHP):

- Upper Barataria Basin [RMs 62.5–118 (Davis Pond Freshwater Diversion structure)]
- Mid-Barataria Basin (RMs 46.4–62.5)
- Lower Barataria Basin (below RM 46.4).

A project location in Lower Barataria Basin would provide restoration closest to where the heaviest oiling and permanently eroded marsh shorelines occurred. A project in this location would help replace the eroded marsh habitat, which would facilitate the replacement of other natural resources that depend on marsh in this location. However, a project location in the Lower Barataria Basin is not a reasonable alternative because this location consists of large expanses of relatively deep open water with smaller areas of highly fragmented marshes. Consequently, it would take longer, and require a larger sediment volume, for the coarse-grained sediments that are the foundation of wetland creation to build up from the basin floor to a subaerial elevation suitable for marsh development. In addition, the Lower Barataria Basin is more open to waves,

tidal action, and storm surge that would erode the newly created marshes more quickly over time.

A project location in the Upper Barataria Basin could benefit natural resources and services by addressing existing stressors to resources, which include a lack of deltaic processes that provide sediment, freshwater, and nutrients to counteract marsh degradation and erosion. However, a project location in the Upper Barataria Basin is not a reasonable alternative because wetlands in this area are still relatively intact and more protected from the combined influence of erosion, relative sea level rise, and saltwater intrusion compared to lower reaches of the basin (Nelson et al., 2002; Fitzgerald et al., 2006; Zou et al., 2015; Couvillion et al., 2016). Additionally, as the most inland location, the Upper Barataria Basin continues to have the least-fragmented marshes and forested wetlands in the Barataria Basin (Couvillion et al., 2016), and was relatively protected from the oiling of the DWH spill (see Chapter 4 in the PDARP/PEIS). Thus, while this location would be buffered from excessive erosional forces and has existing vegetation present that could capture sediment effectively, this location does not address an area of critical need within the Barataria Basin and would not rebuild coastal resources in areas at high risk of future losses. In addition, while the Proposed MBSD Project could potentially provide protection against saltwater intrusion to the basin over time, the Upper Barataria Basin would not likely benefit from this aspect of the Proposed MBSD Project because the USACE constructed and operates the Davis Pond Freshwater Diversion for this purpose.

The LA TIG selected a project location in the Mid-Barataria Basin because a project in this location has the capacity to accept and disperse sediments and nutrients, and would promote the long-term sustainability of existing and newly created marshes by addressing existing stressors, including a lack of sediment, freshwater, and nutrients. This location is close to oiled shorelines but farther away from additional erosive forces found in the Lower Barataria Basin. Accordingly, the LA TIG considered the following Mississippi River location options that have been modeled in previous diversion studies (USACE, 2004; CPRA, 2011; Meselhe and Sadid, 2015):

- RMs 60.1–62.5
- RMs 59.3–59.8
- RMs 46.4–59.0.

With regard to the locations between RMs 46.4 and 59.0, these studies concluded that this area was less likely to capture adequate sediment to support a sediment diversion. This area was also noted as the most vulnerable to saltwater intrusion and relative sea level rise (Visser et al., 2017). With regard to the locations between RMs 59.3 and 59.8, these same studies concluded that this reach lacked direct access to a point bar or to the depositional area adjacent to an inside bend of the river, resulting in lower sediment-removal efficiencies. As a result, a diversion in these locations would have lower capacity to capture the volume of sediment available to build on and sustain the basin-side marshes and wetlands compared to the Proposed MBSD Project location (RM 60.7; Allison, 2011; CPRA, 2011; Allison et al., 2014).

The location identified in the Proposed MBSD Project (RM 60.7) takes advantage of an existing point bar with appropriate sediments for marsh-building at the inside bend of the river between RMs 60.7 and 62.5. By locating the intake at the downriver end of this existing point bar, the

diversion intake could capture and divert a sufficient volume of sediment through the diversion channel to meet the Proposed MBSD Project's restoration goals.

The LA TIG determined that project alternatives at an RM other than RM 60.7 at the location of the existing point bar would not be effective in meeting the restoration objectives of the Proposed MBSD Project because they would not carry sufficient sediment into the basin. Therefore, the LA TIG did not carry forward additional location alternatives.

### 2.3.4 Proposed MBSD Project Operations

The next step in identifying potential alternatives to the Proposed MBSD Project involved evaluating different diversion operational scenarios. These alternatives included an evaluation of (1) the "on/off trigger" that would trigger full diversion operation, (2) the maximum discharge capacity, (3) the amount of base flow through the diversion, and (4) design options for the diversion.

#### 2.3.4.1 On/Off Trigger

An important aspect of operating the sediment diversion is determining the environmental conditions under which the diversion gates should be opened to allow more than base flow ("turned on"), and under which river conditions the diversion gates would be closed to only allow base flow ("turned off"). These conditions are referred to as the "on/off trigger." The LA TIG evaluated alternatives for various operational trigger scenarios, including the concepts of triggering the operation of the diversion based on Mississippi River sediment load discharge, salinity, turbidity, or water temperature. These scenarios were not retained for further consideration because they were not as effective at capturing and transporting appropriate amounts of sediment to meet the goals and objectives of the Proposed MBSD Project (Liang et al., 2016; Messina and Meselhe, 2017), compared to an on/off trigger based on river flow. The LA TIG also evaluated the results of a study by The Water Institute of the Gulf (TWI; Liang et al., 2016), which examined several variations of "pulsing" operations (i.e., operating the diversion only for a certain number of consecutive days at a time, with the option of restricting or eliminating summer operations), as well as operating the diversion only during the rising limb of the Mississippi River hydrograph (as the discharge volume in the river increased). While pulsing improved sediment-capture efficiency, it also reduced total sediment capture, which translated into a reduction in the amount of material transported to the basin and a reduction in wetland creation and restoration over time (Liang et al., 2016). The simple trigger option with no pulsing provided the greatest total volume of sediment (Liang et al., 2016).

A study conducted by TWI included sensitivity testing of various triggers based on the flow of the Mississippi River at 50,000 cfs increments ranging from 300,000 cfs up to 700,000 cfs (Liang et al., 2016). Based on reviewing this and similar analyses, the LA TIG determined that a low trigger (300,000 cfs) would not efficiently allow for the distribution of fine- and coarse-grained sediments because the diversion would run at river flows that would be less effective at bringing coarse silts and sands from the riverbed into suspension, and distributing those sediments into the basin. A high trigger (600,000 cfs) also would not be effective in aiding in the potential for the accretion of sediment because the minimal days of operation associated with a high trigger would reduce the total volume of sediment transferred, and the area of wetlands created and sustained. Therefore, the high-trigger scenario would not effectively help promote long-term sustainability,



address relative sea level rise, or promote the infilling of shallow open-water areas. In contrast, a 450,000 cfs trigger allows for diversion operations that capture the high-sediment loads associated with rapidly rising river discharges (Liang et al., 2016). On average, for years 2009–2015, a diversion with a 450,000 cfs trigger would have operated above base flow conditions for approximately 210 days of the year, compared to 290 days for a 300,000 cfs trigger and 135 days for a 600,000 cfs trigger (Liang et al., 2016). In consideration of these concepts, the proposed 450,000 cfs operational trigger would best meet the objectives of the Proposed MBSD Project, and the LA TIG did not carry forward other operational triggers as potential project alternatives.<sup>15</sup>

#### 2.3.4.2 Maximum Discharge Capacity

The next step in the alternatives evaluation process involved examining different options for the maximum discharge capacity through the sediment diversion. The LA TIG evaluated an alternative that has a maximum discharge capacity of 75,000 cfs when the flow of the river is 1,000,000 cfs or higher, as well as alternatives with a smaller or larger maximum discharge capacity. Previous studies found that the diversion must operate above 45,000 cfs (maximum capacity) to transport coarse-grained sediments (> 63 microns) from the Mississippi River (at RM 60.7) into the basin effectively, and thus function as a sediment diversion (Allison, 2011; CPRA, 2011; Meselhe et al., 2011, 2012; Allison et al., 2014). Upon review of these studies, the LA TIG noted that the studies further demonstrated that the higher the capacity of water in the diversion channel, the greater the volume of sediment in the diverted water. Consequently, diversions with capacities higher than 75,000 cfs are expected to transport more of the materials critical to delta formation and at a higher sediment-water ratio. Larger diversions are also expected to be able to build and maintain marsh habitats under higher sea level rise scenarios because they are more able to provide the volume of sediment required to keep pace with faster sea level rise (CPRA, 2017), thus promoting the long-term sustainability of existing, created, and restored marshes.

The LA TIG determined that a diversion with a maximum capacity larger than 75,000 cfs at RM 60.7 should be considered in the evaluation of alternatives. The LA TIG also noted that previous studies did not evaluate a diversion at RM 60.7 between 45,000 cfs and 75,000 cfs, and concluded, in coordination with CEMVN, that for comparative purposes and in order to consider a range of adverse and beneficial impacts, a smaller diversion with a maximum capacity between 45,000 cfs and 75,000 cfs should also be considered in the evaluation of alternatives. To satisfy these considerations, the LA TIG chose to bring forward diversions with capacities of 150,000 cfs and 50,000 cfs in the evaluation of alternatives. The EIS also considered the same alternatives.

#### 2.3.4.3 Base Flow through the Diversion

Operation of a large-scale sediment diversion can also include varying the amount of base flow, which is a diversion discharge at Mississippi River flows less than the on/off trigger, although base flow would only occur when the water surface elevation of the Mississippi River is higher than the water surface elevation of the Barataria Basin. The primary purpose for the establishment of a base flow would be to moderate and stabilize seasonal fluctuations in salinity that could otherwise negatively affect marshes suited to a different salinity range. The

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<sup>15</sup> Additional detailed analysis of the three flow-trigger options can be found in Section 2.4.2 of the Final EIS.

alternatives evaluation process relied on several previous simulations of base flow options, each using historical conditions for years 2007 and 2010 in order to simulate a range in annual Mississippi River discharge, as well as environmental variables such as wind and rainfall. The 0 cfs base-flow scenario corresponded to the scenario with a simple trigger at 450,000 cfs (Liang et al., 2016). Other options tested included a 450,000 cfs on/off trigger, plus a base flow ranging from 1,000 cfs to 10,000 cfs. Based on the model results, a base flow of 5,000 cfs was determined as sufficient to moderate seasonal salinities both within the outfall area and in immediately adjacent marshes, while a base flow below 5,000 cfs was not effective in moderating seasonal salinities in the adjacent marshes (Messina and Meselhe, 2017). The modeled base flow of 10,000 cfs discharges more water than is necessary or desirable to moderate seasonal salinities within the outfall area and immediately adjacent marshes, and unintentionally freshens the basin farther from the outfall area (Messina and Meselhe, 2017). Thus, base flows of 10,000 cfs or below 5,000 cfs were not carried forward as alternatives for the Proposed MBSD Project.

#### 2.3.4.4 Design Options

Next, the LA TIG considered several design options raised in scoping comments for the EIS, in addition to those previously considered by CPRA during development of the Proposed MBSD Project, to determine whether any of these design options could form the basis for separate alternatives. The following design options were evaluated:

- A siphon intake structure, which would use a siphon structure to transfer water from the Mississippi River to the Barataria Basin, instead of the proposed diversion conveyance channel.
  - This design option was not carried forward because the design of siphon structures is specific to freshwater diversions, and therefore may not be feasible to capture and transport the volume and range of sediment sizes to meet the goals and objectives of the Proposed MBSD Project.
- A “dog-leg” alignment, which would involve designing the diversion conveyance channel with two bends instead of using a straight channel.
  - This design option was not carried forward because this type of alignment can cause energy losses, which reduce water and sediment-carrying capacity (CPRA, 2011; Meselhe et al., 2011, 2012).
- A closed “tunnel-like” system for the diversion conveyance channel.
  - This design option was not carried forward because tunnel-like systems involve increased design and construction costs, and operations and maintenance challenges. More specifically, to reach a maximum design flow of 75,000 cfs, multiple tunnels would need to be constructed in parallel, which would subsequently lead to increased maintenance difficulties.
- Piping additional sediment from a Mississippi River dredge site into the diversion conveyance channel.
  - This design option was not carried forward because it is not feasible to identify a sufficient sediment source over the life of the Proposed MBSD Project that is not already dedicated to marsh creation/enhancement projects and that would not

remove the upstream sediment expected to be captured by the diversion. In addition, the additional logistics and costs associated with placement and maintenance of a sediment pipeline from the source into the diversion channel were determined to be not practical.

The evaluation of these design options found that they were unlikely to be effective at meeting the restoration objectives of the Proposed MBSD Project for the reasons noted above, and thus were not carried forward as separate alternatives.

### 2.3.5 Sediment Diversion Outfall Features

The final step in identifying potential project alternatives focused on examining different options for features that could potentially expedite benefits of the Proposed MBSD Project in the outfall (or sediment deposition) area. These features are referred to herein as “outfall features.” Public scoping comments for the EIS recommended constructing features in the diversion outfall area such as canals, bayous, terracing, impoundments, weirs, or chenier-like ridges, to manipulate the flow of water and sediment for water quality and sediment retention benefits; to create barriers for storm surge and wind; and to redirect waters away from oyster production and sensitive areas.

The LA TIG evaluated the following potential outfall features to address the scoping comments:

- Construction of canals, bayous, impoundments, and weirs.
  - These outfall features were not carried forward as alternatives because of the potential for such features to impede the development of the delta formation if constructed within or near the sediment deposition outfall area.
- Construction of marshes, ridges, and marsh terraces outside of the area where the delta would be expected to form.
  - Two different types of outfall features were considered further, as described below.

The LA TIG considered construction of a low ridge west of and running parallel to the northern terminus of Wilkinson Canal and its intersection with Round Lake. The purpose of this feature would be to prevent the deposition of sediment in the Wilkinson Canal and to promote deposition within the shallower adjacent waters and wetlands.

The second feature considered was the construction of marsh terraces or similar sediment-retention features adjacent to the Wilkinson Canal. After analyzing these two potential features, the LA TIG chose to propose marsh terracing as an alternative project feature in the range of alternatives to be analyzed further in the EIS and the RP because of the range of potential benefits associated with terraces. Terraces are intended to increase immediate benefits within the sediment deposition outfall area, and could also function to reduce sediment transport into the Wilkinson Canal by promoting deposition nearer the diversion.

## 2.4 Alternatives Not Considered for Further Evaluation in this Final RP

Given the analysis conducted by the LA TIG summarized above, the LA TIG determined that some of the geographical and operational alternatives considered would not be carried forward for detailed evaluation in this RP under the OPA NRDA evaluation criteria. See Appendix D (also an appendix to Chapter 2 of the Final EIS) for a list of other alternatives considered but not carried forward for detailed evaluation because they did not meet the Proposed MBSD Project's goals and objectives or were not feasible.

The LA TIG received comments on the Draft RP about the potential inclusion of marsh creation through the use of dredge material as an alternative in this RP. As noted in Section 2.3.1 above, this Final RP tiers from two previous RPs: the PDARP/PEIS and SRP/EA #3. In SRP/EA #3, LA TIG selected the MBSD and one marsh creation project<sup>16</sup> in the Barataria Basin to carry forward for further evaluation. This Final RP focuses on identifying and evaluating restoration alternatives for the Proposed MBSD Project.

The LA TIG supports the use of marsh creation through the use of dredge material and is funding projects that use this approach consistent with SRP/EA #3 (see <https://la-dwh.com/restoration-plans/>). The LA TIG also recognizes the unique benefits that large-scale sediment diversions provide that marsh creation using dredge material alone cannot. More specifically, only a large-scale sediment diversion can meet the TIG's goals of re-establishing deltaic processes between the Mississippi River and the Barataria Basin through the delivery of freshwater, sediment, and nutrients, and creating, restoring, and sustaining wetlands (both existing and restored) and other deltaic habitats and associated natural resource services.

As defined under the OPA regulations for NRDA (15 CFR § 990.30), natural resource services refer to the functions performed by a natural resource for the benefit of another natural resource (ecological services) and/or the public. Natural resource services describe all the ways that resources provide benefits to each other, through ecological linkages among habitats and organisms and among organisms themselves. Examples of natural resource services include (but are not limited to) nutrient cycling, water purification, pollination, food production for other species, and habitat provision (Millennium Ecosystem Assessment 2005). The services provided by a re-established deltaic process flow through the physical, chemical, and biological processes that exist in the delta. Sediment creates wetlands that buffer communities from the effect of storms, phytoplankton fuel the foundation of the food web that supports fisheries (Jassby et al., 2003), and nutrients are captured by plant communities that form habitats and sequester carbon.

Naturally-occurring marshes outperform marshes restored with dredge material in many biological processes that support natural resource services (Ebbets et al., 2020). Therefore, it is advantageous to use deltaic processes to sustain existing marshes and to create new marshes through processes that re-establish the historic creation of naturally-occurring marshes. Re-establishment of deltaic processes also has the significant advantage of creating and maintaining

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<sup>16</sup> Phase II restoration planning has been completed for the Upper Barataria Marsh Creation Project.

the full range of submerged and emergent habitats that exist in the delta, supporting the full range of services provided by these habitats.

Marsh creation through the use of dredge material would not bring freshwater or nutrients to the basin on an ongoing basis, would focus exclusively on creating subaerial marsh, and would not create a diversity of estuarine habitats. Marsh created through the use of dredge material would also not be expected to provide the same ecological function and associated natural resource services as marsh created through deltaic processes. Finally, the benefits of marsh created with dredge material would diminish relatively quickly due to subsidence and sea level rise; thus, the temporal nature of proposed Project benefits would also be vastly different.

See Section 3.2.1.6 for a more detailed discussion of the unique benefits that the Proposed Project would provide to the coastal ecosystem.

## 2.5 Alternatives Considered for Further Evaluation in this RP

Six alternatives are carried forward for further analysis in this RP, based on the screening described above. As previously noted in Section 1.6, these are the same alternatives evaluated in the EIS. The Proposed MBSD Project and alternatives involve the construction of a large-scale sediment diversion connecting the Mississippi River with the adjoining Barataria Basin, and are consistent with SRP/EA #3, the 2017 CMP, and the purpose and need of the Proposed MBSD Project evaluated in the EIS. These alternatives are described in further detail in Chapter 3 and are evaluated using the OPA NRDA evaluation criteria.

## 3.0 OPA Evaluation of the Alternatives

### 3.1 Summary of OPA NRDA Evaluation Criteria

According to the OPA NRDA regulations, Trustees are responsible for identifying a reasonable range of alternatives [15 CFR § 990.53(a)(2)] that can be evaluated according to OPA evaluation standards (15 CFR § 990.54). Once a reasonable range of alternatives is developed (as discussed in Section 2), the OPA NRDA regulations require Trustees to identify preferred restoration alternatives based on certain criteria:

- The cost to carry out the alternative.
- The extent to which each alternative is expected to meet Trustees' goals and objectives in returning the injured natural resources and services to baseline and/or compensating for interim losses (the ability of the restoration project to provide comparable resources and services, i.e., the nexus between the project and the injury).
- The likelihood of success of each alternative.
- The extent to which each alternative will prevent future injury as a result of the Incident, and avoid collateral injury as a result of implementing the alternative.
- The extent to which each alternative benefits more than one natural resource and/or service.
- The effect of each alternative on public health and safety.

### 3.2 OPA Evaluation of the Alternatives

The LA TIG screening process resulted in the identification of the following alternatives:

- Alternative 1 (the Proposed MBSD Project): A sediment diversion with a maximum flow of 75,000 cfs.
- Alternative 2: A sediment diversion with a maximum flow of 50,000 cfs.
- Alternative 3: A sediment diversion with a maximum flow of 150,000 cfs.
- Alternatives 4, 5, and 6: Equivalent to Alternatives 1, 2, or 3, respectively, with the addition of marsh terracing in the outfall area.

The alternatives considered by the LA TIG are variations in capacity and design of a large-scale sediment diversion, consistent with the LA TIG's previously documented decision in SRP/EA #3 to proceed with the further evaluation of a large-scale sediment diversion in the Mid-Barataria Basin. Because of this, the alternatives are broadly similar in terms of location, construction footprint, operation, and physical and biological mechanisms that affect the expected benefits and collateral injuries of the Proposed MBSD Project. However, the differences in capacity among the alternatives are projected to lead to variations in the magnitude, timing, or location of the benefits achieved; and the collateral injuries potentially incurred, which are critical to the evaluation of these distinct alternatives under OPA.



Given that the alternatives are variations of a large-scale sediment diversion in the Mid-Barataria Basin, and the importance of understanding the key differences among them, the LA TIG first provides a detailed description and analysis of Alternative 1 of the Proposed MBSD Project for all the OPA NRDA evaluation criteria. The remaining alternatives are then analyzed, and differences from Alternative 1 are highlighted in those analyses. This is followed by an integrated analysis across the alternatives, which describes how the LA TIG selected a Preferred Alternative.

### 3.2.1 Alternative 1: Sediment Diversion with a Variable Flow up to a Maximum of 75,000 cfs<sup>17</sup>

#### 3.2.1.1 Alternative 1 Description

Under Alternative 1, the LA TIG would construct and operate a large-scale sediment diversion in the Mid-Barataria Basin to restore for wetland habitat and ecosystem services adversely affected by the Incident.

The Barataria Basin was formed over 1,000 years ago as a part of the Lafourche delta complex. Historically, the Mississippi River deposited sediment, freshwater, and nutrients into the Barataria Basin during annual overbank flooding cycles and periodic crevasse splay events; these deposits nourished and sustained wetland habitats. Levees and channelization of the Mississippi River altered natural sediment transport from the river into the basin, eliminating the source of sediment and freshwater that built and maintained wetlands and marshes. As a result, the basin is suffering from significant coastal habitat loss (Couvillion et al., 2011; CPRA, 2012). The Barataria Basin lost approximately 25% of its total land area between 1932 and 2016 (Couvillion et al., 2017). These extreme rates of coastal erosion were significantly increased in specific locations by oiling from the Incident, injuring the resources that depend on these habitats, including vegetation, fish, crustaceans, birds, and other wildlife (DWH NRDA Trustees, 2016a).

Currently in coastal Louisiana, the areas that demonstrate sustained wetland building over decades are those where there are ongoing inputs of sediment, freshwater, and nutrients (e.g., the Atchafalaya Basin and crevasse areas in the birdfoot delta). The Proposed MBSD Project is designed to replicate a crevasse splay to restore for natural resources injured by the Incident. More specifically, it would reconnect the Mississippi River to the Mid-Barataria Basin to:

- Re-establish deltaic processes that deliver sediment, freshwater, and nutrients.
- Improve the function of existing habitats.
- Successfully develop deltaic habitats that connect nearshore and offshore ecosystems.

The ecosystem services provided by these deltaic habitats depend on ecological connections between the emergent wetlands and open-water habitats surrounding them. Building wetlands using a restoration approach that re-establishes deltaic processes – with a gradual and ongoing deposit of materials during the land-building process – allows plants, invertebrates, fish, crustaceans, and other wildlife to colonize the new areas over time as they encounter suitable conditions. Alternative 1 would provide a diversity of habitats associated with the delta-building process that would create a gradient in elevation from shallow subaqueous habitats to emergent

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<sup>17</sup> Corresponds to Alternative 1 of the EIS.

marsh to higher ridges. This diversity of habitats is expected to support fish and crustacean populations, and promote nutrient cycling and delta formation. Carle (2013) found that wetland vegetation in the Wax Lake Delta exhibits sharp zonation along an elevation gradient, with species such as black willow (*Salix nigra*) occurring at high elevations of the natural channel levees, dense meadows of mixed grasses and forbs occurring at intermediate elevations, and floating-leaved vegetation and SAV found at the lowest elevations and on newly formed shallow deposits. Similar elevation gradients for habitat would be expected in the Barataria Basin under Alternative 1.

The sediment diversion would transport large quantities of mineral sediments via high discharge volumes from the Mississippi River. Operation of the sediment diversion would be triggered by the volume of water flowing in the Mississippi River (as measured by the flow rate at the Belle Chasse gauge):

- When Mississippi River flows exceed 450,000 cfs, diversion operations above base flow would commence at variable flow rates. The Delft 3D Basinwide Model (hereafter the Delft3D model) assumes the diversion flow would start at approximately 25,000 cfs when the river flow is at 450,000 cfs, and diversion flows would increase proportionally as river flows increase.
- When Mississippi River flows reach 1,000,000 cfs, Alternative 1 would allow for a maximum diversion flow of 75,000 cfs through the diversion gates.
- When Mississippi River flows at the Belle Chasse gauge fall below 450,000 cfs, the diversion gates would be adjusted to reduce flow through the diversion to a base flow level of up to 5,000 cfs.

When the diversion is operating, the flow rate would be controlled by the physical difference in water surface elevation between the Mississippi River and the Barataria Basin (i.e., the “head differential”). As the Mississippi River flow and water level increase, the higher head differential would push a higher volume of water and sediment through the diversion into the Barataria Basin. When the Mississippi River flow and water level are low, there would be less energy to push water and sediment through the diversion. The diversion would be closed, when necessary, to prevent a reverse flow from the Barataria Basin to the Mississippi River. Also, diversion operations would be suspended before and during anticipated major tropical events.

At the downstream end of the diversion channel, an engineered area called an “outfall transition feature” would be constructed to guide and disperse the channel flow into the Barataria Basin. This engineered feature would increase the efficiency of water and sediment transport, and expedite the initial development of deltaic habitats. A more detailed description of this feature and other design elements of the Proposed MBSD Project can be found in Chapter 2 of the Final EIS (USACE, 2022). The Project would also create 375 ac and nourish 92 ac of emergent marsh habitat by beneficially using approximately 2 million cubic yards of material excavated during construction of the conveyance channel and outfall transition feature to offset construction impacts on wetlands (see Appendix B).

The LA TIG also developed a detailed MAM Plan to evaluate the Proposed MBSD Project's benefits and impacts on the Barataria Basin, and consider how the management of the diversion may be adapted to better meet project goals (see Appendix A). The MAM Plan, which was revised in response to public comments to the Draft RP, includes performance monitoring to measure progress toward the Proposed MBSD Project's restoration objectives, and to better understand the ecological functions and services provided by the project. The MAM Plan also includes monitoring to characterize the nature and extent of potential collateral injuries.

In support of the EIS, modeling was undertaken using the Delft3D model<sup>18</sup> to evaluate the projected impacts and benefits of the different Proposed MBSD Project alternatives. The LA TIG coordinated with the USACE in this process and is relying on the modeling results to inform the OPA analysis presented in this RP. Modeling suggests significant and sustained wetland benefits across the expected lifetime of the Proposed MBSD Project. More specifically, the Proposed MBSD Project would be expected to:

- Deliver large quantities of sediment and nutrients to the Barataria Basin every year to form a new delta and sustain marshes.
- Deliver high flows of freshwater and nutrients during the spring, re-establishing deltaic processes.
- Maintain a diversity of marsh types, which would help sustain the diversity of the ecologically connected habitats that historically made up the Barataria Basin.

Each of these project-associated changes is briefly described below, and in more detail in the Final EIS (USACE, 2022).

#### 3.2.1.1.1 Alternative 1 Would Deliver Large Quantities of Sediment to the Barataria Basin Every Year to Form New Deltaic Landforms and Sustain Marshes

Alternative 1 would deliver sediment to the Barataria Basin to create new deltaic landforms in the mid-basin, decrease water depths in other areas where sediment is deposited, and help sustain marshes through the retention of sediment. Over the 50-year analysis period, the Delft3D model projects that Alternative 1 would deliver approximately 280 million metric tons (MMT) of sediment to the Barataria Basin, including sand and fine sediments (Table 3-1).

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<sup>18</sup> Delft3D is an advanced modeling suite used to investigate hydrodynamics, sediment transport and morphology, and water quality for fluvial, estuarine, and coastal environments. See Box 3-1 and <https://oss.deltares.nl/web/delft3d/home> for more information.

**Table 3-1.**  
**Alternative 1 Would Deliver a Total of Approximately 280 MMT of Sand and Fine Sediments to the Barataria Basin Every Year, for the 2030–2070 Modeled Period**

Year	Cumulative Load of Sand Diverted (MT, rounded <sup>a</sup> )	Cumulative Load of Fine Sediment Diverted (MT, rounded <sup>a</sup> )	Total Cumulative Sediment Load Diverted (MT, rounded <sup>a</sup> )
2030	6,585,000	39,220,000	45,805,000
2040	17,196,000	82,228,000	99,423,000
2050	29,711,000	132,256,000	161,968,000
2060	40,355,000	184,193,000	224,548,000
2070	51,122,000	230,144,000	281,266,000

<sup>a</sup> Values are rounded to four significant figures; totals may not sum due to rounding.

MT = metric ton.

Source: Delft3D model production runs from the EIS (USACE, 2022).

By delivering these sediments on a continual basis when the diversion is operating, Alternative 1 would allow for the formation of deltaic landforms, which would reach a peak around the modeled year of 2050 (30 years after Proposed MBSD Project operations begin) and then decline due to inundation by anticipated sea level rise (Figure 3-1). Alternative 1 is projected to increase land area, including emergent wetlands and mudflats, in the Barataria Basin across the 50-year analysis period relative to the No-Action Alternative, with a maximum increase of 17,300 ac in 2050, at the approximate mid-point of the 50-year analysis period (Table 3-1). Because of the continual delivery of sediment, Alternative 1 would mitigate some of the projected impacts of sea level rise, with land continuing to be created by the Proposed MBSD Project in the Barataria Basin through the project's life, even though the rates of erosion and land loss are high. Thus, the percentage of land (i.e., emergent marsh and mudflats) attributed to Alternative 1 is projected to increase over the 50-year analysis period, reaching a maximum of about 21% of the total land in the basin in 2070 (Figure 3-2).

Even when sediment deposition is not sufficient to create emergent land, the habitat value would still increase from the shallowing of water depths. Many species rely on unvegetated shallow water habitat for foraging and reproduction, including waterfowl, wading birds, and many marine fishery species (Erwin, 1996; Seitz et al., 2014; USACE, 2022).

### Box 3-1. Interpreting Delft3D Model Results

The LA TIG used results from the Delft3D model in its OPA analysis of the Proposed MBSD Project and its alternatives. The Delft3D model was used in the EIS to assess the impacts of the Proposed MBSD Project and its alternatives, as well as a No-Action Alternative, in the Barataria Basin and the birdfoot delta. The model included observed large-scale processes, including subsidence and sea level rise; along with smaller-scale processes, such as tidal fluctuations, atmospheric and wind forcing, and rainfall.

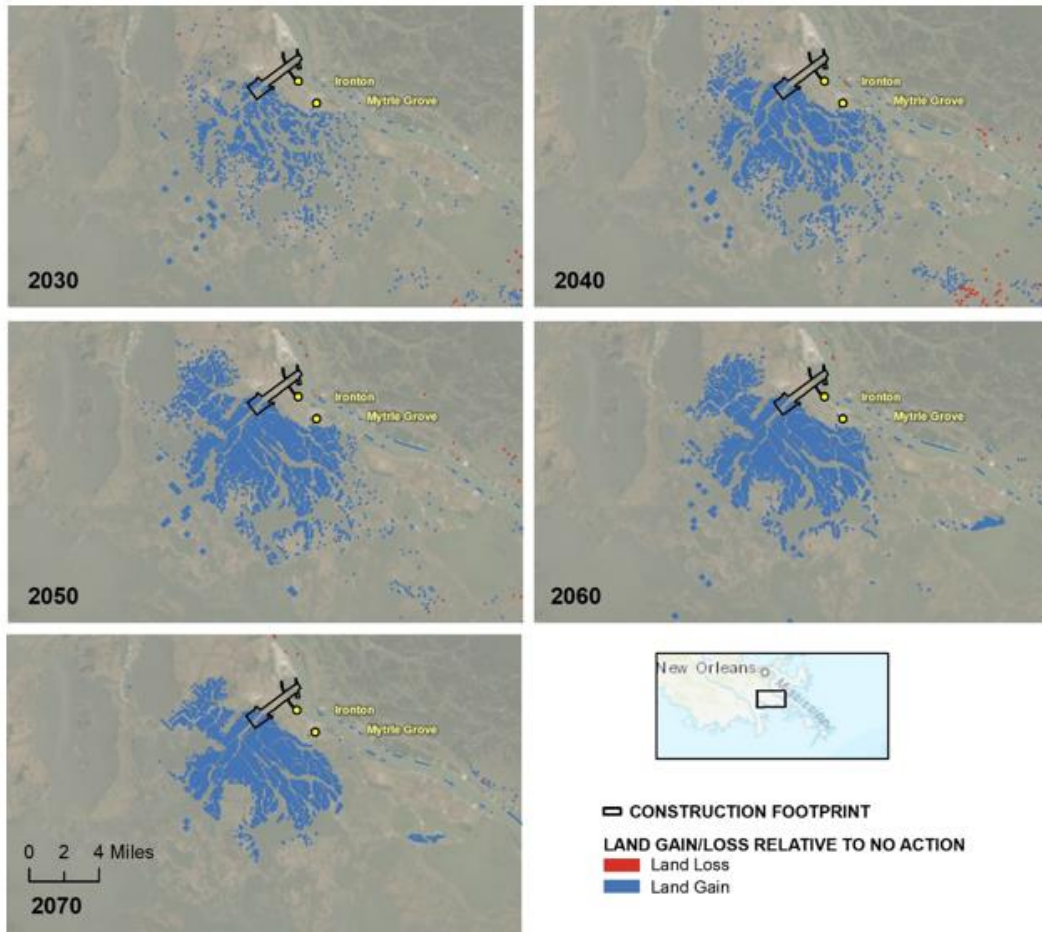
The Delft3D model represents the best scientific tool currently available to compare the relative potential of each project alternative to achieve project benefits and result in collateral injuries. The LA TIG emphasizes to readers of this RP and the EIS that the model results (“model outputs”) depend on the data used to run the model (“model inputs”), which are generally based on historical conditions. When assessing potential future conditions, the model outputs, such as acres of habitat created, should not be considered as absolute values or predictions of actual future conditions. The actual number of habitat acres created, for example, will depend on the actual conditions – such as the flow in the Mississippi River – that occur after the diversion is in operation. While modeling results should not be used to *predict* the exact future conditions in the basin, they are sufficiently robust to enable comparisons among alternatives in the nature, magnitude, and timing of benefits; and the potential injuries that they could create.

The Delft3D model used 50 years of observed Mississippi River flow hydrographs<sup>19</sup> (1964 to 2013) to project impacts of Proposed MBSD Project operations over a 50-year analysis period (modeled as the years 2020–2070). For example, the Mississippi River flows from years 1964 through 1973 were applied for the projected model years of 2020 through 2029, and so on. The projected landscape at the end of each decade of Proposed MBSD Project operations is the product of 10 modeled years of impacts from sea level rise, subsidence, project operations, sediment transport, and vegetation changes. To determine the potential impacts of the Proposed MBSD Project alternatives on water levels and water quality, TWI selected one Mississippi River hydrograph from the historical decadal hydrographs that was representative of conditions for each decade, which resulted in a total of five historical representative hydrographs, one for each decade of model simulations. Projections of the Proposed MBSD Project benefits and collateral injury are based on these historical representative hydrographs, unless otherwise noted.

As a result, the LA TIG is only using the model outputs to compare results among different alternatives and not to compare the modeled outputs to existing or future conditions. For example, when the RP refers to Delft3D modeling projections that are associated with specific points in time (e.g., 2050), the reader should understand that these projections are not *predictions* of basin conditions in 2050; rather, they are projections of the impact of the Proposed MBSD Project after 30 years of operation (which was assumed to begin operating in 2020 for the purpose of the modeling effort).

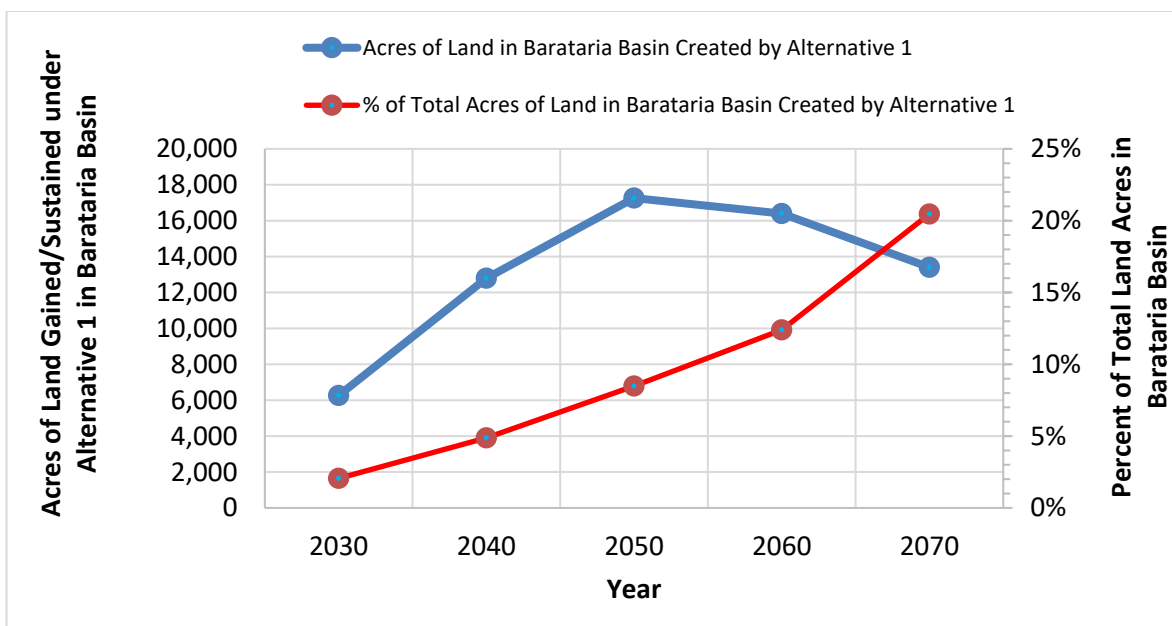
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<sup>19</sup> A hydrograph is a graph showing the rate of flow (discharge) over time at a specific point in a river, channel, or conduit carrying flow. The rate of flow discussed in this RP is expressed in cubic feet per second as measured at the USACE Tarbert Landing gage (located at Mississippi River mile 306 AHP).



**Figure 3-1. Alternative 1 Would Create New Deltaic Landforms and Build and Sustain Land (area shown in blue) in the Barataria Basin as Sediment Is Deposited.** [Source: Delft3D model production runs from the Final EIS, Section 4.2.3.2 (USACE, 2022)]

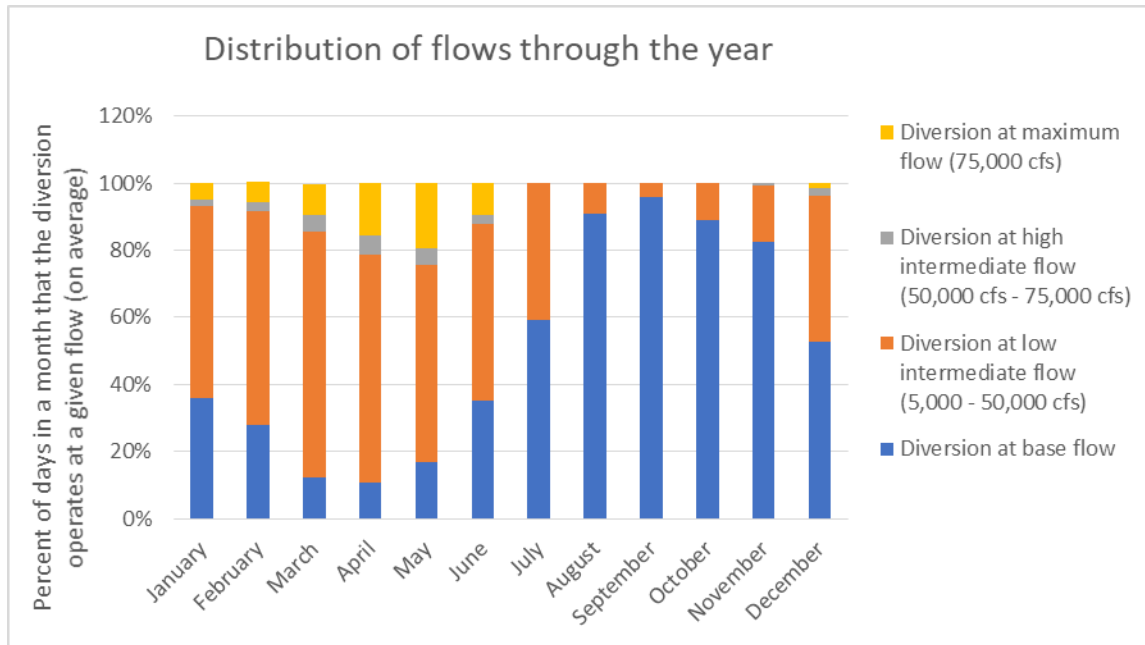




**Figure 3-2. Percentage of Acres in the Barataria Basin Created by Alternative 1 Would Increase over Time, Even Though Total Land Gained Peaks after 30 Years.** [Source: Final EIS, Section 4.2.3.2 (USACE, 2022)]

**3.2.1.1.2 Alternative 1 Would Deliver High Flows of Freshwater during High Mississippi River Flows in the Spring, Re-establishing Deltaic Processes**

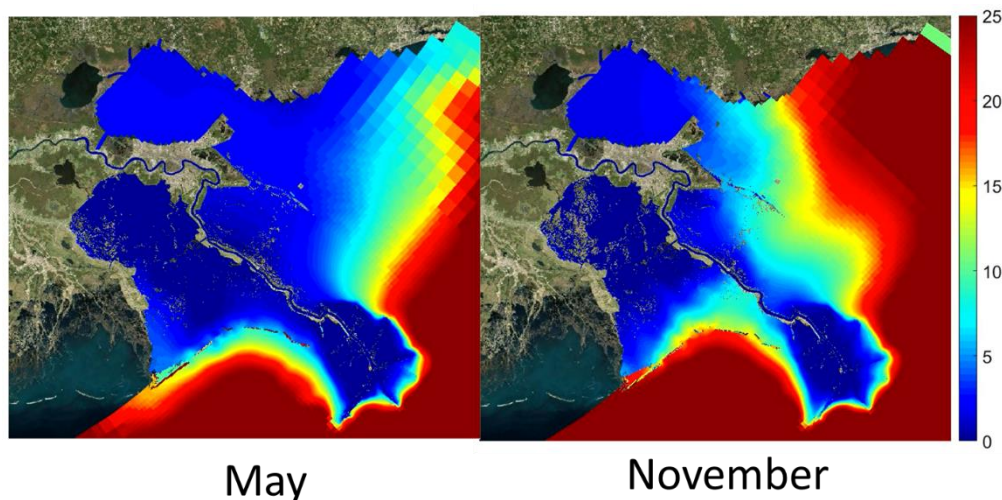
Because large volumes of water are necessary to transport sufficient coarse silts and sands to support land-building (USACE, 2022, Section 2.4.3.2), Alternative 1 would deliver high flows of freshwater to the Barataria Basin when the diversion is operating at higher capacities, typically in the spring when the Mississippi River flow is high. These flows would deliver sediment and nutrients to the basin – re-establishing the deltaic process where crevasse splays bring sediment, freshwater, and nutrients to the basin. Figure 3-3 shows how the diversion is projected to deliver the most freshwater (both in terms of quantity of flow and percentage of days the diversion is operating above base flow) when river flows exceed 450,000 cfs; this typically would occur during the winter and spring. In contrast, the diversion would operate primarily at base flow conditions when river flows are below 450,000 cfs, which would typically occur in the summer and fall.



**Figure 3-3. Alternative 1 Would Typically Deliver the Highest Diversion Flows in the Winter and Spring, and Operate under Base Flow Conditions in the Summer and Fall.**

Average days/month are calculated using modeled results based on historical hydrographs for every year from 2020 to 2069. [Source: Delft3D modeling runs from the Final EIS (USACE, 2022, Section 4.1.3)]

The delivery of freshwater to the Barataria Basin over the course of a year would result in changing salinity patterns. The lowest salinities would occur while the diversion is operating at higher capacities (typically in the winter and spring), and higher salinities would occur when the diversion is operating under base flow conditions (typically in the summer and fall; Figure 3-4).



**Figure 3-4. Operation of the Diversion Would Maintain a Seasonal Fluctuation in Salinity Characteristic of Estuaries.** Red colors represent high salinities and blue colors low salinities. The basin would experience freshwater conditions when the Mississippi River is flowing at high flows (typically in the winter and spring), and a salinity gradient under low-flow conditions (typically in the summer and fall). (Source: Delft3D model production runs for years 2040–2049)

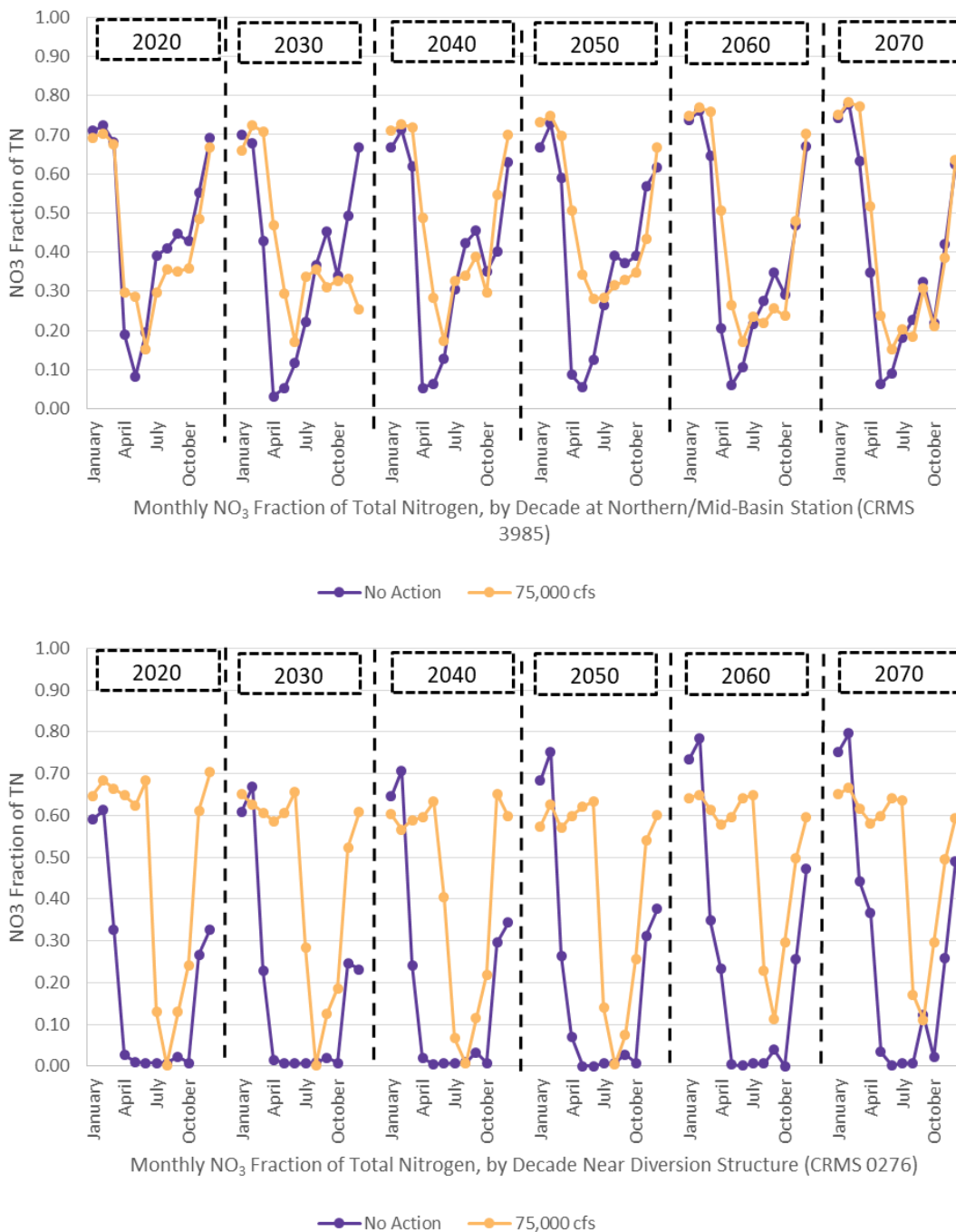
### 3.2.1.1.3 Alternative 1 Would Deliver Additional Nutrients to the Barataria Basin

The Mississippi River watershed covers 2 Canadian provinces and 31 of the contiguous 48 U.S. states. It is estimated to discharge 1.4 MMT of nitrogen and 140,000 tons of phosphorus to the northern Gulf of Mexico annually (USEPA, 1993, cited in Steinmuller et al., 2016). During flood events, the Mississippi River historically deposited a portion of its nutrient load into surrounding wetlands rather than into open waters of the northern Gulf of Mexico (DeLaune and White, 2011). Currently, the Barataria Basin receives water mainly through rainfall and the Davis Pond Freshwater Diversion Project (LDWF, 2015). Due to the hydrologic modifications in and adjacent to the Mississippi River, most of the Mississippi River water, nutrient, and suspended sediment loads are discharged into the Gulf of Mexico and off the continental shelf in a plume. There is currently very little nutrient input from the Mississippi River plume to the Barataria Basin except when river water levels are high, winds blow from the southwest, and the long-shore current cycles the western part of the plume around the barrier islands (Schiller et al., 2011). Nutrients, such as nitrogen and phosphorus, are necessary to sustain wetland plant growth (Gusewell et al., 2005). Thus, the marsh ecosystems that would be restored through Alternative 1 could benefit from the nutrients that would be brought into the Barataria Basin by the diversion.

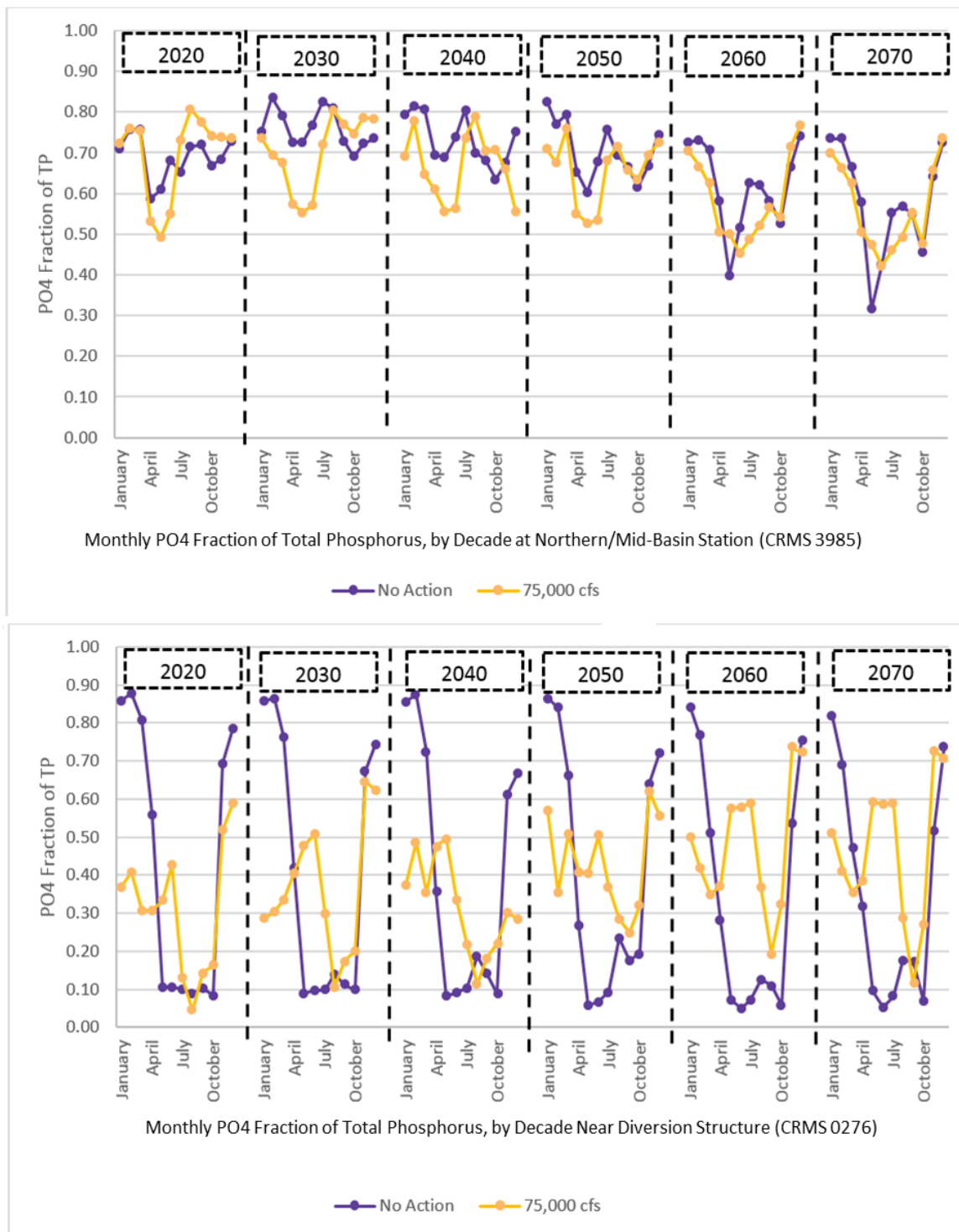
Compared to the No-Action Alternative, Alternative 1 is projected to shift total nitrogen (TN) seasonally (corresponding to when the diversion is operating above base flow) in the Barataria Basin at all modeled stations except the birdfoot delta (USACE, 2022, Section 4.5.5.3). In general, slightly elevated TN concentrations are projected to persist for an increasingly longer period into the spring compared to the No-Action Alternative, demonstrating that Alternative 1 is effective at delivering nutrients to the basin. The shift in seasonality of TN is more pronounced at stations closer to the diversion structure [i.e., Coastwide Reference Monitoring System (CRMS) station 0276] and in the central basin (i.e., CRMS station 0224) than in the southern basin (i.e., Barataria Pass at Grand Isle), western basin (i.e., Little Lake near Cutoff), or the far northern basin (i.e., CRMS station 3985) (USACE, 2022, Section 4.5.5.3). The model projects that inorganic nitrate ( $\text{NO}_3$ ), which generally represents the bioavailable form of nitrogen, would comprise between 0.3% and 80% of the TN under Alternative 1, and follow a similar seasonal variation as TN concentrations (USACE, 2022, Section 4.5.5.3). As an example, at CRMS station 0224 (central basin) under Alternative 1, the elevated  $\text{NO}_3$  fraction of TN is predicted to persist for an increasingly longer period into the spring compared to the No-Action Alternative over the 50-year analysis period of the Proposed MBSD Project (Figure 3-5).

Phosphorus concentrations projected for Alternative 1 also follow seasonal trends at all modeled stations except the birdfoot delta. Compared to the No-Action Alternative, over the 50-year analysis period, the duration of elevated concentrations across the Barataria Basin is projected to extend further into the summer months, and the onset of lower/minimum concentrations becomes delayed by as much as 5 months by 2040 (USACE, 2022, Section 4.5.5.4). By 2060, the seasonal variability of both total phosphorus (TP) and inorganic phosphate ( $\text{PO}_4$ ) are projected to be reversed from the variability projected for the No-Action Alternative (USACE, 2022, Section 4.5.5.4). This projected change may be related to the extended length of time that the diversion is expected to be operating above base flows in the last two modeled decades. The model projects that between 5% and 88% of TP would consist of inorganic  $\text{PO}_4$ , which generally represents bioavailable phosphorus. As an example, in the central basin (CRMS station 0224), the fraction of TP represented by  $\text{PO}_4$  is projected to fluctuate seasonally, with higher levels occurring

when flows through the diversion would be higher (typically winter and spring), and lower when flows through the diversion would be lower (typically summer and fall). The impacts of increased nutrient delivery to specific resources would vary between resources (Figure 3-6). These impacts are discussed in further detail in Sections 3.2.1.5 and 3.2.1.6.



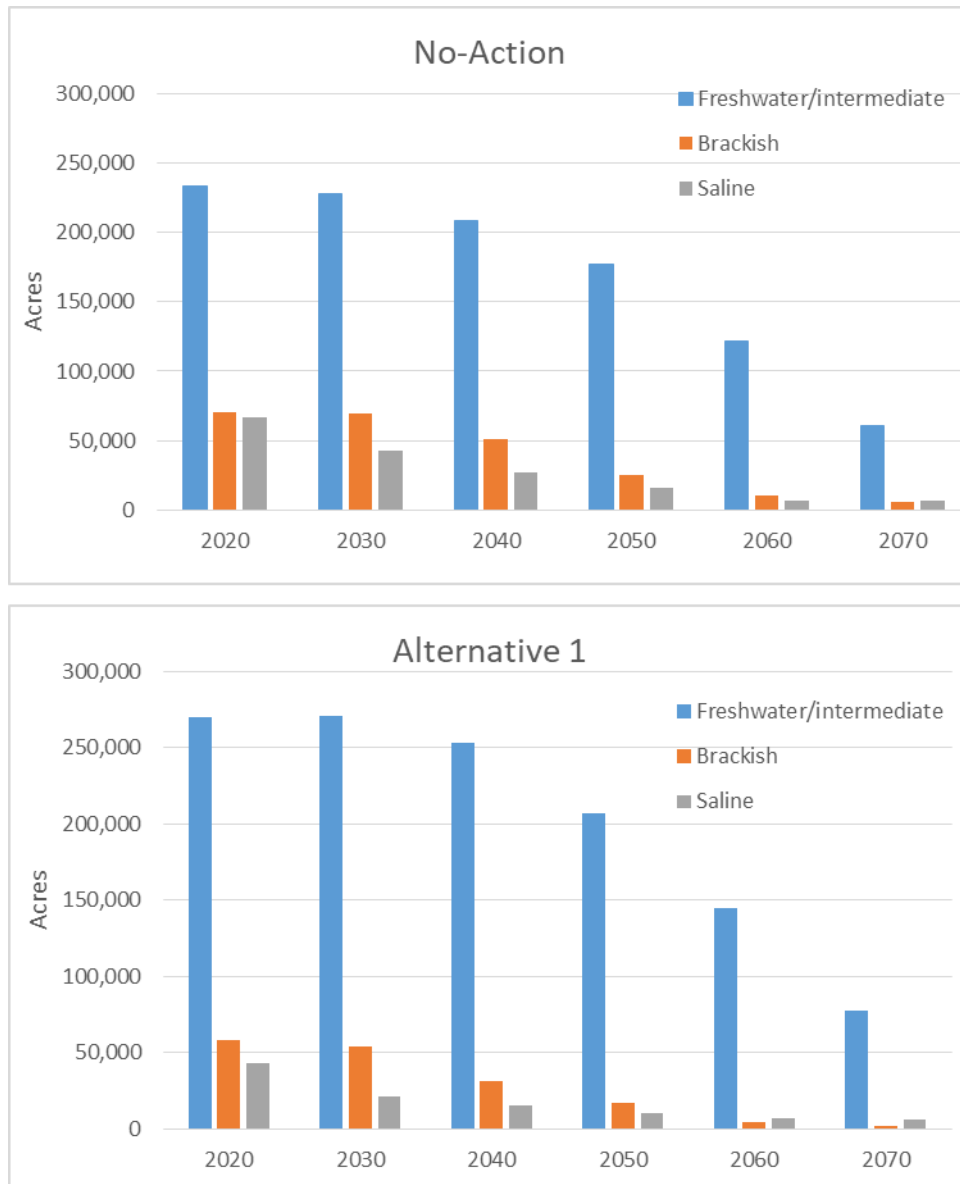
**Figure 3-5. Alternative 1 Would Increase the Average NO<sub>3</sub> Fraction of TN at Northern/Mid-Basin CRMS Station 3985 and CRMS Station 0276 Nearest the Diversion Compared to the No-Action Alternative.** Overlapping graph lines indicate negligible differences in model projections. (Source: USACE, 2022, Section 4.5.5.3)



**Figure 3-6. Alternative 1 Would Increase the Average PO<sub>4</sub> Fraction of TP at Northern/Mid-Basin CRMS Station 3985 and CRMS Station 0276 Nearest the Diversion Compared to the No-Action Alternative.** Overlapping graph lines indicate negligible differences in model projections. (Source: USACE, 2022, Section 4.5.5.4)

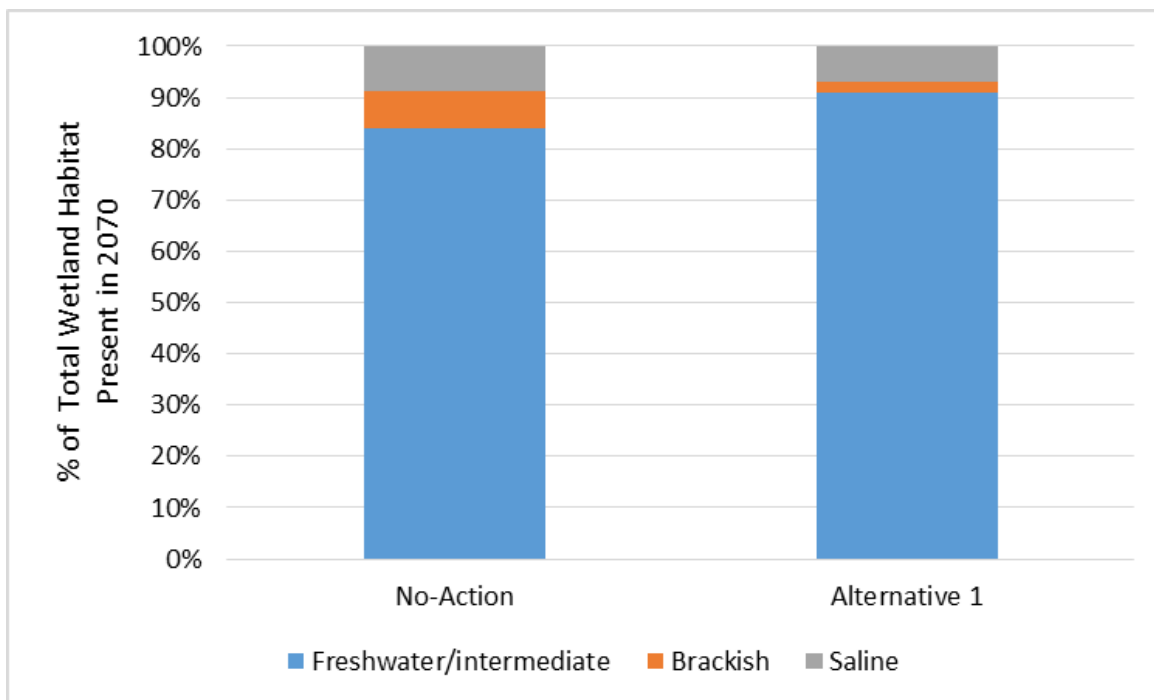
3.2.1.1.4 Alternative 1 Would Maintain a Gradient of Fresh to Saline Estuarine Habitat Types

Alternative 1 would maintain a gradient of estuarine habitat types, including fresh, intermediate, brackish, and saline marshes, which support important refugia, foraging, and resting habitats for a wide variety of aquatic, terrestrial, and avian species (Figure 3-7). However, the relative amounts of brackish and saline habitats are reduced under this alternative compared to the No-Action Alternative (Figure 3-7, Figure 3-8).



**Figure 3-7. While Wetland Habitat Declines under Both Alternatives, More Brackish and Saline Habitat Is Lost over Time, and More Freshwater/Intermediate Habitats Are Retained or Created under Alternative 1 than the No-Action Alternative.** (Source: USACE, 2022, Section 4.6.5.1)





**Figure 3-8. Operation of the Diversion Will Maintain a Diversity of Habitat Types under Alternative 1, Although the Relative Amount of Brackish and Saline Habitats Are Lower under Alternative 1 than the No-Action Alternative by 2070.** (Source: USACE, 2022, Section 4.6.5.1)

#### 3.2.1.1.5 Associated Mitigation and Stewardship Measures

Under Alternative 1 and all other alternatives, the Trustees would also design and implement a suite of mitigation and stewardship measures in recognition of the collateral injury that would potentially result from the implementation of the Proposed MBSD Project (see Sections 3.2.1.5 and 3.2.2.5). These measures, which were developed and refined with public input via the public comment response process and community meetings (see Section 1.8), are described briefly below by resource and in more detail in Appendix B.<sup>20,21</sup>

#### Marine Mammals

Changes in salinity projected to occur as a result of Alternative 1 are anticipated to significantly impact the bottlenose dolphin population within the Barataria Basin (see Sections 3.2.1.5 and 3.2.2.5). In recognition of the potential collateral injury to bottlenose dolphins and in response to public comments on this issue, four key stewardship measures would be implemented as part of the proposed Project to benefit dolphins in Louisiana. The last of these has been developed since the release of the Draft RP in response to public concerns about potential marine mammal impacts. First, the LA TIG would support a statewide stranding program for 20 years that would improve the survival and health outcomes of marine mammal populations injured by the DWH spill, especially coastal and estuarine stocks of bottlenose dolphins. Enabling a more rapid response to a live stranded cetacean would increase that animal's chance of survival by reducing

<sup>20</sup> See Appendix S of the Final EIS for an environmental compliance analysis of these measures.

<sup>21</sup> While the mitigation and stewardship measures taken would be similar across all alternatives, the measures would be scaled for Alternatives 2–6 based on impacts.

the time spent on the beach, reducing stress on the animal, providing rapid treatment, and, if appropriate, transport to an authorized rehabilitation facility for additional treatment and care. In addition, this program would improve diagnoses of the causes of illness and death in cetaceans to better understand natural and anthropogenic threats, which will inform restoration planning and MAM. Second, the LA TIG would support activities that reduce stressful interactions between dolphins and humans (e.g., by reducing dolphin mortalities associated with recreational fishing; reducing illegal fishing of dolphins; and assessing and mitigating the impacts of marine vessels, noise, and other threats on marine mammals in the Barataria Basin). Third, the LA TIG would provide funding to support stranding surge capacity in response to unusual marine mammal mortality events. Finally, the TIG would implement a Marine Mammal Intervention Plan, which outlines a spectrum of potential response actions for dolphins affected by the operation of the diversion, ranging from recovery/relocation to no intervention to euthanasia. While the more severe actions (that is, euthanasia) may not offset the ultimate outcome of dolphin mortality associated with the proposed Project, it could alleviate animal suffering. Where relocation is possible, the goal could be to release dolphins into more hospitable habitat where any health impacts would be minimized. The specific actions identified in the plan would be finalized based on input from resource managers and experts. For more information, see Appendix C. The MAM Plan also supports intense monitoring that will allow for a better understanding of the impacts of freshwater exposure on dolphins, which can help inform response and other actions throughout Louisiana and the southeast United States (see Appendix B).

### Oysters

Changes in salinity that are projected to occur through the implementation of Alternative 1 are anticipated to adversely affect oysters (see Sections 3.2.1.5 and 3.2.2.5). However, the Proposed MBSD Project-related changes in salinity in the Lower Barataria Basin could create suitable conditions for oyster culture in areas that are currently unsuitable, creating an opportunity to mitigate for the loss of oyster culture areas elsewhere in the basin. In response to public comments and resource agency input about the proposed mitigation efforts, CPRA has expanded and refined oyster mitigation and stewardship measures. CPRA's mitigation and stewardship measures and associated expenditures would focus on establishing sustainable fisheries for oysters rather than on compensating individual oyster harvesters for their particularized economic losses. These mitigation and stewardship measures include, first, helping re-establish public seed grounds in the basin to help offset losses to these seed grounds that occur as a result of Proposed MBSD Project operations. These seed grounds would be located in areas with environmental conditions that would best support oysters after the diversion has begun operating. Second, the LA TIG would support efforts to provide additional cultch material to current lessees, which could help maintain oyster reefs in areas where sediment could bury suitable oyster habitat. Third, the LA TIG would support the creation of broodstock reefs within the Barataria Basin, in recognition of losses in broodstocks that result from the operation of the diversion. Fourth, the LA TIG would support alternative oyster culture, which means growing oysters outside of reefs and off-bottom— typically in some kind of mesh container. Growing oysters in this way makes it feasible to cultivate them in areas where suitable reef habitat is lacking; it can also improve oyster growth due to lower turbidity. The LA TIG would also provide funding to improve marketing and enhance the value of dockside harvests. Finally, the LA TIG would provide public access opportunities within the Barataria Basin to support subsistence oyster harvesting (see the Recreational and Subsistence Use section below).

### Brown Shrimp, Blue Crabs, and Finfish

Changes in salinity due to the implementation of Alternative 1 are anticipated to adversely affect brown shrimp and other commercially harvested species (see Sections 3.2.1.5 and 3.2.2.5). As with related oyster mitigation and stewardship measures noted above, CPRA has expanded and refined shrimp, blue crab, and finfish mitigation and stewardship measures in response to public and resource agency input about the proposed mitigation efforts, and such measures would focus on establishing sustainable fisheries rather than on compensating individual fishers for their particularized economic losses. A variety of approaches would be utilized in recognition of collateral injuries associated with specific fish and shellfish species that support recreational and commercial fishing. For the brown shrimp fishery, these restoration actions include supporting improvements in fishing gear and vessel refrigeration installation. For brown shrimp, blue crab, and finfish fisheries, the LA TIG would support marketing to improve the dockside value of landings, as well as workforce training to improve business practices or to facilitate transitions to a new type of employment. The LA TIG would also provide support for gear improvements for blue crab fisheries. The LA TIG would also provide public access opportunities within the Barataria Basin to support recreational and subsistence fishing (see the Recreational and Subsistence Use section below).

### Recreational and Subsistence Use

In recognition of collateral injuries related to recreational and subsistence use of the Barataria Basin, particularly in areas near the diversion complex utilized by low-income and minority communities, the LA TIG would provide access to public waterways to facilitate recreational access for fishing and birding, a pier for subsistence fishing, a kayak/pirogue launch, and views of the marsh creation area near the diversion structure. These public amenities would serve to enhance access to quality subsistence fishing; and would improve public access to recreational boating, fishing, and birding.

#### 3.2.1.1.6 Property Acquisitions to Support the Proposed MBSD Project

As explained in Sections 3.2.1.7 and 3.2.2.7, as well as in the Final EIS, Alternative 1 is projected to increase flooding in several communities that are located outside of flood protection (i.e., within 1 mile to approximately 20 miles south of the diversion). In Myrtle Grove, CPRA plans to improve the bulkhead around the Myrtle Grove Marina Estates Subdivision, which would reduce the incidence of tidal flooding in the Myrtle Grove Marina Estates Subdivision compared to future conditions if the proposed Project were not constructed.

In communities south of the diversion outside levee protection from Woodpark south to Grand Bayou and Happy Jack, CPRA plans to raise various roads to improve access to the properties and purchase Project servitudes from property owners that would permit CPRA to add and/or increase the water flow on landowners' properties. CPRA would first attempt to acquire any such servitudes through a voluntary negotiation process. If CPRA and the landowner were unable to reach a negotiated agreement, CPRA would exercise its eminent domain authority to acquire these servitudes. Landowners would be able to use the funds from the Project servitude to implement additional flood mitigation measures. CPRA also may consider purchasing an impacted property outright if requested by the owner. Decisions regarding buyouts would be made on a case-by-case basis depending on the particular circumstances.

### 3.2.1.1.7 Wetland Preservation and Restoration in the Birdfoot Delta

In recognition of the Project-related indirect wetland losses in the birdfoot delta, and consistent with Fish and Wildlife Coordination Act Report recommendations (see Appendix T in the Final EIS), CPRA or the LA TIG will provide \$10,000,000 of additional funding for wetland preservation and restoration work in the Delta National Wildlife Refuge and the Pass a Loutre Wildlife Management Area. That funding may be accomplished through additional funding through the CWPPRA program, through additional restoration work sponsored by the LA TIG (for example, construction of the E&D work discussed in the DWH LA TIG's Restoration Plan and Environmental Assessment #7), or through a direct contribution for additional work. The funding will be proportioned between the Delta National Wildlife Refuge and the Pass a Loutre Wildlife Management Area based on the magnitude of the projected wetland losses in each area.

### 3.2.1.1.8 Property Acquisition for Construction

If the LA TIG decides to fund Alternative 1 or any of the alternatives, the project costs are anticipated to include the acquisition of property interests from landowners within the footprint of the proposed diversion, as well as temporary easement rights for any construction staging areas. Property acquisition would preferably be achieved through a negotiated sale, where CPRA would pay a negotiated amount of compensation to landowners in exchange for the property interests needed for the Proposed MBSD Project. However, if this is not possible, CPRA may, in appropriate circumstances, exercise the state's eminent domain authority to acquire the needed real estate interests. Consistent with applicable law, the landowner would be paid just compensation for any real estate interest acquired to enable the implementation of Alternative 1. Real estate acquisition by CPRA is governed generally by state law in accordance with La. Const. Article 1, Section 4(F), La. R.S. 49:214.1 et seq., La. R.S. 49:214.5.6, and La. R.S. 49:214.6.1(A)(1). Such costs have been estimated and are included in Sections 3.2.1.2 and 3.2.2.2 below.

### 3.2.1.2 Cost to Carry Out the Alternative

At the time of the Draft RP publication (i.e., in 2020), the cost estimate of Alternative 1 was \$1,982,910,000, including \$1,531,250,000 for construction, \$80,626,000<sup>22</sup> for planning and design, \$55,626,000 for services during construction, \$9,419,000 for permitting, \$268,318,000 for land acquisitions and related costs<sup>23</sup> and services, \$16,560,000 for project monitoring, and \$21,111,000 for CPRA project and design management costs. The estimated total cost also included funding for the associated mitigation and stewardship measures that would be implemented in recognition of the potential collateral injuries of the project, including the identified potential for disproportionate impacts to low-income and minority communities (see Section 3.2.1.1.5). However, the costs associated with all alternatives are likely to significantly exceed the costs detailed in the Draft RP due to substantial increases in the general inflation rate as well as corresponding increases to most cost components of the Project since the publication of the Draft RP, including but not limited to construction materials, construction activities, and wages. CPRA has experienced an average 25% increase in costs on its recent restoration projects. CPRA will not know the amount of that increase until it completes negotiations for a Guaranteed

<sup>22</sup> Does not include the \$108 million in leveraged funding from NFWF that is noted below.

<sup>23</sup> The state will be separately responsible for any costs of acquisition acquired via eminent domain.

Maximum Price for project construction with the Construction Management At Risk (CMAR) contractor, and those negotiations will not begin until after the publication of this Final RP.

In light of this uncertainty as to total Project costs, the LA TIG intends to limit its contribution to the overall Project costs to \$2,260,000,000. This will help ensure that DWH settlement funding will be available to construct all LA TIG-funded projects currently under consideration as well as funding for future wetlands, coastal, and nearshore habitat restoration projects not yet proposed. The cap would also ensure that planned DWH payments to the LA TIG will be sufficient to cover Project costs as it continues to be designed and implemented. To ensure the MAM and Mitigation and Stewardship Plans are fully funded, the LA TIG's contribution would cover the majority of MAM associated costs (an NRDA investment of up to \$148,800,000, including contingency funding) and the mitigation and stewardship costs (currently estimated at \$378,000,000, including contingency funding). The remaining LA TIG contribution would be applied toward other project cost categories. CPRA has committed to providing funding for all costs that exceed the LA TIG's funding cap of \$2,260,000,000,

The LA TIG has considered several factors to evaluate the reasonableness of the cost of the alternative, including leveraging funds from other potential funding streams, the development and implementation of a robust MAM Plan, and innovative project delivery methods.

With regard to leveraging funds, the LA TIG leveraged funds from other DWH oil spill funding sources and will continue to evaluate the utilization of alternative funding sources to leverage existing LA TIG funding. Specifically, \$108,000,000 in funding for E&D was provided by NFWF's GEBF.

As noted above, the Proposed MBSD Project costs would also cover the implementation of a robust MAM Plan. Monitoring data would inform progress toward meeting Proposed MBSD Project objectives and to support adaptive management of this project. For example, under the MAM Plan, there would be extensive monitoring of the Mississippi River, the conveyance structure, and the Barataria Basin to inform Proposed MBSD Project effectiveness and to document natural and human community responses.

The State of Louisiana, through CPRA, would also ensure cost efficiency by awarding the work in compliance with Louisiana's CMAR project delivery model, ensuring a high-quality design and using a cost-effective approach. CMAR is a project delivery model that creates an intentional overlap between the designer, the State of Louisiana for the Proposed MBSD Project, and the

### Alternative 1: Cost Summary

Alternative 1 was estimated to cost approximately \$2 billion in 2020, including funding for associated mitigation and stewardship measures. However, the costs associated with this and other alternatives are likely to significantly exceed the costs detailed in the Draft RP due to inflation, and final project costs will not be available until after CPRA completes negotiations for a Guaranteed Maximum Price for project construction with the CMAR contractor. In light of this uncertainty as to total Project costs, the LA TIG intends to limit its contribution to the overall Project costs to \$2,260,000,000. The Project would include a robust MAM plan and use CMAR to improve the quality and constructability of any alternative, reduce overall risk, and allow for scope revision during the design phase to meet the alternative's budget and goals. The LA TIG has leveraged \$108 million in funding for engineering and design, reducing the total cost to the LA TIG by this amount (see Table 3-5).

CMAR contractor, allowing the CMAR contractor to bring construction insight as early as practical into the design process. This early collaboration between the CMAR contractor and designer integrates constructability considerations throughout the design process, improving the quality and constructability of the project and reducing overall risk. The CMAR contractor's involvement during the design phase can also reduce design misunderstandings and the potential for claims during construction. CMAR also provides for progressive and detailed cost estimating led by the CMAR contractor, which allows for scope revision during the design phase to meet the Project's objectives and budget. The use of the CMAR approach increases the LA TIG's confidence that Alternative 1 for the Proposed MBSD Project would be designed and constructed in a cost-efficient manner.

In SRP/EA #3, the LA TIG found that the costs for the preferred strategic alternative (Marsh Creation and Ridge Restoration Plus Large-Scale Sediment Diversions) were reasonable and appropriate. The LA TIG noted that large-scale sediment diversions were anticipated to be more cost-effective than other ecosystem-level restoration projects, because the marsh creation benefits realized by a large-scale sediment diversion would have more longevity and be more self-sustainable over time (i.e., sediment transport and associated land building would continue as long as the diversion operates).

#### 3.2.1.3 Meets Trustee Restoration Goals and Objectives

Alternative 1 is explicitly designed to meet the LA TIG's three specific goals for the Proposed MBSD Project:

1. Deliver freshwater, sediment, and nutrients to the Barataria Basin through a large-scale sediment diversion from the Mississippi River.
2. Reconnect and re-establish sustainable deltaic processes between the Mississippi River and the Barataria Basin (e.g., sediment retention and accumulation, new delta formation).
3. Create, restore, and sustain wetlands and other deltaic habitats and associated ecosystem services.

These three goals are intertwined. Delivering freshwater, sediment, and nutrients is the mechanism by which sustainable deltaic processes between the Mississippi River and the Barataria Basin would be reconnected and re-established. The re-establishment of these deltaic processes would then result in creating, restoring, and sustaining wetlands and other deltaic habitats; and associated ecosystem services. The LA TIG has committed to evaluating the effectiveness of the diversion through monitoring many parameters that are associated with each goal (see Appendix A).

In this section, the LA TIG examines the extent to which Alternative 1 would meet each of the goals, enabling a comparison of alternatives in subsequent sections. To do this, the LA TIG reviewed multiple sources of evidence, including projections of the amount of freshwater, sediment, and nutrients that would be delivered; the projected maximum increase in land area in the Barataria Basin as evidence of delta formation; and the total area of created and sustained wetlands representing the different habitat types that provide essential nursery and foraging habitats for fish and birds. A summary of relevant metrics is provided in Table 3-2, and a



discussion of how these metrics demonstrate that Alternative 1 would meet each goal is provided below.

**Table 3-2.**  
**Metrics Demonstrating How Alternative 1 of the Proposed**  
**MBSD Project Meets LA TIG Goals for this Project**

Goals	Metrics for Evaluating Goals and Objectives	Alternative 1 (75,000 cfs diversion)
1: Deliver freshwater, sediment, and nutrients	Total sediment load delivered by 2070 <sup>a</sup>	280 MMT
2: Reconnect and re-establish sustainable deltaic processes	Maximum increase in land area in Barataria Basin relative to No-Action Alternative (2050) <sup>b</sup>	17,300 ac
	Projected increase in bed elevation, near the diversion, in 2050 <sup>c</sup>	2.8 <sup>d</sup> ft (0.9 m)
3: Create, restore, and sustain wetlands and other deltaic habitats and associated ecosystem services	Area of different marsh habitat types in Barataria Basin in 2050 <sup>d</sup>	Fresh/intermediate: 207,000 ac Brackish: 16,600 ac Saline: 10,400 ac

<sup>a</sup> Delft3D modeling runs.

<sup>b</sup> Source: USACE, 2022, Table 4.2-4.

<sup>c</sup> Source: USACE, 2022, Table 4.4-3.

<sup>d</sup> Corrected erroneous value that was included in the Draft RP.

Source: USACE, 2022, Table 4.6-3.

MMT = million metric tons, ac = acre, m = meter.

### 3.2.1.3.1 Goal 1: Deliver Freshwater, Sediment, and Nutrients to the Barataria Basin through a Large-Scale Sediment Diversion from the Mississippi River

Alternative 1 would meet Goal 1 by delivering freshwater, sediment, and nutrients to the Barataria Basin, conveyed by a maximum flow of 75,000 cfs through the diversion structure (see Table 3-2 and Figure 3-3). Alternative 1 would meet this Trustee goal every year that the diversion is in operation, unlike mechanical marsh creation projects that deliver sediment primarily at the initiation of a project (and sometimes on a subsequent occasion with a “maintenance lift” of new sediment).

The amount of flow through the diversion depends on the flow rate in the Mississippi River. On average, the sediment diversion would be anticipated to deliver freshwater, sediment, and nutrients at flows higher than base flow conditions for more than half of all days from January to June. During other times of the year, when the flow rate of the Mississippi River would be anticipated to be lower, flows through the diversion would be correspondingly lower (Figure 3-3).

Previous studies have found that a 75,000 cfs diversion would deliver a greater volume of sediment and relatively more coarse-grained sediments compared to a smaller-capacity diversion [i.e., the ratio of sediment to water and the fraction of coarse-grained sediments is expected to increase as the capacity of the diversion increases (CPRA, 2011; Meselhe et al., 2012)]. Sand-rich sediment loads are preferred for land-building from diversions; these coarser-grained sediments would be deposited closer to the outfall area (USACE, 2022, Section 4.2.3.2). The projected total

sediment load that Alternative 1 would deliver to the Barataria Basin by 2070 is approximately 280,000,000 MT, of which 18% is projected to be sands.

#### 3.2.1.3.2 Goal 2: Reconnect and Re-Establish Sustainable Deltaic Processes between the Mississippi River and the Barataria Basin (e.g., sediment retention and accumulation, new delta formation)

Alternative 1 would meet Goal 2 by reconnecting and re-establishing sustainable deltaic processes between the Mississippi River and the Barataria Basin, as demonstrated by the projected formation of new deltaic landforms at the outfall of the diversion (Figure 3-1). Alternative 1 would also decrease water depth in other areas where sediment is deposited.

Under Alternative 1, the Delft3D model projects formation of new deltaic landforms in the Barataria Basin to begin within the first decade of diversion operation, and reach a peak around 2050. Compared to the No-Action Alternative, Alternative 1 is projected to create a maximum of 17,300 ac in 2050 in the Barataria Basin. After peaking around 2050, the Delft3D model results project a decline in land acreage due to relative sea level rise, although the deltaic landforms would still be prominent in 2070 (USACE, 2022, Table 4.2-4).

Time periods of rapid formation of deltaic landforms under Alternative 1 (as well as other alternatives) would likely be episodic and tied to high-flow events in the Mississippi River when the diversion would be flowing at its peak. Modeling and study of the Wax Lake Delta have shown that the rate of land growth at a diversion site depends on a balance between sediment sources and losses of sediment; the periods of rapid growth corresponded with flood events (Rosen and Xu, 2013).

The Delft3D model projects that the restoration of deltaic processes (and specifically sediment transport) would result in increases in the elevation of the bottom of Barataria Basin (“bed elevation”) for Alternative 1 compared to the No-Action Alternative. For example, by 2050, projected bed elevations near the diversion outfall area would increase by 2.8 feet (ft; 0.86 m), while approximately 10 miles south, bed elevations are projected to increase by 0.3 ft (0.1 m) (USACE, 2022, Table 4.4-3). As elevations increase, areas of the basin could become emergent vegetated wetlands (if the elevation is sufficiently high) or mudflats that are exposed at certain tidal levels (at intermediate elevation), or they could remain as shallow-bay bottom. As noted in Section 3.2.1.1.1, even when sediment deposition is insufficient to create emergent land, the diversion would create shallow water habitats that would benefit a variety of species, including waterfowl, wading birds, and marine fishery species.

#### 3.2.1.3.3 Goal 3: Create, Restore, and Sustain Wetlands and Other Deltaic Habitats and Associated Ecosystem Services

Alternative 1 would meet Goal 3 by creating, restoring, and sustaining the different wetland habitats that directly support invertebrates, fish, birds, and other resources in the Barataria Basin; and indirectly supporting resources in the northern Gulf of Mexico that depend on the estuary as a source of nutrients and food.

Sediment accretion would raise the land elevation in submerged areas to allow wetland vegetation to establish and grow; nutrients transported by the diversion could benefit vegetation growth in early-successional marsh or contribute to increased primary production (above- and

belowground plant biomass); and changes in average annual salinity would allow for freshwater and intermediate wetland species to establish, survive, and potentially expand in areas of the Barataria Basin that have been adversely impacted by saltwater intrusion (USACE, 2022, Section 4.6.5.1). In addition, Alternative 1 is expected to increase the overall coverage and biomass of SAV in the basin once salinity regimes stabilize and new freshwater or intermediate communities become established (USACE, 2022, Section 4.10.4.1). SAV is managed as essential fish habitat in the Barataria Basin, providing structured habitat that is of greater value for fish and crustaceans than unstructured habitats, such as soft bottoms (USACE, 2022, Section 4.10.4.4).

### **Alternative 1: Meets Trustee Goals and Objectives Summary**

Alternative 1 would effectively meet each of the three stated goals of the Project. Alternative 1 is expected to (1) deliver sediment, freshwater, and nutrients to the Barataria Basin; (2) reconnect and re-establish deltaic processes; and (3) create, sustain, and restore wetlands and other deltaic habitats. Meeting these three goals would mean that additional sediment would be available to create and sustain wetlands and that nutrients would be available to support plant growth. This would improve habitat for fish, shellfish and other aquatic species that depend on wetland and shallow water habitats, which would in turn support terrestrial wildlife, birds, and recreationists that enjoy birding and fishing. Improving habitat along the coast would also support offshore ecosystems when fish from the nearshore move offshore.

Under Alternative 1, the Barataria Basin is projected to retain a diversity of marsh habitat types by 2050, with a projected acreage of approximately 207,000 ac of freshwater/intermediate marsh, 16,600 ac of brackish marsh, and 10,400 ac of saline marsh (USACE, 2022, Table 4.6-3). These wetlands provide ecosystem services, including habitat and forage for fish and crustaceans, birds, and other wildlife and aquatic species; improve water quality; and sequester carbon (see Section 3.2.1.6 for additional discussion). Because of the projected increases in relative sea level rise over time, the Barataria Basin would continue on a trend toward wetland loss from 2020 to 2070 and beyond, even under Alternative 1 (see Figure 3-7). However, the wetlands that are created or sustained by Alternative 1 would provide valuable ecosystem functions. As the total acreage of wetlands in the Barataria Basin decreases over time, the relative importance of the remaining wetlands would become greater.

The land created under Alternative 1 is projected to have a high degree of spatial complexity (horizontally and vertically), which provides important habitat value to a variety of species (USACE, 2022, Figure 4.4-4). Such diversity of habitats supports important refugia, foraging, and resting habitats for a wide variety of aquatic, terrestrial, and avian species; these habitats would also support offshore ecosystems when fish from the nearshore move offshore (see Section 3.2.1.6 for further discussion).

The sediments introduced into the Barataria Basin through the diversion under Alternative 1 would help offset land loss and sustain or increase bed elevations, primarily within roughly 100 square miles of the diversion. These sediments would benefit wetlands in the area of delta formation near the diversion outfall area, as well as help sustain adjacent marsh creation projects in the Barataria Basin by providing an ongoing source of sediment.

### 3.2.1.4 Likelihood of Success

In SRP/EA #3, the LA TIG found that the preferred strategic alternative (Marsh Creation and Ridge Restoration Plus Large-Scale Sediment Diversions) had the highest likelihood of success of the alternatives considered because the combination of a marsh creation/ridge restoration project and a diversion would provide sustainable and long-term benefits to injured resources. More specifically, SRP/EA #3 noted that “the marsh creation and ridge restoration components can build habitat quickly, while the sediment diversion component can help to make this new habitat sustainable” (LA TIG, 2018c, page 3-8). The LA TIG’s analysis in the strategic plan also drew on information from the PDARP/PEIS, which noted that sediment diversions “will help maintain the Louisiana coastal landscape and its ability to overcome other environmental stressors by stabilizing wetland substrates; reducing coastal wetland loss rates; increasing habitat for freshwater fish, birds, and benthic communities; and reducing storm risks, thus providing protection to nearby infrastructure (Barbier et al., 2013; Day et al., 2012; Day et al., 2009; DeLaune et al., 2013; Falcini et al., 2012; Roberts et al., 2015; Rosen and Xu, 2013)” (DWH NRDA Trustees, 2016a). The LA TIG has already completed and released an associated Final Phase II RP/EA for marsh restoration in the Upper Barataria Basin (LA TIG, 2020d).

The Proposed MBSD Project analyzed in this Final RP (Alternative 1) is an innovative, ecosystem-scale restoration project that would affect multiple ecosystem dynamics simultaneously. Because the use of a sediment diversion to support ecosystem-scale restoration is novel and the ecosystem components affected would be wide-ranging, there are inherent uncertainties associated with Alternative 1’s likelihood of success. Thus, the LA TIG considered three key factors when assessing the likelihood of success of this alternative:

- The general efficacy of diversions in rebuilding marsh ecosystems.
- The extensive scientific and modeling efforts that have been undertaken since the 1990s to develop and refine the concept of a sediment diversion in the Barataria Basin.
- The implementation of the MAM Plan for the Proposed MBSD Project, which would support adaptive management of this project over time.

#### 3.2.1.4.1 Efficacy of Diversions and Natural Crevasses in Rebuilding Marsh Ecosystems

Natural river diversions are responsible for the landscape of coastal Louisiana, where delta lobes have formed, eroded, and reformed for thousands of years. Intentional, engineered diversions have existed since the mid-1940s. Although existing human-made diversions were primarily designed and constructed either to control flooding or to control saltwater intrusion by delivering freshwater into estuaries, they have also demonstrated that freshwater diversions can successfully rebuild wetlands. For example, the Wax Lake Outlet has created thousands of acres of deltaic marshes that are very resilient to coastal storm disturbance (Carle and Sasser, 2015). The Caernarvon Freshwater Diversion has created a deltaic system in the open-water area called “Big Mar” (Lopez et al., 2014) in the Breton Sound Basin, and the Davis Pond Freshwater Diversion has restored marsh in portions of its outfall area in the northern Barataria Basin (CPRA, 2013; Plitsch, 2018). Crevasses have also been successful at creating and restoring marshes in shallow water habitats (Gossman and Gisclair, 2018). For example, the naturally occurring Davis crevasse,

which formed in 1884, created between 40,000 and 50,000 ac of crevasse splay and is still clearly visible in aerial photographs (Day et al., 2016; Day and Erdman, 2018).

While Alternative 1 differs from these freshwater diversions and natural crevasses through designs that deliver sediment to wetlands to reverse rapid land loss, the examples above suggest that Alternative 1 should succeed in building and maintaining wetland habitat in a resilient and sustainable manner. For further information see the Final EIS (USACE, 2022).

#### 3.2.1.4.2 Extensive Investments in Developing and Vetting a Large-Scale Sediment Diversion in the Mid-Barataria Basin

Given the recognition that disconnecting the Mississippi River from coastal estuaries has contributed to wetland loss and a loss of deltaic functions, the concept of developing a large sediment diversion project for coastal restoration has been a cornerstone of Louisiana coastal management planning for many years (CPRA, 2017). Because of the novelty of this restoration technique, CPRA and the USACE have undertaken detailed scientific studies and developed sophisticated technical models to understand the key river and estuarine dynamics that would be influenced by sediment diversion projects, including the Proposed MBSD Project (CPRA, 2017). More specifically, the following studies, often with participation of some of the same federal agencies that are also LA TIG Trustees, have explored the use of sediment diversions to restore the Barataria Basin (USACE, 2022, Section 1.2.2.1); the information and models developed through these studies have been applied in the design of the proposed MBSD Project:

- The *Coast 2050: Toward a Sustainable Coastal Louisiana* plan is aimed at implementing projects that restore and sustain the coastal ecosystem for the benefit of coastal Louisiana communities and resources, including regional strategies to restore and sustain marshes in the Barataria Basin through sediment diversions (Louisiana Coastal Wetlands Conservation and Restoration Task Force and the Wetlands Conservation and Restoration Authority, 1998).
- The *Mississippi River Sediment, Nutrient and Freshwater Redistribution Study* evaluated the potential environmental and socioeconomic impacts from several alternative designs and flow rates for diverting sediment, freshwater, and nutrients from the river to the Barataria Basin (USACE, 2000).
- The *Delta Building Diversion at Myrtle Grove Project* (CWPPRA Project BA-33) evaluated the feasibility of a controlled diversion structure and conveyance system, with alternative design flows ranging from 2,500 to 15,000 cfs, coupled with the beneficial placement of dredged materials in identified material deposition sites within the Mid-Barataria Basin (LCWCRTF, 2003).
- The *LCA Ecosystem Restoration Study Report and Programmatic EIS* (USACE, 2004) and the subsequent 2005 Chief's Report and Title VII of the Water Resources Development Act of 2007 authorized 15 coastal restoration projects, including the 2,500 to 15,000 cfs Medium Diversion at Myrtle Grove with Dedicated Dredging Project.

- The 2012 *Louisiana's Coastal Management Plan for Sustainable Coast* recommended eight sediment diversions along the Mississippi River as a land-building restoration tool, including a Mid-Barataria sediment diversion (CPRA, 2012). This recommendation elevated sediment diversion projects as a vital component of coastal restoration.
- The *LCA Program – Mississippi River Hydrodynamic and Delta Management Study* (Meselhe and Sadid, 2015) developed cutting-edge technical models to better understand and predict the effects of using river resources for large-scale restoration projects, such as Mississippi River sediment diversions as well as projects in adjacent basins. These models have improved the understanding of river and estuarine dynamics, and have led to the development of river- and basinwide models to support project implementation in the Barataria and Breton basins.
- *Louisiana's 2017 CMP* used models, as well as advanced planning and E&D of sediment diversions, to inform how to operate sediment diversions in a way that builds and sustains land without producing excessive flooding, as well as how to optimize the delivery of sediment to wetland basins. The 2017 CMP included a MBSD Project with a 75,000 cfs capacity, with a base flow, as a recommended project (CPRA, 2017).

These studies and models highlight the significant investments and level of effort needed to ensure that sediment diversion projects succeed. Further, the computer and physical models used to analyze Project benefits consider the geomorphological features of the lower Mississippi River, including data and knowledge gained from the diversions and natural crevasses described in Section 3.2.1.4.1. Complex models – including the computer-generated, Delft3D model – use significant data and undergo testing and sensitivity analyses to ensure that the diversion design is technically feasible and would deliver the freshwater, sediment, and nutrients needed to create the desired beneficial outcomes in the Barataria Basin (CPRA, 2011; USACE, 2022, Appendix E). Thus, although a sediment diversion of the proposed size of Alternative 1 has not been built previously in Louisiana, the LA TIG believes that the use of sound engineering methods, combined with the scientific expertise available to the project, would make Alternative 1 likely to succeed.

#### **Alternative 1: Likelihood of Success Summary**

Alternative 1 is likely to succeed due to three factors:

- The general efficacy of diversions in rebuilding marsh ecosystems.
- The extensive scientific and modeling efforts that have been undertaken to develop and refine the concept of a sediment diversion in the Barataria Basin.
- The implementation of the MAM Plan for the Project, which would support adaptive management over time.

#### **3.2.1.4.3 Implementation of the MBSD MAM Plan**

A comprehensive MAM process for all of the restoration techniques, and especially for the Proposed MBSD Project, is a critical element for assessing progress toward this project's goals, minimizing risk, and addressing uncertainties on an ongoing basis. During and after implementation of Alternative 1, the LA TIG would apply the MAM Plan (CPRA, 2022) to review monitoring data to inform how it is meeting Proposed MBSD Project objectives and to support adaptive management of this project. Implementation of this MAM Plan would help the Proposed MBSD Project provide long-term benefits to the resources and services injured by the Incident.



### 3.2.1.5 Avoids Collateral Injury

Under OPA NRDA regulations, a restoration project is evaluated based on the extent to which it will prevent future injury as a result of the Incident and will avoid collateral injury as a result of its implementation. The Proposed MBSD Project has not been designed to address future injury as a result of the Incident to natural resources; rather, it has been designed to provide restoration for natural resource injuries incurred through the Incident. Thus, the LA TIG has focused its analysis for this OPA criterion on whether and to what extent Alternative 1 would either avoid or result in collateral injury to resources and associated services.

Under Alternative 1, the Proposed MBSD Project would incorporate best management practices (BMPs), and engineering specifications during construction and operation to avoid and minimize potential collateral injury. These measures are described in detail in both Chapter 4 and Appendix R of the Final EIS (USACE, 2022), but some examples include:

- Designing the construction footprint of the Proposed MBSD Project to minimize excavation and fill activities in the Mississippi River riparian wetland area.
- Constructing silt fences and sediment traps, such as hay bales, at stormwater drainage locations to prevent sedimentation of nearby waterways.
- Using grading methods to avoid concentrated flows, which could erode habitat.
- Redirecting stormwater runoff into temporary sediment basins or vegetated swales to trap sediment.
- Designing access routes for vehicles, vessels, equipment, and material transport to avoid or minimize wetland impacts to the greatest extent practicable.
- Directing Proposed MBSD Project vessels associated with construction to use existing transit paths to minimize the potential for vessel strikes of sea turtles.
- Minimizing disturbance in noise-sensitive areas by limiting construction activities to daytime hours, typically between 7:00 a.m. and 7:00 p.m., on Mondays through Fridays.
- Limiting the amount of outdoor lighting installed, using dimming lights at night, and directing light downward.
- Adhering to USFWS BMPs regarding the West Indian manatee and sea turtles to reduce construction- and traffic-related harm to these resources.

These measures would help reduce collateral injury that could result from construction-related habitat loss, habitat degradation and erosion, vehicle and vessel traffic, lights, noise, loss of habitat, and habitat degradation and erosion.

While the LA TIG would implement associated mitigation and stewardship actions in recognition of the collateral injury associated with the Proposed MBSD Project and minimize collateral injury through the use of BMPs, collateral injuries could occur due to the implementation of Alternative 1 that the LA TIG has considered in its analysis. Below, the LA TIG provides a separate discussion

for resources with (1) low, (2) medium, and (3) high levels of expected collateral injury from Alternative 1.<sup>24</sup>

#### 3.2.1.5.1 Resources with a Low Level of Expected Collateral Injury from Alternative 1

For most natural resources injured by the Incident, the projected collateral impacts of Alternative 1 are expected to be relatively low. The resources in this category align with those described in the Final EIS as likely to experience no to negligible adverse impacts from Alternative 1, or that would be affected only within or proximal to the footprint of the diversion complex (see the Final EIS for more information; USACE, 2022).

More specifically, a low level of collateral injury or service loss is expected to result from Alternative 1 for the following categories from the PDARP:

- Terrestrial wildlife and habitat<sup>25, 26</sup>
- Short-term impacts on SAV<sup>27</sup>
- Some species of birds<sup>24</sup>
- Sea turtles
- Threatened and endangered species (with the exception of pallid sturgeon, which is addressed in the next section)
- Recreational use.<sup>28</sup>

While a more exhaustive analysis and description of the potential injury associated with Alternative 1 are provided in the Final EIS (USACE, 2022), examples of the nature and extent of low-level potential injuries that would occur to the above resources include:

- **Temporary habitat degradation associated with Proposed MBSD Project construction.** Project construction could minimally impact wildlife through displacement, stress, and direct mortality of some individuals within or close to the diversion complex footprint (see Chapter 4 of the Final EIS). Habitats affected include forests, wetlands, SAV, and agricultural lands (USACE, 2022). Some wildlife (e.g., birds, sea turtles) might relocate to similar habitats nearby when construction activities commence and thereby reduce the collateral injury to these resources. For example,

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<sup>24</sup> This discussion of collateral injuries is derived from analyses and modeling results that are presented in the Final EIS, issued concurrently with this Final RP. Additional detail on several impacts is provided in the Final EIS. In the case of any conflict between the description of potential impacts in this Final RP and the Final EIS, readers should refer to the more detailed analysis of impacts in the Final EIS.

<sup>25</sup> Injury to terrestrial wildlife and terrestrial vegetation communities was not directly described in the PDARP; however, the potential to avoid or result in collateral injury to terrestrial resources due to the MBSD Project is analyzed here for completeness.

<sup>26</sup> Alternative 1 is expected to result in net benefits for many bird species and terrestrial wildlife (see Section 3.2.1.6.3).

<sup>27</sup> SAV is projected to benefit overall from this alternative as it is projected to increase SAV area by 1,500 ac (CPRA, 2020).

<sup>28</sup> Alternative 1 is also expected to provide some recreational fishing, hunting, and bird-watching benefits (see Section 3.2.1.6.4).

construction noise and the presence of people could lead bald eagles to avoid or abandon their nests (USFWS, 2007). However, collateral injury to bald eagles would be minimal because there are currently no known nests within 3 mi of construction and the timeframe for construction is limited.

- **Permanent habitat loss associated with the Proposed MBSD Project construction footprint.** This type of injury is relevant to terrestrial wildlife and habitat, and birds that would use habitat within the construction footprint of the Proposed MBSD Project. The total habitat lost is expected to be relatively small (i.e., approximately 700 ac, including forests, wetlands, and agricultural land), particularly in comparison to the amount of habitat being created and restored through this alternative (USACE, 2022). However, this includes the loss of 167 ac of forests, including 27 ac of bottomland hardwood forest, which would adversely affect non-avian species (e.g., bobcat, deer) that use this type of habitat due to the relative scarcity of forested lands in the immediate vicinity of the Proposed MBSD Project (USACE, 2022). Habitat loss would be expected to occur during the construction of the Proposed MBSD Project and be permanent.
- **Decreases in open-water areas.** Operation of the diversion would decrease open-water habitat and increase marsh in the diversion outfall. While this impact would be an intended effect of the Proposed MBSD Project (i.e., increasing land area reduces open-water area), resources that depend on open-water areas (e.g., gadwall and other waterfowl) could be displaced to other areas in the Barataria Basin with more open-water habitat.
- **Ongoing disturbance from Proposed MBSD Project operations.** Following construction, the diversion complex could result in some collateral injuries to terrestrial and aquatic resources. For example, the Proposed MBSD Project could impede the movement of terrestrial wildlife between up- and down-river areas along the west bank, which might impede their ability to evade competition and predators and find appropriate habitat. During Proposed MBSD Project operations, operational lighting and noise could result in minor collateral injuries to terrestrial wildlife and to birds, including displacement and stress. Alternative 1 is expected to have minor impacts on sea turtle species, including Kemp's ridley, green sea turtles, and loggerhead sea turtles, through changes in habitat that may adversely affect the prey species and other habitat features that sea turtles depend on within the basin. The other potential source of adverse effects is the likely concentration of commercial shrimp fishing activities in areas of high sea turtle use in the lower basin, and just outside of the barrier islands, which could result in an increase in adverse interactions between sea turtles and shrimp fishing gear (NMFS, 2021). Even with these changes in habitat and negative fisheries interactions, the Proposed MBSD Project is not reasonably expected to cause an appreciable reduction in the likelihood of survival of any of these species in the wild (NMFS, 2021).
- **Changes in recreational fishing opportunities.** Projected low-level adverse effects of Alternative 1 on spotted seatrout (see the Final EIS and Section 3.2.1.5.2) would be detrimental to anglers and result in recreational service losses. The spotted seatrout was cited by more than 46% of recreational anglers in the Barataria Basin as their

primary target; thus, even small potential declines in the abundance of the species could result in recreational angling service losses.

#### 3.2.1.5.2 Resources with a Medium Level of Expected Collateral Injury from Alternative 1

The resources in this category align with those in the Final EIS as potentially experiencing minor-to-moderate adverse impacts from Alternative 1 (USACE, 2022). As with the above section, a more exhaustive discussion of these potential injuries can be found in Chapter 4 of the Final EIS. Below, we discuss potential collateral injury to aquatic species, benthic resources, invasive species, and wetland habitat in the birdfoot delta; as well as recreational use losses.

- **Aquatic species.** In addition to brown shrimp and oysters (which are addressed in the next section), some fish and water column invertebrates could experience measurable levels of collateral injury from Alternative 1, particularly when the diversion is running at or close to maximum flow (USACE, 2022, Section 4.10.4.5). For example, species such as spotted seatrout, which have a low tolerance to low salinity, are expected to be adversely affected to some degree by the operation of Alternative 1 (USACE, 2022, Section 4.10.4.5). In addition to sensitivity of early life stages to low salinity, spotted seatrout require more energy to maintain their fluid and electrolyte balance (“osmoregulation”) in low-salinity conditions (Wohlschlag and Wakeman, 1978). Additionally, flows above base flow could impact the recruitment of larvae and juveniles of a variety of species into wetlands and waterbodies in the central and eastern portions of the mid-basin. Species with a wide range of salinity tolerance (e.g., flounder) are not likely to be affected by the water-quality changes resulting from operations of the diversion, but could experience minor collateral injuries due to temporary shifts in prey composition and distribution or suboptimal salinity affecting early life stages (USACE, 2022, Section 4.10.4.5). Both construction and operation of the diversion would also result in minor collateral injury to the endangered pallid sturgeon (LA TIG, 2020c; USFWS, 2021). During construction, pallid sturgeon might be present near pile-driving activities and experience behavioral avoidance or injury because of the underwater noise generated (LA TIG, 2020c; USFWS, 2021). Operation of the diversion is expected to result in collateral injury to pallid sturgeon that become caught or entrained in the diversion flow, and are relocated to the Barataria Basin, which does not provide suitable habitat. However, these effects are estimated to reduce annual population growth rates by less than 0.5%, depending on the entrainment scenario assumed (LA TIG, 2020c; USFWS, 2021). Aquatic species could also suffer collateral injury if the increased nutrient inputs from the diversion result in an increase in the frequency or intensity of harmful algal blooms (HABs); however, it is not known if HABs will or will not occur based on currently available knowledge (USACE, 2022; USFWS, 2021).
- **Benthic resources.** Benthic resources include infauna, epifauna, and algae. Most benthic infauna live in the top 3.9 inches of the seabed and must maintain some connection to the sediment/water interface for ventilation and feeding (Miller et al., 2002). Direct injury to benthic resources would occur as a result of the removal of approximately 366 ac of benthic habitat within the aquatic portion of the construction footprint. Dredging during construction may also result in transient injury, but would

- be expected to resolve within months to a few years (USACE, 2022, Section 4.10.3.2). During Proposed MBSD Project operations, benthos in or near the immediate outfall area would be most affected by turbidity and sedimentation, but injury would decrease with increasing distance from the immediate outfall area as the sediments settle out (USACE, 2022, Section 4.10.4.2). The degree of potential injury is expected to decrease with distance from the outfall. In addition, projected wetland losses in the birdfoot delta would result in associated injuries to benthic resources in the area, but the reduction in land loss in the Barataria Basin is expected to more than offset these injuries.
- **Invasive aquatic plants and animals.** Water diversion projects can result in the further expansion of invasive species because they increase hydrological connectivity and make it easier for invasive species to disperse (Kettenring and Adams, 2011; Zhan et al., 2015). Freshwater areas are also more susceptible to invasive species introduction and expansion due to relatively benign environmental conditions compared to saline areas, where the general intolerance of salt by plants and the reduced availability of freshwater for most animals preclude their establishment (USACE, 2022, Section 4.10.4.6). Alternative 1 may also increase the introduction and expansion of invasive aquatic animals in the basin (USACE, 2022, Section 4.10.4.6). Invasive fish species such as carp and cichlid, while typically found in open water, also use freshwater marshes and coastal wetlands as nursery or forage habitat and could travel with the flow of freshwater. The aggressive competition of bighead and silver carp with native filter feeder fish species for food and habitat could be potentially disruptive of the entire food web and occur over a large area (Wolfe et al., 2009). Larger and more extensive populations of grass carp could consume additional SAV and reduce available habitat for native fish species, while black carp could continue to forage on and threaten populations of native snails and mussels (Kravitz et al., 2005). Zebra mussels, Asian clams, and giant apple snails could also be expected to increase in distribution and abundance throughout the basin. Apple snails would reduce the amount of SAV for fish, while zebra mussels and Asian clams would gain habitat, with a corresponding loss in habitat for native species (USACE, 2022, Section 4.10.4.6).
  - **Recreational use.** Proposed MBSD Project construction would result in some temporary losses in recreational activities near the project's construction footprint (USACE, 2022, Section 4.16.4.2). During operations, Alternative 1 could result in restricted access to some recreational sites because of increased tidal flooding (USACE, 2022, Section 4.16.5.2). Sediment transport from the diversion into navigation canals used by recreational boaters could impede deeper-draft vessel access to the Barataria Basin if maintenance dredging does not occur. These construction activities and operational impacts could result in localized losses in recreational opportunities near the Proposed MBSD Project site, but are not expected to affect recreational use overall at a basin scale.
  - **Wetland habitat in the birdfoot delta.** While operation of the diversion would transport sediment into the Barataria Basin, it would also result in less sediment being deposited in the birdfoot delta, leading to accelerated losses of wetlands in the

area<sup>29</sup>. More specifically, approximately 2,900 ac of wetland habitat in the birdfoot delta would be lost by 2070 under Alternative 1 compared to the No-Action Alternative (which would retain approximately 6,400 ac; USACE, 2022, Section 4.6.5.1). These injuries would also result in collateral injuries to the wildlife in this area that depend on wetlands (e.g., fish, shellfish, birds; USACE, 2022, Section 4.9.4.2). However, almost all wetlands in the birdfoot delta (89%) would be lost even without the Proposed MBSD Project, due to ongoing trends of erosion, subsidence, and relative sea level rise (USACE, 2022, Section 4.6.5.1).

### 3.2.1.5.3 Resources with a High Level of Expected Collateral Injury from Alternative 1

The LA TIG included resources in this category that align with those described in the Final EIS as potentially experiencing major adverse impacts from Alternative 1 (USACE, 2022, Chapter 4). The analyses presented in the Final EIS show that marine mammals, oysters, and brown shrimp may decline in abundance in the Proposed MBSD Project area due to the environmental changes associated with this alternative (USACE, 2022, Chapter 4). Importantly, the magnitude of collateral injury for these resources would likely differ substantially across the alternatives considered by the LA TIG, and would be dependent on the amount of freshwater diverted to the Barataria Basin. Below, we briefly describe the nature and extent of collateral injuries for each of these resources for Alternative 1 to allow a more robust comparison with other alternatives later in the document.

The LA TIG notes that the area affected by the Proposed MBSD Project has been severed from its historical hydrological connection to the Mississippi River, resulting in unnaturally high salinity in an area that historically experienced ongoing freshwater and sediment inputs (CPRA, 2017). The collateral injuries described below are being incurred primarily because the current ecosystem has been heavily altered – the intended restoration of this area to more natural conditions would result in collateral injury to species that depend on the current higher-salinity conditions in the basin.

#### Marine Mammals

Increased freshwater inputs and decreased salinities under Alternative 1 are expected to result in collateral injury to marine mammals in the Barataria Bay, particularly the common bottlenose dolphin (*Tursiops truncatus*) that is part of the “Barataria Bay Estuarine System” (BBES) dolphin stock. Potential impacts on other bottlenose dolphin stocks and marine mammal species are

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<sup>29</sup> In this RP, there are references to the proposed Project causing or resulting in land or marsh losses in the birdfoot delta. It is important to note that there is not a linear relationship between the operation of the proposed Project and land loss in the birdfoot delta. The net land change in the birdfoot delta is dependent on the evolution of a highly dynamic system. It is correct that the operation of the proposed Project will divert water and sediment from the Mississippi River at RM 60.7, and this diversion results in a reduction in “stream power” downriver from the diversion. That loss of stream power triggers various changes down river (e.g., changes in the location and degree of overbanking and the evolution of crevassing at various locations from RM 60.7 to the birdfoot delta). The collective effect of all of those changes leads to the land changes in the birdfoot delta. Thus, although this RP sometimes states that the diversion causes land loss in the birdfoot delta, changes in the birdfoot delta result from numerous interacting variables which include, but are not limited to, the diversion operation.



discussed in the Final EIS and are less likely to occur than the expected collateral injury to BBES dolphins (see USACE, 2022, Section 4.11).

The Barataria Basin supports approximately 2,100 common bottlenose dolphins in the middle and lower portions of the basin (Garrison et al., 2020). The highest density of dolphins occurs near the barrier islands (this group is called the Island stratum), with lower densities north of the barrier islands and east of the Barataria Bay Waterway (i.e., the Central stratum). The lowest densities are found north of the barrier islands and west of the Barataria Bay Waterway (i.e., the West stratum) and to the east/southeast past Billet Bay (i.e., the Southeast stratum; Wells et al., 2017; Garrison et al., 2020).

The primary stressor on common bottlenose dolphins in the Barataria Basin from Alternative 1 would be the direct physiological effects of prolonged exposure to low-salinity water, which can negatively affect dolphins through direct contact with the skin or external surfaces of the animal, and through freshwater ingested incidentally during foraging. Exposure can cause visible changes to the skin, resulting in lesions such as color changes, sores, or sloughing, which indicate progressive stages of the skin's impaired ability to maintain an effective barrier (e.g., Simpson and Gardner, 1972; Greenwood et al., 1974; Colbert et al., 1999; Wilson et al., 1999; Gulland et al., 2008). As the severity of skin lesions is not always predictive of internal physiological response, animals may die before their severe skin lesions are noted from remote visual assessment. As exposure continues, the skin biome changes and may become overgrown with external mats that are composed of fungi, algae, and/or bacteria. As the physiological and morphological integrity of the skin is altered, secondary infections and increased water ingestion may occur. Low-salinity water ingestion may also contribute to osmotic imbalance, cellular damage, and increased susceptibility for localized and/or systemic infections. The intensity and duration of impact on individual dolphins (e.g., mortality, morbidity) would vary depending on the length and intensity of freshwater exposure (i.e., for how long and how low). The amount and duration of exposure is dependent on the volume and duration of diverted water. Indirect impacts could occur as water quality (e.g., HABs, contaminants) habitat and food web dynamics shift over time, and if common bottlenose dolphins that use the Barataria Basin shift their movement patterns and distribution within the basin over time (USACE, 2022, Section 4.11.5.1).

Under some circumstances, adverse health effects from low-salinity exposure can result in the death of individuals. Especially in situations when additional stressors (e.g., low temperatures, extreme weather, exposure to contaminated environments, human activities) are present, adverse effects may be more severe and therefore more likely to result in reduced reproductive success and survival (USACE, 2022, Section 4.11.5.1).

Garrison et al. (2020) developed a simulation approach to quantify the probable effects of changes in salinity resulting from the Proposed MBSD Project on BBES dolphins. The Final EIS incorporated these model results to identify the potential impact of low-salinity exposure on the mean annual survival rate of BBES dolphins (Table 3-3). The results suggest that relative to the No-Action Alternative, the mean population survival rate would decline by an estimated 34% [95% confidence interval (CI): 15.3–62.7%] in any given year of the diversion's operation, based on the representative hydrograph provided in the Delft3D model. The greatest impacts would be on dolphins inhabiting the central and western portions of the Barataria Bay (Table 3-3; Garrison

et al., 2020). The modeling also suggests that after a decade of diversion operations under Alternative 1, the Island stratum would be the only stratum with a population that could potentially persist. Thomas et al. (2022) applied the estimated survival rates generated by Garrison et al. (2020) to a population model that projects the BBES dolphin population trajectory in the wake of the DWH oil spill (Schwacke et al., 2017). Under Alternative 1, with the decreased survival rates due to low salinity, the model projects that dolphins in the West and Central strata would be functionally extinct (<30 animals remaining) within 10 years, and the dolphins in the Southeast stratum would be functionally extinct within 50 years. In 2070, after 50 years of Alternative 1 operations, the model projects that only 143 dolphins would remain in the BBES stock (95% CI: 11 to 706), compared to 3,363 (95% CI: 2,831 to 4,289) under the No-Action Alternative – all of which live in the Barrier Island stratum. This represents a 96% difference in population size (95% CI: 80 to 100) under Alternative 1 compared to the No-Action Alternative.

It is important to note that the modeling used to assess the impacts on BBES dolphins assumes, based on evidence from published studies, that most of them cannot or would not shift their range, regardless of prolonged and/or drastic changes in environmental conditions (Hubard et al., 2004; Irwin and Würsig, 2004; Balmer et al., 2008, 2018, 2019; Urian et al., 2009; Bassos-Hull et al., 2013; Wells, 2014; Mullin et al., 2015, 2017; Aichinger-Dias et al., 2017; Wells et al., 2017; Fazioli and Mintzer, 2020; Cloyed et al., 2021.; Takeshita et al., 2021).

**Table 3-3.**

**Alternative 1 Would Reduce Mean Annual Survival Rates due to Low-Salinity Exposure for a Simulated Dolphin Population Compared to the No-Action Alternative.** Values shown are the calculated median survival rates in any given year based on the representative (or average) hydrograph,<sup>a</sup> with 95% confidence limits in parentheses. Discrepancies in the differences are due to rounding.

Stratum	No-Action Alternative	Alternative 1	Difference
Overall	0.89 (0.75 to 0.98)	0.59 (0.28 to 0.83)	-0.30 (-0.02 to -0.64)
Island	1.00 (1.00 to 1.00)	0.94 (0.61 to 1.00)	-0.07 (-0.40 to 0.00)
West	0.96 (0.86 to 1.00)	0.56 (0.12 to 0.89)	-0.40 (-0.06 to -0.84)
Central	0.86 (0.61 to 0.99)	0.29 (0.04 to 0.68)	-0.57 (-0.14 to -0.88)
Southeast	0.81 (0.58 to 0.97)	0.68 (0.37 to 0.93)	-0.12 (0.21 to -0.48)

<sup>a</sup> Rates would be lower for wet years and higher for dry years, and change based on the decade cycle.

Source: Garrison et al., 2020.

Overall, the anticipated collateral injury of Alternative 1 on BBES dolphins in the Barataria Basin includes (1) immediate and permanent impacts on survival rates from low-salinity exposure, especially for dolphins residing in the western and central regions of the basin; (2) adverse effects on health and reproduction from multiple stressors, including low-salinity exposure, wetland loss (which also occurs in the No-Action Alternative), lower temperatures, an increased risk of HABS, and residual effects from the DWH oil spill; and (3) based on the estimated decreases in survival rates, there would be a substantial reduction in population numbers. For more detailed information, see Section 4.11.5.1 of the Final EIS (USACE, 2022).

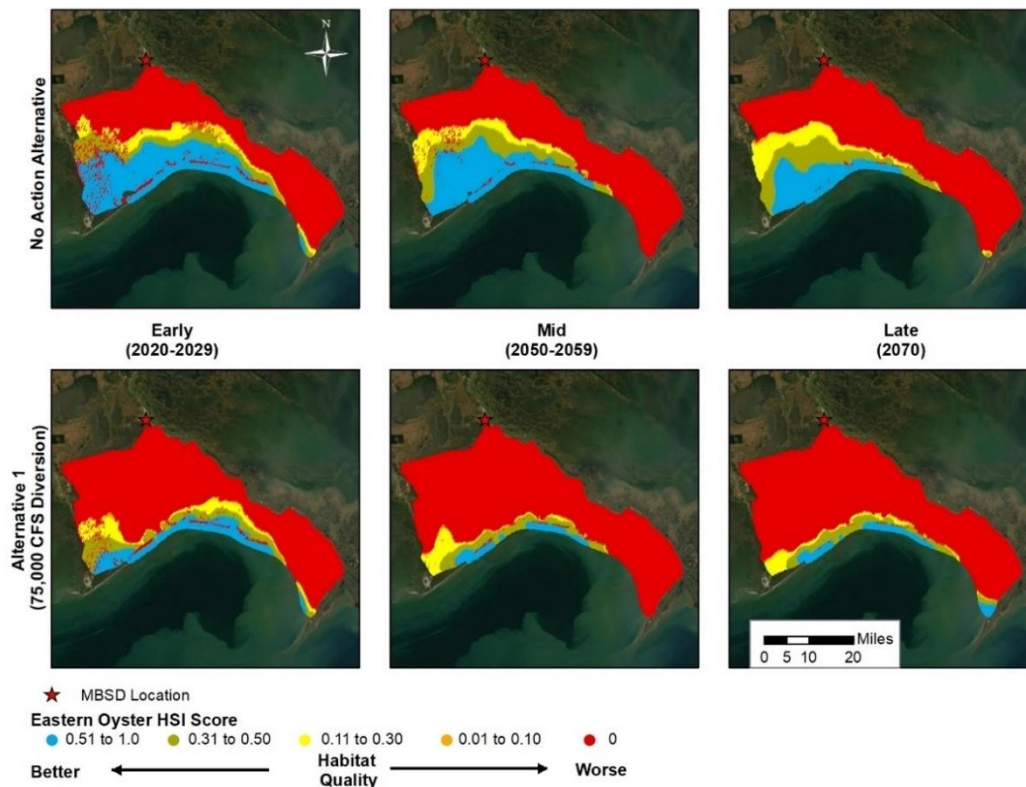
Importantly, as noted in Section 3.2.1.1.5, in recognition of the anticipated impacts on marine mammals from the Proposed MBSD Project, stewardship measures would be implemented as part of the Project to increase understanding, improve management, and provide benefits to marine mammals across the state. In addition, the MAM Plan includes strategies to monitor, respond to, intervene, and minimize impacts on BBES dolphins from Project operations. It also includes a framework for data collection on dolphins and their environment, coordination between CPRA and the Dolphin Resource Team (i.e., a group of individuals actively working on marine mammal data collection and stranding response in the Barataria Basin) before and during operations, an ongoing evaluation of the ability of diversion operations to be modified (to meet the purposes of the Project and reduce impacts to marine mammals), and the execution of those modifications as directed by CPRA. These measures further the restoration and adaptive management intent of the PDARP.

### Oysters

Increased freshwater inputs and decreased salinities under Alternative 1 would likely result in collateral injury to oysters, primarily because the diversion would decrease salinities below the range required for successful oyster spawning. As noted above, the disconnection of the Mississippi River from the Barataria Basin has increased salinity in the basin, allowing oysters to establish in areas that would have had much lower salinities under natural conditions.

Oysters are tolerant of a wide range of salinity concentrations (i.e., 5 to 40 parts per thousand or ppt); however, the formation of dense oyster reefs primarily occurs at intermediate salinities (10 to 20 ppt; Shumway, 1996). The amount of freshwater needed to suspend and distribute river sediment into the Barataria Basin under Alternative 1 would push optimal annual and seasonal salinity areas for oysters seaward. This change would negatively affect several areas that support oyster reefs and public seed grounds, which have become established in recent decades as a result of Mississippi River management regimes. In contrast, without the Proposed MBSD Project, the continuation of current river management, and factors such as sea level rise, would potentially push optimal salinity zones farther landward. Oyster harvesters have noted that the loss of coastal wetlands in the Barataria Basin has led to the creation of new oyster reefs farther inland than was the case historically (Melancon, 1990).

Alternative 1 would significantly influence the suitability of habitat for oysters in the Barataria Basin (Figure 3-9). The data depicted in Figure 3-9 show a potential, large-scale reduction in oyster habitat suitability under Alternative 1 in the spring, when diversion flows would be the greatest. However, the habitat suitability index (HSI) model used for this analysis focused solely on areas where suitable salinity conditions for oysters could occur in the future, and it assumed that substrates were not limiting. Because substrate availability is a key driver of oyster abundance and reproductive success, the realized losses in oyster habitat from Alternative 1 are likely to be smaller than suggested in Figure 3-9. Under low-flow conditions, the impact of Alternative 1 on oysters would also be expected to be much less pronounced (USACE, 2022). See Section 4.10.4.5 in the Final EIS for more detailed information.



**Figure 3-9. Oyster HSIs for Eastern Oysters Decrease in the Barataria Basin under Alternative 1 Compared to the No-Action Alternative due to Increased Freshwater Associated with the Diversion, Assuming Unlimited Availability of Substrate.** (Source: Delft3D modeling results)

Overall, Alternative 1 is expected to cause a gradual but major decrease in oyster abundance over time, with the largest decreases after 2050. As with brown shrimp, similar declines in suitable habitat for oysters for many areas of the basin are projected to occur even without the Proposed MBSD Project, but such declines would occur more gradually (USACE, 2022, Section 4.10.4.5). Without the Proposed MBSD Project, increased salinities from sea level rise, particularly in the southernmost portion of the basin, could increase the risk of oyster infection and predation. In addition, the loss of marshes over time would allow for freshwater from the Mississippi River to flow more freely into portions of the Barataria Basin, reducing the suitability of habitat for oysters in the central and eastern areas (USACE, 2022, Section 4.10.4.5).

Importantly, as noted in Section 3.2.1.1.5, the LA TIG would support implementation of several mitigation and stewardship actions in recognition of the potential collateral injury to oysters and the fishermen who rely on the oyster fishery. More specifically, the LA TIG would support:

- Re-establishing public seed grounds in the basin to help offset losses to public seed grounds that occur as a result of the Proposed MBSD Project operation.
- Providing additional cultch material to current lessees, which could help maintain oyster reefs in areas where sediment could bury suitable oyster habitat.
- Creating broodstock reefs, both within and outside of the Barataria Basin, to offset losses in broodstocks that result from the operation of the diversion.

- Expanding alternative oyster culture, which can help cultivate oysters in areas where suitable reef habitat is lacking.
- Funding efforts to improve marketing and enhance the value of dockside harvests.

### Brown Shrimp

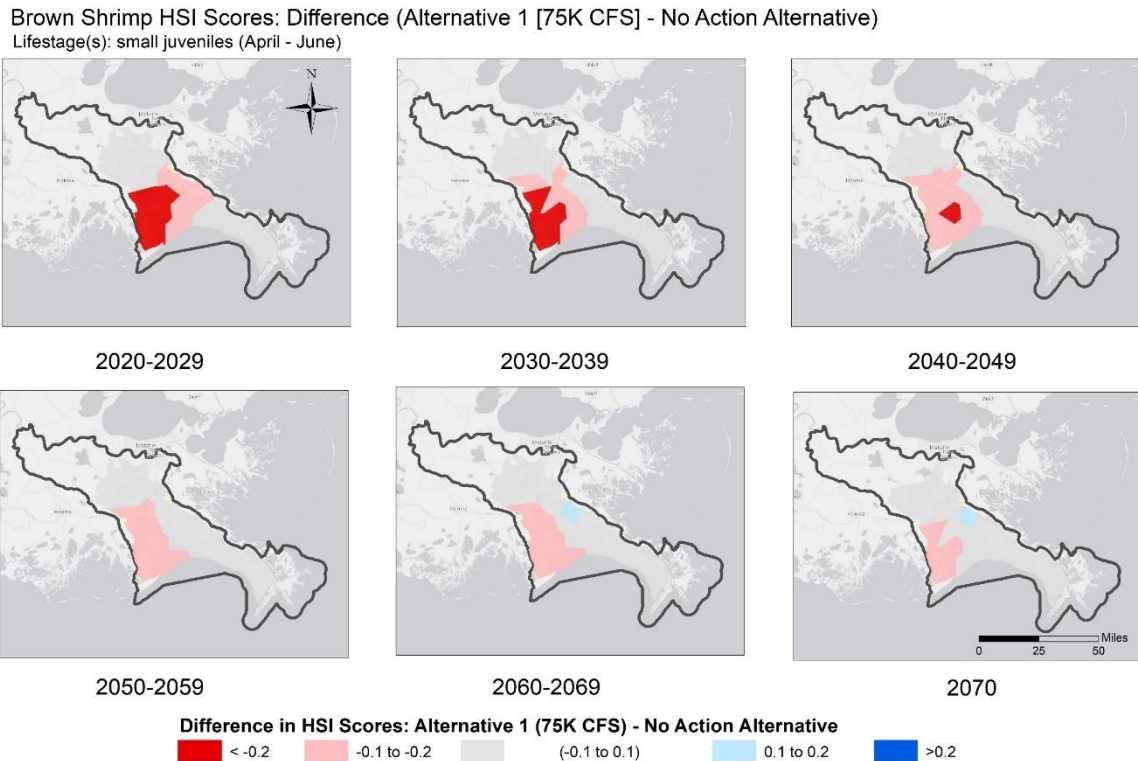
Brown shrimp adults, spawning adults, and early life stages occur in the Proposed MBSD Project area as well as offshore. However, adult brown shrimp spawn outside of the estuary, and the earlier life stages (i.e., eggs and early larvae) occur offshore (see O'Connell et al., 2017, for a review of brown shrimp life history). Thus, these life stages are not anticipated to be directly or indirectly affected by Alternative 1, and impacts would likely be restricted to the post-larval, juvenile, and sub-adult life stages that occur in the Barataria Basin.

Larval brown shrimp are carried from offshore to the nearshore, and into the Barataria Basin by shelf currents and tides, with migration occurring from January through June (Zein-Eldin and Renaud, 1986). Juveniles, found within estuarine habitats, prefer complex and vegetated habitats such as SAV, emergent marsh, and oyster reefs, but have also been found in soft and sand/shell bottom habitats. Sub-adult brown shrimp reside in the soft mud bottom and sand/shell bottom habitats in deeper estuarine channels and nearshore habitats before beginning their migration to offshore areas in the summer (GMFMC, 2016). The principal drivers of growth, survival, and perceived habitat preferences of brown shrimp in the basin include salinity, temperature, habitat (e.g., Minello and Rozas, 2002; O'Connell et al., 2017), food supply, and successful larval recruitment.

Diversion-related changes in the flow direction and velocity of water within the Barataria Basin could negatively affect brown shrimp post-larvae during their larval transport period (USACE, 2022, Section 4.10.4.5). Substantial impacts would be expected because high-diversion flows during most years would overlap the majority of the brown shrimp larval transport period. While the duration and spatial extent of this injury would vary depending on Mississippi River flows and ongoing changes in wetland coverage, it would be a permanent and recurring annual injury (USACE, 2022, Section 4.10.4.5).

Collateral injuries are also likely to occur due to the decreased salinities associated with increased freshwater inputs to the mid-basin area, particularly in the initial decades of diversion operation (USACE, 2022, Section 4.10.4.5). More specifically, a measure of the suitability of habitat for a given species – the HSI – is projected to decline markedly for brown shrimp in years 2020 to 2040 under Alternative 1 relative to the No-Action Alternative (Figure 3-10). This is because prolonged salinities of 0 ppt would be present in the mid-basin during periods when the diversion is open, and post-larvae present in freshwater over prolonged periods could experience high mortality (USACE, 2022, Section 4.10.4.5). Thus, operation of the diversion, especially when it is running at maximum capacity, would likely preclude use of the mid-basin near the diversion outfall area by brown shrimp and decrease, but not eliminate, the suitability of the lower portions of the Barataria Basin for small juvenile brown shrimp. Importantly, declines in suitable habitat for brown shrimp are projected to occur even without the Proposed MBSD Project due to losses of wetland habitat, but these declines would occur gradually over time and be greatest at the end of the project's analysis period (i.e., 2070).





**Figure 3-10. Habitat Suitability Decreases for Small Juvenile Brown Shrimp in the Mid-Barataria Basin under Alternative 1 Compared to the No-Action Alternative Modeling Scenario because of Increased Freshwater Associated with the Diversion.** By 2070, differences in suitability between Alternative 1 and the No-Action Alternative become smaller because of the increase in marsh habitat associated with Alternative 1. See the Final EIS (USACE, 2022, Section 4.10.4.5) for more information on HSI models and potential impacts on brown shrimp.

Altogether, Alternative 1 is expected to decrease brown shrimp abundance in the basin, but the viability of the population is not anticipated to be affected (USACE, 2022, Section 4.10.4.5).

As noted in Section 3.2.1.1.5, the LA TIG would support several mitigation and stewardship actions in recognition of the potential collateral injury to brown shrimp and the fishermen who rely on the brown shrimp fishery.

#### 3.2.1.5.4 Synthesis of Potential Collateral Injury under Alternative 1

As noted above, Alternative 1 is intended to provide ongoing inputs of freshwater, sediment, and nutrients to sustain and create marsh and other wetland habitats, which can then support resident and transient aquatic resources, as well as provide nursery habitat for open-water/nearshore species. These ongoing inputs of freshwater and sediment would necessarily change the current conditions of the Barataria Basin, including lowering salinities across the basin when the diversion is operating above base flow, in proportion to the amount of freshwater being diverted by the Proposed MBSD Project. The LA TIG expects that resources that depend on the current higher salinities found in the basin would experience high levels of collateral injury from operation of the Proposed MBSD Project under Alternative 1. These injured resources include bottlenose dolphins, oysters, and brown shrimp. The construction and operation of the diversion may also result in injuries to pallid sturgeon, spotted seatrout, benthic resources, and



boating-related recreational use. Other, lower levels of potential collateral injuries associated with construction and operation of the physical structure of the diversion are expected to be localized in time and space. The LA TIG would implement a suite of associated mitigation and stewardship actions in recognition of potential collateral injuries to marine mammals and trust resources that support fisheries (i.e., oysters and shrimp). These would include implementing a statewide marine mammal stranding network for 20 years and a Marine Mammal Intervention Plan, supporting activities that would reduce harmful human interactions with marine mammals, providing stranding surge capacity in response to unusual marine mammal mortality events, enhancing oyster habitat and productivity through the development of public seed banks, provisioning oyster cultch material, creating oyster broodstock reefs, advancing alternative oyster culture, improving shrimp fishing gear and on-board refrigeration, and improving the marketing of harvested shellfish.

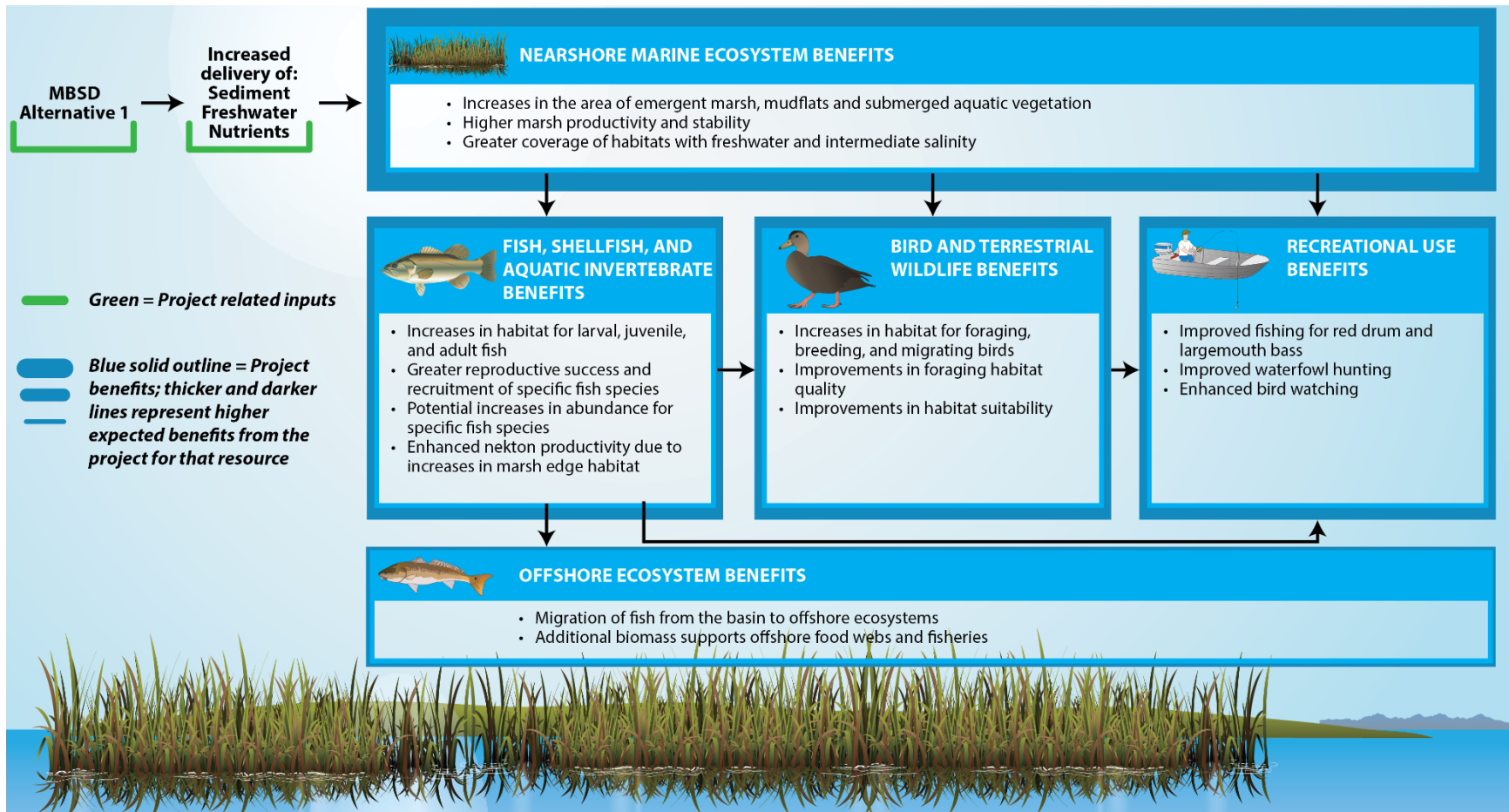
### **Alternative 1: Potential Collateral Injury Summary**

The LA TIG expects that resources that depend on the current higher salinities found in the basin (e.g., dolphins, oysters, and brown shrimp) would experience high levels of collateral injury under Alternative 1. The construction and operation of the diversion could also result in injuries to pallid sturgeon, spotted seatrout, benthic resources, and boating related recreational use. The construction and operation of the physical structure of the diversion may also result in relative low levels of localized collateral injuries. In recognition of potentially high levels of collateral injuries to marine mammals and trust resources that support fisheries, the LA TIG would implement a suite of associated mitigation and stewardship actions under this Alternative.

The effects of Alternative 1 on non-trust resources, including socioeconomics, commercial fisheries, tourism, cultural resources, and communities with environmental justice concerns were examined in detail in the Final EIS; see Sections 4.13, 4.14, 4.15, and 4.24 for more information.

#### **3.2.1.6 Benefits Multiple Resources**

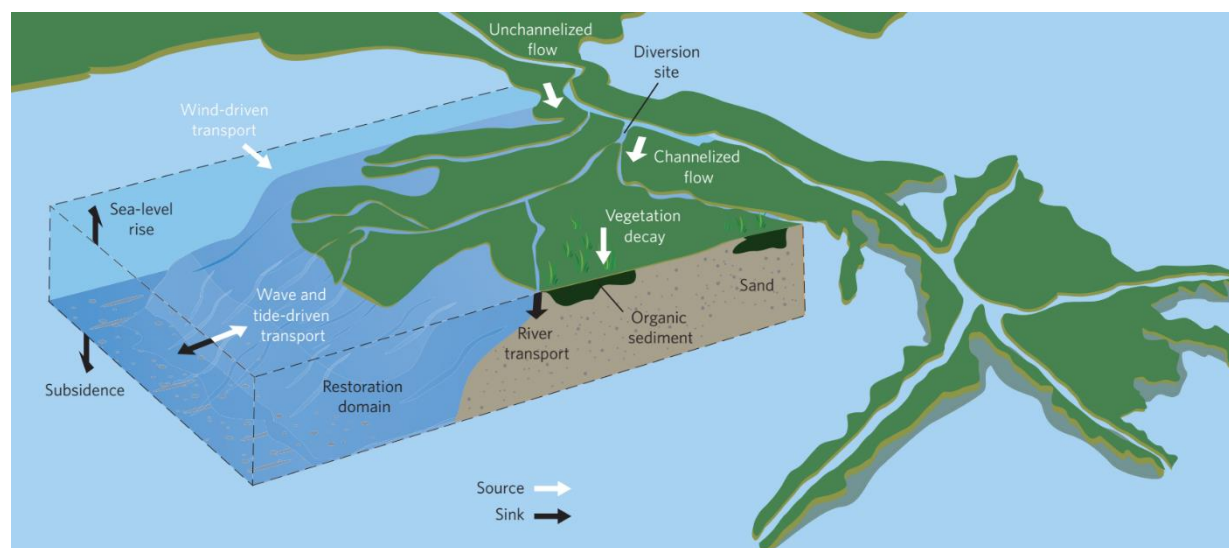
This section evaluates the extent to which Alternative 1 would provide benefits to multiple resources. The Proposed MBSD Project is an ecosystem-level restoration project designed to address an ecosystem-level injury from the Incident. Thus, the implementation of Alternative 1 of the Proposed MBSD Project would, by design, benefit multiple resources in the Barataria Basin and the northern Gulf of Mexico (Figure 3-11). More specifically, Alternative 1 is expected to result in substantial benefits for nearshore marine ecosystems, water column resources (including fish and shellfish), and birds and terrestrial wildlife (Figure 3-11). Offshore ecosystem benefits are also expected. Below, more details about the nature and magnitude of specific expected benefits within each of these resource categories under Alternative 1 are discussed.



**Figure 3-11. Integrated, High-Level Overview of the Types of Benefits that Are Expected for Major Natural Resources Categories under the Implementation of Alternative 1.** More details about the nature and magnitude of specific benefits are provided in the following sections. Some symbols adapted from and used are through the courtesy of the Integration and Application Network (<https://ian.umces.edu/symbols/>).

### 3.2.1.6.1 Benefits to Nearshore Marine Ecosystems

Habitats in the nearshore marine ecosystems of the Barataria Basin are a key focus for the Proposed MBSD Project, and they are expected to benefit substantially from the diversion under Alternative 1.<sup>30</sup> More specifically, the delivery of sediment into the Barataria Basin is expected to result in the formation of deltaic landforms at the outfall of the diversion (see USACE, 2022, Section 4.2.3.2). The rate of land growth at a river diversion site depends on the balance between sediment sources and sediment sinks, such as erosion (Edmonds, 2012). When sediment builds up to a sufficient depth, vegetation can quickly colonize and begin to grow. This forms a positive feedback cycle, where vegetation helps stabilize the delta by capturing more sediment, reducing erosion rates, and contributing aboveground plant litter and belowground organic matter to the soil (Figure 3-12).



**Figure 3-12. Land-Building Sediment Process in a Hypothetical Diversion off the Mississippi River as a Balance of Sources and Sinks with Organic and Inorganic Processes.**

(Source: Edmonds, 2012)

As a river delta accretes vertically and matures, the plant community changes and undergoes succession over time. In temperate, river-dominated deltas, SAV may first establish on newly formed subaerial, shallow mudflats; only to be replaced by floating-leaved vegetation, emergent vegetation, diverse high-marsh meadow communities, and eventually canopies of small trees and shrubs as elevation increases over time (Johnson et al., 1985; Carle et al., 2015). In addition, land-building also creates more marsh “edge” habitat, which is the productive zone where the edge of the marsh meets open water. In a comprehensive study of the utilization of fish and crustaceans (“nekton”) of coastal habitats in the northern Gulf of Mexico, Hollweg et al. (2020) found that the marsh edge supports higher densities of nekton compared to the marsh interior or open-water, unvegetated bottom habitats. Together, this diversity of habitats supports important refugia, foraging, and resting habitats for a wide variety of aquatic, avian, and terrestrial species,

<sup>30</sup> All habitats mentioned in this section are expected to experience a “high” level of benefit, which aligns with resources described in the Final EIS that are expected to experience major benefits from Alternative 1.

including essential fish habitats that support multiple managed species (see USACE, 2022, Section 4.10); some of these benefits are described in more detail below.

In addition to restoring and maintaining vegetated marsh habitat, Alternative 1 would also help create and maintain shallow subaqueous habitats. Operation of the diversion is expected to result in the deposition of sediment throughout the Proposed MBSD Project area, which would help counteract factors such as subsidence, sea level rise, and tidal scouring that tend to lead to increased deepening of water bottoms over time. Shallow-water bottoms support several processes important to maintaining the productivity of an estuarine system. High primary productivity supported generally by microalgae that live in the sediment (e.g., diatoms) is an important ecological function of shallow-water habitats. Other important processes include nutrient regeneration, decomposition of organic matter, and increased secondary production of benthic invertebrates (Ray, 2005). Shallow-water areas are more productive than deeper-water areas due to their more-favorable conditions for sunlight, oxygen, and temperature (Roy, 2012). Shallower water provides greater bottom accessibility for waterfowl and improved foraging habitat for wading birds. Shallow-water habitats also are important foraging and nursery habitats for several economically important marine fishery species. In Louisiana's turbid coastal estuaries, in part due to reduced light penetration, SAV is generally limited to shallow-water habitat (i.e., those areas generally less than 2 ft in depth).

As noted in the Proposed MBSD Project description (see Section 3.2.1.1), Alternative 1 is expected to maintain a gradient in salinity from north to south across the Barataria Basin, creating habitat for a wide spectrum of species with varying salinity tolerances. Overall, operation of the diversion would decrease salinity in the Barataria Basin compared to the No-Action Alternative, with greater decreases occurring when the diversion is operating above base flow and in areas closer to the diversion outfall area. Near the diversion, salinity is projected to reach or approach 0 ppt for prolonged periods of the year. Further from the diversion (e.g., at Barataria Pass near Grand Isle), salinities are projected to peak and fall more quickly, depending on diversion operations, which in turn are contingent on Mississippi River flows (i.e., higher river flows translate to more water and sediment being sent through the diversion). All organisms within an estuary must find areas with acceptable combinations of both salinity and habitat type. Areas with low salinities are considered critical to the life histories of many organisms and offer habitat to a wide variety of adult and juvenile freshwater, estuarine, and marine fishes (Rozas and Hackney, 1983). Olsen (2019) notes that higher estuarine salinities are typically correlated with decreasing species diversity, and fresher estuaries are correlated with a more diverse and even species assemblage.

The ecological dynamics described above would jointly contribute to realizing the following large-scale benefits to nearshore marine ecosystems under Alternative 1:

- An increase in land, including emergent mudflats and marsh habitat, of approximately 17,300 ac after 30 years of diversion operation, and 13,400 ac after 50 years of operation.
- An increase in SAV of approximately 1,500 ac in the freshwater/intermediate areas of the Barataria Basin after 50 years of diversion operation.
- Maintenance of an appropriate gradient of freshwater to saline marshes in the Barataria Basin.

As noted in Section 3.2.1.1, the Proposed MBSD Project would also create 375 ac and nourish 92 ac of emergent marsh habitat by beneficially using approximately 2 million cubic yards of material excavated during construction of the conveyance channel and the outfall transition feature to offset construction impacts on wetlands (see Appendix B). As discussed above and shown in Figure 3-11, these benefits to nearshore marine ecosystems would further provide benefits to water column resources, birds and terrestrial wildlife, and offshore marine ecosystems (see below).

#### 3.2.1.6.2 Benefits to Water Column Resources (i.e., fish, shellfish, and other species)

The wetland and aquatic habitats provided by Alternative 1, described above, are critical for a wide variety of water column resources, including fish and shellfish, which use nearshore habitats for foraging, refugia from predators, resting places during migration, and reproduction. Thus, increasing the available suitable habitat for water column resources is expected to have substantial benefits to the wide array of aquatic species<sup>31</sup> using the Barataria Basin. As noted above, the creation of marsh edge habitat would enhance nekton productivity (Hollweg et al., 2020), but there are also specific species benefits that may accrue from Alternative 1. Below, some key benefits for specific fish species are highlighted.<sup>32</sup> It is important to note that the species highlighted here may experience minor levels of collateral injury due to factors such as impacts from Proposed MBSD Project construction, habitat loss in the birdfoot delta, adverse larval transport, or increased energy requirements associated with lower salinities. However, these injuries are expected to be small for the species described below and to be more than offset by the benefits that result from Alternative 1. In addition, these species were those chosen for detailed analysis in the Final EIS; however, any fish or aquatic species that depends on wetland or SAV would be expected to similarly benefit from the creation and maintenance of marsh and SAV habitat. See Section 3.2.1.5 (Avoids Collateral Injury) above and the Final EIS for more detailed information (USACE, 2022, Section 4.10.4.5).

##### White Shrimp



White shrimp are generally considered more tolerant of low salinities than brown shrimp. Alternative 1 is expected to benefit white shrimp through increased marsh and SAV habitat, and increased primary production (USACE, 2022, Section 4.10.4.5). The increased primary production for many regions of the estuary following diversion releases could provide additional prey to benefit shrimp consumption and growth. The potential shifts and changes in prey biomass for juvenile and sub-adult white shrimp would likely provide permanent benefits to the white shrimp population in the Barataria Basin. White shrimp are also expected to benefit from new and sustained marsh vegetation in the outfall area, and increased SAV and primary production in areas of the basin. Beneficial primary productivity impacts are expected to begin at the onset of operations and last throughout the time the diversion is operating, whereas the benefits associated with new and sustained marsh would be realized after 2050 (USACE, 2022, Section 4.10.4.5). While low levels of collateral injury to white shrimp may occur due to the

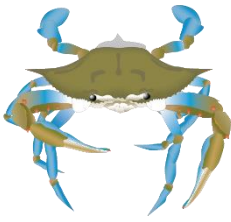
<sup>31</sup> All symbols in Section 3.2.1.6.2 are used through the courtesy of the Integration and Application Network (<https://ian.umces.edu/symbols/>).

<sup>32</sup> All species listed are expected to experience a “medium” level of benefit, which aligns with the species described in the Final EIS that are expected to experience minor-to-moderate benefits from Alternative 1.



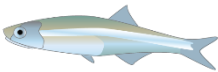
disruption of larval transport or juvenile settlement and the energetic demands of decreased salinity, the overall impact of Alternative 1 on white shrimp is expected to be beneficial.

#### Blue Crab



Blue crabs spend most of their life cycle within the estuary, where the juveniles are generalist omnivores. Similar to white shrimp, Alternative 1 is expected to benefit blue crab through increased marsh and SAV habitats, and increased primary production (USACE, 2022, Section 4.10.4.5). Early juveniles settling in SAV or the new emergent marsh, as well as the later life stages of blue crab that utilize these habitats, would benefit from the anticipated increase in wetland acreage and SAV biomass for Alternative 1 compared to the No-Action Alternative (USACE, 2022, Section 4.10.4.5). The creation and maintenance of marsh in the outfall area would increase habitat suitability scores in these polygons above 0.8, which is considered highly suitable and near optimum for blue crab. In other areas of the basin, favorable habitat conditions are projected under Alternative 1 and the No-Action Alternative, with little difference in habitat suitability scores. The increased primary production for many regions of the estuary following diversion releases could provide additional prey to benefit crab consumption and growth. While low levels of collateral injury could occur related to blue crab mating, transport, and early juvenile settlement near the diversion outfall area, the overall impact of Alternative 1 on blue crab is expected to be beneficial.

#### Bay Anchovy



Bay anchovy are a schooling forage fish that spend their entire life cycle within and around the estuary. Alternative 1 is expected to benefit bay anchovy through increased marsh and SAV habitats, and increased primary production (USACE, 2022, Section 4.10.4.5). The increased primary production for many regions of the estuary following diversion releases could provide additional prey-related benefits to bay anchovy. Habitat suitability for juvenile bay anchovy, as projected by the HSI model, shows a small increase in suitability in the outfall area in 2050 for Alternative 1 compared to the No-Action Alternative (USACE, 2022, Section 4.10.4.5). This is due to created and sustained marsh in this area, which would provide increased potential feeding and cover habitat for juvenile bay anchovy. As the salinity in the mid-basin decreases, an increase in SAV biomass is anticipated, which would benefit early schooling juveniles utilizing low-salinity SAV or emergent marsh areas. Further, sediments accumulating in the outfall area over time would result in shallower water depths, providing bay anchovy with increased habitat for refuge. While low levels of collateral injury could occur related to larval transport disruption near the diversion outfall area, the overall impact of Alternative 1 on bay anchovy is expected to be beneficial.

#### Gulf Menhaden



All life stages of Gulf menhaden occur in the Barataria Basin except for spawning adults, eggs, and the early larvae that are found on the continental shelf (Christmas et al., 1982). Alternative 1 is expected to benefit Gulf menhaden through increased low-salinity juvenile nursery habitat and increased prey biomass. More marsh vegetation would be created or maintained under Alternative 1 compared to the No-Action Alternative,



providing more potential feeding and nursery habitat over time (USACE, 2022, Section 4.10.4.5). Further, as the salinity in the mid-basin decreases, an increase in SAV biomass is anticipated, which would benefit early schooling juveniles utilizing SAV or emergent marsh. The juvenile Gulf menhaden habitat suitability scores, predominately in the mid-to-lower western region of the Barataria Basin, increase slightly (to a maximum difference of 0.1) for Alternative 1 compared to the No-Action Alternative in simulated years 2020 through 2050, primarily due to increased chlorophyll A levels (USACE, 2022, Section 4.10.4.5). The HSI scores also project a small decrease in habitat suitability (maximum difference of -0.1) after 2050 near the outfall area. Primary production could provide additional prey to benefit Gulf menhaden consumption and growth. While low levels of collateral injury could occur related to larval migration and retention, the overall impact of Alternative 1 on Gulf menhaden is expected to be beneficial.

### Red Drum



Red drum larvae, early juveniles (young-of-year before first birthday), immature, and mature adult red drum occur in the Barataria Basin.

Alternative 1 would create or maintain more marsh vegetation, providing more potential feeding and nursery habitat over time when compared to the No-Action Alternative, as long as the red drum that have settled within and near the outfall area are not flushed out or otherwise impaired by increased flow and turbidity during high-diversion operations in the early spring (USACE, 2022, Section 4.10.4.5). Under Alternative 1, the new and sustained marsh vegetation in the Proposed MBSD Project outfall area, increased primary production, and increased prey and SAV biomass throughout the basin would benefit red drum. These benefits may result in a slight increase in species abundance over time (USACE, 2022, Section 4.10.4.5). The beneficial primary productivity impacts are expected to begin at the onset of operations and last throughout the time the diversion is operating, whereas the benefits associated with new and sustained marsh and SAV biomass would be realized primarily after 2050.

### Largemouth Bass

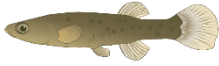


All life stages of largemouth bass are present in the Barataria Basin, primarily in the upper basin north of the proposed diversion structure. Largemouth bass prefer areas of low (less than 5 ppt) salinity, minimal turbidity, and proximal vegetative cover, although adults are adapted to a variety of habitat characteristics. Alternative 1 is expected to benefit largemouth bass through increased low-salinity habitat, SAV, and prey (USACE, 2022, Section 4.10.4.5). The juvenile largemouth bass HSI scores

increase in the middle estuary under Alternative 1 compared to the No-Action Alternative for years 2020 through 2050, and increase near the outfall throughout the analysis period (USACE, 2022, Section 4.10.4.5). The increase in habitat suitability near the outfall area is due to sustained marsh vegetation in this location; while the increase in suitability in the middle estuary from 2020 through 2050 is due to reduced salinities that are more optimal for largemouth bass, as well as increased prey. Overall, even though the recurring high-flow diversion operations in late winter through spring would likely deter use of the outfall area by largemouth bass, the extent of low-salinity areas with higher SAV and prey biomass in other regions of the Barataria Basin should provide moderate benefits to the largemouth bass population. The impact is expected to be moderate because expanded low-salinity areas with higher SAV and prey could allow

largemouth bass to expand their range and potentially outcompete other estuarine predatory fishes (Kazumi and Keita, 2003; Brown et al., 2009).

#### Saltmarsh Topminnow



The saltmarsh topminnow, a state endangered species, favors quiet freshwaters protected by wetlands. Alternative 1 is projected to benefit the saltmarsh topminnow as wetlands are maintained and created in the outfall area, benefiting the species through the presence of quieter waters protected by 12,700 more acres of wetlands compared to the No-Action Alternative (USACE, 2022, Section 4.12.3.1). These moderate benefits are projected to occur primarily after 2050 as wetlands are maintained and created in the outfall area. Changing habitat and increased sedimentation would result in adverse impacts on the saltmarsh topminnow, but Alternative 1 would also benefit the species by maintaining more wetland habitat compared to the No-Action Alternative (USACE, 2022, Section 4.12.3.1). Overall, the combination of these adverse and beneficial impacts is anticipated to provide minor-to-moderate benefits to the saltmarsh topminnow in the Proposed MBSD Project area.

#### 3.2.1.6.3 Benefits to Birds and Terrestrial Wildlife

Birds and terrestrial wildlife that use emergent marsh, mudflats, and SAV for foraging, reproducing, or refueling during migration are expected to substantially benefit from the creation and maintenance of the nearshore marine habitats described above (Figure 3-11).<sup>33</sup> Specifically, waterfowl would substantially benefit from restoration and maintenance of fresh and intermediate marshes, as many species (including the mottled duck) have seen previous population declines that are at least partially attributed to wetland loss and degradation (Hartke, 2013; Fontenot and DeMay, 2018). In addition, mudflats could be used by multiple species (e.g., shorebirds) prior to the establishment of marsh vegetation. Although multiple species could use these mudflats, they would be particularly beneficial to female mottled ducks and their broods, which require wetlands with short emergent vegetation and mudflats on which the ducklings can rest (Hartke, 2013).

Plant species diversity, and therefore habitat importance to waterfowl, increases with a decrease in salinity, such that fresh marshes are considered to be the most-valuable marsh to most dabbling waterfowl, followed by intermediate and brackish marshes (Gulf Coast Joint Venture, 2002). As operations continue and the fresher marshes are re-established or maintained near the outfall, it is likely that many waterfowl populations, some colonial waterbird species, and other species that prefer less-saline habitats (e.g., alligators) would increase in the outfall area.

The anticipated benefits of increased marsh in the outfall area are supported by HSI models for the select species in coastal Louisiana. Habitat suitability nearest the immediate outfall area (polygons 8 and 12) generally increases for ducks, with the HSI scores increasing by up to 0.37 for the green-winged teal and up to 0.39 for the mottled duck by 2070 (USACE, 2022, Section 4.9.4.2). These increased scores are likely based on the presence of land/emergent marsh

<sup>33</sup> All species mentioned in this section are expected to experience a “medium” level of benefit, which aligns with the species described in the Final EIS that are expected to experience minor-to-moderate benefits from Alternative 1.

and on shallower depths in areas of land accretion. Similar increases in HSI scores in the outfall area are not projected for the gadwall, likely due to the decrease in open-water areas that would be concurrent with the projected wetland gains; impacts on this species from habitat changes would likely be negligible. As wetland losses and increasing depths continue in other portions of the Proposed MBSD Project area, habitat suitability for mottled ducks outside of the outfall area generally decreases or remains similar (maximum decrease of -0.11 for mottled duck in the southwestern Basin) to the No-Action Alternative over time and space (USACE, 2022, Section 4.9.4.2).

For the black rail, a federally threatened species under the Endangered Species Act (ESA), Alternative 1 would change the composition of available prey resources but would also preserve and increase the area of available marsh habitat in the mid-basin over time. Long-term effects to the black rail, which do not show preference between marsh types, are anticipated to be small, with the black rail benefiting from areas of marsh habitat creation and preservation (USACE, 2022, Section 4.12.2.5).

#### 3.2.1.6.4 Recreational Use Benefits

Some of the benefits described above to fish, shellfish, and birds are likely to translate to recreational use benefits (Figure 3-11). For example, recreational fishers in the basin are known to target species that are expected to benefit from Alternative 1, including blue crab, red drum, and largemouth bass (USACE, 2022, Section 4.16.5.2). While recreational fishing for spotted seatrout is likely to be negatively affected by decreasing salinities under Alternative 1 (see Section 3.2.1.5), anglers that target species that prefer lower salinities and marsh habitat (e.g., red drum, largemouth bass) are likely to have improved fishing experiences. In fact, such trends have been borne out for anglers that fish near the Davis Pond Freshwater Diversion near Lafitte, Louisiana; the changes in salinity and habitat created by the diversion have led anglers to describe the area as having “incredible bass habitat” (Felsher, 2014).

Similarly, the projected benefits of Alternative 1 for birds described above could support recreational use for hunting and birdwatching. For example, the projected increase in waterfowl habitat under Alternative 1 may result in more birds and potentially a greater species diversity, which could increase the number of days that individual hunters spend hunting throughout the basin (USACE, 2022, Section 4.16.5.2). In fact, the presence of the Davis Pond Freshwater Diversion has been credited for some exceptional hunting seasons in Lake Cataouatche, the recipient of flows from the diversion (Taylor, n.d.). In addition, improved wetland habitat under Alternative 1 may attract more breeding and foraging wetland birds, resulting in increased opportunities for bird watching in some areas of the Barataria Basin (USACE, 2022, Section 4.16.5.2).

#### 3.2.1.6.5 Benefits to Offshore Ecosystems

Alternative 1 is expected to increase nutrients in the Barataria Basin that would support the aquatic food web in the basin and offshore in the Gulf of Mexico. Increases in nutrient loading can increase phytoplankton and zooplankton (Buyukates and Roelke, 2005; Roy et al., 2016), which are important food sources for fish that develop in estuaries before migrating out to the marine environment. For example, one study found that 23% of the TN available to predator fish and other organisms higher in the food chain in coastal ecosystems was derived from pinfish

(*Lagodon rhomboides*), a species that migrates from estuaries into coastal waters (Nelson et al., 2013). Similarly, young-of-the-year menhaden leaving estuaries directly support coastal fisheries and food webs as direct biomass; in addition, the magnitude of the carbon, nitrogen, and phosphorus equivalents associated with this estuarine emigration is equivalent to 5–10% of the total primary production in the estuaries studied (Deegan, 1993). Other studies also have demonstrated that nitrogen, phosphorus, and carbon produced in estuaries support offshore fishery production (Iverson, 1990; Deegan, 1993). Given that nutrients from the Proposed MBSD Project can be expected to increase productivity in the Barataria Basin, the LA TIG expects that the project could increase the flow of carbon (“energy”) to offshore waters, stimulating marine productivity.

The LA TIG also notes that there is a possibility that Alternative 1 could contribute to efforts to reduce the size and severity of the low oxygen “dead zone” in the Gulf of Mexico by restoring coastal wetlands and increasing the uptake of nutrients in the Barataria Basin. The Mississippi River/Gulf of Mexico Hypoxia Task Force (2018, page 4) found that “channelization and impoundment of the Mississippi River and its tributaries throughout the basin and the Mississippi Delta, and the loss of coastal wetlands” are two factors that contribute to excess nutrients reaching Gulf water. Alternative 1 should reverse some of these conditions in the Barataria Basin by allowing the river to flow through the diversion into the basin and create additional acreage of coastal wetlands. Although acknowledged as uncertain, any action that helps to shrink the size and severity of the dead zone would provide multiple benefits to fish and shellfish populations in the Gulf of Mexico.

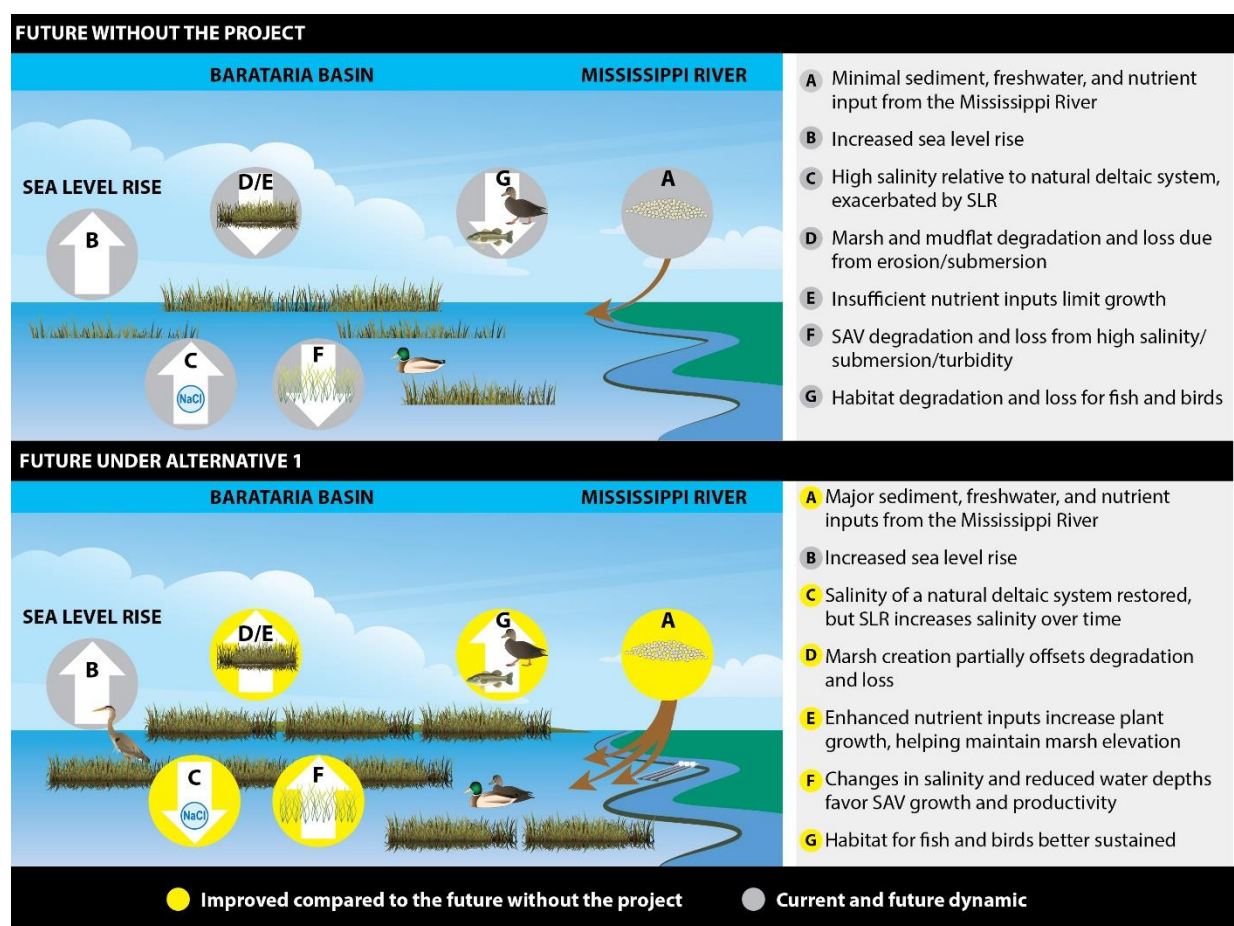
#### 3.2.1.6.6 Synthesis of How Alternative 1 Benefits Multiple Resources

Alternative 1 is expected to result in substantial benefits to nearshore marine ecosystems, water column resources (including fish and shellfish), birds, terrestrial wildlife, and offshore marine ecosystems (Figure 3-11). The increase in sediment, nutrient, and freshwater delivery from Alternative 1 would support plant community succession and diversity in the nearshore marine ecosystems of the Barataria Basin over time, helping build and sustain a dynamic, interconnected landscape with a combination of shallow mudflat, SAV, floating-leaved vegetation, and emergent marsh habitat (Figure 3-11 and Figure 3-13). In fact, Alternative 1 is projected to increase (1) emergent marsh and mudflat habitat by 13,400 ac, and (2) SAV by 1,500 ac in the Barataria Basin compared to the No-Action Alternative. The land-building under Alternative 1 would also create more productive marsh “edge” habitat. These nearshore marine ecosystem benefits would also directly benefit fish, shellfish, and invertebrates that use

#### **Alternative 1: Benefits Multiple Resources Summary**

Alternative 1 is expected to result in substantial benefits to nearshore marine ecosystems, water column resources (including fish and shellfish), birds, terrestrial wildlife, and offshore marine ecosystems. The diversion would help build and sustain a dynamic, interconnected landscape with a combination of shallow mudflat, floating-leaved vegetation, and emergent marsh habitat. Through providing these habitats, the project would benefit white shrimp, blue crab, bay anchovy, Gulf menhaden, red drum, largemouth bass, saltmarsh topminnow, and multiple species of shorebirds, waterfowl, and secretive marsh birds. Alternative 1 could also benefit offshore marine ecosystems by enhancing the productivity of fish that develop in estuaries before migrating out to the marine environment.

nearshore marine habitats (Figure 3-11 and Figure 3-13). Specific species that would be expected to benefit include white shrimp, blue crab, bay anchovy, Gulf menhaden, red drum, largemouth bass, and saltmarsh topminnow. The restoration and maintenance of shallow water habitat, mudflats, SAV, and emergent marsh are also expected to benefit a variety of bird species known to rely on these habitats, including shorebirds, waterfowl (e.g., mottled ducks, green teal), and secretive marsh birds (e.g., black rail) (Figure 3-11 and Figure 3-13). Alternative 1 could also benefit offshore marine ecosystems by enhancing the productivity of fish that develop in estuaries before migrating out to the marine environment; this would increase the flow of energy to offshore waters, stimulating marine productivity (Figure 3-11). Figure 3-13 provides a conceptual representation of these benefits, highlighting how key ecological dynamics in the Proposed MBSD Project area would improve, particularly when compared to a future without this project.



**Figure 3-13. Conceptual Representation of Alternative 1 Benefits.** Under future conditions, a lack of connectivity to the Mississippi River, in combination with sea level rise, leads to the degradation and loss of wetland habitat and SAV. Alternative 1 delivers sediment, freshwater, and nutrients to the basin, helping restore and sustain mudflats, aquatic vegetation, and wetlands, which benefits fish and bird species that rely on these habitats. Some symbols adapted from and used are through the courtesy of the Integration and Application Network (<https://ian.umces.edu/symbols/>).



### 3.2.1.7 Public Health and Safety

This section evaluates the extent to which Alternative 1 could affect public health and safety. The LA TIG focused its analysis on the projected changes in storm hazards and tidal inundation associated with the implementation of Alternative 1. Storm hazards occur during severe weather events, particularly storm events and hurricanes, which may result in the loss of life, injury, and flood-related health hazards. Repeated tidal flooding, while not typically associated with injury or loss of life, can impact public health and safety as a result of damage to homes and infrastructure, including roads, water supply systems, and wastewater treatment facilities (USACE, 2022, Section 4.20). Potential hazards to public health and safety associated with construction are expected to be minimized through preventative actions (USACE, 2022, Section 4.20.4.1) and are not discussed further here.

#### 3.2.1.7.1 Storm Hazard Impacts

For communities north of the Proposed MBSD Project, including large population centers, Alternative 1 is projected to have a positive net effect on public health and safety by creating and protecting coastal marshes that would provide natural storm protection (Figure 3-14). These potential benefits include storm surge and wave protection during large storm events for numerous communities, including the west bank and areas near New Orleans, where important industries and areas with a high percentage of low-income minority households are located. These benefits would occur because coastal marshes can help attenuate waves and stabilize shorelines (Shepard et al., 2011). Large marshes with productive, dense vegetation are more effective at attenuating wave energy and stabilizing shorelines than deteriorating or severely altered marshes (Shepard et al., 2011). Furthermore, wetland losses can result in increased storm surge risk (Wamsley et al., 2010).

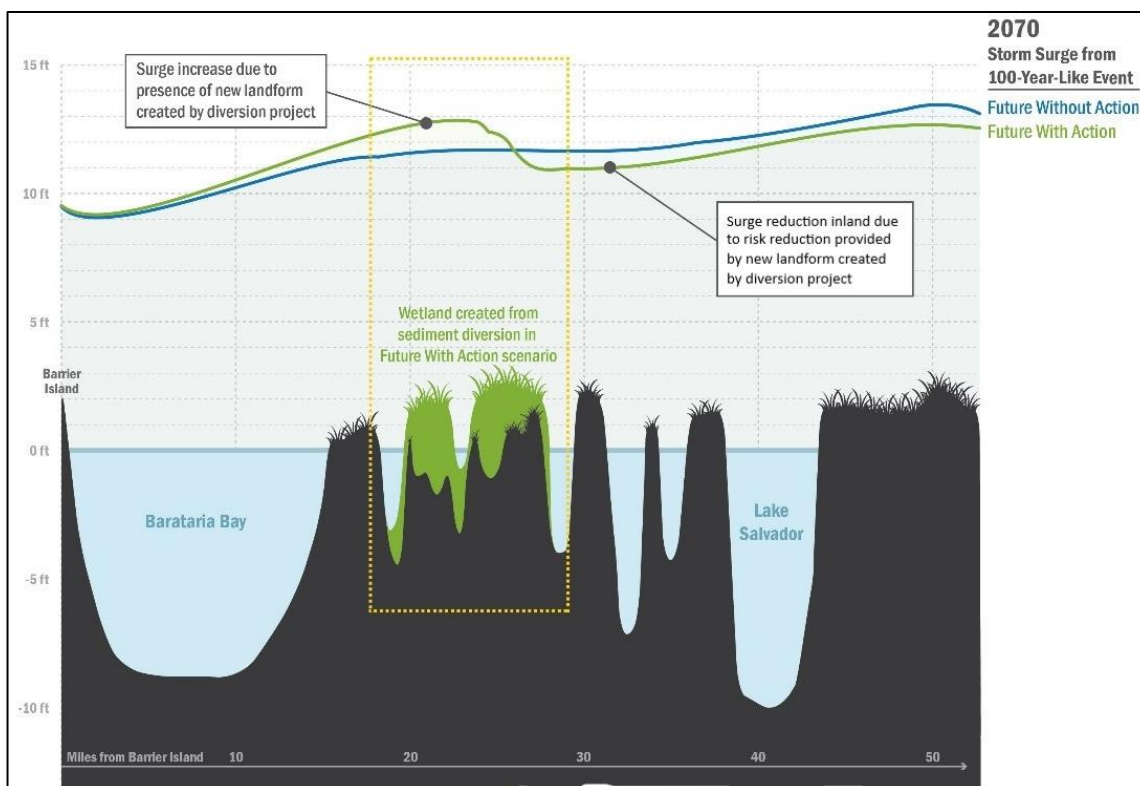
More specifically, Alternative 1 is projected to increase the topographic elevations around the diversion outfall area and, after 30 years of operation, create 17,300 ac of land in the Barataria Basin (and 13,400 ac after 50 years of operation; USACE, 2022, Section 4.20). This increase in land area would reduce the extent of inland storm surge and limit the height of waves inland of the diversion, benefiting the public health and safety of populated areas north of the Proposed MBSD Project area, including areas outside of the federal levee systems (e.g., Lafitte, Des Allemands, Paradis, Boutte) (USACE, 2022, Section 4.20; Figure 3-14 and Figure 3-15).

These areas are some of the more densely populated and heavily built areas in coastal Louisiana, and include the highest concentration of productive assets in the state (Barnes and Virgets, 2018). Thus, Alternative 1 is likely to contribute to a positive net effect on public health and safety in an economically critical region of Louisiana. For example, in 2014, the New Orleans region supported 36,000 businesses and 537,000 jobs, as well as the highest concentration of built infrastructure along Louisiana's coast (Barnes and Virgets, 2018).

#### **Alternative 1: Public Health and Safety Summary**

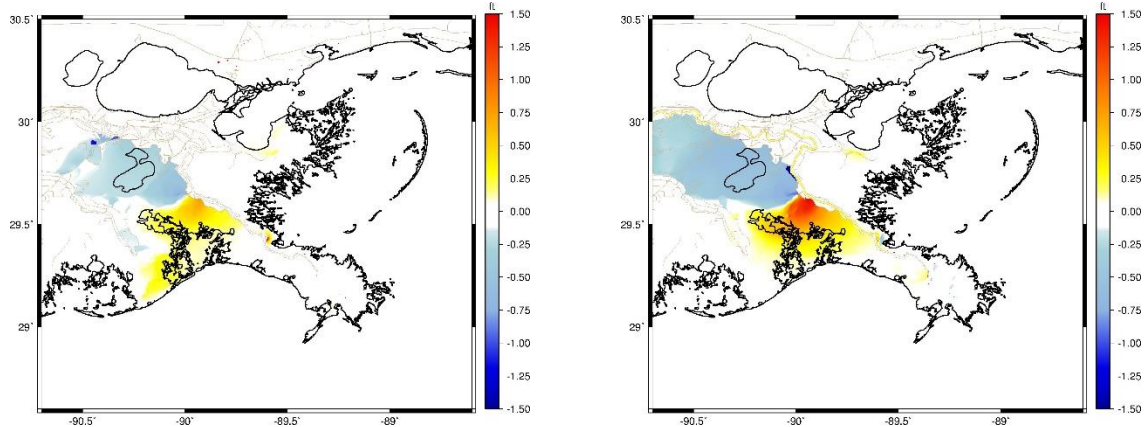
Alternative 1 is expected to provide public health and safety benefits to the populated areas north of the diversion, while adversely affecting communities Gulfward of the diversion that fall outside of the federal levee system. Increased wetland acreage has a positive benefit for public safety by decreasing surge elevation and wave height, while higher-diversion flows tend to increase the magnitude and frequency of tidal inundation for areas outside of the federal levee system.





**Figure 3-14. Simplified Illustration of How Increases in Topography and Land Acreage in the Delta Formation Area under Alternative 1 Influence Storm Surge Elevation along a 50-mile Cross-section of the Project Area, as Compared to the No-Action Alternative.** Storm Surge Elevations are Based on a Generalized 1 Percent Annual Exceedance Probability Storm. (Source: USACE, 2022, Section 4.20)

Simultaneously, however, Alternative 1 is projected to have a negative impact on public health and safety for smaller, less-populated communities that are Gulfward of the diversion (e.g., Ironton, Myrtle Grove, Woodpark, Hermitage, Suzie Bayou, Happy Jack, Grand Bayou). These communities would be negatively affected by potential increases in storm surge in areas already affected by ongoing land loss, sea level rise, and subsidence (Figure 3-15; USACE, 2022, Section 4.20.4.2). Storm surge is projected to increase in these areas in 2040 as compared to the No-Action Alternative, with the greatest increases adjacent to the NOV-NFL Levee system. Alternative 1 would also cause minor increases in wave height Gulfward of the diversion's delta formation area, as compared to the No-Action Alternative (USACE, 2022, Section 4.20.4.2). Changes in storm surge elevation from the diversion are projected to increase in magnitude and spatial extent over time (USACE, 2022, Section 4.20.4.2). However, by 2070, sea level rise, not the diversion, would become the dominant driver of storm surge (USACE, 2022, Section 4.20.4.2; Figure 3-15). Increases in storm surge elevation could result in increased economic impacts for these areas when storm events occur.



**Figure 3-15. Difference in Storm Surge Elevations between the No-Action Alternative and Alternative 1 in 2040 (left) and 2070 (right) where Blue Shading (north of the diversion) Depicts Areas with Reduced Storm Surge, while Yellow-to-Red Shading (south of the diversion) Depicts Areas with Increased Storm Surge.** (Source: USACE, 2022, Section 4.20)

For communities inside of federal levee systems, Alternative 1 would reduce the risk of overtopping hurricane protection levees in the areas north of the diversion, where reductions in storm surge and wave elevations are expected to occur. These include the West Bank and Vicinity portion of the Hurricane and Storm Damage Risk Reduction System and the northern reaches of the NOV-NFL System (USACE, 2022, Section 4.20.4.2). However, for areas Gulfward of the diversion, there would be a small increase in the risk of levees being overtopped due to projected increases in storm surge. Potentially affected areas include the reaches of the NOV-NFL and the NOV systems south of the diversion outfall (USACE, 2022, Section 4.20.4.2).

#### 3.2.1.7.2 More Substantial Tidal Inundation Effects to Communities Gulfward of the Proposed MBSD Project

Alternative 1 is projected to result in some tidal flooding increases in communities north of the diversion outside of the federal levee system. For example, in Lafitte, Alternative 1 is projected to increase the annual number of days when tidal flooding exceeds the height of existing flood protection by 4 to 13 days annually in the first two decades of diversion operations. In 2050, this is projected to increase to a maximum of 30 days (about 25% more than would occur without the diversion), but the difference between Alternative 1 and the No-Action Alternative is only 1 day by 2070, as sea level rise becomes the dominant driver of tidal flooding (Table 3-4; USACE, 2022, Section 4.20.4.2).

Alternative 1 is projected to increase tidal flooding risk more substantially in communities south of the diversion complex outside of the federal levee system, some of which have a large percentage of minority households and households below the poverty line. For example, in Grand Bayou, Alternative 1 is projected to increase the annual number of days of tidal flooding by between 45 and 56 days in the first 2 decades of diversion operations compared to the No-Action Alternative (Table 3-4). Tidal flooding events are projected to further increase closer to the diversion: in Myrtle Grove, Alternative 1 is projected to increase the number of days per year of tidal flooding by more than 110 days in each of the first two decades of diversion operations compared to the No-Action Alternative (Table 3-4). In these communities, as with Lafitte, the influence of the diversion on tidal flooding is projected to diminish over time as sea level rise

becomes the dominant driver; in fact, the effect of Alternative 1 on annual days of tidal flooding is projected to almost entirely disappear (i.e., fall below 10 days per year) by 2050 in Grand Bayou and by 2060 in Myrtle Grove (Table 3-4). In other words, for some communities, the diversion would serve to accelerate tidal flooding impacts that would happen in the future without the diversion, due to sea level rise.

These projections are based on the 2011 Mississippi River hydrograph, which is representative of a high, late spring flood flow; thus, these projections capture how tidal inundation might be affected during high-flow years, when the diversion could be operated at its maximum capacity for extended periods of time. In lower-flow years, Alternative 1 could result in less tidal inundation frequency or duration than these projections suggest.

Related periodic inundation events are not expected to damage existing residential structures in the areas south of the diversion, primarily because most of these structures are elevated, thus minimizing potential threats to public health and safety. However, damage may occur to roads and other infrastructure, which could result in impacts on public health and safety if the functionality of all infrastructure is not maintained. See the Mitigation and Stewardship Plan (Appendix B) for information about how flooding impacts to communities, including low-income and minority communities, would be mitigated.

**Table 3-4.**  
**Influence of Alternative 1 on Annual Days of Tidal Flooding Decreases over Time**

Community	Alternative	2020	2030	2040	2050	2060	2070
Lafitte	No-Action Alternative	1	9	50	122	283	346
	Alternate 1 (75,000 cfs)	5	22	65	152	304	347
	Difference	4	13	15	30	21	1
Myrtle Grove	No-Action Alternative	62	128	219	322	353	357
	Alternate 1 (75,000 cfs)	181	239	286	362	362	362
	Difference	119	111	67	40	9	5
Grand Bayou	No-Action Alternative	68	176	297	343	358	362
	Alternate 1 (75,000 cfs)	124	221	318	348	357	362
	Difference	56	45	21	5	-1	0

<sup>a</sup> Fixed thresholds for Grand Bayou, Myrtle Grove, and Lafitte are 1.5 ft [45.7 centimeters (cm)], 1.75 ft (53.3 cm), and 2.5 ft (76.2 cm), respectively. Based on hydrograph year 2011 (high, late spring flood flow).

Source: USACE, 2022, Table 4.20-2.

### 3.2.2 Alternatives 2–6

In this section, the LA TIG provides an OPA evaluation of Alternatives 2–6 for the Proposed MBSD Project. As noted in the introduction to this section, all of the alternatives are similar in terms of construction footprint as well as the physical and biological mechanisms that would affect the benefits achieved and the collateral injuries potentially incurred. However, the alternatives differ in cost and in the magnitude, timing, and location of the benefits achieved and the injuries potentially incurred. This information was used to guide the LA TIG's evaluation of alternatives and selection of the Preferred Alternative. To enable this contrast between alternatives, the LA TIG's analysis of Alternatives 2–6 focuses on how each differs from Alternative 1.

### 3.2.2.1 Alternative Descriptions

Alternatives 2–6 consist of a large-scale sediment diversion similar to that described for Alternative 1. The primary difference between Alternatives 2 and 3 and Alternative 1 is that they operate at different maximum capacities of the diversion (50,000 cfs for Alternative 2 and 150,000 cfs for Alternative 3). Alternatives 4, 5, and 6 are the 75,000 cfs diversion, the 50,000 cfs diversion, and the 150,000 cfs diversion with marsh terracing, respectively. Because Alternatives 4, 5, and 6 focus solely on the additional effects of marsh terracing on the Proposed MBSD Project, and the effect of marsh terraces is not expected to vary markedly with diversion capacity, these latter three alternatives are usually analyzed together as “Alternatives 4–6” in the remainder of the document. A summary of the alternatives considered here is as follows:

- Alternative 2<sup>34</sup>: 50,000 cfs capacity diversion
- Alternative 3<sup>35</sup>: 150,000 cfs capacity diversion
- Alternatives 4–6<sup>36</sup>: 75,000, 50,000, and 150,000 cfs capacity diversions plus marsh terracing, respectively.

See the Final EIS for more details on the design and operational aspects of Alternatives 2–6 (USACE, 2022, Chapter 2).

Alternatives 2–6 would, like Alternative 1, include implementation of the LA TIG’s MAM Plan to evaluate the Proposed MBSD Project’s benefits and impacts on the Barataria Basin, and consider how the management of the diversion may be adapted to better meet the Proposed MBSD Project’s goals (see Appendix A).

Modeling results project that Alternatives 2–6 would have significant and sustained benefits across the expected lifetime of the Proposed MBSD Project that are very similar in nature to Alternative 1. However, the magnitude of the projected changes to the basin vary across the alternatives. More specifically, similar to Alternative 1, Alternatives 2–6 are expected to:

- Deliver large quantities of sediment to the Barataria Basin every year to form a new delta and sustain marshes.
- Deliver high flows of freshwater during the spring, re-establishing deltaic processes.
- Deliver additional nutrients to the Barataria Basin.
- Sustain a gradient of marsh types, which would help sustain the diversity of the ecologically connected habitats that have historically made up the Barataria Basin.

Each of these Proposed MBSD Project-associated changes are discussed in more detail below. See the Final EIS for more details (USACE, 2022).

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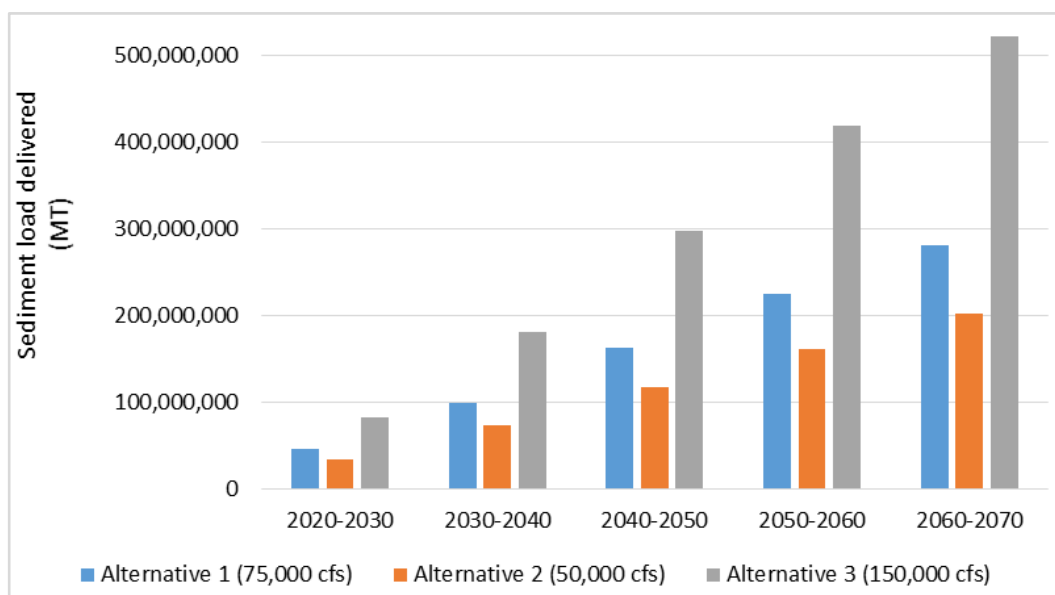
<sup>34</sup> Corresponds to Alternative 3 in the Final EIS.

<sup>35</sup> Corresponds to Alternative 5 in the Final EIS.

<sup>36</sup> Corresponds to Alternatives 2, 4, and 6 in the Final EIS, respectively.

### 3.2.2.1.1 Effects of Alternatives 2–6 on Sediment Delivery and Land Creation

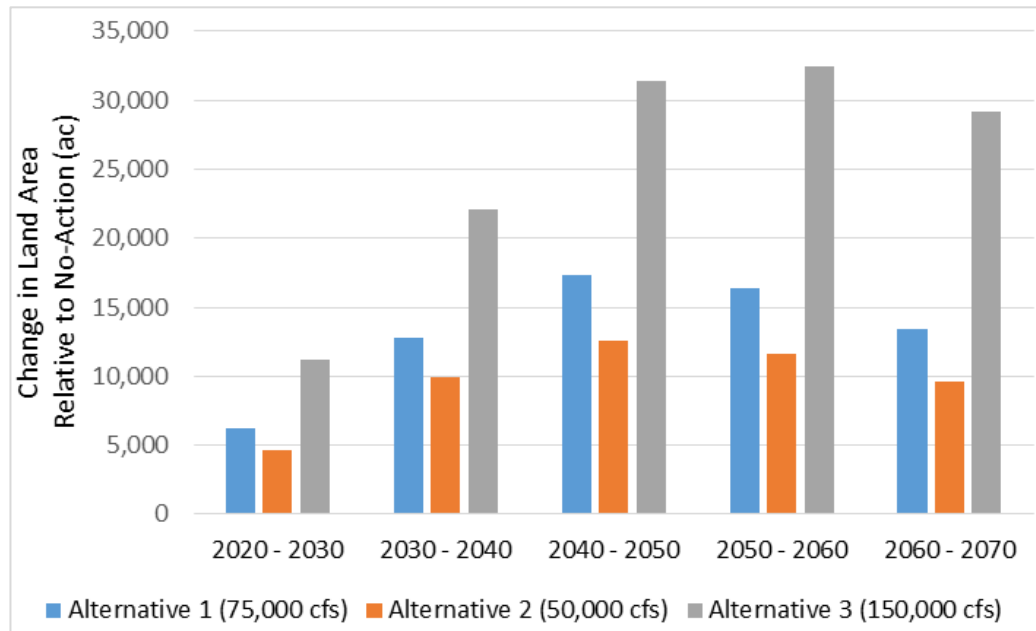
Similar to Alternative 1 (75,000 cfs), Alternatives 2 (50,000 cfs) and 3 (150,000 cfs) are projected to be successful at delivering sediment to the Barataria Basin, with sediment delivery expected to support the creation of a new delta in the mid-basin portion of the basin, and help sustain marshes through the retention of sediment and associated nutrients. Over the 50-year analysis period, the Delft3D model estimates that Alternative 2 would deliver approximately 190 MMT of sediment to the Barataria Basin, 85 million tons less than Alternative 1 (Figure 3-16). Conversely, Alternative 3 would deliver approximately 240 million more metric tons than Alternative 1 in the same timeframe (Figure 3-16). Alternatives 4–6 (sediment diversion plus terracing), which would affect the Proposed MBSD Project only through the addition of marsh terracing in the outfall area, would not affect sediment delivery to the basin through the diversion.



**Figure 3-16. Cumulative Sediment Load Delivered (MT) to the Barataria Basin by 2070 is Lowest under Alternative 2 and Highest under Alternative 3, with Alternative 1 Falling in-between These Alternatives.** [Source: Delft3D model production runs from the Final EIS (USACE, 2022)]

By delivering sediment when the diversion is operating, Alternatives 2–6 allow for the formation of deltaic landforms that, similar to Alternative 1, reach a peak around 2050 and then decline due to sea level rise (Figure 3-17). Alternative 2 (50,000 cfs) is projected to increase land area in the Barataria Basin across the 50-year analysis period relative to the No-Action Alternative, with a maximum increase of 12,600 ac in 2050, which is 4,700 fewer acres than Alternative 1 (75,000 cfs; Figure 3-17). The projected maximum land area created by Alternative 3 (150,000 cfs) is 31,400 ac, or 14,100 more acres than Alternative 1 (75,000 cfs). Similar to Alternative 1, Alternatives 2 and 3 would mitigate some of the projected impacts of sea level rise, with land still being created by the Proposed MBSD Project even when the rates of erosion and land loss are high; however, the percentage of land attributed to this project reaches a maximum of 16% in 2070 for Alternative 2 (50,000 cfs) and 36% for Alternative 3 (150,000 cfs), compared to 21% for Alternative 1 (USACE, 2022, Section 4.2.3.2). Alternatives 4–6 (sediment diversion plus terracing) would increase the amount of land area under each alternative by a modest amount, creating between 0 and 400 more acres of land compared to alternatives without marsh

terracing; however, the magnitude of this difference falls within the confidence intervals of the Delft3D model output and may only reflect model “noise” (USACE, 2022, Section 4.2.3.2).



**Figure 3-17. Increases in Land Area in the Barataria Basin Would Be Lowest under Alternative 2 and Highest under Alternative 3, with Alternative 1 Falling in-between These Alternatives.** [Source: Final EIS, Section 4.2.3.2 (USACE, 2022)]

#### 3.2.2.1.2 Effects of Alternatives 2–6 on Freshwater Delivery

Similar to Alternative 1 (75,000 cfs), Alternatives 2 (50,000 cfs), 3 (150,000 cfs), and 4–6 (sediment diversion plus terracing) would increase freshwater flows during the spring months, re-establishing the deltaic processes that bring freshwater, sediment, and nutrients to the basin. By design (i.e., the different capacities of the alternatives), the amount of freshwater delivered to the Barataria Basin would be lowest under Alternative 2 (50,000 cfs) and highest under Alternative 3 (150,000 cfs), with Alternative 1 (75,000 cfs) falling in-between these two alternatives. Alternatives 2–6, similar to Alternative 1, would result in the lowest salinities when the diversion is running at higher capacities, typically in the winter and spring (USACE, 2022, Section 4.1.3.1). Higher salinities would occur when the diversion is running under base flow conditions, typically in the summer and fall.

#### 3.2.2.1.3 Effects of Alternatives 2–6 on Nutrient Delivery

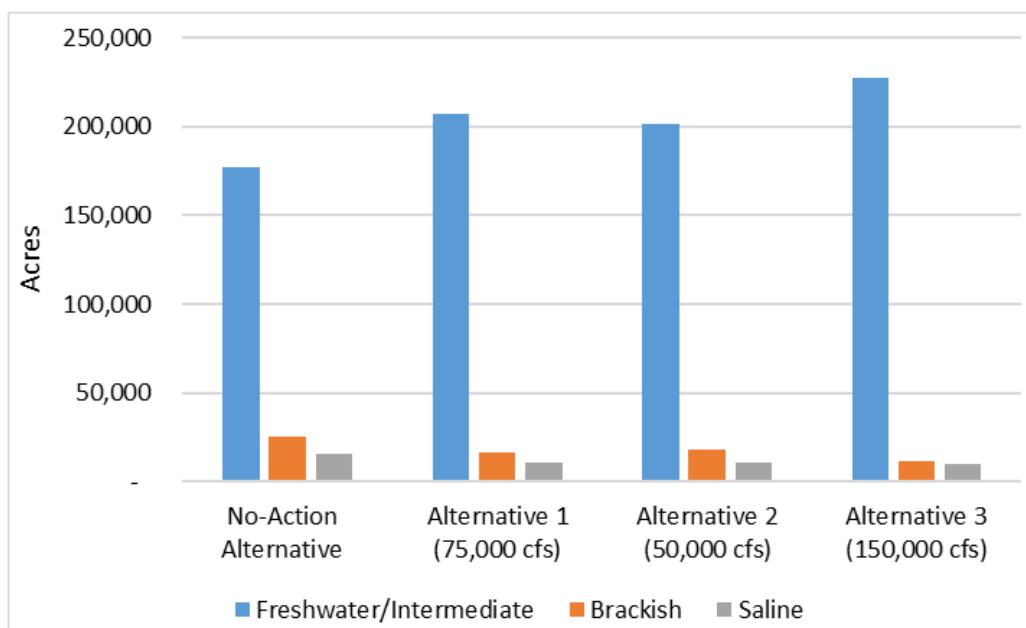
Similar to Alternative 1 (75,000 cfs), Alternatives 2 (50,000 cfs), 3 (150,000 cfs), and 4–6 (sediment diversion plus terracing) would deliver additional nutrients to the Barataria Basin, and there would only be minor differences in nutrient flows among these alternatives. More specifically, all alternatives are projected to result in minor-to-moderate increases in TN compared to the No-Action Alternative, and the influence of all Proposed MBSD Project alternatives on nitrogen concentrations would be similar in terms of seasonal trends (USACE, 2022, Section 4.5.5.3). However, Alternative 2 (50,000 cfs) is expected to result in lower TN loading from the river and slightly decreased nitrogen concentrations in the basin compared to Alternative 1 (75,000 cfs), and Alternative 3 (150,000 cfs) is expected to result in slightly higher



TN loading and basin nitrogen concentrations than Alternative 1 (75,000 cfs) (USACE, 2022, Section 4.5.5.3). Marsh terracing is not expected to affect nitrogen loading in the basin. The same general trends are also true for phosphorus [i.e., the effects of all alternatives on TP loading are generally similar, with slightly less TP loading under Alternative 2 (50,000 cfs) than Alternative 1 (75,000 cfs), and slightly more TP loading under Alternative 3 (150,000 cfs) than Alternative 1 (75,000 cfs)] (USACE, 2022, Section 4.5.5.4).

#### 3.2.2.1.4 Effects of Alternatives 2–6 on Wetland Habitat Types

Similar to Alternative 1 (75,000 cfs), Alternatives 2 (50,000 cfs), 3 (150,000 cfs), and 4–6 (sediment diversion plus terracing) would maintain a gradient of estuarine habitat types, including fresh, intermediate, brackish, and saline marshes. More specifically, all alternatives would increase the cover of fresh and intermediate marshes relative to the No-Action Alternative (USACE, 2022, Section 4.6.5.1). However, Alternative 2 (50,000 cfs) would support less fresh and intermediate habitat marshes than Alternative 1 (75,000 cfs), and Alternative 3 (150,000 cfs) would support more fresh and intermediate habitat marshes than Alternative 1 (75,000 cfs) (USACE, 2022, Section 4.6.5.1). Conversely, Alternative 2 (50,000 cfs) would support more brackish and saline habitats than Alternative 1 (75,000 cfs), and Alternative 3 (150,000 cfs) would support less brackish and saline habitats than Alternative 1 (75,000 cfs) (USACE, 2022, Section 4.6.5.1). For illustrative purposes, Figure 3-18 shows the projected relative acreage of the different types of wetland habitats under the No-Action Alternative and Alternatives 1–3 in 2050. Marsh terracing under Alternatives 4–6 (sediment diversion plus terracing) is not expected to affect wetland habitat types present in the basin.



**Figure 3-18. All Alternatives Are Projected to Increase the Area of Freshwater and Intermediate Marsh Habitats, and Decrease the Area of Brackish and Saline Marshes, in the Barataria Basin Relative to the No-Action Alternative; Data Shown Are Modeling Results for 2050, the Peak of Projected Land Cover in the Barataria Basin.** Alternative 2 is projected to have the least effect on marsh habitat type, while Alternative 3 is projected to have the greatest effect. Alternative 1 falls in-between these alternatives. Vegetated and unvegetated land areas are included, and results are shown by decade. (Source: USACE, 2022, Section 4.6.5.1)

### 3.2.2.2 Cost to Carry Out the Alternatives

At the time of the Draft RP publication, the cost estimates for implementing Proposed MBSD Project Alternatives 2–6 ranged from approximately \$1.7 billion to \$2.8 billion (Table 3-5). As with Alternative 1, these costs included funding for the associated mitigation and stewardship measures that would be implemented in recognition of the potential collateral injuries of the project. As noted earlier, the overall costs for the Proposed MBSD Project were reduced by leveraging \$108,000,000 in funding for E&D from NFWF's GEBF.

#### Alternatives 2–6: Cost Summary

As noted in Section 3.2.1.2 (Cost to Carry out the Alternative for Alternative 1), the costs associated with all alternatives are likely to significantly exceed the costs detailed in the Draft RP. Because the factors contributing to those increased costs would be the same for all alternatives, these increased costs would not affect the comparison of costs between alternatives. The cost of Alternative 2 would only be slightly lower than Alternative 1. On the other hand, the cost of Alternative 3 would be significantly higher than Alternative 1 (approximately \$1 billion higher using cost estimates from 2020, shown in Table 3-5). While the inclusion of a robust MAM Plan would add to overall Project cost, that Plan would help ensure the Project meets its goals and objectives. In addition, using the CMAR contracting method would improve the quality and constructability of any alternative, reduce overall risk, and allow for scope revision during the design phase to meet the alternative's budget, purpose and need. Finally, the LA TIG's overall contribution to the Project costs would be limited to \$2,260,000,000 regardless of total Project cost.

**Table 3-5.**  
**2020 Estimated Cost to Carry Out Different Proposed MBSD Project Alternatives**

Cost Category	Alternative 1 (75,000 cfs diversion)	Alternative 2 (50,000 cfs diversion)	Alternative 3 (150,000 cfs diversion)	Alternatives 4–6 (additional terracing costs)
Construction	\$1,531,250,000	\$1,391,160,000	\$2,410,474,000	\$1,500,000
Planning and design	\$80,626,000	\$80,626,000	\$94,236,000	N/A
Services during construction	\$55,626,000	\$52,845,000	\$80,658,000	N/A
Permitting	\$9,419,000	\$9,419,000	\$11,324,000	N/A
Land acquisition	\$268,318,000	\$252,858,000	\$268,418,000	N/A
Project monitoring	\$16,560,000	\$16,310,000	\$18,810,000	N/A
CPRA design and management	\$21,111,000	\$20,285,000	\$28,543,000	N/A
Leveraged funding	(\$108,000,000)	(\$108,000,000)	(\$108,000,000)	N/A
Total	\$1,874,910,000	\$1,716,503,000	\$2,804,463,000	\$1,500,000

Similar to Alternative 1, the efficiency of Alternatives 2–6 would be improved through implementation of the MAM Plan, and the Proposed MBSD Project would be compliant with Louisiana’s CMAR model.

As noted in Section 3.2.1.2, costs for the Proposed MBSD Project are expected to increase substantially from the 2020 estimates provided in the Draft RP (see Table 3-5). This is due to increases in general inflation, as well as corresponding increases to most cost components of the Proposed MBSD Project. As noted in Section 3.2.1.2, CPRA will not know the amount of that increase until it completes negotiations for a Guaranteed Maximum Price for project construction with the CMAR contractor, which will not begin until after the publication of this Final RP. The drivers of these cost increases would apply to all project alternatives evaluated in this RP. It is therefore anticipated that the cost of Alternative 3 would continue to be substantially more than Alternative 1 (nearly \$1 billion more using 2020 cost estimates).

In light of this uncertainty as to total project costs, the LA TIG intends to limit its contribution to the overall MBSD project costs to a total contribution of \$2,260,000,000. The LA TIG’s contribution would cover the majority of MAM costs (an NRDA investment of up to \$148,800,000, including contingency funding) and the Mitigation and Stewardship costs (currently estimated at \$378,000,000, including contingency funding). The remaining LA TIG contribution would be applied toward other project cost categories. CPRA has committed to providing funding for all costs that exceed the LA TIG’s funding cap of \$2,260,000,000.

### 3.2.2.3 Meets Trustee Restoration Goals and Objectives

This section evaluates the extent to which Alternatives 2–6 of the Proposed MBSD Project would meet Trustee restoration goals and objectives. Similar to Alternative 1, Alternatives 2–6 of the Proposed MBSD Project are expected to meet the LA TIG’s three specific goals for this project. This is because the Proposed MBSD Project was explicitly designed to meet these goals, and because the mechanisms through which the goals would be achieved are the same under all alternatives. However, the extent to which each alternative is projected to meet these goals is likely to vary for the different diversion capacities. Below, we discuss each goal, focusing on differences between Alternative 1 and the other alternatives.

A summary of the metrics for evaluating Alternatives 2 (50,000 cfs), 3 (150,000 cfs), and 4–6 (sediment diversion plus terracing) vs. the LA TIG goals for the Proposed MBSD Project is provided in Table 3-6.

**Table 3-6.**  
**Metrics Demonstrating How Alternatives 1–6 of the Proposed MBSD Project**  
**Meet LA TIG Goals for this Project**

Goals	Metrics for Evaluating Goals and Objectives	Alternative 1 (75,000 cfs diversion)	Alternative 2 (50,000 cfs diversion)	Alternative 3 (150,000 cfs diversion)	Alternatives 4–6 (diversion plus terraces)
1: Deliver freshwater, sediment, and nutrients	Total sediment load delivered by 2070 <sup>a</sup>	280 MMT	200 MMT	520 MMT	(No difference from Alternatives 1 to 3)
2: Reconnect and re-establish sustainable deltaic processes	Increase in land area in the Barataria Basin relative to the No-Action Alternative (2050) <sup>b</sup>	17,300 ac	12,600 ac	31,400 ac	Terraces change acres by -100 to 300 ac
	Projected increase in bed elevation, near the diversion, in 2050 <sup>c</sup>	2.8 ft (0.9 m)	2.2 ft (0.7 m)	4.8 ft (1.5 m)	Reduced bed elevation (0.2 ft to 0.9 ft less)
3: Create, restore, and sustain wetlands and other deltaic habitats and associated ecosystem services	Area of different marsh habitat types in the Barataria Basin in 2050 <sup>d</sup>	Fresh/intermediate: 207,000 ac Brackish: 16,600 ac Saline: 10,400 ac	Fresh/intermediate: 201,000 ac Brackish: 18,100 ac Saline: 11,100 ac	Fresh/intermediate: 227,000 ac Brackish: 11,300 ac Saline: 10,000 ac	No change in total acres across capacities; small changes (< 5%) for acres of specific habitats

<sup>a</sup> Delft3D modeling runs.

<sup>b</sup> Source: USACE, 2022, Table 4.2-4.

<sup>c</sup> Source: USACE, 2022, Table 4.4-3.

<sup>d</sup> Source: USACE, 2022, Table 4.6-3.

### 3.2.2.3.1 Goal 1: Deliver Freshwater, Sediment, and Nutrients to the Barataria Basin through a Large-Scale Sediment Diversion from the Mississippi River

Similar to Alternative 1 (75,000 cfs), Alternatives 2 (50,000 cfs), 3 (150,000 cfs), and 4–6 (sediment diversion plus terracing) would meet Goal 1 by delivering freshwater, sediment, and nutrients to the Barataria Basin. Because flows that would trigger the diversion opening above the base flow are the same for all capacities, the timing of the diversion opening is expected to be the same across all alternatives. The extent to which each alternative would meet this goal differs, however. Due to its lower capacity, Alternative 2 (50,000 cfs) would deliver less sediment (Table 3-6); and, conversely, the higher capacity of Alternative 3 (150,000 cfs) would deliver more sediment. Alternatives 4–6 (sediment diversion plus terracing) would not affect the amount of sediment delivered to the basin.

### 3.2.2.3.2 Goal 2: Reconnect and Re-Establish Sustainable Deltaic Processes between the Mississippi River and the Barataria Basin (e.g., sediment retention and accumulation, new delta formation)

Similar to Alternative 1 (75,000 cfs), Alternatives 2 (50,000 cfs), 3 (150,000 cfs), and 4–6 (sediment diversion plus terracing) would meet Goal 2 by reconnecting and re-establishing sustainable deltaic processes between the Mississippi River and the Barataria Basin, as demonstrated by the projected formation of new deltaic landforms at the outlet of the diversion. All of the alternatives would also decrease water depth in other areas where sediment is deposited.

The extent to which each alternative would meet this goal differs. Due to its lower capacity and lower amount of sediment delivered, Alternative 2 (50,000 cfs) would create nearly 5,000 fewer acres of land in the Barataria Basin in 2050 (12,600 ac), compared to Alternative 1 (17,300 ac; Table 3-6). Accordingly, by implementing Alternative 2, nearly 1/3 fewer acres would be created, reducing associated benefits to nearshore marine ecosystems, aquatic resources, birds and terrestrial wildlife, recreational use, and offshore marine ecosystems. In contrast, Alternative 3 (150,000 cfs) would deliver more sediment and create more acres of land, with associated benefits, in the Barataria Basin in 2050 (31,400 ac; Table 3-6). For each capacity size, adding terraces under Alternatives 4–6 would result in a negligible change in total acres created.

Similarly, all of the alternatives are projected to raise bed elevations, but the extent of this increase varies according to capacity. For Alternative 2 (50,000 cfs), projected bed elevations near the diversion outfall area in 2050 would increase by 2.2 ft (0.7 m) compared to 2.8 ft (0.9 m) for Alternative 1 (75,000 cfs; Table 3-6). In comparison, for Alternative 3 (150,000 cfs), projected bed elevations near the diversion outfall area in 2050 would increase by 4.8 ft (1.5 m; USACE, 2022, Table 4.4-3). For Alternatives 4–6, the addition of terraces would result in smaller increases in bed elevation. For the 75,000 cfs and 150,000 cfs diversions, adding terraces would reduce bed elevations near the diversion outfall area by 1.0 foot (0.3 m; Table 3-6). For the 50,000 cfs diversion, adding terraces would reduce bed elevations near the diversion outfall area by 0.33 ft (0.1 m; Table 3-6).

### 3.2.2.3.3 Goal 3: Create, Restore, and Sustain Wetlands and Other Deltaic Habitats and Associated Ecosystem Services

Similar to Alternative 1 (75,000 cfs), Alternatives 2 (50,000 cfs), 3 (150,000 cfs), and 4–6 (sediment diversion plus terracing) would meet Goal 3 by creating, restoring, and sustaining wetlands and other deltaic habitats and associated ecosystem services. The extent to which each alternative would meet this goal differs.

With a lower delivery of sediment and freshwater compared to Alternative 1 (75,000 cfs), Alternative 2 (50,000 cfs) would result in fewer fresh/intermediate wetland acres in the Barataria Basin in 2050 (201,000 ac for Alternative 2 vs. 207,000 ac for Alternative 1; Table 3-6). However, the area of brackish and saline habitats would be greater for Alternative 2 (50,000 cfs) than for Alternative 1 (75,000 cfs), with 1,500 more acres of brackish habitat and 700 more acres of saline habitat (Table 3-6). The larger area of brackish and saline habitats suggests that Alternative 2 would provide more diverse ecosystem services, benefiting species that prefer the

### **Alternatives 2–6: Meets Trustee Goals and Objectives Summary**

Like Alternative 1, Alternatives 2–6 would all meet the Proposed MBSD Project-specific goals and objectives, but to different extents. Alternative 2 (50,000 cfs) would deliver substantially less sediment, land acreage, and bed elevation than Alternative 1 (75,000 cfs), while it would support more brackish and saline habitats than Alternative 1 (75,000 cfs). Alternative 3 (150,000) would provide substantially more sediment, land acreage, and bed elevation than Alternative 1 (75,000 cfs) but would decrease brackish and saline habitat. Alternatives 4–6 (diversion with terraces) do not substantially change the extent to which the corresponding alternatives with similar capacity and without terraces meet the Proposed MBSD Project’s goals and objectives.

brackish and saline habitat types. For example, Hollweg et al. (2020) found a higher density of nekton (fish and crustaceans) in brackish and saline habitats compared to intermediate marshes.

In contrast, Alternative 3 would result in greater fresh/intermediate acres in the Barataria Basin in 2050 [227,000 ac for Alternative 3 (150,000 cfs) vs. 207,000 ac for Alternative 1 (75,000 cfs), with a smaller area of brackish and saline habitats (Table 3-6)]. This suggests that Alternative 3 would provide less-diverse ecosystem services compared to Alternatives 1 and 2; however, the total

productivity from Alternative 3 would likely be greater because of the larger total number of wetland acres. Increased productivity would increase ecosystem services associated with the productivity of water column resources and exports to offshore ecosystems (see Section 3.2.1.6).

Alternatives 4–6 (sediment diversion plus terracing) would result in very small changes in the acreage of specific habitat types. Alternative 4 would add habitat diversity to each of the capacity alternatives by creating additional habitat acreage of the terraces themselves. Marsh terraces generally have high densities of nekton (Hollweg et al., 2020).

#### **3.2.2.4 Likelihood of Success**

As with Alternative 1, the LA TIG considered the same three key factors when assessing the likelihood of success for Alternatives 2 (50,000 cfs), 3 (150,000 cfs), and 4–6 (sediment diversion plus terracing) of the Proposed MBSD Project:

- The general efficacy of diversions in rebuilding marsh ecosystems.
- The extensive scientific and modeling efforts that have been undertaken since the 1990s to develop and refine the concept of a sediment diversion in the Barataria Basin.
- The implementation of the MAM Plan for the Proposed MBSD Project, which would inform progress toward this project’s objectives and support adaptive management of it.

As described below, Alternatives 2 (50,000 cfs), 3 (150,000 cfs), and 4–6 (sediment diversion plus terracing) are very similar to Alternative 1 in terms of likelihood of success.



#### 3.2.2.4.1 Efficacy of Diversions and Marsh Terracing in Rebuilding Marsh Ecosystems

Similar to Alternative 1, Alternatives 2–6 rely on a diversion to deliver sediment to wetlands to reverse rapid land loss. Intentional, engineered diversions have existed since the mid-1940s, and several examples (see Section 3.2.1.4.1) suggest that the Proposed MBSD Project should succeed in building and maintaining wetland habitat in a resilient and sustainable manner. Alternatives 4–6 include marsh terracing, which has been widely implemented since 1990 and is used at many sites in Louisiana to build and retain marsh areas (Castellanos and Aucoin, 2004; Hymel and Breaux, 2012; Wood et al., 2012), reduce fetch and the erosive action of waves (Thibodeaux and Guidry, 2004), with benefits to nekton habitat (Rozas and Minello, 2001; Bush Thom et al., 2004; La Peyre et al., 2007; Rozas et al., 2007).

#### 3.2.2.4.2 Extensive Investments in Developing and Vetting a Large-Scale Sediment Diversion in the Mid-Barataria Basin

Similar to Alternative 1 (75,000 cfs), Alternatives 2 (50,000 cfs), 3 (150,000 cfs), and 4–6 (sediment diversion plus terracing) rely on multiple scientific studies and cutting-edge technical models to understand the key river and estuarine dynamics that would be influenced by sediment diversion projects (CPRA, 2017). In addition to the studies cited under Alternative 1 (all of which are relevant under this analysis as well), several studies have also considered differences in designs and flow rates for diverting sediment, such as the *Mississippi River Sediment, Nutrient, and Freshwater Redistribution Study* (USACE, 2000), CWPPRA Project BA-33 (LCWCRTF, 2003), and Louisiana’s CMP (CPRA, 2017; see Section 3.2.1.4.2 for more detail about these studies and models). These studies and models highlight the significant investments and level of effort to ensure that sediment diversion projects succeed. Additionally, LA TIG members have utilized or endorsed the use of marsh terraces (USACE, 2022, Section 2.5.1). The LA TIG believes that the use of sound engineering methods, combined with the scientific expertise available to the Proposed MBSD Project, would make all alternatives likely to succeed.

#### Alternatives 2–6: Likelihood of Success Summary

Like Alternative 1, Alternatives 2–6 are all likely to succeed due to three factors:

- The general efficacy of diversions in rebuilding marsh ecosystems
- The extensive scientific and modeling efforts that have been undertaken to develop and refine the concept of a sediment diversion in the Barataria Basin
- The implementation of the MAM Plan for the Project, which would support adaptive management over time

The LA TIG did not find evidence to suggest that any one of the alternatives would be less likely to succeed than another.

#### 3.2.2.4.3 Implementation of the MBSD MAM Plan

Similar to Alternative 1 (75,000 cfs), Alternatives 2 (50,000 cfs), 3 (150,000 cfs), and 4–6 (sediment diversion plus terracing) would include implementation of the MAM Plan (CPRA, 2020) to inform progress toward meeting the Proposed MBSD Project’s objectives and to support adaptive management of this project. Therefore, the LA TIG believes that the use of the MAM Plan would increase the likelihood of success of any alternative implemented.

### 3.2.2.5 Avoids Collateral Injury

Similar to Alternative 1 (75,000 cfs), Alternatives 2 (50,000 cfs), 3 (150,000 cfs), and 4–6 (sediment diversion plus terracing) would incorporate BMPs, and engineering specifications during construction and operation to avoid and minimize potential collateral injury. These actions would help reduce collateral injury that could result from construction-related habitat loss, habitat degradation and erosion, vehicle and vessel traffic, lights, noise, loss of habitat, and habitat degradation and erosion.

While the LA TIG would work to minimize collateral injury through the implementation of BMPs, Alternatives 2–6 are expected to cause collateral injuries that the LA TIG considered carefully in evaluating all alternatives and designating a Preferred Alternative. Because the alternatives represent a similar project in the same location and using the same mechanisms of benefit delivery, the nature of the collateral injuries that would potentially be incurred are expected to be qualitatively similar to those described for Alternative 1. However, in some cases, the magnitude, timing, or location of the potential injuries would be expected to vary among the alternatives.

More specifically, high-level injury is expected to increase with the capacity of the diversion [i.e., while diversion benefits are expected to be dependent on the diversion capacity (see Section 3.2.1.6), higher-diversion capacities would also deliver more freshwater to the basin, resulting in somewhat more collateral injury]. Below, we describe how the expected collateral injuries to resources under Alternatives 2–6 compare to those described for Alternative 1; this is discussed separately for resources with (1) low, (2) medium, and (3) high levels of expected injury to facilitate comparisons with Alternative 1.

#### 3.2.2.5.1 Resources with a Low Level of Expected Collateral Injury

As with the OPA analysis provided for Alternative 1, the resources in this category align with those described in the Final EIS as likely to experience no to negligible adverse impacts from Alternatives 2 (50,000 cfs), 3 (150,000 cfs), and 4–6 (sediment diversion plus terracing); or that would be affected only within or proximal to the footprint of the diversion complex (see the Final EIS for more information; USACE, 2022). In general, the collateral injuries expected for this “low level” category from the implementation of Alternatives 2–6 are not notably different from those described for Alternative 1. However, for completeness, the LA TIG describes how the alternatives compare with respect to the low-level injuries discussed in Section 3.2.1.5.1 for Alternative 1:

- Temporary habitat degradation associated with Proposed MBSD Project construction.** The Proposed MBSD Project effects on wildlife through displacement, stress, and direct mortality of individuals within or close to the diversion complex footprint are expected to be similar across all alternatives. However, the construction of Alternative 2 (50,000 cfs) is expected to take less time than Alternative 1 (75,000 cfs) because of its smaller size (USACE, 2022, Section 4.9.3.3). This would reduce the timeframe over which construction-related injuries would occur, likely reducing overall levels of this type of low-level injury. Conversely, the larger size of Alternative 3 (150,000 cfs) would mean longer construction times (by several months), a longer timeframe of construction-related injury, and thus relatively more of this low-level injury (USACE, 2022, Section 4.9.3.3). Alternatives 4–6 (sediment

diversion plus terracing) would be associated with slightly more construction-related habitat degradation than the alternatives without terraces, due to the additional construction needed for terrace building.

- **Permanent habitat loss associated with the Proposed MBSD Project construction footprint.** For all alternatives, the overall Proposed MBSD Project footprint is expected to be similar. However, Alternative 2 (50,000 cfs) is expected to have a narrower intake channel, conveyance channel, and outfall transition feature than Alternative 1 (75,000 cfs); and thus would be expected to result in slightly less permanent habitat loss (USACE, 2022, Section 4.9.3.3). Conversely, Alternative 3 (150,000 cfs) would be larger and thus would likely lead to slightly more permanent habitat loss from construction (USACE, 2022, Section 4.9.3.3). Alternatives 4–6 (sediment diversion plus terracing) are expected to result in similar levels of construction-related collateral injuries as the alternatives without terracing.
- **Decreases in open-water areas.** Even though land creation varies across the Proposed MBSD Project alternatives, injuries to resources that depend on open-water areas (e.g., gadwall, other waterfowl) are expected to be similar across all alternatives (USACE, 2022, Section 4.9.4.3).
- **Ongoing disturbance from Proposed MBSD Project operations.** Alternatives 2–6 are expected to result in similar levels of low-level collateral injury associated with Proposed MBSD Project operations as Alternative 1 (e.g., impeding the movement of wildlife up- and down-river along the west bank, operational lighting and noise-related disturbance, and exceedance of water temperatures thresholds during high-flow winter months within the lower basin and near the diversion outfall area) (USACE, 2022, Section 4.9.4.3).
- **Changes in recreational fishing opportunities.** Expected collateral injuries on recreational use, through minor effects on spotted seatrout, are similar across all alternatives for the Proposed MBSD Project (USACE, 2022, Section 4.10.4.5).

#### 3.2.2.5.2 Resources with a Medium Level of Expected Collateral Injury

As with the corresponding section for Alternative 1 (see Section 3.2.1.5.2), the resources in this category align with those in the Final EIS described as potentially experiencing minor-to-moderate adverse impacts from Alternatives 2 (50,000 cfs), 3 (150,000 cfs), and 4–6 (sediment diversion plus terracing) (USACE, 2022); a more comprehensive discussion of these impacts can be found in Chapter 4 of the Final EIS.

For each of the resources listed in this category of collateral injury under Alternative 1 (aquatic species other than brown shrimp and oysters, which are addressed in the next section; benthic resources; invasive species; recreational use; and wetland habitat in the birdfoot delta), the level of collateral injury is expected to be qualitatively similar across Alternatives 2–6 (USACE, 2022). While there are differences among alternatives in salinity, wetland and SAV habitats, temperature, and potential for entrainment, at a basinwide scale, these differences were not large enough to result in differences in collateral injuries for the resources in this category (USACE, 2022, Section 4.10.4.5). Potential collateral injuries falling into this medium category include:

- Spotted seatrout, through changes in salinity and disruption of larval and juvenile recruitment
- Pallid sturgeon, through noise during construction and entrainment through the diversion into unsuitable habitat in the Barataria Basin
- A range of aquatic species, potentially harmed by increases in HAB frequency or intensity
- The loss of benthic habitat due to construction, or benthic habitat degradation from turbidity near the outfall
- A range of aquatic species, potentially through increases in the presence and abundance of invasive species
- Recreational use losses, through temporarily reduced access near the diversion outfall area during Proposed MBSD Project construction, restricted access to some recreational sites from increased tidal flooding during operation, and sedimentation of some navigation canals used by recreational boaters
- Wetland habitat loss and related resource injuries in the birdfoot delta through reduced sediment delivery to the birdfoot delta area.

#### 3.2.2.5.3 Resources with a High Level of Expected Collateral Injury

As with the corresponding section for Alternative 1 (see Section 3.2.1.5.3), the resources in this category align with those in the Final EIS as potentially experiencing major adverse impacts from Alternative 1 (USACE, 2022). While the mechanisms driving the collateral injuries that would potentially be incurred are the same under all Proposed MBSD Project alternatives, the magnitude and location of the injuries vary across them. Below, separate discussions of the influence of the alternatives on potential collateral injury are discussed for marine mammals, oysters, and brown shrimp. The associated mitigation and stewardship actions described in Section 3.2.1.1.5 would also be implemented under Alternatives 2–6 in recognition of the collateral injury for these resources.

##### Marine Mammals

Similar to Alternative 1 (75,000 cfs), Alternatives 2 (50,000 cfs), 3 (150,000 cfs), and 4–6 (sediment diversion plus terracing) would be expected to result in substantial collateral injury to BBES dolphins due to exposure to low salinity, but the magnitude of those impacts depends on the maximum flow rate of the diversion (USACE, 2022, Section 4.11).

Changes in the maximum and minimum salinity levels in areas that BBES dolphins utilize do not appear to be greatly influenced by either the variable flow or the presence of terraces (USACE, 2022, Section 4.11). However, overall, alternatives with higher maximum operational flow rates would result in longer periods of low salinity, while alternatives with lower maximum operational flow rates would result in shorter periods of low salinity. This leads to a relatively greater exposure of dolphins to lower salinities in the first decade of Proposed MBSD Project operation (Table 3-7). Even though differences among the alternatives are sometimes small, the projected exposure of BBES dolphins to low salinity is generally lowest under Alternative 2

(50,000 cfs), highest under Alternative 3 (150,000 cfs), and in-between these alternatives for Alternative 1 (75,000 cfs; Table 3-7).

**Table 3-7.**

**Differences in Projected Duration (continuous days) of Low-Salinity Exposure (less than 5 ppt) for Simulated BBES Dolphin Populations among Alternatives 1, 2, and 3 and the No-Action Alternative in the First Decade of Diversion Operation<sup>a</sup>**

Stratum	Alternative 1 (75,000 cfs) vs. No-Action Alternative (days)	Alternative 2 (50,000 cfs) vs. No-Action Alternative (days)	Alternative 3 (150,000 cfs) vs. No-Action Alternative (days)
Overall	38 (25 to 52)	31 (18 to 44)	67 (53 to 81)
Island	11 (7 to 15)	6 (4 to 8)	38 (28 to 48)
West	49 (21 to 79)	40 (10 to 73)	87 (59 to 117)
Central	72 (47 to 95)	60 (37 to 83)	107 (89 to 126)
Southeast	14 (-12 to 41)	13 (-14 to 40)	33 (5 to 61)

<sup>a</sup> Values are number of days in a given year in the first decade, with the 95% CI in parentheses (Garrison et al., 2020).

These differences in exposure translate to differences in projected survival rates, particularly under Alternative 3 (Table 3-8; Garrison et al., 2020). The projected mean annual survival rate for the simulated populations are lower under Alternatives 1–6 than the No-Action Alternative (USACE, 20221, Section 4.11.5.2). However, Alternative 3 (150,000 cfs), because of the larger amount of freshwater that would be sent through the diversion, would have a more marked negative effect on survival rates than Alternatives 1 and 2, mostly due to the drastic differences in projected survival in the Island stratum and differences in projected survival in the West and Central strata (Table 3-8). While there is uncertainty in these projected differences in mortality, the potential for Alternative 3 to reduce survival of the Island stratum by nearly 0.4 is particularly concerning for BBES dolphins, as this stratum has the highest density of all the strata. Alternatives 4–6 (sediment diversion plus terracing) are not expected to differ from non-terraced alternatives in terms of collateral injury to dolphins.

**Table 3-8.**

**Differences in Projected Median Survival Rates due to Low-Salinity Exposure of Simulated BBES Dolphin Populations among Alternatives 1, 2, and 3 and the No-Action Alternative<sup>a</sup>**

Stratum	Alternative 1 (75,000 cfs) vs. No-Action Alternative	Alternative 2 (50,000 cfs) vs. No-Action Alternative	Alternative 3 (150,000 cfs) vs. No-Action Alternative
Overall	-0.30 (-0.02 to -0.64)	-0.22 (0.00 to -0.49)	-0.54 (-0.17 to -0.82)
Island	-0.07 (0.00 to -0.40)	-0.02 (0.00 to -0.15)	-0.39 (-0.02 to -0.91)
West	-0.40 (-0.06 to -0.84)	-0.27 (-0.01 to -0.63)	-0.71 (-0.28 to -1.00)
Central	-0.57 (-0.14 to -0.88)	-0.45 (-0.07 to -0.78)	-0.79 (-0.38 to -0.99)
Southeast	-0.12 (0.21 to -0.48)	-0.09 (0.21 to -0.41)	-0.26 (0.13 to -0.64)

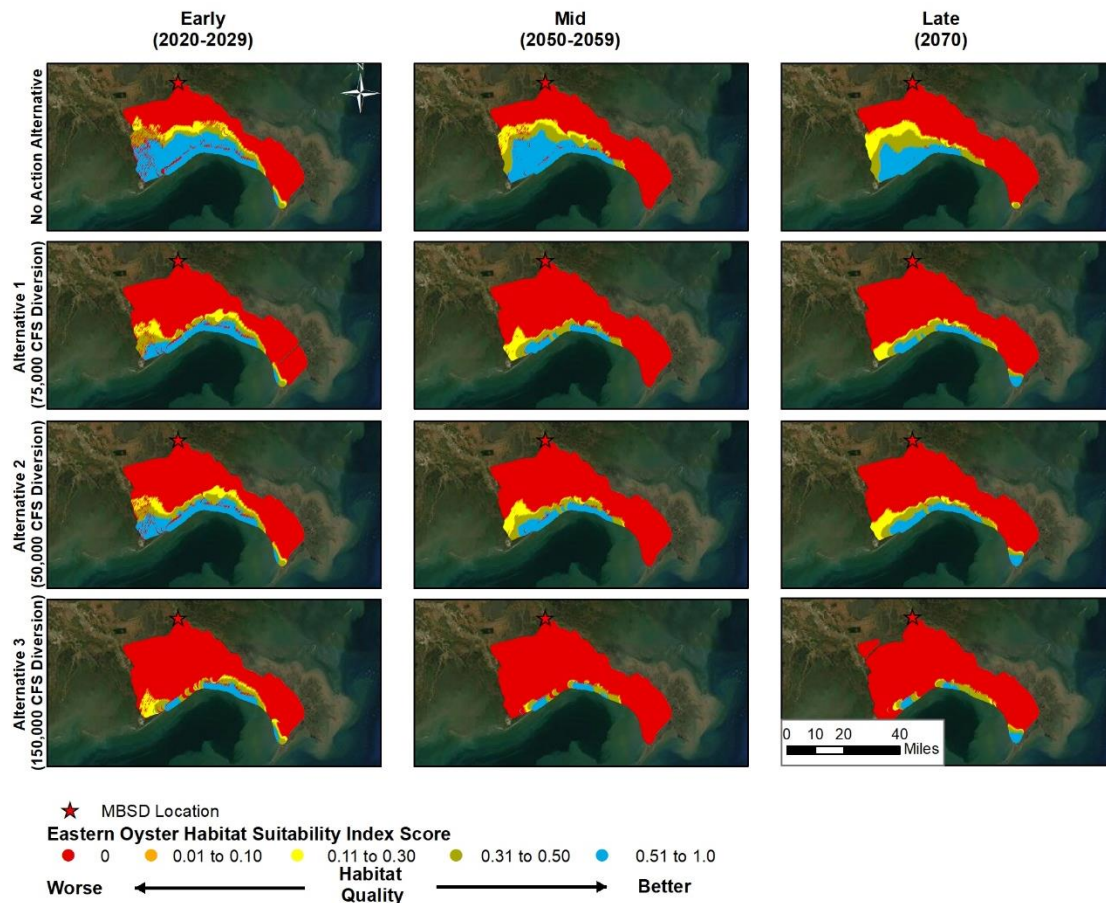
<sup>a</sup> Values are median survival rates in a given year in cycle 0 from bootstrap samples, with the 95% CI in parentheses (Garrison et al., 2020).

Source: USACE, 2022, Section 4.11.5.2.



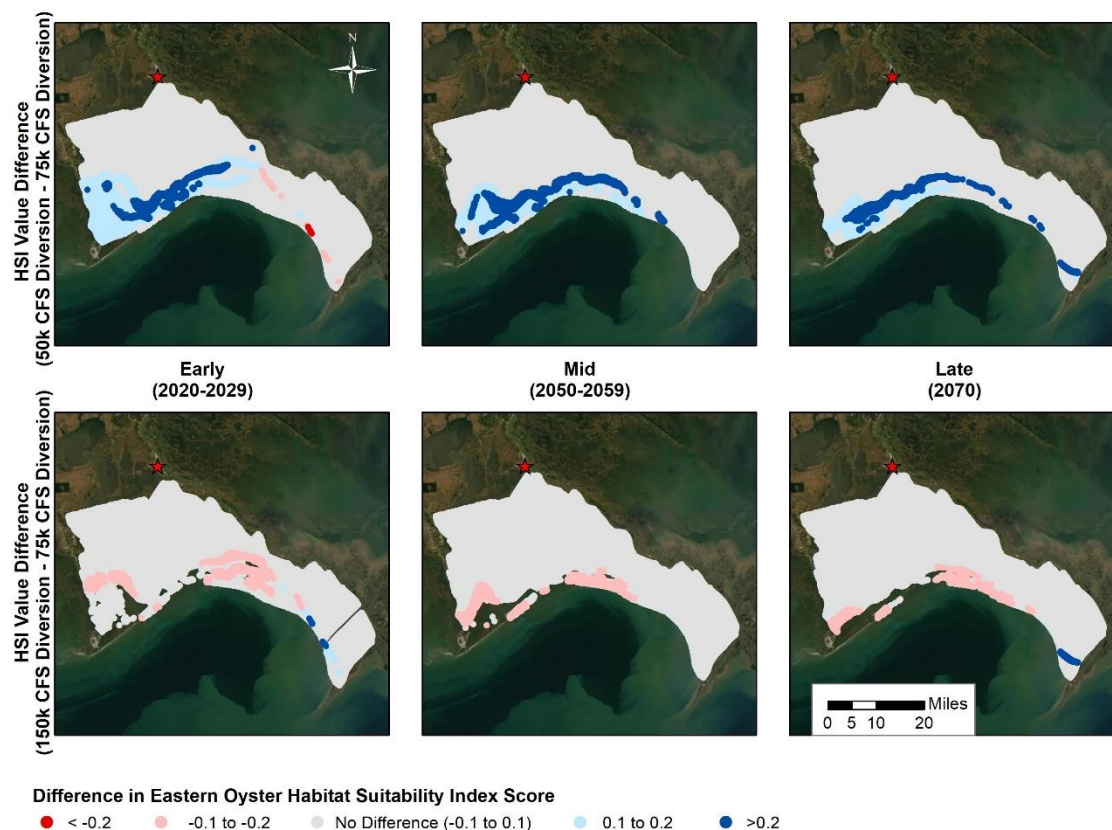
## Oysters

Similar to Alternative 1 (75,000 cfs), Alternatives 2 (50,000 cfs), 3 (150,000 cfs), and 4–6 (sediment diversion plus terracing) would be expected to result in substantial collateral injury to oysters due to salinity-related decreases in habitat suitability (USACE, 2022; Figure 3-19). However, there are specific areas in the lower basin where projected levels of collateral injury to oysters differ due to their differential influences on salinity (Figure 3-20). More specifically, the lower flows of Alternative 2 (50,000 cfs) are projected to result in slightly better habitat for oysters, and thus slightly less collateral injury, in the lower basin than Alternative 1 (75,000 cfs) (Figure 3-20). Conversely, the higher flows of Alternative 3 (150,000 cfs) are expected to provide less-suitable habitat for oysters, and thus slightly more collateral injury in the lower basin (Figure 3-20). The reduction of available habitat in the lower basin under Alternative 3 would also likely hamper Trustee efforts to create new public seed grounds in that area via the mitigation and stewardship actions described in Section 3.2.1.1.5. Alternatives 4–6 (sediment diversion plus terracing) are not expected to show different results from the non-terraced alternatives.



**Figure 3-19. Habitat for Oysters is Projected to Be Substantially Lower under Alternatives 1, 2, and 3 Compared to the No-Action Alternative; and Basinwide Changes in Habitat Are Projected to Be Broadly Similar under All Alternatives.** (Source: Delft3D modeling runs)



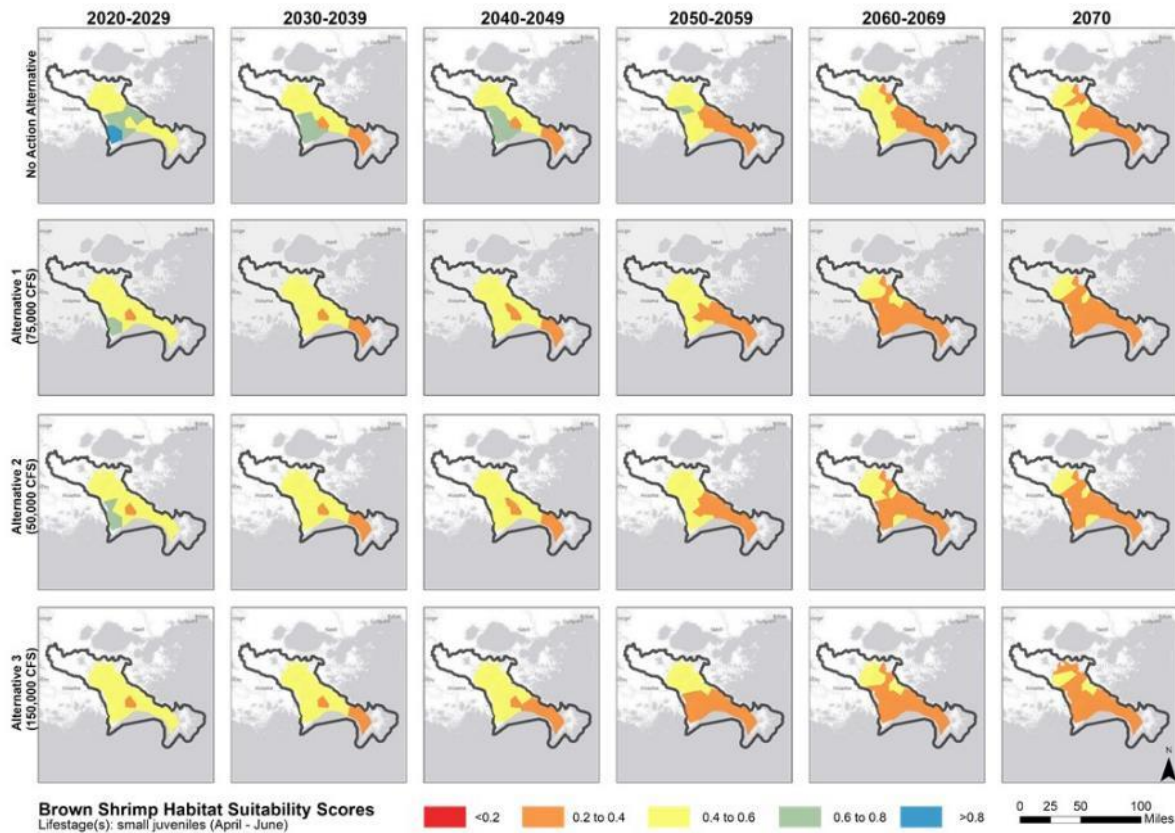


**Figure 3-20. Differences in Oyster Habitat Suitability between Alternative 2 (50,000 cfs) and Alternative 1 (75,000 cfs) – Top Panel – and between Alternative 3 (150,000 cfs) and Alternative 1 (75,000 cfs) – Lower Panel.** Habitat suitability for oysters is higher under Alternative 2 (50,000 cfs) than Alternative 1 (75,000 cfs), and lower under Alternative 3 (150,000 cfs) than Alternative 1 (75,000 cfs). (Source: Delft3D modeling runs)

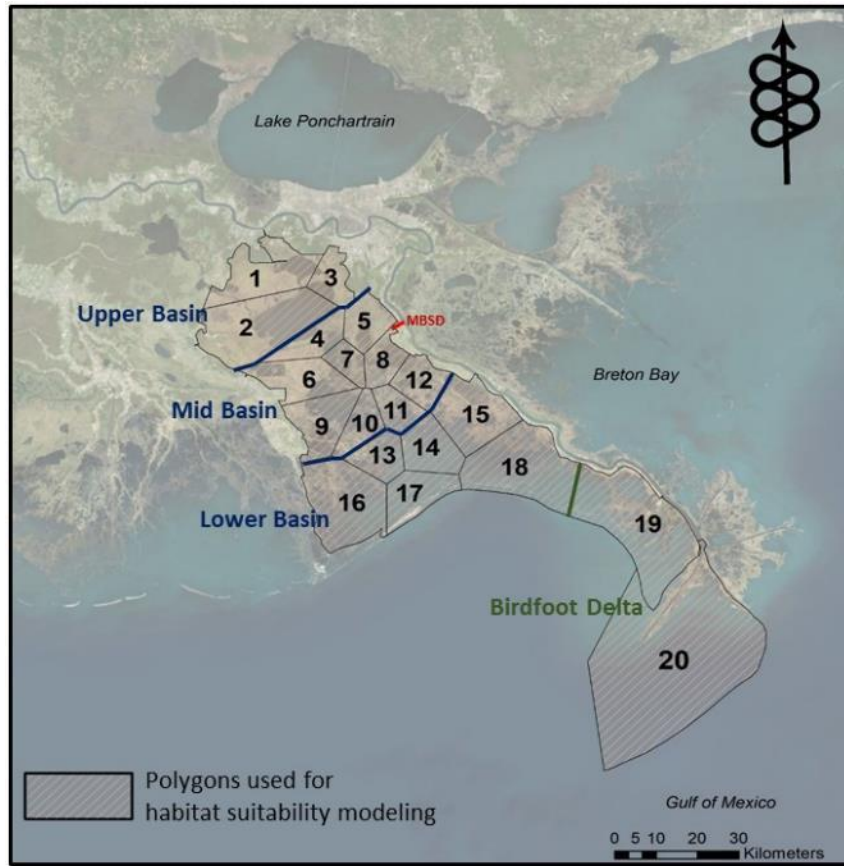
### Brown Shrimp

Similar to Alternative 1 (75,000 cfs), Alternatives 2 (50,000 cfs), 3 (150,000 cfs), and 4–6 (sediment diversion plus terracing) would be expected to result in substantial collateral injury to shrimp due to the disruption of larval transport and a reduction in suitable habitat due to reductions in salinity (USACE, 2022, Figure 3-21). While the habitat suitability of the overall basin is not projected to change substantially among the alternatives (Figure 3-21), analyses that examined shrimp habitat suitability at a finer geographic scale reveal that collateral injury to shrimp in some areas may vary somewhat across the alternatives. More specifically, analyses included in the Final EIS examined how impacts on shrimp changed among different geographic areas (“polygons”) in the basin (Figure 3-22). These data reveal that while near the diversion outfall area there were few differences among Proposed MBSD Project alternatives in potential injury to brown shrimp, shrimp in the lower basin would experience slightly less injury under Alternative 2 (50,000 cfs) than Alternative 1 (75,000 cfs), and slightly more injury under Alternative 3 (150,000 cfs) than Alternative 1 (75,000 cfs; Figure 3-23). It is important to note that even under the No-Action Alternative, habitat suitability for brown shrimp would decline substantially over time (Figure 3-23). Furthermore, near the diversion outfall area, all alternatives would reduce this baseline loss of shrimp habitat over time (Figure 3-23).

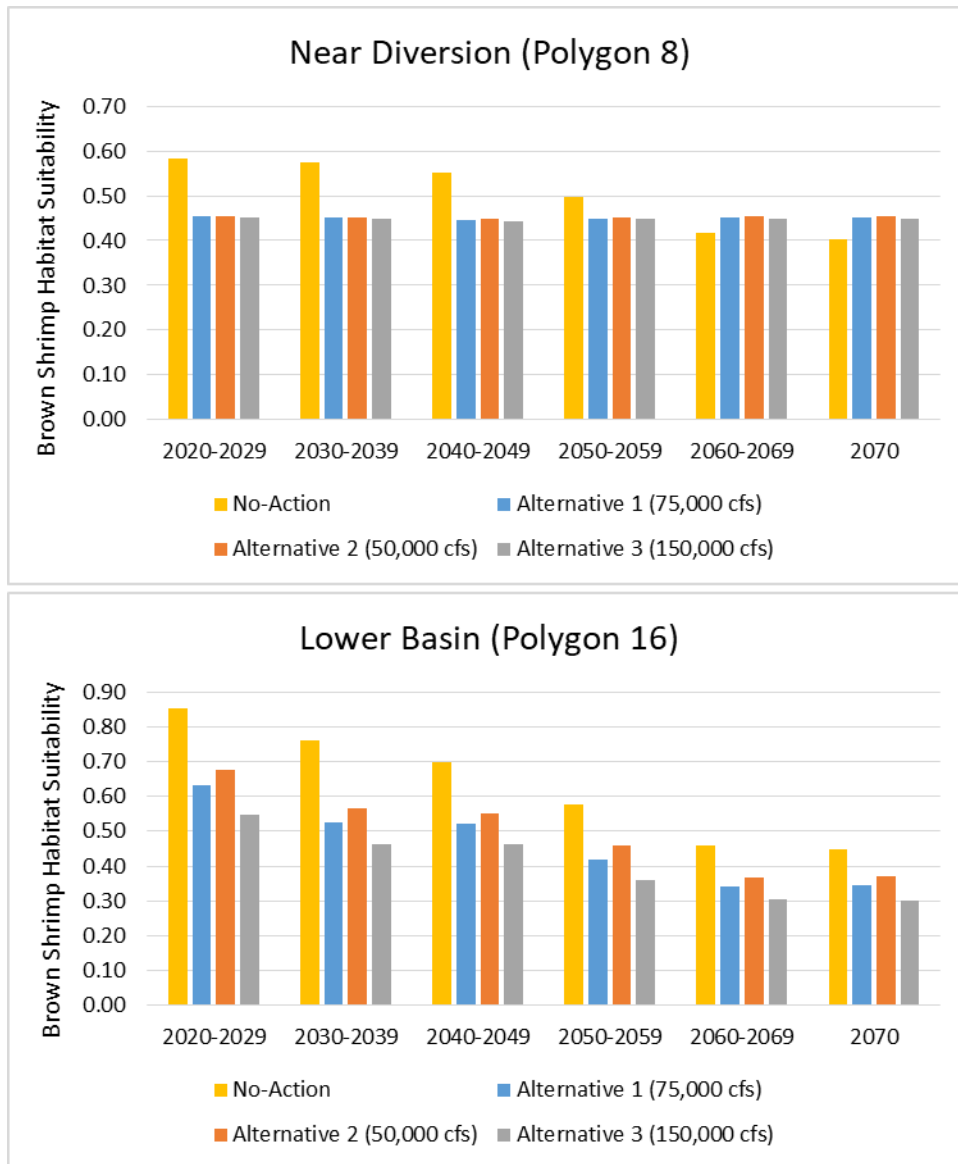
Alternatives 4–6 (sediment diversion plus terracing) are not expected to show different results from the non-terraced alternatives.



**Figure 3-21. Overall Juvenile Brown Shrimp Habitat Suitability Is Projected to Be Substantially Lower under Alternatives 1, 2, and 3 Compared to the No-Action Alternative; and Basinwide Changes in Habitat Are Projected to Be Quite Similar under Alternatives 2–6.** [Source: Delft3D modeling runs (USACE, 2022, Section 4.10.4.5)]



**Figure 3-22. Geographic Areas (“polygons”) Used for Spatial Analysis of Brown Shrimp Collateral Injuries.**



**Figure 3-23. Near the Diversion (top panel), Habitat Suitability for Juvenile Brown Shrimp Is Projected to Be Similar under Alternatives 1, 2, and 3; however, in the Lower Basin (bottom panel), Habitat Suitability Is Highest under Alternative 2 (50,000 cfs), Intermediate under Alternative 1 (75,000 cfs), and Lowest under Alternative 3 (150,000 cfs).** (Source: Delft3D modeling runs)

#### 3.2.2.5.4 Synthesis of the Extent to Which Collateral Injury Is Avoided under Alternatives 2–6

##### **Alternatives 2–6: Collateral Injury Summary**

For the key resources expected to experience a “high” level of collateral injury (i.e., marine mammals, shrimp, and oysters), there are some differences in the magnitude of potential injury among the Alternatives. More specifically, Alternative 2 (50,000 cfs) would result in slightly less mortality in bottlenose dolphins, and slightly less injury to shrimp and oyster habitat, than Alternative 1 (75,000 cfs). Alternative 3 (150,000 cfs) would result in lower survival rates in bottlenose dolphins, particularly in the Island stratum, than Alternative 1. Alternative 3 would also result in slightly greater habitat loss for shrimp and oysters than Alternative 1, with this additional habitat loss potentially hampering Trustee efforts to create new public seed grounds via the mitigation and stewardship actions described in Section 3.2.1.1.5. Terracing under Alternatives 4–6 is not expected to affect the magnitude of collateral injury.

As noted earlier, the Proposed MBSD Project is designed to provide ongoing inputs of freshwater, sediment, and nutrients to sustain and create marsh and other wetland habitats, which can then support resident and transient aquatic resources, as well as provide nursery habitat for open-water/nearshore species. These ongoing inputs of freshwater and sediment would necessarily change the current conditions of the Barataria Basin, and in some cases would result in collateral injuries to natural resources. For resources expected to experience low or medium levels of collateral injury, the expected collateral injuries under all Proposed MBSD Project alternatives would be the same. However, for resources expected to experience high levels of collateral injury, the timing and magnitude of the injury is expected to be dependent

on the amount of freshwater being diverted by the Proposed MBSD Project [i.e., the least amount of collateral injury is expected from Alternative 2 (50,000 cfs), the most from Alternative 3 (150,000 cfs), and an intermediate level of injury from Alternative 1 (75,000 cfs)]. Terracing under Alternatives 4–6 is not expected to affect the magnitude of collateral injury.

The effects of each of these alternatives on non-trust resources, including socioeconomics, commercial fisheries, tourism, cultural resources, and environmental justice were examined in detail in the Final EIS; see Sections 4.13, 4.14, 4.15, 4.16 and 4.24 for more information.

#### 3.2.2.6 Benefits Multiple Resources

This section evaluates the extent to which Alternatives 2 (50,000 cfs), 3 (150,000 cfs), and 4–6 (sediment diversion plus terracing) of the Proposed MBSD Project would provide benefits to multiple resources. Similar to Alternative 1, Alternatives 2–6 are expected to benefit multiple resources in the Barataria Basin and the northern Gulf of Mexico. This is because the Proposed MBSD Project was explicitly designed to achieve multiple benefits, and because the mechanisms through which benefits would accrue would be the same under all alternatives. As with Alternative 1, Alternatives 2–6 would result in substantial benefits to nearshore marine ecosystems, water column resources (including fish and shellfish), birds, recreational use, and terrestrial wildlife (see Figure 3-11). However, the benefits of each alternative are expected to be dependent on the capacity of the diversion (i.e., because higher-diversion capacities create more habitat, more benefits are likely to result). Below we discuss benefits to the major resource categories noted above, focusing on differences between Alternative 1 and the other alternatives.



### 3.2.2.6.1 Benefits to Nearshore Marine Ecosystems

Similar to Alternative 1, Alternatives 2–6 would provide substantial benefits to nearshore marine ecosystems in the Barataria Basin (Figure 3-11).<sup>37</sup> These other alternatives would, similar to Alternative 1, deliver large amounts of sediment into the Barataria Basin, supporting the formation of land and the creation and maintenance of a variety of ecosystem types (including shallow, subaqueous habitats).

While the nature of the benefits, and the mechanisms that drive them, are not expected to differ between Alternative 1 and Alternatives 2–6, the magnitude of the benefits accrued would differ. For example, due to its lower capacity, Alternative 2 (50,000 cfs) is expected to create and sustain substantially less emergent mudflat and marsh habitat than Alternative 1 (75,000 cfs; see Table 3-9). That is, after 50 years of operation, Alternative 2 would create approximately 1/3 fewer acres, or about 4,000 fewer acres, than Alternative 1 over the same timeframe (Table 3-9). Thus, implementing this alternative would represent a substantial lost opportunity for associated benefits to nearshore marine ecosystems, water column resources, birds and terrestrial wildlife, recreational use, and offshore ecosystems, as described below. Conversely, the higher capacity of Alternative 3 (150,000 cfs) is expected to create and sustain more than twice the habitat than Alternative 1 (75,000 cfs; Table 3-9) with associated increases in benefits to these same resources. As noted in the Proposed MBSD Project descriptions in Section 3.2.2 above, Alternatives 4–6 (sediment diversion plus terracing) are not expected to create notable amounts of additional marsh habitat in the Barataria Basin, irrespective of the capacity of the diversion (USACE, 2022).

**Table 3-9.**  
**Benefits to Nearshore Ecosystems Vary with Diversion Capacity – the Most Benefits over the No-Action Alternative Are Achieved under Alternative 3 (150,000 cfs) and the Least under Alternative 2 (50,000 cfs)**

Metric <sup>a</sup>	Alternative 1 (75,000 cfs)	Alternative 2 (50,000 cfs)	Alternative 3 (150,000 cfs)
Increase in land, including emergent mudflats and marsh habitat (acres)	13,400	9,660	29,200
Freshwater/intermediate, brackish, and saline habitats (acres)	77,700 (freshwater/ intermediate) 1,710 (brackish) 6,050 (saline)	74,100 (freshwater/ intermediate) 1,810 (brackish) 6,080 (saline)	93,600 (freshwater/ intermediate) 793 (brackish) 4,170 (saline)

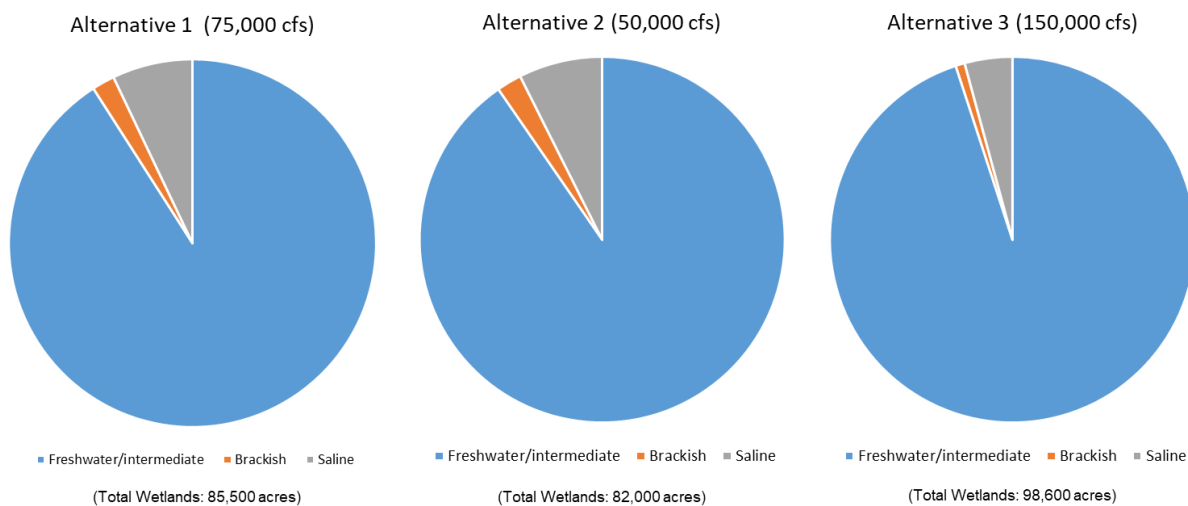
<sup>a</sup> All metrics are for the year 2070.

Source: USACE, 2022, Table 4.2-4 and Table 4.6-3.

<sup>37</sup> All habitats mentioned in this section are expected to experience a “high” level of benefit, which aligns with resources described in the Final EIS that are expected to experience major benefits from Alternatives 2 to 4.



The relative cover of different marsh types is also expected to change among Alternatives 1, 2, and 3 (Table 3-9, Figure 3-24). For example, while both Alternatives 1 and 2 sustain all three types of wetlands in 2070 to a similar extent, the amount of saline and brackish wetland habitat retained is lowest under Alternative 3 due its higher inputs of freshwater (Table 3-9, Figure 3-24). As under Alternative 1, retaining this diversity of habitat types helps support a wide array of resources and ecosystem services in the Barataria Basin.



**Figure 3-24. All Alternatives Are Projected to Sustain a Diversity of Marsh Habitat Types by 2070, but the Amount of Brackish and Saline Habitat Retained is Lowest under Alternative 3.** (Source: USACE, 2022, Table 4.6-3)

While the Proposed MBSD Project alternatives are expected to have varying effects on salt marsh habitat in the basin, Alternatives 1–3 are expected to have similar effects on SAV. Neither Alternative 2 (50,000 cfs) nor Alternative 3 (150,000 cfs) appears to have a consistent or sufficiently large influence on salinities, compared to Alternative 1 (75,000 cfs), to create clear differences in SAV habitat supported. While the turbidity and rapid changes in salinity associated with the diversion could result in early die-offs of species intolerant of the new salinity regime, this is expected to be more than offset by the beneficial impacts in the overall coverage and biomass of SAV in the basin once the salinity regimes stabilize (USACE, 2022).

The effects of Alternatives 4–6 (sediment diversion plus terracing) on SAV are expected to be positive. While terracing was not found to directly affect salinities in the Barataria Basin (a key driver of SAV habitat), terraces are believed to create conditions favorable to more SAV cover when compared to the non-terraced alternatives (USACE, 2022). Field studies have found that marsh terraces in Louisiana promote the occurrence of SAV and increased SAV biomass compared to unterraced shallow marsh ponds (Cannaday, 2006; Brasher, 2015). Terracing reduces fetch across the water surface, resulting in reduced wave action, erosion, and turbidity, and therefore greater opportunities for SAV establishment. Terraced ponds had more than three times the biomass of SAV compared to unterraced ponds in one study (Cannaday, 2006). Others have found that terracing improves habitat for fisheries and waterbirds (Rozas et al., 2005; O’Connell and Nyman, 2011). La Peyre et al. (2007) attributed greater numbers of marsh and SAV-oriented nekton species in terraced sites, due in part to the greater SAV biomass found

in terraced ponds, and the increased marsh habitat created by the terraces themselves. Therefore, each terracing alternative would result in small, additional benefits to SAV and associated nekton.

Similar to Alternative 1, these benefits under Alternatives 2–6 to nearshore marine ecosystems would further provide benefits to water column resources, birds and terrestrial wildlife, and offshore marine ecosystems (see below).

#### 3.2.2.6.2 Benefits to Water Column Resources

As with Alternative 1 (75,000 cfs), Alternatives 2 (50,000 cfs), 3 (150,000 cfs), and 4–6 (sediment diversion plus terracing) are expected to provide important benefits to water column resources through the creation and maintenance of critical nearshore marine habitats that are described above (see Figure 3-11). As previously noted, these habitats are critical for a wide variety of water column resources, including invertebrates, fish, and shellfish, which use nearshore habitats for foraging, refugia from predators, resting places during migration, and reproduction.

Because the alternatives are similar in the types of benefits they provide to nearshore marine ecosystems, the types of benefits to the fish species analyzed in the Final EIS are also expected to be similar under all alternatives. The large drivers of benefits for key fish species in the Barataria Basin include changes in salinity, temperature, marsh and SAV coverage, and water flow and tidal transport (USACE, 2022, Section 4.10.4.5). Basinwide, Alternatives 1–6 do not drastically differ in terms of changes in salinity or temperatures, though they do differ in their impacts on salinity at smaller scales (i.e., areas closer to the diversion vs. areas in the lower basin) (USACE, 2022, Section 4.10.4.5). As noted above, SAV coverage is also expected to be similar across the alternatives, with higher SAV coverage for Alternatives 4–6.

However, as noted above, there would be changes in the amount of marsh habitat created through the different alternatives, which may affect water column resources. For example, the higher amount of wetland habitat created under Alternative 3 (150,000 cfs) would likely benefit species that use wetland habitat. However, the additional wetlands are expected to be created close to the diversion outfall area, restricting these benefits to a relatively small portion of the basin (USACE, 2022, Section 4.10.4.5). There would also be differences in water flow and velocity among the alternatives that may affect larval transport during high-flow periods; however, these effects are not expected to affect the overall level of benefits expected from the Proposed MBSD Project. In fact, the influence of the different alternatives on habitat suitability within the Barataria Basin was examined in detail in the Final EIS for blue crab and largemouth bass for six specific polygons in the basin (i.e., 8–12 and 16; see Figure 3-21), and only minor differences were projected among all the alternatives (USACE, 2022, Section 4.10.4.5). While the differences among alternatives are minor, the habitat suitability data suggest that Alternative 2 would provide the least benefit to these species, Alternative 3 would provide the most benefit, with Alternative 1 falling in-between these alternatives.

#### 3.2.2.6.3 Benefits to Birds and Terrestrial Wildlife

Alternatives 2 (50,000 cfs), 3 (150,000 cfs), and 4–6 (sediment diversion plus terracing) would provide similar benefits to birds and terrestrial wildlife as Alternative 1 (75,000 cfs), as they would be able to utilize the additional wetland, mudflat, and SAV habitats created and maintained for foraging, reproducing, or refueling during migration (see Figure 3-11). However, due to the

differences in habitats created by the different alternatives, benefits are expected to differ somewhat. For example, habitat benefits for green-winged teals, mottled ducks, and alligators would be slightly less pronounced under Alternative 2 (50,000 cfs) than under Alternative 1 (75,000 cfs), and slightly more pronounced under Alternative 3 (150,000 cfs); no differences in habitat suitability for the gadwall are projected under these alternatives (USACE, 2022, Section 4.9.4.3). The incremental increases in SAV under Alternatives 4–6 (sediment diversion plus terracing) are not expected to provide substantially more benefits to birds and terrestrial wildlife.

### **Alternatives 2–6: Benefits Multiple Resources Summary**

Like Alternative 1, Alternatives 2–6 would benefit multiple resources in the Barataria Basin and the northern Gulf of Mexico. Compared to Alternative 1 (75,000 cfs), Alternative 2 (50,000 cfs) is expected to provide substantially less benefits to nearshore marine ecosystems, water column resources, birds and terrestrial wildlife, and offshore ecosystems because it would create nearly 1/3 less habitat after 50 years of diversion operation (i.e., ~4,000 fewer acres) than Alternative 1. Compared to Alternative 1 (75,000 cfs), Alternative 3 (150,000 cfs) would provide more benefits to the same resources because it would create substantially more habitat after 50 years of diversion operation (i.e., ~16,000 more acres). Alternatives 4–6 (diversion plus terracing) are expected to provide similar benefits to the non-terraced alternatives, but the terraces are expected to create conditions favorable to more SAV cover when compared to the non-terraced alternatives.

#### **3.2.2.6.4 Benefits to Offshore Ecosystems**

Benefits to offshore ecosystems would be expected to materialize under all Proposed MBSD Project alternatives, mediated through the benefits to water column resources (see Figure 3-11). While these impacts on offshore systems have not been modeled or quantified, they would be expected to be dependent on the benefits to water column resources that each alternative provides [i.e., Alternative 3 (150,000 cfs) would likely provide the most benefits and Alternative 2 (50,000 cfs) the least, with benefits from Alternative 1 (75,000 cfs) falling somewhere in-between]. Terracing under Alternatives 4–6 is not expected to affect the magnitude of offshore benefits.

#### **3.2.2.7 Public Health and Safety**

This section evaluates the extent to which Alternatives 2 (50,000 cfs), 3 (150,000 cfs), and 4–6 (sediment diversion plus terracing) would beneficially or adversely affect public health and safety. Similar to Alternative 1 (75,000 cfs), Alternatives 2–6 are expected to provide some public health and safety benefits to more highly populated areas north of the diversion, while adversely affecting smaller communities Gulfward of the diversion, particularly those that fall outside of the federal levee system. These impacts would be most pronounced within areas nearest to the diversion outfall area and in the initial decades of the diversion's operation.

##### **3.2.2.7.1 Changes in Storm Hazards**

Alternative 2 (50,000 cfs) is projected to result in a smaller magnitude and spatial extent of bathymetry change, and a smaller acreage of created and maintained wetlands than Alternative 1 (75,000 cfs); whereas Alternative 3 (150,000 cfs) is projected to result in a larger magnitude and spatial extent of bathymetry change, and a larger acreage of created and maintained wetlands

than Alternative 1 (75,000 cfs). Modeling of storm surges and wave height projects differences of approximately 0.5 ft in maximum storm surge elevation or wave height between the alternatives. At the end of the 50-year analysis period, the projected difference in maximum surge elevation for Alternatives 2 (50,000 cfs) and 3 (150,000 cfs) is +/- 0.5 ft from Alternative 1 (75,000 cfs), with a slightly lower surge elevation projected north or inland of the diversion, and a slightly higher elevation south of the diversion (USACE, 2022, Section 4.20). A similar difference in maximum wave height is also expected (USACE, 2022, Section 4.20). Differences in surge elevation and wave height of +/- 0.5 ft are not expected to result in a noticeable difference in public health and safety across the alternatives. As the addition of terrace features in Alternatives 4–6 is expected to have a negligible impact on storm surge or wave-induced flooding (USACE, 2022, Section 4.20), the storm-related impacts on public health and safety are expected to be similar for Alternatives 1–6.

### 3.2.2.7.2 Changes in Tidal Inundation

Compared to Alternative 1 (75,000 cfs), the number of days of tidal inundation would be lower under Alternative 2 (50,000 cfs), but higher under Alternative 3 (150,000 cfs) during the first two decades of diversion operation (USACE, 2022, Section 4.20). These differences would diminish over time, with negligible differences among the alternatives by 2060 because of the influence of sea level rise and subsidence. The locations that would be affected by the increases in tidal inundation (i.e., communities within approximately 10 mi north and 20 mi south of the diversion outfall area) would be similar under all of the alternatives. Similar to Alternative 1, these periodic inundation events would not be expected to cause damages to existing residential structures since most of these structures are already elevated. However, damages may occur to non-residential structures, roads, and other infrastructure, which could have indirect negative impacts on public health and safety. Within the federal levee systems, communities would be subject to the same increased pumping demands under Alternatives 1–6 and the No-Action Alternative (USACE, 2022, Section 4.20). Terracing under Alternatives 4–6 is not expected to affect tidal inundation.

#### Alternatives 2–6: Public Health and Safety Summary

Like Alternative 1, Alternatives 2–6 are expected to provide public health and safety benefits to the populated areas north of the diversion, while adversely affecting communities Gulfward of the diversion that fall outside of the federal levee system. In terms of storm-related impacts, Alternative 2 (50,000 cfs) is expected to have only minimal differences in storm surge or wave height compared to Alternative 1 (75,000 cfs). However, Alternative 2 would increase water levels less than Alternative 1, which would result in decreased tidal flooding inundation frequency compared to Alternative 1. As the driver for tidal inundation shifts from the Proposed MBSD Project to sea level rise over time, the relative benefits of Alternative 2 would decrease over time. Alternative 3 (150,000 cfs) is projected to have only a small impact on storm surge or wave height compared to Alternative 1 (75,000 cfs) (< 0.5 ft), with this difference only present in localized areas. Alternative 3, however, would increase water levels more than Alternative 1 in the first two decades of diversion operation, which results in projections of increased tidal flooding inundation frequency compared to Alternative 1. Alternatives 4–6 are expected to have a negligible impact on storm surge and wave-associated flooding, and on tidal inundation compared to the comparable non-terraced alternatives.

### 3.2.3 No-Action Alternative

As noted in Section 1.6, pursuant to the OPA NRDA regulations, the Final PDARP/PEIS considered a No-Action Alternative “in which no human intervention would be taken to directly restore injured natural resources and services to baseline” [40 CFR § 990.53(b)(2)] (DWH NRDA Trustees, 2016a, page 5-92). The loss of deltaic processes in the Barataria Basin has resulted in a steady decline in the health of natural resources, which is indicated by metrics such as decreased plant health, high rates of erosion, and increases in salinity (Mckee et al., 2004; Alber et al., 2008; Wilson and Allison, 2008; Couvillion et al., 2011; Silliman et al., 2012, 2016; Khanna et al., 2013; McClenachan et al., 2013; Zengel et al., 2014, 2015; Rangoonwala et al., 2016; Turner et al., 2016; Beland et al., 2017). Further, the coastal habitats of the northern Gulf of Mexico support resources throughout the Gulf (Gunter, 1967; Nixon, 1980; Boesch and Turner, 1984; Baltz et al., 1993; Houde and Rutherford, 1993; Rogers et al., 1993; Deegan et al., 2002). Under the No-Action Alternative, the ongoing coastal land loss in the Barataria Basin would be expected to continue. The submergence of wetlands in coastal Louisiana has been measured to be one of the highest rates worldwide – approximately 45 square kilometers per year (Couvillion et al., 2011). In the absence of intervention, such as the Proposed MBSD Project, coastal land loss in the Barataria Basin, which totaled approximately 432 square miles for the 1932–2016 period and is the second greatest among the 10 Louisiana coastal basins, would continue and/or increase (Couvillion et al., 2017).

Due to this extensive land loss, Louisiana faces increased and widespread storm damage and storm-related economic disruptions, with associated direct and indirect impacts on public health and safety. Barnes and Virgets (2018) estimated the potential economic damage if a major storm were to hit the Louisiana coast in the next 25 or 50 years. Due to the future expected loss in wetlands that currently serve as a buffer zone to the New Orleans area, damages are estimated to be much higher than they were in 2005. Under these two scenarios (storms in 25 and 50 years), total replacement costs<sup>38</sup> range from \$5.5 billion to \$129.6 billion.<sup>39</sup> Most of this impact would occur in the New Orleans region (including Plaquemines and Jefferson parishes), with up to \$26 billion in lost economic output from business disruptions (with the analysis based on 2015 dollars; Barnes and Virgets, 2018).<sup>40</sup>

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<sup>38</sup> Total replacement costs represent the cost to replace the physical assets (i.e., residential and business properties) that are expected to be damaged in a storm event.

<sup>39</sup> The large increase in damages between the 25- and 50-year scenarios is due to the modeled failure of levees in the City of New Orleans (Barnes and Virgets, 2018).

<sup>40</sup> The study measured the increase in storm damage in a future without action for three storm scenarios to characterize the potential economic risks facing coastal Louisiana. The storms include an eastern-track storm with a path similar to Hurricane Katrina; a western-track storm with a path similar to Hurricane Rita; and a 100-year storm, which indicates the level of flooding across the coast that would be expected only once every 100 years. The figures reported represent the worst-case impacts of the three types of events.



Given that technically feasible restoration approaches are available to compensate for interim natural resource and service losses from the Incident, the DWH NRDA Trustees rejected this alternative from further OPA evaluation in the Final PDARP/PEIS (DWH NRDA Trustees, 2016a). Based on this determination and incorporating that analysis by reference, the LA TIG did not further evaluate the No-Action Alternative as a viable alternative under OPA.

### 3.2.4 Overall OPA Evaluation Conclusions

The LA TIG reviewed the evaluation of all alternatives under the set of OPA NRDA evaluation criteria. A summary of this evaluation is found in Figure 3-25, which synthesizes key metrics for each criterion to enable comparison across Proposed MBSD Project alternatives. A discussion of the conclusions of the OPA evaluation is found below, followed by the LA TIG's rationale for selecting a Preferred Alternative.

#### 3.2.4.1 Cost to Carry Out the Alternative

In comparing the alternatives to one another, Alternative 2 (50,000 cfs,) would cost the LA TIG only slightly less than Alternative 1 (75,000 cfs), \$1.7 billion versus, \$1.9 billion based on 2020 cost estimates (see Section 3.2.2.2). The cost to the LA TIG for Alternative 3 (150,000 cfs) would be \$2.8 billion, almost \$1 billion more than Alternative 1, based on 2020 cost estimates. Terracing under Alternatives 4–6 would result in an additional cost of approximately \$1.5 million to the diversions of each of these alternatives. While these cost estimates are expected to increase due to several factors as noted in Sections 3.2.1.2 and 3.2.2.2, the relative costs of the alternatives are not expected to change. The LA TIG concludes that Alternatives 2–6, like Alternative 1, would have reasonable costs, particularly given the substantial benefits that the Proposed MBSD Project would provide (see Sections 3.2.1.6 and 3.2.2.6). In addition, the implementation of a robust MAM Plan for the Proposed MBSD Project would help inform progress toward meeting the project's objectives and support its adaptive management. Using the CMAR technique would also improve the quality and constructability of any alternative, reduce overall risk, and allow for scope revision during the design phase to meet the alternative's budget and goals. Finally, in light of the uncertainty as to total Project costs, the LA TIG intends to limit its contribution to the overall Project costs to \$2,260,000,000 regardless of the alternative selected for implementation.

#### 3.2.4.2 Meets Trustee Restoration Goals and Objectives

The LA TIG found that all of the alternatives would meet the Proposed MBSD Project-specific goals and objectives. All of the alternatives would:

- Deliver freshwater, sediment, and nutrients to the Barataria Basin through a large-scale sediment diversion from the Mississippi River.
- Reconnect and re-establish sustainable deltaic processes between the Mississippi River and the Barataria Basin (e.g., sediment retention and accumulation, new delta formation).
- Create, restore, and sustain wetlands and other deltaic habitats and associated ecosystem services.



In comparing the alternatives to each other, the LA TIG looked at multiple metrics including sediment load delivered, land created, increases in bed elevation, and area of different marsh habitat types (see Table 3-6).

- Compared to Alternative 1 (75,000 cfs), for the metrics relevant to Goals 1 and 2, after 30 years of diversion operation, Alternative 2 (50,000 cfs) would provide only 72% of the sediment load (202 MMT vs. 281 MMT), 73% of the land acreage (12,600 ac vs. 17,300 ac), and 77% of the bed elevation gain near the diversion outfall area (2.3 ft vs. 3.0 ft). As described in the benefits multiple resources section (see Sections 3.2.1.6 and 3.2.2.6), this lost opportunity to restore nearly 5,000 ac of habitat and a reduction in bed elevation under Alternative 2 would accordingly substantially diminish the potential benefits of the Project to nearshore marine ecosystems, water column resources, birds and terrestrial wildlife, and offshore marine ecosystems. For the metrics relevant to Goal 3 (total area of different marsh habitat types in the Barataria Basin in 2050), Alternative 2 would provide 97% of the fresh/intermediate habitat (201,000 ac vs. 207,000 ac), 109% of the brackish habitat (18,100 ac vs. 16,600 ac), and 107% of the saline habitat (11,100 ac vs. 10,400 ac). Overall, Alternative 2 (50,000 cfs) meets Goals 1 and 2 to a lesser extent than Alternative 1 (75,000 cfs), but provides some increase in brackish and saline habitats compared to Alternative 1, which would benefit the ecosystem services associated with those habitat types.
- Compared to Alternative 1 (75,000 cfs), for the metrics relevant to Goals 1 and 2, Alternative 3 (150,000 cfs) would provide 186% of the sediment load (523 MMT vs. 281 MMT), 182% of the land acreage in 2050 (31,400 ac vs. 17,300 ac), and 163% of the bed elevation gain near the diversion outfall area (4.9 ft vs. 3.0 ft). Thus, this alternative would provide more benefits to the resources noted above than Alternative 1. For the metrics relevant to Goal 3 (total area of different marsh habitat types in the Barataria Basin in 2050), Alternative 3 (150,000 cfs) would provide 110% of the fresh/intermediate habitat (227,000 ac vs. 207,000 ac), 68% of the brackish habitat (11,300 ac vs. 16,600 ac), and 96% of the saline habitat (10,000 ac vs. 10,400 ac). Overall, Alternative 3 meets Goals 1 and 2 to a greater extent than Alternative 1, but results in decreases in brackish and saline habitats compared to Alternative 1.
- Alternatives 4–6 do not affect the total sediment load delivered and have a minimal effect on the number of acres created (the maximum difference for an alternative with vs. without a terrace is 300 ac). Terraces result in smaller increases in bed elevation near the diversion outfall area (0.33–0.98 ft less), and in no change in total marsh habitat acreage in the Barataria Basin in 2050. Overall, Alternatives 4–6 do not substantially change the extent to which the corresponding alternatives with similar capacity and without terraces meet the Proposed MBSD Project’s goals and objectives.

### 3.2.4.3 Likelihood of Success

The LA TIG found that all of the alternatives would be likely to succeed, based on an analysis of the general efficacy of sediment diversions in rebuilding marsh ecosystems (as seen with examples from both natural and engineered diversions of river flow into shallow basins); the extensive scientific and modeling efforts that have been undertaken since the 1990s to develop and refine the concept of a sediment diversion in the Barataria Basin; and the implementation of the MAM Plan for the Proposed MBSD Project, which would help adaptively manage this project over time. The LA TIG did not find evidence to suggest that any one of the alternatives would be less likely to succeed than another. Therefore, this criterion did not differentiate among the alternatives.

### 3.2.4.4 Avoids Collateral Injury

The LA TIG notes that all of the alternatives would incorporate BMPs and engineering specifications during construction and operation to avoid and minimize potential collateral injury. These actions would help reduce collateral injury that could result from construction-related habitat loss, habitat degradation and erosion, vehicle and vessel traffic, lights, noise, loss of habitat, and habitat degradation and erosion.

The LA TIG also notes that all of the alternatives would result in some collateral injury to different resources – at “low,” “medium,” or “high” levels – depending on the resource. In general, the magnitude of high-level injury would increase with the capacity of the diversion [i.e., while the larger-capacity diversions would create more benefits by diverting more sediment and nutrients to the basin (see Section 3.2.4.5), the higher amounts of freshwater that are needed to deliver this sediment would result a greater degree of collateral injury]. However, it is important to note that while the scale of the potential injury does change with each alternative, particularly for resources with “high levels” of collateral injury, the impact classification as determined in the EIS is not affected by the capacity of the diversion being considered. That is, oysters, shrimp, and bottlenose dolphins are expected to experience major, permanent, adverse impacts under all alternatives considered in this RP and the associated EIS. In comparing the alternatives to each other, the LA TIG focused on these “high level” of potential collateral injuries because collateral injuries in the “low-level” and “medium-level” categories were not notably different across the alternatives (see Section 3.2.2.5).

For the “high level” of potential collateral injury, the LA TIG examined differences across alternatives for brown shrimp, oysters, and marine mammals.

- Compared to Alternative 1 (75,000 cfs), Alternative 2 (50,000 cfs) would result in slightly less collateral injury for dolphins primarily because of less exposure to lower salinities, resulting in slightly better survival rates compared to Alternative 1 (75,000 cfs). Specifically, compared to the No-Action Alternative, Alternative 2 would reduce the overall median annual survival rate by 0.22 under the representative hydrograph, while Alternative 1 would reduce the overall median survival rate by 0.30 (Table 3-8). Similarly, Alternative 2 (50,000 cfs) would result in slightly less collateral injury for shrimp and oysters in the lower basin because of lower freshwater flows and higher salinities, though projected habitat differences are subtle (see Figure 3-23 and Figure 3-20).

- Compared to Alternative 1 (75,000 cfs), Alternative 3 would result in notably greater collateral injury for dolphins because of relatively greater exposure to lower salinities, which decreases projected annual survival rates. Of particular concern is the potential for Alternative 3 to substantially reduce the median survival rate of the Island stratum, the stratum with the highest dolphin density (i.e., by 0.39 compared to the No-Action Alternative; Table 3-8). In comparison, under the representative (i.e., average) hydrograph, Alternative 1 (75,000 cfs) would reduce the annual survival rate of the Island stratum by only 0.07 (Table 3-8). Similarly, Alternative 3 (150,000 cfs) would result in slightly greater collateral injury for brown shrimp and oysters in the lower basin because of higher freshwater flows and lower salinities (see Figure 3-23 for brown shrimp and Figure 3-20 for oysters). While overall habitat differences from Alternative 1 are subtle, the reduction of available oyster habitat in the lower basin under Alternative 3 would also likely hamper Trustee efforts to create new public seed grounds in that area (the lower basin is the only portion of Barataria Bay that could support oyster seed grounds under Alternative 1) via the mitigation and stewardship actions described in Section 3.2.1.1.5. Implementing Alternative 3 would thus be more likely than other alternatives to make the entire Barataria Basin uninhabitable for dolphins and oysters.
- Collateral injuries under Alternatives 4–6 (diversion plus terracing) are not expected to be different from the non-terraced alternatives because the “high level” of injury is tied to salinities in the basin and the terraces do not affect overall salinity levels.

#### 3.2.4.5 Benefits Multiple Resources

Based on the analysis presented in this Final RP, the LA TIG anticipates that all of the alternatives would benefit multiple resources in the Barataria Basin and the northern Gulf of Mexico, including providing benefits for nearshore marine ecosystems, water column resources, birds and terrestrial wildlife, recreational use, and offshore marine ecosystems. However, the benefits of each alternative would be expected to be dependent on the capacity of the diversion (i.e., because higher-diversion capacities create more habitat, more benefits are likely to result).

- Compared to Alternative 1 (75,000 cfs), Alternative 2 (50,000 cfs) is expected to provide similar benefits to nearshore marine ecosystems but with a lower magnitude of benefit because of less habitat created. More specifically, as noted above, because Alternative 2 would result in nearly 5,000 fewer acres of mudflat and emergent marsh habitat after 30 years of diversion operation, its implementation in lieu of Alternative 1 would represent a lost opportunity to achieve related benefits to nearshore marine ecosystems, water column resources (e.g., fish and shellfish), birds and terrestrial wildlife, and offshore marine ecosystems. In addition, Alternative 2 would result in decreased suitability for species that benefit from more freshwater marshes, such as green-winged teals, mottled ducks, and alligators.
- Compared to Alternative 1 (75,000 cfs), Alternative 3 (150,000 cfs) is expected to provide similar benefits to nearshore marine ecosystems but with an increased magnitude of benefit because of more habitat created. More specifically, it is projected to create and sustain about 16,000 more acres of mudflat and emergent marsh habitat than Alternative 1 after 30 years of diversion operation, with associated increases in

benefits to the same resources noted above. In addition, Alternative 3 would result in increased suitability for species that benefit from more freshwater marshes, such as green-winged teals, mottled ducks, and alligators.

- Alternatives 4–6 (diversion plus terracing) are expected to provide similar benefits to the non-terraced alternatives, with the exception that terraces are expected to create conditions favorable to more SAV cover when compared to the non-terraced alternatives (USACE, 2022), and to result in associated increased benefits to the fish and crustaceans that preferentially use SAV habitat.

#### 3.2.4.6 Public Health and Safety

Based on the analysis presented in this Final RP, the LA TIG anticipates that all of the alternatives would provide public health and safety benefits to the populated areas north of the diversion, while adversely affecting communities Gulfward of the diversion, in particular those outside of the federal levee system. Increased wetland acreage has a positive benefit for public safety by decreasing surge elevation and wave height, while higher-diversion flows tend to increase the magnitude and frequency of tidal inundation for areas outside of the federal levee system.

- Compared to Alternative 1 (75,000 cfs), Alternative 2 (50,000 cfs) would result in a smaller magnitude and spatial extent of bathymetry change, and a smaller acreage of created and maintained wetlands than Alternative 1. However, there are minimal differences in storm surge or wave height between these two alternatives. Alternative 2 would increase water levels less than Alternative 1, which would result in decreased flooding inundation frequency compared to Alternative 1, better protecting public health and safety, and reducing damages to roads and other infrastructure. As the driver for tidal inundation shifts from the Proposed MBSD Project to sea level rise over time, the relative benefits of Alternative 2 would decrease over time.
- Compared to Alternative 1 (75,000 cfs), Alternative 3 (150,000 cfs) would result in a greater magnitude and spatial extent of bathymetry change, and a greater acreage of created and maintained wetlands than Alternative 1 (USACE, 2022). However, the projected difference in storm surge or wave height between Alternatives 3 and 1 is slight (< 0.5 ft), and only is present in localized areas. Alternative 3 would increase water levels more than Alternative 1 in the first two decades of diversion operation, which results in projections of increased flooding inundation frequency compared to Alternative 1 (USACE, 2022), negatively affecting public health and safety, and increasing damage to roads and other infrastructure.
- Alternatives 4–6 are expected to have a negligible impact on storm surge and wave-associated flooding, and on tidal inundation compared to the comparable non-terraced alternatives.

### 3.2.4.7 Identification of a Preferred Alternative

The LA TIG completed the OPA evaluation of the reasonable range of alternatives, and strove to identify an alternative that would provide the right balance in terms of being cost-appropriate, meeting Trustee goals, having a high likelihood of success, avoiding collateral injury, benefiting multiple resources, and protecting public health and safety. While the LA TIG concluded that all alternatives sufficiently satisfied each OPA criterion, there were clear tradeoffs among the alternatives in terms of likely benefits achieved and risks related to collateral injury and public health and safety (see Figure 3-25). More specifically, the Trustees found that Alternative 2 (50,000 cfs) would provide substantially less benefit than Alternative 1 (75,000 cfs) in marsh preservation and restoration and associated benefits to nearshore marine ecosystems, water column resources, birds and terrestrial wildlife, recreational use, and offshore ecosystems. Not only would the smaller 50,000 cfs diversion achieve substantially fewer benefits to the overall coastal ecosystem, it would do so with only a small reduction in adverse impacts and cost, making it overall a less desirable alternative to the LA TIG. The LA TIG also concluded that while Alternative 3 (150,000 cfs) would provide substantially more marsh creation and associated benefits than Alternative 1, the collateral injuries and risks to public health and safety of Alternative 3 would increase to levels unacceptable to the Trustees. Given these tradeoffs, the LA TIG proposes Alternative 1 as the Preferred Alternative. The following bullets explain in more detail the LA TIG's reasoning behind the identification of Alternative 1 as preferred (and the exclusion of the other alternatives):

- Alternative 1 (75,000 cfs) is preferred because it was most favorably evaluated when integrating across all of the OPA NRDA evaluation criteria (see Figure 3-25). The LA TIG anticipates that Alternative 1 would meet the Proposed MBSD Project's goals and objectives – creating marsh and shallow-water habitats that provide ecosystem-level benefits to nearshore marine ecosystems, water column resources (including fish and shellfish), birds and terrestrial wildlife, and recreational uses that were injured in the Incident (Figure 3-25). Alternative 1 would balance meeting LA TIG goals and objectives for the Proposed MBSD Project while reducing the extent of collateral injury to resources, such as brown shrimp, oysters, and dolphins, compared to larger-capacity alternatives. Given the necessary tradeoffs between benefits and collateral




#### Identification of the Preferred Alternative

After considering potential Project impacts and benefits, the Trustees are recommending a diversion with a maximum capacity of 75,000 cfs (with the actual flow through the diversion dependent on the flow of the Mississippi River). The Trustees fully evaluated a smaller-capacity diversion with a maximum capacity of 50,000 cfs and found that such a diversion would provide substantially less benefit in marsh preservation and restoration, with only a small reduction in collateral injury, impacts to public health and safety and cost. The Trustees also fully evaluated a larger-capacity diversion with a maximum capacity of 150,000 cfs. While the marsh creation benefits of such a large diversion would be significantly greater, the collateral injuries, impacts to public health and safety and costs would also increase to levels undesirable to the Trustees. See Figure 3-25 for more information about the identification of the Preferred Alternative.

injury, the LA TIG found that Alternative 1 would strike the best balance between providing benefits that restore natural resources and reducing collateral injury.

- Alternative 4 has the same capacity as Alternative 1, with the addition of terraces. Alternative 4 is not preferred because the terraces are anticipated to provide little additional benefit to injured resources and result in increased costs. Because these two alternatives were equally preferable, the LA TIG has chosen Alternative 1 as more cost-effective [15 CFR § 990.54(b)].
- Alternative 2 (50,000 cfs) was not preferred because it would meet Trustee goals to a much lesser extent than Alternative 1 and would provide fewer associated benefits to the marine ecosystem. These potential 'losses' of benefits relative to Alternative 1 would be associated with only minor reductions in collateral injury and cost, making Alternative 2 less desirable than Alternative 1 to the LA TIG. Similarly, Alternative 5 was not preferred because although it adds terraces to Alternative 2, it would not substantially change the overall level of benefit. Alternative 5 (Alternative 2 with marsh terraces) is also not preferred for the same reasons (i.e., terracing would also increase costs with little additional benefit to injured resources).
- Although Alternative 3 (150,000 cfs) would result in the greatest degree of benefit (best meets Trustee goals and provides the most benefits to multiple resources), it was not preferred because it would result in the greatest degree of collateral injury, particularly to the Barrier Island stratum of BBES bottlenose dolphins. It would also preclude the establishment of public oyster seed grounds in Barataria Bay, a key stewardship measure that would be implemented by CPRA. It also would have higher impacts on public health and safety than Alternative 1, and cost nearly \$1 billion more based on 2020 cost estimates. Overall, the LA TIG believes Alternative 3 would not sufficiently support a diverse ecosystem that includes key resources, such as dolphins and oysters. Similarly, Alternative 6 was not preferred because although it would add terraces to Alternative 3, it would not decrease the project's cost, nor decrease the degree of collateral injury.



OPA NRDA Evaluation Criteria		Alternative 1 (75,000 cfs)	Alternative 2 (50,000 cfs)	Alternative 3 (150,000 cfs)	Alternatives 4–6 (diversion plus terracing)
Cost 	<ul style="list-style-type: none"> <li>Cost (vs. other alternatives)</li> </ul>	• Intermediate <sup>b</sup>	• Lowest <sup>a</sup>	• Highest <sup>c</sup>	• Terracing adds cost without substantially increasing benefits
Meets Trustee Goals and Objectives 	<ul style="list-style-type: none"> <li>Meets Trustee goals and objectives?</li> <li>Relative amount of sediment delivered, land created, and diversity of marsh habitat sustained (vs. other alternatives)</li> </ul>	<ul style="list-style-type: none"> <li>• Yes</li> <li>• Intermediate<sup>b</sup></li> </ul>	<ul style="list-style-type: none"> <li>• Yes</li> <li>• Lowest<sup>c</sup></li> </ul>	<ul style="list-style-type: none"> <li>• Yes</li> <li>• Highest<sup>a</sup></li> </ul>	<ul style="list-style-type: none"> <li>• Yes</li> <li>• No notable difference from non-terraced alternatives</li> </ul>
Likelihood of Success	<ul style="list-style-type: none"> <li>High likelihood of success?</li> <li>Evidence from previous diversions, extensive study and vetting, and the implementation of a Project MAM Plan all support likelihood of success?</li> </ul>	<ul style="list-style-type: none"> <li>• Yes</li> <li>• Yes</li> </ul>	<ul style="list-style-type: none"> <li>• Yes</li> <li>• Yes</li> </ul>	<ul style="list-style-type: none"> <li>• Yes</li> <li>• Yes</li> </ul>	<ul style="list-style-type: none"> <li>• Yes</li> <li>• No notable difference from non-terraced alternatives</li> </ul>
Avoids Collateral Injury	<ul style="list-style-type: none"> <li>Avoids collateral injury through BMPs, mitigation, and ancillary restoration actions?</li> <li>Relative extent of collateral injury to shrimp, oysters, and dolphins (vs. other alternatives)</li> </ul>	<ul style="list-style-type: none"> <li>• Yes</li> <li>• Intermediate<sup>b</sup></li> </ul>	<ul style="list-style-type: none"> <li>• Yes</li> <li>• Lowest<sup>a</sup></li> </ul>	<ul style="list-style-type: none"> <li>• Yes</li> <li>• Highest<sup>c</sup></li> </ul>	<ul style="list-style-type: none"> <li>• Yes</li> <li>• No notable difference from non-terraced alternatives</li> </ul>
Benefits Multiple Resources 	<ul style="list-style-type: none"> <li>Benefits multiple resources?</li> <li>Magnitude of benefits (vs. other alternatives)</li> </ul>	<ul style="list-style-type: none"> <li>• Yes</li> <li>• Intermediate<sup>b</sup></li> </ul>	<ul style="list-style-type: none"> <li>• Yes</li> <li>• Lowest<sup>c</sup></li> </ul>	<ul style="list-style-type: none"> <li>• Yes</li> <li>• Highest<sup>a</sup></li> </ul>	<ul style="list-style-type: none"> <li>• Yes</li> <li>• No notable difference from non-terraced alternatives</li> </ul>
Public Health and Safety	<ul style="list-style-type: none"> <li>Protects public safety by reducing overall storm surge to communities inside levee systems inland of the diversion?</li> <li>Relative amount of added tidal inundation for communities outside levee systems (vs. other alternatives)<sup>d</sup></li> </ul>	<ul style="list-style-type: none"> <li>• Yes</li> <li>• Intermediate<sup>b</sup></li> </ul>	<ul style="list-style-type: none"> <li>• Yes</li> <li>• Lowest<sup>a</sup></li> </ul>	<ul style="list-style-type: none"> <li>• Yes</li> <li>• Highest<sup>c</sup></li> </ul>	<ul style="list-style-type: none"> <li>• Yes</li> <li>• No notable difference from non-terraced alternatives</li> </ul>

**Figure 3-25. Summary of OPA NRDA Evaluation Criteria across Restoration Alternatives.** A cell’s green shading indicates the alternative was evaluated most favorably under that criterion by the LA TIG, red shading indicates the alternative was evaluated least favorably by the LA TIG for that criterion, and yellow shading indicates the alternative was evaluated as intermediate between the other two primary alternatives; comparisons among alternatives are focused within rows (i.e., by criterion). Red shading indicates where cost was deemed not practicable. Grey shading indicates there were no differences between the terraced and non-terraced alternatives for that criterion. See Section 3 for more details about the analysis of each criterion that are summarized at a high level in this figure.

<sup>a</sup> Evaluated as most favorable of the alternatives by Trustees for that criterion.

<sup>b</sup> Evaluated as intermediate among the alternatives by Trustees for that criterion.

<sup>c</sup> Evaluated as least favorable of the alternatives by Trustees for that criterion.

<sup>d</sup> Differences in tidal inundation effects among alternatives are projected to be most pronounced in the first two decades of diversion operation, with no notable differences among alternatives in later decades.

## 4.0 Compliance with Other Laws and Regulations

In addition to OPA and NEPA requirements, other laws may apply to the proposed alternatives for the Proposed MBSD Project. Prior to implementation, all necessary state and federal permits, authorizations, and any required consultations must be secured. These permits, authorizations, and consultations include, but are not limited to, those related to the CWA; the Magnuson-Stevens Fishery Conservation and Management Act (MSFCMA); the ESA; the Fish and Wildlife Coordination Act; the Migratory Bird Treaty Act; Section 106 of the National Historic Preservation Act; the Louisiana State and Local Coastal Resources Management Act; and Louisiana Administrative Code 33:IX 1101, which establishes water quality standards within Louisiana.

Restoration projects must also meet any additional requirements included in the ROD, including all environmental compliance responsibilities in the Louisiana TIG's ROD, *Trustee Council Standard Operating Procedures for Implementation of the Natural Resource Restoration for the Deepwater Horizon (DWH) Oil Spill* (DWH NRDA Trustees, 2016b).

The LA TIG will ensure compliance with all applicable state and local laws, and other applicable federal laws and regulations. The LA TIG completed technical assistance from appropriate regulatory agencies during the Proposed MBSD Project's planning phase and in conjunction with the development of the EIS. The LA TIG has initiated the consultations and reviews are complete or in process for Alternative 1 (Table 4-1).

**Table 4-1.**  
**Current Status of Compliance with State and Federal Laws**

Federal/State Law	Status of Review
ESA – Marine Species (NMFS)	Complete
ESA – Terrestrial Species (USFWS)	Complete
MSFCMA (NMFS)	Complete
Rivers and Harbors Act/ CWA (USACE)	In progress
Coastal Zone Management Acta (Louisiana Department of Natural Resources)	Complete
Coastal Barrier Resources Act (USFWS)	Complete
MMPA (NMFS) <sup>b</sup>	Complete
MMPA (USFWS)	Complete
Bald and Golden Eagle Protection Act (USFWS)	Complete
National Historic Preservation Act (USACE) <sup>c</sup>	In progress
Clean Water Act of 1972, Section 401 – Water Quality Certification	Complete

<sup>a</sup> Coastal Zone Management Act review for purposes of the construction phase of this project will be completed as part of the Coastal Use Permit associated with the USACE permitting process.

<sup>b</sup> As required by the Bipartisan Budget Act of 2018, NMFS issued a waiver of the Marine Mammal Protection Act moratorium and prohibitions for the Mid-Barataria Sediment Diversion project identified in the Louisiana Comprehensive Master Plan for a Sustainable Coast. The waiver is available here: <https://www.fisheries.noaa.gov/action/marine-mammal-protection-act-waiver-select-louisiana-coastal-master-plan-projects>. Under the terms of the Bipartisan Budget Act, "the State of Louisiana shall, in consultation with the Secretary of Commerce: (1) To the extent practicable and consistent with the purposes of the projects, minimize impacts on marine mammal species and population stocks; and (2) Monitor and evaluate the impacts of the projects on such species and population stocks."

<sup>c</sup> The USACE is leading the Section 106 of the National Historic Preservation Act of 1966 compliance effort and the LA TIG federal Trustees will sign as concurring parties.

A more thorough listing of federal laws and regulations that may be applicable include, but are not limited to:

- Clean Air Act of 1970
- CWA of 1977
- Fish and Wildlife Coordination Act of 1958
- ESA of 1973
- MSFCMA
- Coastal Zone Management Act of 1972
- Coastal Barrier Resources Act and Coastal Barrier Improvement Act
- MMPA
- Bipartisan Budget Act of 2018, Section 20201
- Marine Protection, Research, and Sanctuaries Act
- Estuary Protection Act of 1968
- Anadromous Fish Conservation Act
- Migratory Bird Treaty Act and Migratory Bird Conservation Act
- Wild and Scenic River Act of 1968
- Submerged Lands Act of 1953
- Rivers and Harbors Act of 1899
- National Historic Preservation Act of 1966
- Resource Conservation and Recovery Act; Comprehensive Environmental Response, Compensation, and Liability Act; Toxic Substances Control Act of 1976
- Farmland Protection Policy Act of 1981
- Archaeological Resource Protection Act
- Bald and Golden Eagle Protection Act.

Additional Executive Orders (EOs) that may be applicable include, but are not limited to:

- EO 11988: Floodplain Management
- EO 11990: Protection of Wetlands
- EO 12898: Environmental Justice
- EO 13112: Invasive Species
- EO 12962: Recreational Fisheries
- EO 13175: Consultation and Coordination with Indian Tribal Governments
- EO 13186: Responsibilities of Federal Agencies to Protect Migratory Birds

- EO 13693: Planning for Federal Sustainability in the Next Decade
- EO 14008: Tackling the Climate Crisis at Home and Abroad

Potentially applicable state laws include:

- Archeological Finds on State Lands (La. Rev. Stat. 41:1605)
- Coastal Wetlands Conservation and Restoration Authority (La. Rev. Stat. 49:213.1)
- Coastal Wetlands Conservation and Restoration Plan (La. Rev. Stat. 49:213.6)
- Louisiana State and Local Coastal Resources Management Act (La. Rev. Stat. 49:214.21–214.42)
- Louisiana Oil Spill Prevention and Response Act (La. Rev. Stat. 30:2451 et seq.)
- Management of State Lands (La. Rev. Stat. 41:1701.1 et seq.)
- Louisiana Coastal Resources Program (La. Admin. Code 43:700 et seq.)
- Louisiana Surface Water Quality Standards (La. Admin. Code 33.IX, Chapter 11)
- Management of Archaeological and Historic Sites (La. Rev. Stat. 41:1605)
- Oyster Lease Relocation Program (La. Admin. Code 43:I, 850–859, Subchapter B).

## 5.0 Public Comments and Responses

Comments received on the Draft RP and Draft EIS during the comment period have been summarized and responded to in Appendix E to this Final RP; a brief summary of the comments received and the process used to respond to them is provided here. It is important to note that Appendix E contains content that is also provided in Appendix B to the Final EIS.

Over the 90-day public comment period, the USACE and the LA TIG received 40,699 comment submissions provided in the following ways: via email to CEMVN; through DOI's Planning, Environment and Public Comment (PEPC) database (<https://parkplanning.nps.gov/MBSD>); submitted in writing or orally during any of the virtual public meetings held on April 6, 7, and 8, 2021; and via voicemail at a toll-free phone number (1-866-211-9205). Forty-three comments were received in either Vietnamese, Spanish, or Khmer and were translated into English.

Of the 40,699 comment submissions, 39,903 (98 %) included substantially similar (form) letters signed by different individuals. Approximately 796 (2 %) of comment submissions were unique letters from individuals or organizations/agencies. Approximately 1,396 (3.4 %) of the comment submissions were from commenters who gave Louisiana addresses. The remaining comments were from people residing in other U.S. states, and four were from other countries. Individual commenters identified an affiliation in 44 of the comment submissions. These affiliations included businesses, churches and religious groups, civic groups, government agencies, NGOs, and university or professional societies.

The form letters generally expressed support for the project, though different forms of the letters emphasized different aspects of the benefits that it would provide. Unique letters covered a wide range of topics, sometimes within an individual letter, and ranged from supportive of the project to strongly opposed to it. Topics addressed include, but are not limited to, the importance of the project for sustaining and conserving coastal ecosystems; suggestions about how to most effectively engage local communities, particularly those with environmental justice concerns; concerns about the potential impact on shrimp, oyster and crab fisheries; concerns about the adequacy of Project mitigation; concerns about the potential impacts of the Project on bottlenose dolphins; and suggestions about how best to adaptively manage the Project.

USACE and the LA TIG worked together to review, sort, and respond to comments received on the Draft EIS and the Draft RP. Initially, comments were sorted into groups by topic and issue, consistent with the range of topics addressed in the Draft EIS and Draft RP. To facilitate preparation of responses, USACE and the LA TIG then drafted 'concern statements' to represent multiple similar comments on a topic and to summarize unique comments and lengthy comments; these concern statements were later reviewed against the original comments to ensure all comments were captured. USACE and the LA TIG then prepared responses to the concern statements. The USACE and LA TIG ensured consideration of the original text from each comment when preparing the response. The comment response process was designed to ensure consideration of and appropriate responses to all comments received.

Appendix E provides the issues and concerns identified in the comments and the USACE and LA TIG's responses. When comments clearly addressed only the RP, the TIG led the development of comment responses. For more details about the process used to summarize and respond to comments, see Appendix B to the Final EIS. Chapter 6 also provides a summary of changes made to the Draft RP, including those done in response to public comments.



## 6.0 Overview of Changes in the Final Restoration Plan

The LA TIG revised the Draft RP after considering the public comments received. The LA TIG also made minor editorial and technical revisions to the document to address issues found through internal review of the Draft RP. None of the revisions resulted in the LA TIG changing its conclusions about the Proposed Project or its alternatives, or its selection of a Preferred Alternative. An overview of the LA TIG's revisions are included below.

### **Overview of Revisions to the Executive Summary**

- Minor revisions were made to reflect that this document is now a final document (instead of a draft) and the public comment process has been completed.
- A sentence was added to help clarify in the Executive Summary how this document relates to SRP/EA #3.
- A figure that summarizes the overall benefits that are expected from the Project was added to help clarify these benefits in the Executive Summary.
- A sentence was added to clarify that the LA TIG's analysis included impacts on communities with environmental justice concerns, including Ironton.
- A small amount of text was added to clarify the differences between Alternatives 1 and 2 in benefit, collateral injury, and cost.
- Text was added to clarify that the Final RP incorporates revisions to the MAM Plan and the Mitigation and Stewardship Plan to reflect the Trustees' consideration of public comments received on the Draft RP.

### **Overview of Revisions to Chapter 1**

- Minor revisions were made to reflect that this document is now a final document (instead of a draft) and the public comment process has been completed.
- Minor revisions were made to clarify the relationship between the MBSD EIS and the LA TIG's SRP/EA.
- Minor revisions to clarify information about the MMPA and its relation to the Proposed Project.
- Figure 1-2, depicting the Project's design features and construction footprint, was updated consistent with the Final EIS.
- A sentence was added to clarify that the Mitigation and Stewardship Plan, MAM Plan, and Marine Mammal Intervention Plan are considered part of the Proposed Project and that CPRA will be responsible for ensuring the implementation of each.

- Final RP/EA #8 was added to the list of projects funded by the LA TIG with DWH settlement funds.
- More information was added about the public participation process in Section 1.8. More specifically, there are now three sections that describe PDARP and SRP-related outreach, outreach conducted by CPRA, and public outreach associated with the RP and EIS.

### **Overview of Revisions to Chapter 2**

- Minor revisions were made to reflect that this document is now a final document (instead of a draft).
- Minor edits were made to clarify that natural resource injuries caused by the DWH oil spill that are not addressed in this Final RP have been partially addressed by previous RPs and will be the focus of future RPs issued by the LA TIG.
- Minor edits were added to clarify that restoration conducted through re-establishing deltaic processes provides system-wide benefits that would not be provided through other restoration techniques.
- Additional text was added to Section 2.4 to clarify why marsh restoration through the use of dredge material was not considered for further evaluation in this Final RP.

### **Overview of Revisions to Chapter 3**

- Minor revisions were made to reflect that this document is now a final document (instead of a draft).
- Minor edits were made in Section 3.2.1 to clarify that marsh would be created to offset the direct impacts of diversion construction on wetland habitat.
- Minor edits were made in Section 3.2.1.1.3 to clarify the role nutrient inputs can play in marsh creation and sustenance.
- Minor edits were made in Section 3.2.1.1.5 to explain that the Mitigation and Stewardship Plan and MAM Plan were updated in response to public comments, and that a Marine Mammal Intervention Plan was also created in response to public comments.
- New text was added to 3.2.1.1.5 to describe wetland preservation and restoration that would occur in the birdfoot delta as part of the Project.
- Throughout this chapter, small text boxes were added to enable readers to more quickly understand the key points in the OPA analysis.
- Edits were made to Sections 3.2.1.2 and 3.2.2.2 to provide updated information about Project costs.
- An error was corrected in Table 3-2; the projected increase in bed elevation from Alternative 1 near the diversion is 2.8 feet, not 0.3 feet as was stated in the Draft RP.

- Minor edits were added to Section 3.2.1.4 to clarify that the computer and physical models, as well as knowledge gained through previous projects, were used in developing the Proposed Project.
- Minor edits were made to Section 3.2.1.5.1 to update the information in the RP with that provided through the most recent NMFS Biological Opinion.
- Minor edits were made to Section 3.2.1.5.1 to update the amount of habitat that would be lost due to the construction footprint of the diversion as per the Final EIS.
- A footnote was added to Section 3.2.1.5.2 to clarify the relationship between the operation of the diversion and potential impacts to the birdfoot delta.
- Minor edits were made to Section 3.2.1.5 to update the amount of habitat that would be lost due to the construction footprint of the diversion as per the Final EIS.
- Edits were made to Section 3.2.1.5.3 to integrate information about population level impacts from the Project from a new study from Thomas et al. (2022).
- Minor edits were made to Section 3.2.1.5.3 to add information about revisions to the MAM Plan related to dolphin monitoring and adaptive management.
- Minor edits were made to Sections 3.2.1.6.1 and 3.2.1.7.1 to clarify the amount of land projected to be created through by the Project after both 30 and 50 years of operation to avoid confusing readers.
- Text was added to Section 3.2.1.5.1 to acknowledge the creation of marsh through the use of material excavated during construction.
- A new figure was added to Section 3.2.1.7.1 to help readers understand how the project's effect on land creation will in turn affect storm surge in areas north and south of the diversion.
- Edits were made to Section 3.2.1.7.1 to update public health and safety related analyses consistent with the Final EIS.
- Minor edits were made to Section 3.2.2.1.1 to adjust the reported estimates of sediment delivery of different alternatives, consistent with the EIS.
- Minor edits were made in several places throughout Chapter 3 to clarify the differences between Alternatives 1 and 2.
- Edits were made to Section 3.2.4.1 to update information about Project costs and to clarify the differences among the alternatives.
- Minor edits were made to Section 3.2.4.4 to clarify that while the scale of expected injury varies among the alternatives, particularly for resources with a 'high' level of collateral injury, that the impact classification for these resources as determined in the EIS does not change between the alternatives.
- Minor edits were made to Section 3.2.4.7 to clarify how the TIG selected its Preferred Alternative.

#### **Overview of Revisions to Chapter 4**

- Minor edits were made to update the status of different reviews required by federal and state law for the Project.

#### **Overview of Revisions to Chapter 5**

- This is a new Chapter that provides a high-level summary of the comments received by the public on the Draft EIS and Draft RP for the MBSD. Appendix E provides a detailed summary of public comments and responses.

#### **Overview of Revisions to Chapter 6**

- Chapter 6 is this Chapter, which was not present in the Draft RP.

#### **Overview of Revisions to Chapter 7**

- The list of preparers and reviewers, has been updated.

#### **Overview of Revisions to Chapter 8**

- The list of repositories has been updated.

#### **Overview of Revisions to Chapter 9**

- References have been updated, as needed, with new citations.

## 7.0 List of Preparers and Reviewers

**Table 7-1.**  
**List of Preparers and Reviewers**

Agency/Firm	Name	Position
<b>State of Louisiana</b>		
Coastal Protection and Restoration Authority	Brian Lezina	Coastal Resources Assistant Administrator
Coastal Protection and Restoration Authority	Elizabeth L. Davoli	Coastal Resources Scientist Manager
Coastal Protection and Restoration Authority	Matt Mumfrey	Attorney
Coastal Protection and Restoration Authority	David Peterson	General Counsel
Coastal Protection and Restoration Authority	Maury Chatellier	DWH Oil Spill Program Administrator
Louisiana Department of Wildlife and Fisheries	B. Carter	Coastal Resources Scientist Manager, Office of Fisheries
Coastal Protection and Restoration Authority	Chris Barnes	Attorney
Abt Associates, Consultant	Karim Belhadjali	Principal Associate
Abt Associates, Consultant	Kaylene Ritter	Principal Associate
Abt Associates, Consultant	Karen Carney	Senior Associate
Abt Associates, Consultant	Michelle Krasnec	Senior Associate
Abt Associates, Consultant	Heather Hosterman	Associate
Independent Consultant	Diana Lane	Consultant
Jacobs Engineering Group, Consultant	Tim Smith	
Jacobs Engineering Group, Consultant	Guerry Holm	
Jacobs Engineering Group, Consultant	Shanna Richard	
Confluence Environmental	Chris Czesla	
Confluence Environmental	Phil Bloch	
SWCA Environmental Consultants	Sue Wilmot	
<b>National Oceanic and Atmospheric Administration</b>		
NOAA Restoration Center	Mel Landry	Marine Habitat Resource Specialist
NOAA Restoration Center	Ramona Schreiber	Marine Habitat Resource Specialist
NOAA Fisheries Southeast Regional Office	Steve Giordano	Ecosystem Restoration and Environmental Compliance Program Manager
NOAA-ERT	Courtney Schupp	Marine Habitat Resource Specialist
NOAA-ERT	Brittany Jensen	Marine Habitat Resource Specialist
<b>United States Department of Agriculture</b>		
Gulf Coast Ecosystem Restoration Team	Ron Howard	Natural Resource Specialist
Gulf Coast Ecosystem Restoration Team	Mark Defley	Biologist
Gulf Coast Ecosystem Restoration Team	Jon Morton	Biologist
<b>United States Environmental Protection Agency</b>		
USEPA	J. Douglas Jacobson	NRDA Louisiana Team Leader
USEPA	Patricia Taylor	Environmental Engineer

Agency/Firm	Name	Position
<b>United States Department of the Interior</b>		
DOI	John Tirpak	Louisiana Restoration Area Coordinator
DOI	Erin Chandler	
DOI	Rachel Kirpes	
DOI	Catherine Breaux	
DOI	Clare Cragan	
DOI	John Rudolph	
<b>United States Department of Justice</b>		
DOJ	Rachel Hankey	



## 8.0 List of Repositories

Table 8-1 lists the repositories to which the LA TIG distributed hard copies and USB drives of the Draft and Final RP and executive summaries of these documents in Vietnamese and Spanish.

**Table 8-1.**  
**List of Repositories**

Repository	Address	City	ZIP Code
Jefferson Parish Library, Lafitte Library	4917 City Park Drive	Lafitte	70067
Jefferson Parish Library, West Bank Regional Library	2751 Manhattan Boulevard	Harvey	70058
New Orleans Public Library, East New Orleans Regional Library	5641 Read Boulevard	New Orleans	70127
Plaquemines Parish Public Library, Belle Chasse Library	8442 Highway 23	Belle Chasse	70037
Plaquemines Parish Public Library, Port Sulphur Library	139 Civic Drive	Port Sulphur	70083
Plaquemines Parish Public Library, Buras Library	35572 Highway 11	Buras	70041
Lafourche Parish Public Library, South Lafourche Branch	16241 East Main Street	Cut Off	70345
St. Charles Parish Library, Paradis Branch	307 Audubon Street	Paradis	70080
Simi Kang, Coastal Communities Consulting	324 North Avenue	Pittsburgh, PA	15209
Grand Bayou Indian Village Tribal Center	P.O. Box 1021	Port Sulphur	70083
Coalition to Restore Coastal Louisiana	3801 Canal Street, Suite 325	New Orleans	70119
Coastal Communities Consulting, Inc.	925 Behrman Highway, Suite 15	Gretna	70056
Greater New Orleans Foundation	919 Saint Charles Avenue	New Orleans	70130
Gulf Restoration Network	330 Carondelet Street, Suite 300	New Orleans	70130
South Louisiana Wetlands Discovery Center	7910 Park Avenue	Houma	70364
Lower Ninth Ward Center for Sustainable Engagement and Development	5227 Chartres Street	New Orleans	70117
Mary Queen of Vietnam Community Development Corporation, Inc.	4626 Alcee Fortier Boulevard # E	New Orleans	70129
United Houma Nation	20986 Highway 1	Golden Meadow	70357
Zion Travelers Cooperative Center	120 Thomas Lane	Braithwaite	70040
St. Tammany Parish Library	310 West 21st Avenue	Covington	70433
Terrebonne Parish Library	151 Library Drive	Houma	70360
New Orleans Public Library	219 Loyola Avenue	New Orleans	70112
East Baton Rouge Parish Library	7711 Goodwood Boulevard	Baton Rouge	70806
Jefferson Parish Library, East Bank Regional Library	4747 West Napoleon Avenue	Metairie	70001
St. Bernard Parish Library	2600 Palmisano Boulevard	Chalmette	70043
St. Martin Parish Library	201 Porter Street	St. Martinville	70582
Alex P. Allain Library	206 Iberia Street	Franklin	70538
Vermillion Parish Library	405 East Saint Victor Street	Abbeville	70510
Martha Sowell Utley Memorial Library	314 Saint Mary Street	Thibodaux	70301
Calcasieu Parish Public Library Central Branch	301 West Claude Street	Lake Charles	70605
Iberia Parish Library	445 East Main Street	New Iberia	70560
Mark Shirley, Louisiana State University Agricultural Center	1105 West Port Street	Abbeville	70510

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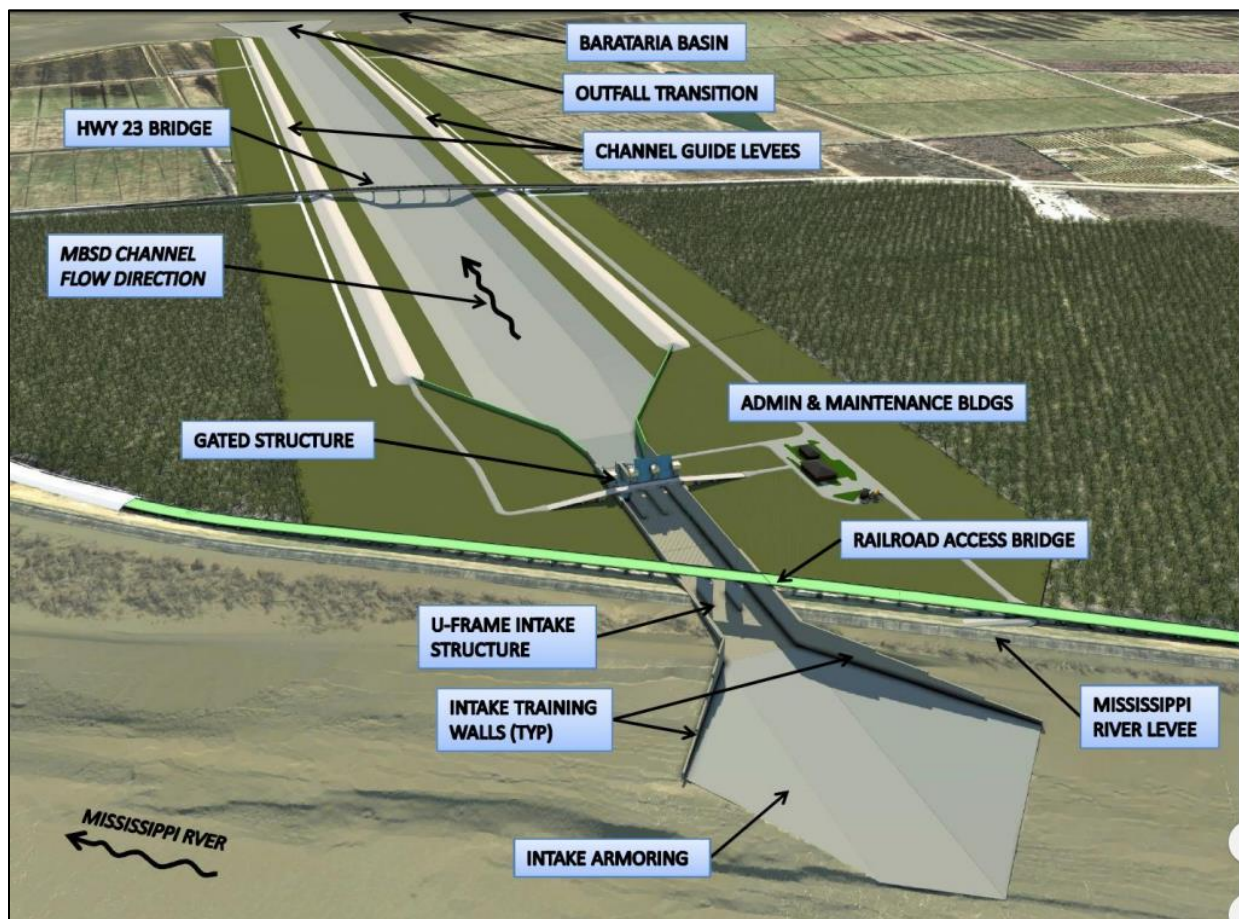
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# Appendix A: Monitoring and Adaptive Management Plan for the Proposed MBSD Project



# MONITORING AND ADAPTIVE MANAGEMENT PLAN FOR THE MID-BARATARIA SEDIMENT DIVERSION PROJECT (CPRA PROJECT NUMBER BA-0153)



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## Table of Contents

List of Tables .....	ix
List of Figures .....	x
List of Acronyms.....	xii
1. Introduction .....	1
1.1. Purpose of the Project Monitoring and Adaptive Management Plan .....	1
1.1.1. Purpose of Adaptive Management .....	2
1.1.2. Overview of CPRA Programmatic Adaptive Management.....	2
1.1.3. Project-Level Adaptive Management .....	3
1.2. Restoration Type Goals, Project Purpose and Need, and Project Restoration Objectives.....	3
1.3. Conceptual Ecological Model.....	5
1.3.1. Purpose of the Conceptual Ecological Model .....	5
1.3.2. Components of the Conceptual Ecological Model.....	5
1.3.2.1. Drivers .....	7
1.3.2.2. Stressors.....	7
1.3.2.3. Effects.....	9
1.3.2.4. Attributes and Relevant Monitoring Parameters .....	9
1.3.2.5. Use of the Conceptual Ecological Model .....	10
1.4. Sources of Critical Uncertainty.....	10
1.4.1. Environmental Driver Uncertainties .....	11
1.4.2. Uncertainty in the Degree of Altered Hydrology (Stressor).....	11
1.4.3. Uncertainties in Responses of Environmental Resources to Project Inputs.....	12
1.4.4. Uncertainties in Human Systems Response.....	12
1.5. Use of Numerical Models within Project Adaptive Management .....	12
1.5.1. Numerical Models Used in Project Planning.....	12
1.5.2. Use of Data and Numerical Models to Inform Project Monitoring and Adaptive Management.....	14
2. Project Operational and Adaptive Management Governance .....	17
2.1. Description and Scope .....	17
2.2. Governance Structure.....	18
2.2.1. Project Implementation Teams.....	18
2.2.1.1. CPRA Executive Team.....	18
2.2.1.1.1. Membership.....	18
2.2.1.1.2. Responsibilities .....	19
2.2.1.2. Operations Management Team.....	19
2.2.1.2.1. Membership.....	19
2.2.1.2.2. Responsibilities .....	19

2.2.1.3.	Adaptive Management Team.....	19
2.2.1.3.1.	Membership.....	19
2.2.1.3.2.	Responsibilities .....	20
2.2.1.4.	Data Management Team .....	20
2.2.1.4.1.	Membership.....	20
2.2.1.4.2.	Responsibilities .....	20
2.2.2.	Other Teams.....	20
2.2.2.1.	Stewardship Group .....	20
2.2.2.1.1.	Membership.....	20
2.2.2.1.2.	Responsibilities .....	20
2.2.2.2.	Stakeholder Review Panel.....	21
2.2.2.2.1.	Membership.....	21
2.2.2.2.2.	Responsibilities .....	21
2.2.2.3.	Technical Focus Group(s) / Peer Review.....	21
2.2.2.3.1.	Membership.....	21
2.2.2.3.2.	Responsibilities .....	21
2.3.	Data and Information Requirements .....	22
3.	Project Monitoring Plan .....	23
3.1.	Monitoring Plan Development.....	23
3.2.	Baseline and Project Monitoring Approach.....	23
3.3.	Monitoring and Assessment Design .....	23
3.3.1.	Sampling Stratification.....	24
3.3.2.	Estimation of Project Delta Development and Project Influence Areas.....	24
3.4.	Data Sources .....	26
3.4.1.	CPRA-Coordinated Monitoring Data.....	26
3.4.2.	Other Monitoring and Survey Data.....	27
3.5.	Pre-Operations (Baseline) Monitoring.....	28
3.6.	Post-Construction (Operations) Monitoring.....	30
3.7.	Parameters for Evaluating Project Effectiveness and Ecosystem Response .....	30
3.7.1.	Objective #1: Deliver freshwater, sediment, and nutrients to Barataria Bay through a large-scale sediment diversion from the Mississippi River.....	30
3.7.1.1.	Empirical Monitoring Parameters in Support of Objective 1.....	30
3.7.1.1.1.	Mississippi River water discharge .....	30
3.7.1.1.2.	Mississippi River suspended sediment concentrations .....	33
3.7.1.1.3.	Mississippi River nutrient concentrations .....	34
3.7.1.1.4.	Bathymetry of the Alliance South sand bar .....	35
3.7.1.1.5.	Sedimentology of the Alliance South sand bar.....	37

3.7.1.1.6.	River bathymetry at and around the Project structure inlet .....	38
3.7.1.1.7.	Topography/bathymetry of the Project Influence Area .....	39
3.7.1.1.8.	Water volume conveyed into Barataria Basin .....	40
3.7.1.1.9.	Sediment concentrations in the flows conveyed into Barataria Basin .....	40
3.7.1.2.	Multi-Parameter Calculations in Support of Objective 1 .....	41
3.7.1.2.1.	Mississippi River sediment load.....	41
3.7.1.2.2.	Sediment:water in the flows conveyed into Barataria Basin.....	41
3.7.1.2.3.	Sediment volume conveyed into Barataria Basin .....	41
3.7.1.2.4.	Nutrient loads conveyed into Barataria Basin .....	42
3.7.2.	Objective #2: Reconnect and re-establish sustainable deltaic processes between the Mississippi River and the Barataria Basin .....	42
3.7.2.1.	Empirical Monitoring Parameters in Support of Objective 2.....	42
3.7.2.1.1.	Water velocities at multiple locations in the Barataria Basin.....	42
3.7.2.1.2.	Frequency, depth and duration of inundation at multiple locations on the marsh in the Project Influence Area .....	43
3.7.2.1.3.	Soil bulk density .....	44
3.7.2.1.4.	Soil organic matter content .....	44
3.7.2.1.5.	Soil mineral matter grain size .....	46
3.7.2.1.6.	Soil total nutrients .....	46
3.7.2.1.7.	Rate of accretion above feldspar marker horizons.....	46
3.7.2.1.8.	Soil strength .....	47
3.7.2.1.9.	Marsh surface elevation change rate in the Project Influence Area .....	47
3.7.2.2.	Calculations in Support of Objective 2 .....	48
3.7.2.2.1.	Sediment dispersal and retention on the emergent marsh surface.....	48
3.7.2.2.2.	Soil organic matter density .....	48
3.7.2.2.3.	Soil mineral matter density.....	48
3.7.3.	Objective #3: Create, restore, and sustain wetlands and other deltaic habitats and associated ecosystem services.....	49
3.7.3.1.	Land and water extent / Area of new delta formation in the Project Influence Area	49
3.7.3.2.	Emergent wetland area.....	49
3.7.3.3.	Vegetation Cover, Abundance, and Height.....	50
3.7.3.4.	Submerged aquatic vegetation area .....	50
3.7.3.5.	Emergent and submerged vegetation community type .....	51
3.7.3.6.	Emergent vegetation biomass in the Project area.....	51
3.7.3.7.	Dissolved oxygen in Barataria Surface Waters .....	52
3.7.3.8.	Salinity in Barataria Surface Waters.....	52

3.7.3.9.	Chlorophyll a in Barataria Surface Waters.....	53
3.7.3.10.	Phytoplankton Species Composition (including Harmful Cyanobacterial/Algal Bloom Species) .....	55
3.7.3.11.	Harmful Cyanobacterial/Algal Bloom Toxins in Barataria Surface Waters.....	56
3.7.3.12.	Nutrient constituents in Barataria Surface Waters.....	57
3.7.3.13.	Temperature of Barataria Surface Waters.....	57
3.7.3.14.	Turbidity of Barataria Surface Waters .....	58
3.7.3.15.	Total suspended solids in Barataria Surface Waters.....	58
3.7.3.16.	Lower Trophic Level Organisms .....	59
3.7.3.17.	Aquatic Invasive (Algae and Invertebrate) Species.....	59
3.7.3.18.	Nekton (Fish and Shellfish) Species Abundance and Composition/Assemblage .....	60
3.7.3.19.	Atlantic Bottlenose Dolphins ( <i>Tursiops truncatus</i> ) .....	64
3.7.3.20.	Eastern Oysters ( <i>Crassostrea virginica</i> ).....	70
3.7.3.21.	Wildlife .....	72
3.7.3.22.	Aquatic resource and terrestrial wildlife utilization of created/restored habitat .....	73
3.7.3.23.	Contaminants in Fish, Shellfish, and Wildlife .....	74
3.7.3.24.	Socio-economic Data .....	75
3.7.4.	Compliance Monitoring .....	77
3.7.4.1.	National Historic Preservation Act, Section 106 Monitoring Requirements .....	77
3.7.4.2.	Sea Turtles (Green, Kemps Ridley, Loggerhead) Fishery-related Take .....	77
3.7.4.3.	Sea Turtles (Green, Kemps Ridley, Loggerhead) Habitat change-related Take .....	78
3.7.4.4.	Sea Turtles (Green, Kemps Ridley, Loggerhead) Use and Abundance .....	78
3.7.4.5.	Pallid Sturgeon .....	80
3.7.4.6.	Bald Eagle Nests and Wading Bird Colonies.....	80
3.7.5.	Variables Associated with the Mitigation and Stewardship Plan .....	80
3.7.5.1.	Fecal Coliform .....	81
3.7.5.2.	Effectiveness of Investment in Vessel/Facility Improvements in the Finfish and Shrimp Fisheries.....	81
3.7.5.3.	Effectiveness of Marketing Support for the Oyster, Finfish, and Shrimp Fisheries ....	81
3.7.5.4.	Effectiveness of Workforce and Business Training for Commercial Fishing Industries	82
3.7.5.5.	Effectiveness of Environmental Justice Mitigation Measures .....	83
4.	Evaluation and Project-Level Decisions for Conducting Management Actions.....	85
4.1.	Evaluation of Project Effectiveness Monitoring Data .....	87
4.1.1.	Evaluation of Monitoring Data in Support of Project Objective 1: Deliver Freshwater, Sediment, and Nutrients to Barataria Bay through a Large-Scale Sediment Diversion from the Mississippi River.....	87

4.1.2.	Evaluation of Monitoring Data in Support of Project Objective 2: Reconnect and Re-establish Sustainable Deltaic Processes between the MR and the Barataria Basin .....	88
4.1.3.	Evaluation of Monitoring Data in Support of Project Objective 3: Create, restore, and sustain wetlands and associated ecosystem services.....	90
4.2.	Evaluation of Context Variables.....	92
4.3.	Evaluation of Compliance Monitoring Data.....	93
5.	Monitoring and Adaptive Management Schedule.....	101
5.1.	Project Monitoring Schedule 1 .....	101
5.1.1.	Pre-operational Monitoring .....	101
5.1.2.	Post-operational Monitoring .....	101
5.2.	Timeline of Adaptive Management Decision-Making and Implementation .....	101
5.2.1.	Event Timeline.....	101
5.2.2.	Annual Timeline .....	101
5.2.2.1.	State Funding Cycle Reporting .....	102
5.2.2.2.	Annual Operations Plan / OM&M Reporting .....	103
5.2.3.	Multi-year Project Synthesis Reporting .....	103
5.2.3.1.	October-December: Data Collation.....	104
5.2.3.2.	January-June: Data Analysis and Project Synthesis Report Drafting .....	104
5.2.3.3.	July-August: External Peer Review and Revision .....	104
5.2.3.4.	September-October: Stakeholder Review Panel Evaluation.....	104
5.2.3.5.	November-December: Public Comment Period .....	104
5.2.3.6.	January: Review of Project Synthesis Report Implications .....	105
6.	Data Management .....	107
6.1.	Data Description .....	107
6.2.	Data Review and Clearance .....	107
6.3.	Data Storage and Accessibility .....	108
6.4.	Data Sharing.....	108
7.	Reporting.....	111
7.1.	DIVER Restoration Portal Reporting .....	111
7.2.	Mid-Basin Sediment Diversion Project Annual Operations Plans.....	111
7.3.	Annual Operations Performance Reports.....	111
7.4.	Annual Operations, Maintenance & Monitoring Reports.....	111
7.5.	Multi-year Monitoring and Adaptive Management Reports.....	112
7.6.	Compliance Reporting.....	112
7.6.1.	National Historic Preservation Act Annual Report.....	112
7.6.2.	US Fish & Wildlife Service Coordination Act Annual Report.....	112
7.6.3.	Louisiana Trustee Implementation Group Annual Report.....	112
8.	References .....	113
9.	Monitoring and Adaptive Management Budget.....	121



10.	Inventory of Project-Related Discrete/Aperiodic Studies.....	123
11.	Project Adaptive Management Decision Log and Catalog of Updates to the Monitoring and Adaptive Management Plan .....	129

## LIST OF TABLES

Table	Description	Page Number
3.7-1.	Endpoint coordinates of Mississippi River cross sections used for preliminary E&D.	31
3.7-2.	Coordinates of sampling points on 2018 Mississippi River cross-section.	33
3.7-3.	Example fish and shellfish and the gear type that is generally used to assess abundance and other population characteristics	60
3.7-4.	Sampling details for selected fisheries-independent nekton community variables.	61
3.7-5.	Bottlenose dolphin monitoring parameters and associated methods.	68
3.7-6.	Socio-economic parameters and data repositories. See Hijuelos and Hemmerling (2016) Table C:1 for additional details.	75
4-1.	A description of how evaluation will support the fundamental and secondary objectives.	85
4.1-1.	Parameters monitored to ensure Project Objective 1 (Delivery of freshwater, sediment, and nutrients), proposed frequency of evaluation, categorization of parameter evaluation, and criteria that would trigger adaptive management action.	95
4.1-2.	Parameters monitored to ensure Project Objective 2 (Reconnect and Re-establish Deltaic Processes), proposed frequency of evaluation, categorization of parameter evaluation, and criteria that would trigger adaptive management action.	96
4.1-3.	Parameters monitored to ensure Project Objective 3 (Create, restore, and sustain wetlands and associated ecosystem services), proposed frequency of evaluation, categorization of parameter evaluation, and criteria that would trigger adaptive management action.	97
4.1.4.	A learning strategy has been identified to address each uncertainty in responses of environmental resources to project inputs.	100
9-1.	Initial estimated costs for Project monitoring and adaptive management during the 5-years pre-operations and 21 years post-construction.	121
10-1.	A learning strategy has been identified to address uncertainties in responses of environmental resources to project inputs.	123

## LIST OF FIGURES

Figure	Description	Page Number
1.1-1.	The four phases of a project-- Objective Setting, Design and Construct Project, Operate and Monitor Project, and Adaptive Management Coordination—each connect to the steps of the adaptive management cycle.	4
1.3-1.	Conceptual Ecological Model for the Barataria Basin Sediment Diversion project developed by the Trustee Implementation Group’s Monitoring and Adaptive Management Team	6
1.3-2.	Estimates of plausible, spatially-variable subsidence developed for the LCA Delta Management Feasibility Study investigations were used as inputs for the Delft3D Basin-wide Model-based Project alternatives analysis.	8
2.1-1.	Relationship between the State of Louisiana and the LA TIG regarding governance of Project operations and adaptive management decision making.	17
2.1-2.	Information flow between the Project governance elements outlined in this section.	18
3.3-1.	Example of supporting data to inform stratification and potential selection of additional sites based on vegetation community type from CRMS- <i>Wetlands</i> sites and other survey data in the diversion primary influence area.	25
3.3-2.	A Project Delta Development Area (yellow polygon) was defined around the Project outfall as the extent of the area where the Delft Basin-wide Model projected bed elevation differences greater than 0.5 meters between the Future without Project and the Future with Project for the 75,000-cfs Project alternative without terraces after 50-years of Project-effects modeling.	26
3.3-3.	A Project Influence Area (magenta polygon) was defined around the Project outfall as the extent of the area where the Delft Basin-wide Model projected water level differences (white lines) between the Future without Project and the Future with Project for the 75,000-cfs Project alternative without terraces.	27
3.3-4.	Comparison of the spatial extent of the Project Delta Development Area (yellow polygon) and the Project Influence Area (magenta polygon).	28
3.4-1.	Previous restoration projects in the Project region are shown with the green polygons, and in relation to the locations of the existing freshwater siphon projects in the area.	29
3.7-1.	Location of the Mississippi River near the Mid-Barataria Sediment Diversion, showing the transects and sampling points currently being studied for E&D purposes.	32
3.7-2.	The lateral bar near the RM 60.7 diversion intake (area of shallow bathymetry in front of the diversion structure) will be monitored routinely with high-resolution velocity and bathymetric surveys along transects that have been established for design data collection and earlier studies.	36
3.7-3.	Existing stations providing hydrologic data within the Barataria Basin.	43
3.7-4.	Existing CRMS- <i>Wetlands</i> locations for vegetation community sampling in Barataria Basin.	45

## LIST OF FIGURES (continued)

Figure	Description	Page Number
3.7-5.	Existing locations of LDEQ and SWAMP discrete water quality sampling in Barataria Basin, shown in relation to the Project Influence Area.	53
3.7-6.	Existing locations for salinity sampling in Barataria Basin. Figure shows locations with continuous sampling.	54
3.7-7.	Existing LDWF trawl locations for along the Louisiana coast.	62
3.7-8.	Existing LDWF seine (top) and trammel and gill net (bottom) sampling locations along the Louisiana coast.	63
3.7-9.	Existing LDWF locations for oyster density sampling along the Louisiana coast.	71
3.7-10.	Locations of coastal transects flown by LDWF for waterfowl population estimations.	73
3.7-11.	Louisiana Department of Health (LDH) shellfish sampling stations in the Barataria Basin.	82
4-1.	New and existing data are evaluated to reduce uncertainties and inform Project management decisions in Step 8 of the Project Adaptive Management cycle (Figure 1.1-1).	86
5.2-1.	Idealized timeline of Annual Cycle Adaptive Management Activities discussed in Section 5.2.2 and the Multi-year Project data evaluations discussed in Section 5.2.3.	102

## LIST OF ACRONYMS

Acronym	Description	Page First Used
ADCIRC	Advanced Circulation Model	13
ADCP	Acoustic Doppler Current Profiler	31
AM	Adaptive Management	1
AMO	Atlantic Multi-decadal Oscillation	7
AMT	Adaptive Management Team	15
APA	Applicant's Preferred Alternative	24
BACI	Before-After-Control-Impact (Study)	23
BBES	Barataria Bay Estuarine Stock	64
BICM	Barrier Island Comprehensive Monitoring	26
CASM	Comprehensive Aquatic Systems Model	13
CEM	Conceptual Ecological Model	5
cfs	Cubic Feet per Second	24
Chl	Chlorophyll	9
CIMS	Coastal Information Management System	107
CMP	Coastal Master Plan	2
CMR	Capture Mark Recapture	65
CoC	Contaminant of Concern	74
CoNED	Coastal National Elevation Database	39
CPRA	Coastal Protection and Restoration Authority	1
CRHA	Capture Release Health Assessment	65
CRMS	Coastwide Reference Monitoring System	23
CTD	Conductivity/Temperature/Depth	34
DIVER	Data Integration, Visualization, Exploration, and Reporting	108
DMT	Data Management Team	102
DWH	Deepwater Horizon	1
DO	Dissolved Oxygen	9
DRT	Dolphin Resource Team	64
E&D	Engineering and Design	11
eDNA	Environmental DNA	65
ENSO	El Niño Southern Oscillation	7
EwE	Ecopath with Ecosim (and Ecospace) Model	13
FEIS	Final Environmental Impact Statement	1

## LIST OF ACRONYMS *(continued)*

Acronym	Description	Page First Used
FEMA	Federal Emergency Management Agency	76
FIMP	Fisheries-independent Monitoring Program	24
FRP	Final Restoration Plan	1
FWOP	Future Without Project	13
FWP	Future With Project	13
GOHSEP	Governor’s Office of Homeland Security and Emergency Preparedness	76
GRSLR	Gulf-regional Sea Level Rise	7
HABFB	Harmful Algal Bloom Forecasting Branch	54
HCAB	Harmful Cyanobacterial and/or Algal Bloom	55
HSI	Habitat Suitability Index	12
IMPLAN	Impact Analysis for Planning	14
LA TIG	Louisiana Trustee Implementation Group	1
LCA	Louisiana Coastal Area (Ecosystem Restoration Study)	13
LDEQ	Louisiana Department of Environmental Quality	21
LDH	Louisiana Department of Health	21
LDWF	Louisiana Department of Wildlife and Fisheries	21
LiDAR	Light Detection and Ranging	39
LMRFC	Lower Mississippi River Forecasting Center	31
LOI	Loss on Ignition	45
MAM	Monitoring and Adaptive Management	1
MMSN	Marine Mammal Stranding Network	67
MR	Mississippi River	4
MR&T	Mississippi Rivers & Tributaries Project	7
MRHDMS	Mississippi River Hydrodynamic and Delta Management Feasibility Study	13
N	Nitrogen	34
NFWF	National Fish and Wildlife Foundation	2
NMFS	National Marine Fisheries Service	77
NOAA	National Oceanic and Atmospheric Administration	27
NRDA	Natural Resource Damage Assessment	1
OM&M	Operations, Maintenance and Monitoring	101



## LIST OF ACRONYMS *(continued)*

Acronym	Description	Page First Used
OMRR&R	Operation, Maintenance, Repair, Replacement and Rehabilitation	1
OMT	Operations Management Team	19
P	Phosphorus	34
PDARP	Programmatic Damage Assessment and Restoration Plan	1
PDDA	Project Delta Development Area	24
PDT	Project Design Team	13
PEIS	Programmatic Environmental Impact Statement	1
PIA	Project Influence Area	24
PRD	Protected Resources Division	77
QA/QC	Quality Assurance/Quality Control	20
RESTORE	Resources and Ecosystems Sustainability, Tourist Opportunities, and Revived Economies of the Gulf Coast States Act	2
RM	River Mile	38
RPM	Reasonable and Prudent Measure	77
RSET	Rod Sediment Erosion Table	47
RSLR	Relative Sea Level Rise	7
S	Sulfur	34
SAV	Submerged Aquatic Vegetation	9
SEFSC	Southeast Fisheries Science Center	78
SERO	Southeast Regional Office	78
SLR	Sea Level Rise	2
SME	Subject Matter Expert	21
SOP	Standard Operational Procedure	107
SWAMP	System Wide Assessment and Monitoring Program	23
TC	Total Carbon	46
TN	Total Nitrogen	46
TP	Total Phosphorus	46
TSS	Total Suspended Sediments	9
TWIG	The Water Institute of the Gulf	2
UAS	Unmanned Aircraft System	66
USACE	United States Army Corps of Engineers	2

**LIST OF ACRONYMS (*continued*)**

Acronym	Description	Page First Used
USDA	US Department of Agriculture	76
USFWS	United States Fish and Wildlife Service	74
USGS	United States Geological Survey	31
WY	Water Year	101

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# 1. INTRODUCTION

## 1.1. Purpose of the Project Monitoring and Adaptive Management Plan

Following the 2010 Deepwater Horizon (DWH) explosion and oil spill, the Natural Resource Damage Assessment (NRDA) Trustees identified implementation of monitoring and adaptive management (MAM) as one of the NRDA programmatic goals in the Final Programmatic Damage Assessment and Restoration Plan and Final Programmatic Environmental Impact Statement (PDARP/PEIS; DWH Trustees, 2016). As described therein, the MAM Framework provides a flexible, science-based approach to implement effective and efficient restoration over several decades and to provide long-term benefits to the resources and services injured by the DWH oil spill. This MAM plan for the Mid-Barataria Sediment Diversion Project (the Louisiana Coastal Protection and Restoration Authority's (CPRA's) Project Number BA-0153; hereafter 'the Project'), has been drafted by the State and federal Project partners on the Louisiana Trustee Implementation Group (LA TIG).

This MAM plan serves as a companion to the Project Final Phase II Restoration Plan (FRP); the Project Operation and Maintenance, Repair, Replacement and Rehabilitation (OMRR&R) Plan; and the Project Mitigation Plan prepared for the Project's Final Environmental Impact Statement (FEIS). This MAM plan provides a framework for adaptive management (AM) decision-making and implementation that:

- Discusses the basics of MAM and presents a conceptual understanding of a sediment diversion of Mississippi River water into the Barataria Basin that underpins the selection of key monitoring variables for the Project, and identifies key uncertainties that may affect the ability of the Project to achieve its restoration objectives (Section 1).
- Outlines the structure for governance of Project operations and AM, including specifying the roles and responsibilities of State and federal partners (Section 2).
- Identifies monitoring needs and the key performance measures associated with each objective that the State and the LA TIG will use to evaluate progress towards meeting the Project restoration objectives and to inform AM (Section 3). This includes describing assess progress toward meeting the restoration objectives as described in the FRP. This also includes the methods for specific types of monitoring and a discussion of the spatial and temporal extent of pre-operations baseline monitoring that will be conducted before, and post-construction monitoring that will be conducted after, the Project begins operating.
- Describes the framework for assessing Project success based on performance measures and potential AM actions, including potential operational shifts to minimize Project impacts if practicable given the Project's goals, objectives, and success criteria (Section 4), and the schedule for evaluating data that could lead to changes in management actions (Section 5).
- Discusses the above information in relation to the concurrent development of State and LA TIG programmatic adaptive management as outlined in the *Louisiana Adaptive Management Status and Improvement Report: Vision and Recommendations* (The Water Institute of the Gulf 2020), including data management (Section 6), and reporting (Section 7); and
- Establishes the basis for an estimated budget for Project-specific MAM (Section 8).

MAM Plans are by nature living documents and never "final". This Plan will be "draft" at least until if, and if so when, the US Army Corps of Engineers (USACE) New Orleans District issues approval and issuance of the permits and authorizations required for the Project. CPRA at that point will then add any Compliance Monitoring requirements contained in those permits to this Plan.

### **1.1.1. Purpose of Adaptive Management**

A distinctive feature of coastal Louisiana is that its industry, natural resources, communities, and culture are intricately linked to, and reliant on, its wetland environment. Individually managing each of these systems is difficult due to their inherently uncertain and highly dynamic nature and the high level of integration between the systems. Predicting the effects of coastal Louisiana's restoration projects with complete certainty is impossible due to

- shifting ecological baselines associated with continued, ongoing land loss, including sea level rise (SLR), subsidence, water cycles, tropical storms and hurricanes;
- incomplete understandings of ecosystem structure and function; and
- imprecise and complex relationships between project features and corresponding outcomes.

Adaptive management is a form of structured decision-making applied to the management of natural resources in the face of uncertainty (Pastorok et al. 1997; Williams 2011). The primary incentive for implementing AM is to increase the likelihood of achieving desired project outcomes given the identified uncertainties. It is an iterative process that integrates monitoring and evaluation of ecosystem variables in response to management actions with flexible decision-making, where management approaches are adjusted based on observed outcomes (NRC 2004). Adaptive management provides an organized, coherent, and documented process for promoting learning that will improve decision-making. Within the context of DWH NRDA restoration, AM includes informing the selection, design, and implementation of restoration projects; implementing corrective actions, when necessary, to projects that are not trending toward established performance criteria; and making adjustments over time to projects that require recurrent or ongoing decision making.

### **1.1.2. Overview of CPRA Programmatic Adaptive Management**

The State of Louisiana has long recognized the importance of utilizing AM to improve its coastal program, and has conducted specific AM activities for implemented projects. Adaptive Management has been a key feature of Louisiana's Coastal Master Plan since 2012, thus allowing for flexibility in program implementation as conditions change, resolution of uncertainties to improve future decision-making, and modification of constructed projects while informing the development of future projects. Indeed, the Louisiana Legislature's mandate for CPRA to update Louisiana's Coastal Master Plan (CMP) every six years to account for changes in information, tools, and on-the-ground situations, is an example of, and a mandate for, AM.

In March 2018, the LA TIG funded a project focused on formalizing programmatic AM for restoration in coastal LA by describing the status of, and identifying opportunities for, institutionalizing AM within CPRA and the LA TIG. That work, conducted in partnership with The Water Institute of the Gulf (TWIG), was intended to integrate across the multiple implementing mechanisms (e.g., CPRA, LA TIG, the Resources and Ecosystems Sustainability, Tourist Opportunities, and Revived Economies of the Gulf Coast States Act (RESTORE) Program, National Fish and Wildlife Foundation (NFWF) Gulf Environmental Benefits Fund) (The Water Institute of the Gulf, 2020). CPRA's programmatic AM will create a structure and process for building institutional knowledge, iteratively incorporating new information that continually improves our system understanding, facilitating informed adjustment of management actions, and improving decision-making to help achieve the long-term sustainability of our coast, and will build the knowledge base by engaging stakeholders and through internal and external

communication. The goal of CPRA programmatic AM is to maximize the success of the coastal protection and restoration program by utilizing robust decision-making.

### **1.1.3. Project-Level Adaptive Management**

Project AM is particularly important because of its scale and scope. Project-level AM focuses on identifying project uncertainties (Section 1.4) and, where feasible reducing those uncertainties through project design, scientific analysis, or monitoring to inform management actions (Section 4 and Table 4.1-4). Conceptual (Section 1.3) and numerical modeling (Section 1.5) provides the expectations against which MAM Plan monitoring (Section 3) and evaluation (Section 4) has been developed, both with regards to anticipated Project effects and the constantly changing baseline. As outlined in Section 4, monitoring data and associated assessments will inform AM evaluations, decisions, and actions. Sometimes the ten steps in the iterative project-level AM cycle developed for the Louisiana TIG (Figure 1.1-1; The Water Institute of the Gulf, 2020) do not occur sequentially; it may be necessary to move forward or backward through the cycle or to repeat certain steps.

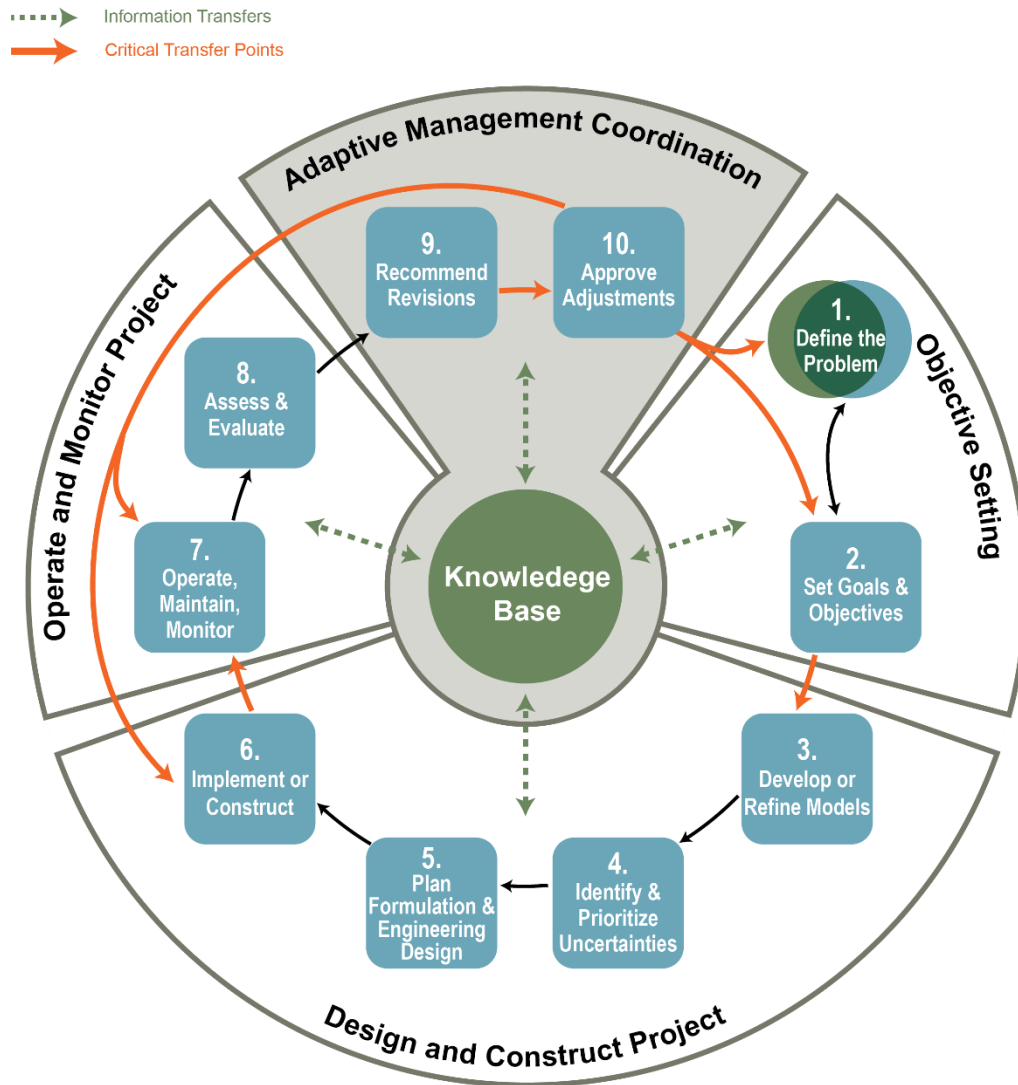
## **1.2. Restoration Type Goals, Project Purpose and Need, and Project Restoration Objectives**

The DWH oil spill caused extensive impacts to marsh habitats and species in Louisiana. These habitats have a critical role in the overall productivity of the northern Gulf of Mexico. In DWH Trustees (2016), the DWH Trustees found that coastal and nearshore habitat restoration is the most appropriate and practicable mechanism for restoring the ecosystem-level linkages disrupted by this spill. Nearshore habitats provide food, shelter, and nursery grounds for numerous ecologically and economically important species, including fish, shrimp, crabs, sea turtles, birds, and mammals.

The overall programmatic goal for the Project is to Restore and Conserve Habitat. The Restoration Type is Wetlands, Coastal, and Nearshore Habitats Restoration. The goals of this Restoration Type, outlined in Section 5.5.2.1 of the PDARP/PEIS (DWH Trustees, 2016) are to:

- Restore a variety of interspersed and ecologically-connected coastal habitats in each of the five Gulf states to maintain ecosystem diversity, with particular focus on maximizing ecological functions for the range of resources injured by the spill, such as oysters, estuarine-dependent fish species, birds, marine mammals, and nearshore benthic communities.
- Restore for injuries to habitats in the geographic areas where the injuries occurred, while considering approaches that provide resiliency and sustainability.
- While acknowledging the existing distribution of habitats throughout the Gulf of Mexico, restore habitats in appropriate combinations for any given geographic area. Consider design factors, such as connectivity, size, and distance between projects, to address injuries to the associated living coastal and marine resources and restore the ecological functions provided by those habitats.





**Figure 1.1-1.** The four phases of a project-- Objective Setting, Design and Construct Project, Operate and Monitor Project, and Adaptive Management Coordination—each connect to the steps of the adaptive management cycle. All four phases include information capture and transfer to the knowledge base (e.g., annual reporting). Critical transfer points provide opportunities for increased information capture and transfer. Figure from The Water Institute of the Gulf (2020).

The Project’s purpose and need, as articulated in the FEIS, is:

“... to restore for injuries caused by the DWH oil spill by implementing a large-scale sediment diversion in the Barataria Basin that will reconnect and re-establish sustainable deltaic processes between the Mississippi River [MR] and the Barataria Basin through the delivery of sediment, freshwater, and nutrients to support the long-term viability of existing and planned coastal restoration efforts. The proposed Project is needed to help restore habitat and ecosystem services injured in the northern Gulf of Mexico as a result of the DWH oil spill.”

Specific restoration objectives for the Project are to

- Deliver freshwater, sediment, and nutrients to Barataria Bay through a large-scale sediment diversion from the MR;
- Reconnect and re-establish sustainable deltaic processes between the MR and the Barataria Basin (e.g., sediment retention and accumulation, new delta formation); and
- Create, restore, and sustain wetlands and other deltaic habitats and associated ecosystem services.

Section 2.3.3 of the OMRR&R Plan and Section 1.5 of the FRP both describe operational features of the proposed Project.

### **1.3. Conceptual Ecological Model**

#### **1.3.1. Purpose of the Conceptual Ecological Model**

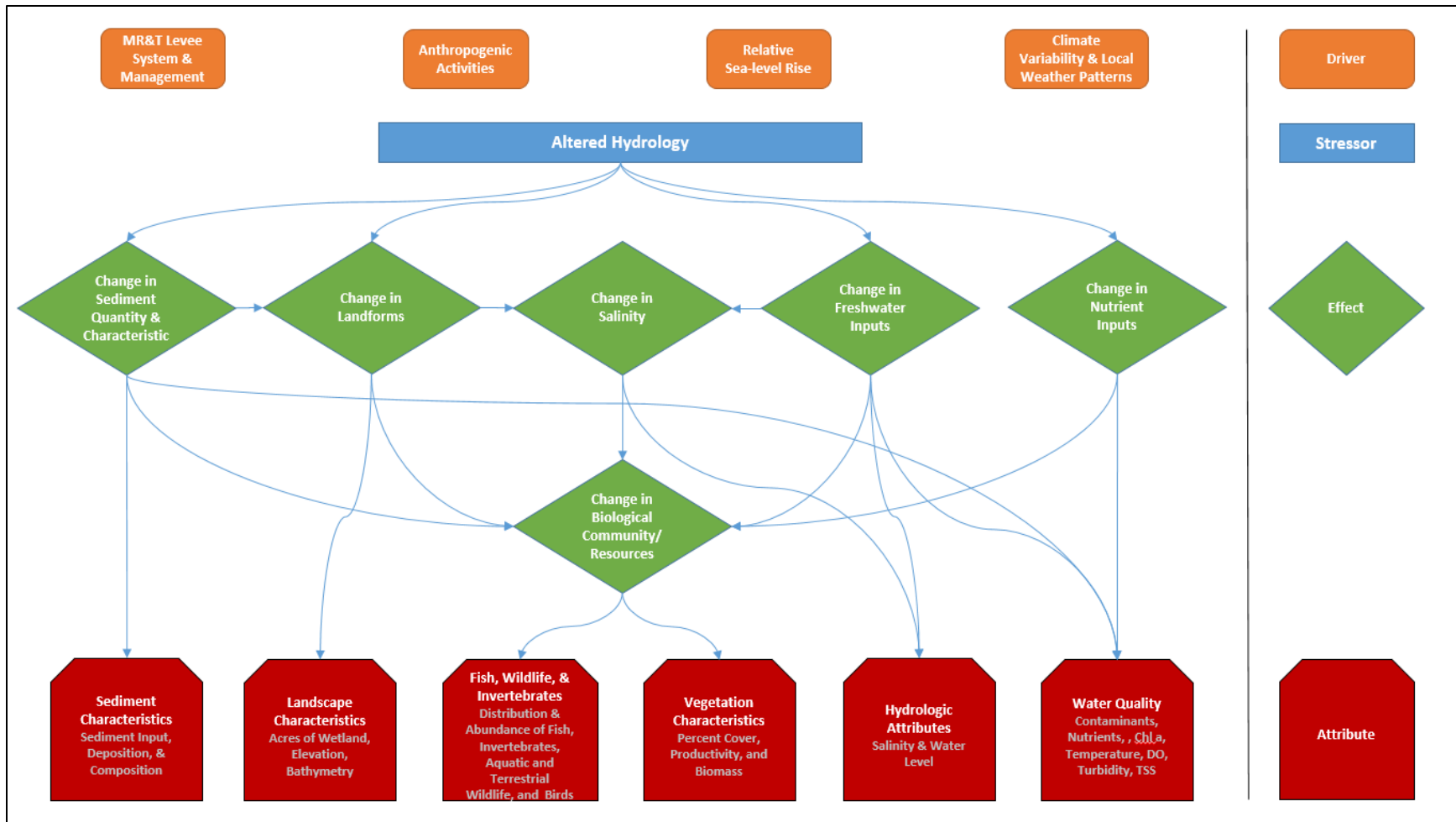
Conceptual ecological models (CEM) are simplified, qualitative illustrations of the general relationships among the essential components of the ecosystem. CEMs help build understanding and consensus regarding the set of working hypotheses that explain the current natural system and the potential effects of the project on that system. The development of the CEM also helps to identify critical uncertainties and potential options to reduce these uncertainties. However, there are several types of CEMs, and the relative utility of each type depends on the management purpose (Fischenich 2008).

For the development of the Project CEM, a large number of models that were developed for other restoration projects and programs in Louisiana and the other Gulf states were reviewed. Relevant components from those past efforts were incorporated into a new Project-specific CEM to portray the status of knowledge about the Barataria Basin ecosystem and determine the components of the ecosystem that are most critical to monitor. The spatial scale of the Project CEM is the Barataria Basin, and the temporal scale is a 50-year Project timeframe and planning horizon.

The Project CEM starts with the idea that historical hydrologic alterations underlie the impaired status of the ecosystem. The CEM represents the current condition where levees and other anthropogenic alterations, sea level rise and climate change combine to create a dysfunctional system compared to pre-European settlement. The model can also represent the potential for a sediment diversion project to address some of those hydrologic alterations and associated impacts.

#### **1.3.2. Components of the Conceptual Ecological Model**

To inform this Plan, the Project partners developed a driver-stressor type of CEM (Fischenich 2008) that generally follows the top-down hierarchy similar to CEMs developed for Louisiana Coastal Area Program projects (e.g., CPRA and USACE, 2010, 2011). This CEM (Figure 1.3-1) identifies specific external *Drivers* and *Stressors* on the existing Barataria Basin, the *Effects* of those drivers, or processes occurring within the ecosystem, and the physical, chemical, biological, and/or ecological *Attributes* that can best serve as indicators of ecosystem condition. In doing so, the CEM helps identify the specific parameters to monitor to assess ecosystem change (both benefits and impacts) resulting from the proposed actions.



**Figure 1.3-1.** Conceptual Ecological Model for the Barataria Basin Sediment Diversion project developed by the Trustee Implementation Group’s Monitoring and Adaptive Management Team. The Attributes listed are a subset or examples of the full set of monitoring parameters proposed in Section 3.

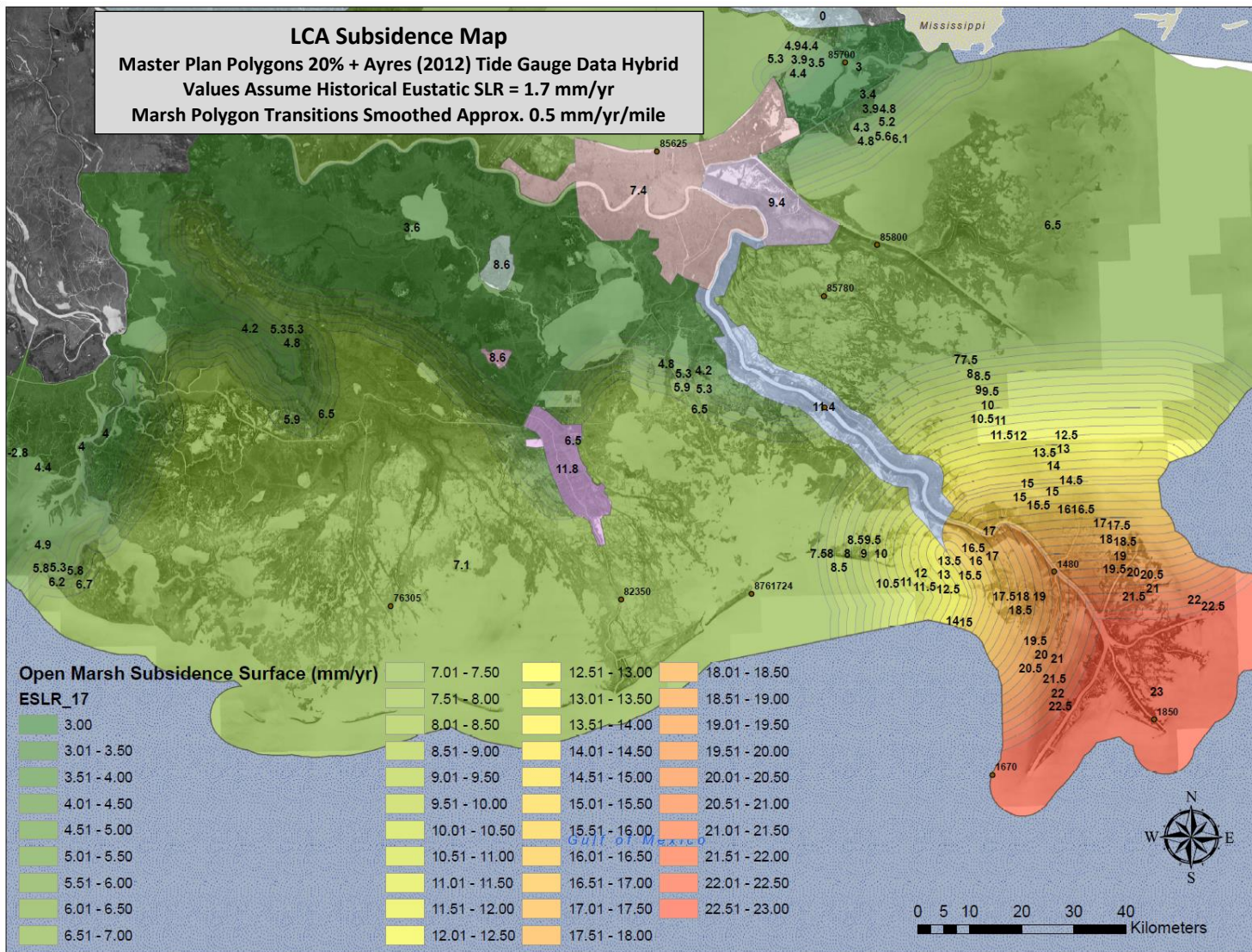
### 1.3.2.1. *Drivers*

Drivers are the major, natural and/or anthropogenic external forces that influence and govern system outcomes. The drivers that were identified as the major influences on the Project are

- The Mississippi Rivers and Tributaries (MR&T) Levee System and Management: Land loss in the Mississippi River Delta has been primarily attributed to levee system construction limiting the flow of sediment and water into embayments and surrounding wetlands.
- Anthropogenic Activities: Additional alterations to the Barataria Basin landscape besides the construction of levees have further altered hydrologic patterns. Land loss within the basin has been exacerbated by canal construction; conversion of natural habitat to agricultural, industrial, and other suburban and urban uses; and catastrophic events like the DWH oil spill.
- Relative sea level rise (RSLR), which refers to local perceived rates of SLR once Gulf-regional SLR (GRSLR) is combined with either uplifting or subsiding vertical land motions. Local rates of RSLR may be lesser or greater than regional SLR depending on the nature and magnitude of those land motions. For project-effects modeling associated with the 2017 CMP, 2015-2065 GRSLR scenarios varied between 0.43 and 0.83 m (Pahl, 2017). Plausible subsidence across southeastern Louisiana varies substantially (Figure 1.3-2).
- Climate Variability and Local Weather Patterns: Climate has been described as “what you expect” and weather as “what you get.” Specific forces that result in changes in local weather patterns drive climate and climate change. The primary driving force of annual climate cycles is the sun, while longer and more aperiodic climate cycles like the Atlantic Multi-decadal Oscillation (AMO) and El Nino-Southern Oscillation (ENSO) influence hurricane activity and rainfall patterns and intensity. Climate change is affecting these patterns by the heating of the ocean, causing a rise in sea-surface water temperature and thermal expansion affecting SLR. Local weather patterns affect rainfall, evapotranspiration, wind, and temperature. Rainfall and evapotranspiration affect the amount of freshwater within Barataria Basin through direct effects on the basin and driving sources of freshwater (surface and groundwater) entering the system, influencing local salinities both seasonally and between years. Wind can drive substantial fluxes of water into and out of estuarine systems. North winds can force water out of estuaries and south winds can raise water levels by up to 0.5 meters (Reed et al., 1995). Wind-driven tides can override lunar tidal cycles. Wind-driven waves can cause marsh erosion and re-suspend sediment (Allison et al., 2017). As described above, temperature affects climate cycles; on the local level, temperature is an important factor controlling the productivity, biomass and composition of phytoplankton, vegetation, and faunal species (Nuttle et al., 2008).

### 1.3.2.2. *Stressors*

Stressors are natural systems physical or chemical changes produced or affected by drivers, and are directly responsible for significant changes in biological components, patterns, and relationships in natural systems. Altered hydrology is the primary stressor manifested in Barataria Basin because of the interactions between the aforementioned drivers, and that describes the intended effects of the Project. The Project would construct a controlled breach in the levee system, resulting in the reconnection of the MR to the Barataria Basin and re-establishment of sustainable deltaic processes within the Basin.



**Figure 1.3-2.** Estimates of plausible, spatially-variable subsidence developed for the Louisiana Coastal Area Program Delta Management Feasibility Study investigations were used as inputs for the Delft3D Basin-wide Model-based Project alternatives analysis.

### 1.3.2.3. *Effects*

Effects are biological, physical, or chemical responses within the natural system that are produced or affected by Stressors. The Effects listed in Figure 1.3-1 represent those physical and ecological phenomena whose patterns of occurrence are potentially attributable to alterations in Barataria Basin hydrology. The processes that are initially affected by changes in hydrology would be the amount of sediment, freshwater, and nutrients entering Barataria Basin. Altering sediment delivery through diversion operation would change Basin landforms, beginning with delta formation at the outfall. Altering freshwater inflow would change the salinity in parts of the Basin, especially in the outfall area. These alterations along with changes in nutrient inputs would affect Basin flora and fauna.

### 1.3.2.4. *Attributes and Relevant Monitoring Parameters*

Attributes are a representative subset of all potential elements or components of natural systems. Attributes may include populations, species, communities, or chemical processes. Changes in the processes have effects on the attributes of Barataria Basin, including the landscape, sediment, fauna, flora, water quality, and hydrology. The specific parameters that will be assayed to define and describe these attributes are discussed in more detail in Section 3, and include

- Landscape Characteristics
  - Acres of Wetland, by type (freshwater swamp; fresh + intermediate, brackish, and salt marsh; submerged aquatic vegetation (SAV), etc.)
  - Wetland Surface Elevation
  - Estuarine Open Waterbody Bathymetry
- Sediment Characteristics
  - Sediment Input
  - Organic Matter Composition
  - Mineral Sediment Composition
- Fish, Wildlife & Invertebrates
  - Distribution and Abundance of Fish, Invertebrates, Aquatic and Terrestrial Wildlife (including dolphin health), and Birds
  - Alligator Nest Success
- Vegetation Characteristics
  - Percent Cover
  - Productivity
  - Biomass
- Hydrologic Attributes
  - Salinity
  - Water Level
- Water Quality
  - Contaminants
  - Nutrients
  - Chlorophyll (Chl) a
  - Temperature
  - Dissolved Oxygen (DO) Content
  - Turbidity
  - Total Suspended Sediments (TSS)



### 1.3.2.5. *Use of the Conceptual Ecological Model*

Tracing any single path in Figure 1.3-1 from Drivers through Attributes represents an individual logic flow through the CEM. A survey of each unique logic flow through the model by members of the LA TIG MAM Working Group found that some flows are more certain than are others. Other logic flows are burdened by a rapid accrual of uncertainty from top to bottom; especially longer logic flow paths and those flows that rely on processes or attributes that are driven by multiple variables.

For example, consider the relatively short logic flow through the model that states

“Levees may lead to  
→Altered Hydrology, which may result in a  
→Change in Freshwater Inputs, which can be monitored through  
→Hydrologic Attributes.”

This is one of the shortest logic flows in the model (three steps from top to bottom) and is one that the LA TIG MAM Working Group associated with a relatively low level of uncertainty. Contrast that to the logic flow that states

“Climate Change may lead to  
→Altered Hydrology, which may result in a  
→Change in Sediment Quantity & Characteristic, which may result in a  
→Change in Landforms, which may result in a  
→Change in Salinity, which may lead to a  
→Change in Biological Community and/or Resources,  
which can be monitored through  
→Vegetation Characteristics.”

This is one of the longest logic flows in the model (six steps from top to bottom). It also involves three processes (Change in Landform, Change in Salinity, and Change in Biological Community/Resources) that have multiple influencing variables, any one of which is providing only a partial influence on the Process in question. The Working Group associated longer, more complex logic flows with more uncertainty.

The LA TIG MAM Working Group generally agreed it would not be appropriate to focus adaptive management decision making for the Project strictly around the logic flows in the model, since the CEM does not explicitly identify uncertainties, particularly human system uncertainties. Instead, the group decided that the value in the CEM is as a broader and more general representation of the potential influences of Altered Hydrology on the monitoring parameters chosen to represent specific ecosystem Attributes.

## 1.4. Sources of Critical Uncertainty

The CEM represents a simplification of many phenomena that will be occurring in and interacting with the landscape through time. While information flow through the CEM may appear deterministic and predictable, it is only so within the confines of the current state of the science regarding each of the Drivers, Stressors, Effects, and Attributes represented in Figure 1.3-1. In reality, uncertainty exists around every individual factor and process represented in the CEM. While the Project partners strove to

account for those uncertainties, they do remain, and constrain both the conceptual and numerical modeling frameworks.

#### **1.4.1. Environmental Driver Uncertainties**

Each of the drivers in the CEM has a certain level of uncertainty both as to how that driver will change in the future and as to how the diversion will interact to bring any change in that driver. For example, the purpose of the MR levee system and management is to prevent flooding. Much work is occurring during Project Engineering and Design (E&D) to ensure that neither construction nor operations of the Project will compromise that purpose. The levees, however, resulted in channelizing flow within the MR&T Project system rather than allowing flow into the estuaries via overbank flooding and crevasses, thereby limiting the delta-building process. More natural delta building has continued where the MR&T levees have been degraded (Bohemia Spillway) or absent (in the modern Balize Delta lobe downriver of Venice, LA). However, at present the mouth of the primary river distributaries in the Balize Delta (Pass a Loutre, South Pass, Southwest Pass) are on the edge of the continental shelf near the transition to the continental slope, which constrains further lateral expansion of subaerial wetlands.

Relative sea level rise, climate change, and local weather patterns likewise have substantial residual uncertainties. The 2017 CMP reviewed and used the most recent projections of GRSLR (Pahl 2017) and developed a lower and upper bound scenario for sensitivity and modeling. Reed and Yuill (2017) also developed Moderate and Less Optimistic Scenarios for subsidence by region. However, while the plausible outcomes of GRSLR and subsidence are projections informed by the current scientific literature, the actual Gulf-regional and relative SLR rates that the Deltaic Plain will experience over the next 50 years are uncertain.

The MR watershed encompasses 40% of the contiguous U.S., which means that the climate and weather patterns that affect the diversion include those in the central U.S. The seasonality of weather produces generally-known temperature and weather patterns, including the generally-predictable hydrograph of the MR flow that will be used in the operation of the diversion. There is also a general predictability in the seasonality of extreme events such as winter fronts and hurricanes. Longer-term intensity and location of impact of those events is less predictable, as is how climate change may affect precipitation patterns within the MR basin, frequency of high flow events.

Climate patterns provide some level of predictability of effect, although specific recurrence intervals are more correctly defined as temporally aperiodic. On short timescales, the ENSO has a predictable effect on temperature and rainfall in regions of the U.S. On longer timescales, the North Atlantic Oscillation and AMO influence temperature and precipitation, as well as extreme events, on what are broadly  $\pm 30$ -year cycles. Over the longer term, gradual but persistent warming from climate change has the potential to alter current climate patterns. The annual cycle of Project operation planning provides the opportunity to identify shifts in patterns of climate and weather, and to incorporate new scientific knowledge, to plan for operations in the next year.

#### **1.4.2. Uncertainty in the Degree of Altered Hydrology (Stressor)**

Leveeing of the Mississippi River altered natural hydrology by hydrologically isolating the Barataria Basin from the river. To reverse that alteration, the proposed Project structure design relies on the difference between the stage of the MR and that of the Barataria Basin receiving waters (head differential) to facilitate the diversion of river water and the sediments and nutrients therein. As such, the most

important assumption governing Project structure operations, in that it drives the presumed head differential, is the MR hydropattern. For the alternatives analyses in support of the FEIS, the historical 1964-2013 Mississippi River hydrograph was put into the Basin-wide Model as the MR condition for the 2020-2070 Project analysis period. It is highly likely, if not a near certainty, that the 1964-2013 hydrograph will not be the actual river condition during the first 50 years of Project operations. Thus, the actual schedule of opening and closing the diversion beyond the base flow remains highly uncertain because it will depend on actual MR stages throughout the Project's operational life.

#### **1.4.3. *Uncertainties in Responses of Environmental Resources to Project Inputs***

There is a substantial amount of uncertainty surrounding individual physical and ecological phenomena represented in the CEM. Uncertainties of environmental resource response predominantly lie within the effectiveness of the diversion in transporting riverine sediment, freshwater, and nutrients into the receiving basin. Uncertainties associated with the calculations of critical model variables and how they influence key model outputs remain. The actual balance between land building and water quality impacts is also uncertain. Continued baseline and future effectiveness monitoring (Section 3) will improve the predictability of resource response. Future marsh experiments in controlled environments and in greenhouses, such as those conducted in the past by Graham and Mendelssohn (2014) and Poormahdi et al. (2018), can lead to a better understanding and predictability of how forming delta marshes incorporate the sediment and nutrients from the diversion. For now, uncertainties will be cataloged by the Project AM team (Section 12) for determination of priority and source of funding. Uncertainties are described in more detail in Section 4, and a learning strategy to address each uncertainty is identified in Table 4.1-4.

#### **1.4.4. *Uncertainties in Human Systems Response***

Human community or socio-economic attributes (also known as human dimensions data) are priority datasets for management decision-making. However, the complexity in meaningfully collecting sociological data and the substantial uncertainty in either conceptual or numerical models has generally limited their formal inclusion in AM schemes.

Outputs from the Habitat Suitability Index (HSI) models, and even some of the Delft model outputs, are generally incompatible with available human system models, which ideally would be used to project catch or some other measure of resource exploitation based on population size, on which to underpin subsequent socioeconomic effects. As well, there is, in general, a very high degree of uncertainty in trying to model human response to projected biophysical and resource changes in either individuals or communities. Critical to this uncertainty is the ability or willingness to adapt, both of which can vary widely between communities, and even between individuals within a particular community.

### **1.5. Use of Numerical Models within Project Adaptive Management**

#### **1.5.1. *Numerical Models Used in Project Planning***

Project alternatives analysis was largely (but not solely) based on comparing the results of a suite of numerical models, within which ecosystem responses to proposed Project alternatives were analyzed. Numerical models were also used to inform Project E&D and MAM Plan monitoring and evaluation. The

Project modeling suite contained the following specific numerical models.

- Version 3 of the Delft3D Basin-wide Model, developed by TWIG, simulated morphological changes and water quality-related dynamics in the Mississippi River, the Barataria and Breton Sound basins and the Balize Delta (Sadid et al., 2018). The Delft3D model is a modeling suite developed by Deltares (2014) and designed to model “hydrodynamics, sediment transport and morphology and water quality for riverine, estuarine, and coastal environments” (Sadid et al., 2018). The Basin-wide Model integrates hydrological, morphological, nutrient, and vegetation dynamics. Vegetation dynamics were modeled using two specific Louisiana vegetation models to simulate the spatial distribution of wetland vegetation and allocate above- and below-ground biomass.

The Louisiana Coastal Area (LCA) Ecosystem Restoration Study’s Mississippi River Hydrodynamic and Delta Management Feasibility Study (MRHDMS) originally developed the Basin-wide Model. Alternatives evaluations for the Project’s EIS were informed by projections of how conditions would change over 50 years, expressed as the difference between a “future with project” (FWP) and “future without project” (FWOP) scenario, where each of the proposed alternatives were modeled as separate FWP scenarios.

- A Delft3D-based Diversion Outfall Model, first developed by TWIG and subsequently adapted by the Project Design Team (PDT, specifically Baird Engineering, Inc.), predicted input of river flows at the discharge location, suspended sediment flow rate and duration, and sand and silt volumes conveyed into the basin for land building. The spatial domain of the Diversion Outfall Model is smaller geographically but higher in resolution than the Basin-wide Model, allowing for model use for Project E&D.
- The Advanced Circulation Model (ADCIRC) estimated the wave environment and propagation of storm surges in Barataria Basin resulting from landscape changes projected to result from the Project alternatives. Originally developed by Drs. Rick Luettich and Joannes Westerink, “ADCIRC is a system of computer programs for solving time dependent, free surface circulation and transport ...” (<https://adcirc.org/>). ARCADIS runs ADCIRC for the Project partners.
- HSIs for a set of 11 aquatic and four terrestrial species or species groups project the response of higher trophic levels to proposed Project alternatives, and inform both the Project EIS and adaptive management. Some of the HSIs originated with the Department of Interior in the mid-1980s, while others were developed and updated to inform the State of Louisiana’s Coastal Master Plan. Inherent to the nature of HSIs is that they only predict the suitability of a habitat, not actual habitat occupation by organisms, organismal populations or species biomass. As well, many of the available HSIs for commercially-valuable fish and shellfish species only provide suitability projections for certain life-history stages, such as larvae and/or juveniles, and not for the adults that are generally the targeted resources in coastal fisheries.
- Two Barataria Basin-specific ecosystem response models, the Comprehensive Aquatic Systems Model (CASM) and Ecopath with Ecosim (and with Ecospace; EwE), were originally developed for the LCA MRHDMS, and are being used to inform the Project EIS. Given the current predictive limitations of each model (Ainsworth et al., 2018), they were used to characterize the existing food web structure of the estuary. This helped understand potential pathways for change and informed the monitoring component of this plan.

- The Project Socio-Economic Working Group utilized the IMPLAN Company’s Impact Analysis for Planning (IMPLAN) software to develop estimations of the benefits and impacts of Project alternatives on human systems. IMPLAN uses output datasets from the Basin-wide Model, ADCIRC, and the HSIs as input datasets for its calculations, as well as additional socio-economic data developed specifically for the Barataria Basin.

The uncertainty structure around the model suite was a factor of

1. Uncertainty associated with empirical datasets that served as inputs to each model. For example, there was uncertainty associated with the water level and salinity datasets (measurement error) used to initialize the Basin-wide Model; and
2. Uncertainty associated with the ability of any one individual model to predict the response of a specific parameter. For example, we have already clarified that the uncertainty of Delft Basin-wide Model estimates of salinity at a particular space and time was on average +/- 3.5 parts per thousand. This uncertainty then defined the uncertainty of a specific output dataset, which then served as an input dataset to the next subsequent model in the chain.

Uncertainties associated with any one model in the modeling suite perpetuate with information exchange with the next subsequent model, and so the total uncertainty compounded for any one alternative was evaluated through the sequence of models. Evaluations of the results of individual models without the acknowledged compounding uncertainty from previous models risk subsequent false assumptions of model output precision.

In the case of alternatives modeling for the Project EIS, there were uncertainties in the input datasets feeding the Basin-wide Model, and inherent limitations in the model to predict salinities, water levels, land building, and other outcomes. Model outputs should therefore be considered projections, not predictions, because they represent *what would have happened* had the set of conditions in the model been in place at the onset of a particular model production run, rather than a guarantee of *what will happen*. Accordingly, alternatives analysis was, for the most part, limited to the comparison between alternatives, e.g., FWP vs. FWOP, or FWP alternative A vs. FWP alternative B.

CPRA therefore prefers that the numerical modeling conducted for the FEIS not be used directly or solely to establish specific temporal benchmarks of project performance upon which the Project MAM plan will be based. These projections better serve as order-of-magnitude comparative benchmarks for a constrained set of biophysical parameters (e.g., amount of sediment transported through the Project structure), with perhaps some adjustment to acknowledge the model uncertainties.

### **1.5.2. Use of Data and Numerical Models to Inform Project Monitoring and Adaptive Management**

Complex models such as the CASM and EwE ecosystem models listed above are also useful for identifying proxy variables for monitoring when the specific metric of interest cannot feasibly or effectively be monitored directly. For example, the EwE and CASM models will be used to identify additional future monitoring parameters, locations, and frequency (e.g., long-term biomass monitoring, lower trophic level organisms, detritus) to evaluate the Project’s influence on food web dynamics. Those additional monitoring parameters may be incorporated into this MAM plan.

Numerical considerations of the data for monitoring parameters binned as Range variables in Section 4 could also be informed by historical data from within the Barataria Basin, although Project operations may lead to data values in time and space outside the available historical ranges. For the remainder of the objectives-related monitoring parameters outlined in Section 3, trends from the modeling are likely more appropriate points of comparison. Operational planning will occur on an annual cycle, allowing an AM approach to test and understand the most effective actual operation of the diversion, considering the uncertainties of annual river flow and how the climate and weather patterns drive basin hydrology.

Throughout the operational life of the diversion, CPRA will periodically utilize numerical modeling to better examine system responses, confirm project performance assumptions that are not directly measurable, and test the potential effects of adaptive operational modifications. The schedule for that modeling will depend on the frequency of Project operations and evaluations of the supporting monitoring data (Section 4).

The Project Adaptive Management Team (AMT) will utilize the most appropriate modeling tools to address AM-related questions. Currently, the CASM and EwE models are being used to assess baseline condition and, in the future, may be used to assess project-driven effects such as potential changes to aquatic biodiversity, trophic linkages and pathways, and overall assemblage structure. Additional refinements may be made to make the models more suitable for evaluating potential adaptive management actions. To accomplish this, additional modifications to the current ecosystem modeling tools must be accomplished to determine model predictive ability to examine potential adaptive management options. Initially, the AMT will focus on the EwE and CASM models used in project planning. In the future, the team may evaluate additional models for use in adaptive management.

To address the use of the models to predict changes under with-project conditions the EwE and CASM models will undergo sensitivity analyses to analyze response of the modeled food web to changes in salinity. A specific series of steps for a multi-model analysis will be identified to improve predictive capabilities and enable bracketing of the uncertainty associated with model projections. For example, two benthic-to-pelagic metrics, biomass and productivity, will be added as output to the two models and examined as time-series outputs including inter-annual and seasonal variability, to understand whether the metrics are sensitive to year-specific conditions or instead are very consistent between years and therefore unlikely to vary in the future. The variability in these metrics will then undergo a statistical analysis to relate them to the environmental conditions used as input to the models. New simulations will be performed by varying environmental conditions in a systematic way to attribute responses of the food web to changes in salinity.

The EwE and CASM models described above will be periodically updated with data collected during pre-operations and post-construction of the Project. Pre-operations data will be used to refine responses of the individual components to environmental drivers. Post-construction monitoring data will be incorporated into model refinement to test, predict, and evaluate responses under with-project conditions.

Periodic evaluations of the models listed in Section 1.5.1, updates to working models including incorporation of new data, the state of the science regarding new models that may be developed over the Project life, and the appropriate use of those existing or new models, will be planned and led by the AMT.

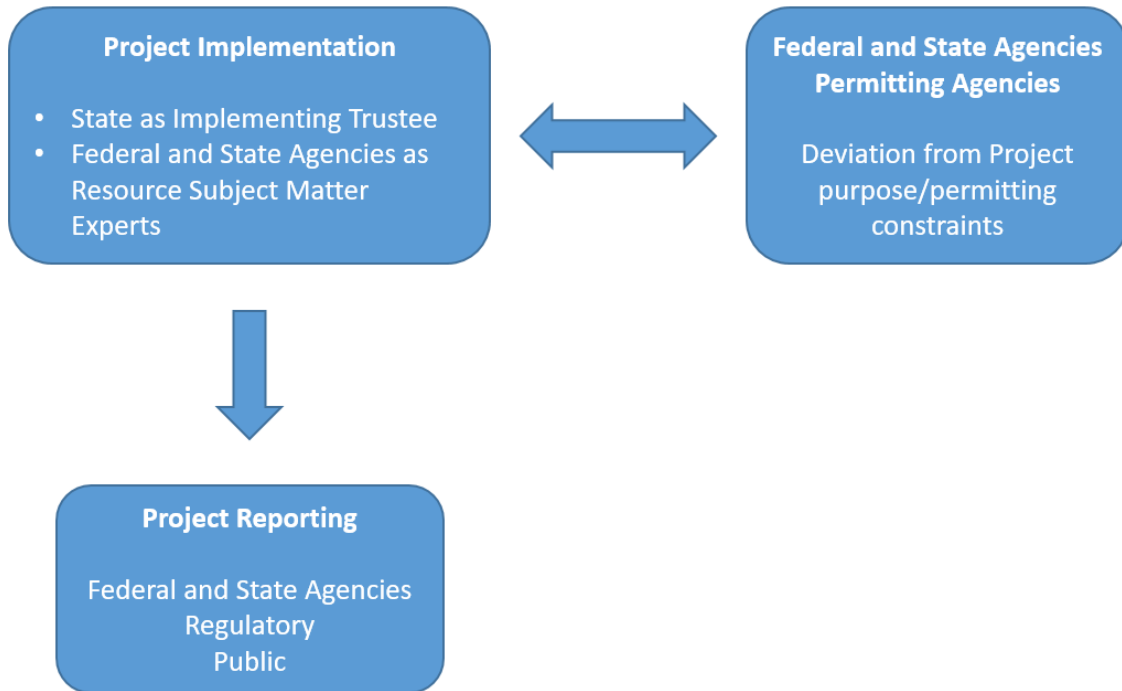


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## 2. PROJECT OPERATIONAL AND ADAPTIVE MANAGEMENT GOVERNANCE

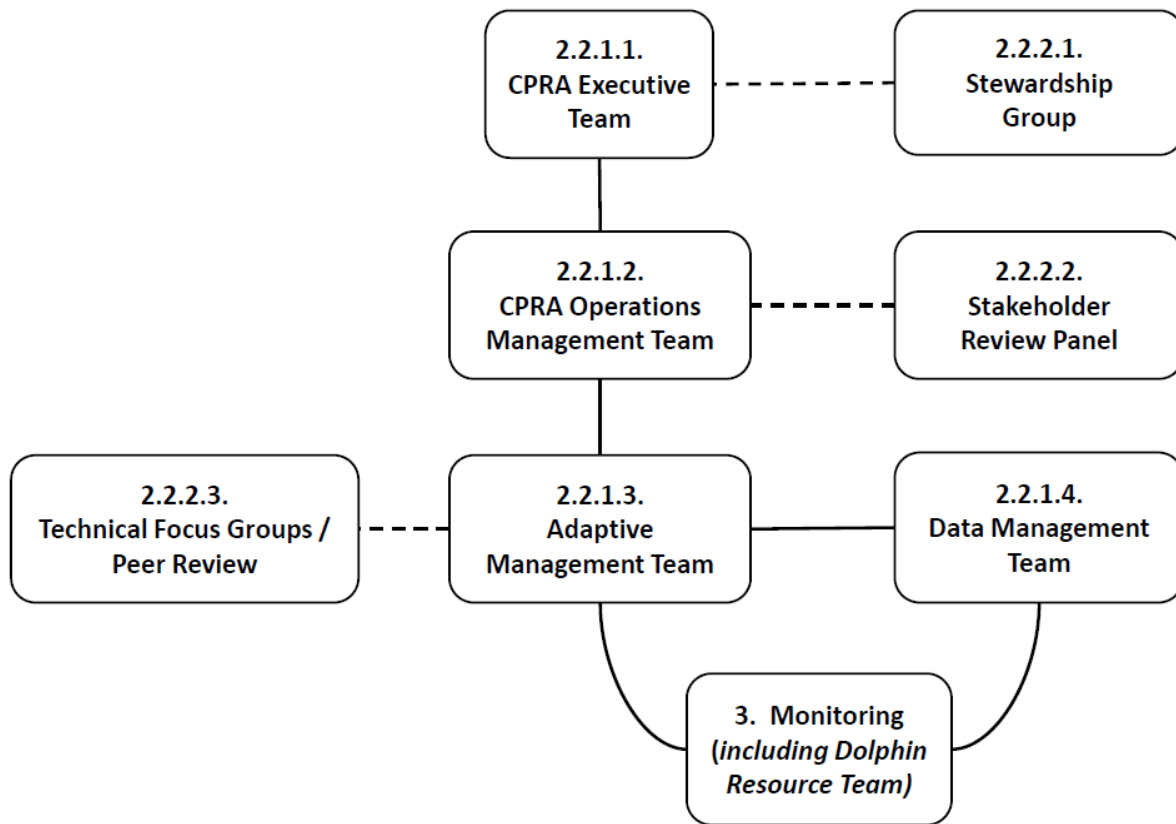
### 2.1. Description and Scope

This section outlines the makeup, roles, and responsibilities of the State of Louisiana (CPRA) as the NRDA Implementing Trustee responsible for the governance of the Project, as well as the non-State entities that will inform the implementation of this plan. Figure 2.1-1 shows the general relationship between CPRA as the Implementing Trustee and the LA TIG. CPRA will have responsibility for the operation of the Project, within the limits of the permits and permissions granted to the Project and within the Project purpose, as found in the PDARP (DWH Trustees, 2016), and subsequent Restoration Plans that examine and authorize the Project. Proposals for operations or adaptive management decisions that would be outside the Project purpose or permitted constraints would require consultation with the LA TIG Agencies and Regulatory authorities.



**Figure 2.1-1.** Relationship between the State of Louisiana and Federal Agencies regarding governance of Project operations and adaptive management decision making. Section 7 contains information on Project Reporting.

In the context of the Project, governance refers to how CPRA, with input from other stakeholders, will make decisions over the life of the Project (Figure 2.1-2). Decisions will include, but not be limited to, continuation of and changes to Project operations, riverside management, monitoring, maintenance, and adaptive management actions.



**Figure 2.1-2.** Information flow between the Project governance elements outlined in this section. Numbers refer to sections of text that further describe each governance element or activity. Solid lines indicate information flow underpinning CPRA Project operations and adaptive management decision making. Dashed lines indicate advisory opportunities from outside CPRA.

## 2.2. Governance Structure

### 2.2.1. Project Implementation Teams

#### 2.2.1.1. CPRA Executive Team

##### 2.2.1.1.1. Membership

- Executive Director
- Deputy Executive Director
- Engineering Division Chief
- Operations Division Chief
- Planning & Research Division Chief
- Project Management Division Chief

#### 2.2.1.1.2. Responsibilities

- Approve overall recommendations and annual plan from the Operations Management Team (OMT) and AMT for Project operations; consider adaptive management actions on an event, annual, and multi-year timeline (see Section 5 for additional detail).
- Adopts the Project Annual Operations Plan into the larger CPRA Annual Plan to authorize action and funding
- Interacts with CPRA Board and State Legislature
- Interacts with Stewardship / Associated Actions Group
- Chairs and hosts the public meetings of the Stakeholder Review Panel

#### 2.2.1.2. *Operations Management Team*

##### 2.2.1.2.1. Membership

- CPRA Operations Division/Diversion Program Assistant Administrator
- CPRA Project Engineer
- Additional State Agency support as needed

##### 2.2.1.2.2. Responsibilities

- Operates structure in accordance with the water control plan: works on day-to-day issues of diversion operation.
- Works with AMT team on efficiency and project performance issues.
- Conducts public and stakeholder review panel meetings.
- Receives information from data team, public information/comments from panel (described below), recommendations from panel
- Develops draft and final annual operations plans, maintain decision log, out-facing data reports, assessment.
- Considers AMT event-based and annual recommendations; implements directly or further discusses recommendations with the CPRA Executive Team.
- Maintains the Project Decision Tracker, which will be a living document, available for public view, that tracks and documents potential management decisions, outcomes, and rationales. This tracker will include all suggestions and comments from public input, and document how each was addressed by CPRA

#### 2.2.1.3. *Adaptive Management Team*

##### 2.2.1.3.1. Membership

- CPRA Adaptive Management Lead and team
- CPRA Executive Division Senior Scientist
- CPRA Operations Division Monitoring Manager and Project Team
- CPRA Planning & Research Division Senior Scientists
- CPRA Planning & Research Division Liaison
- State and Federal Agency Technical Representatives for Aquatic Resources

#### 2.2.1.3.2. Responsibilities

- Focuses on the long-term achievement of the Project's performance and reducing Critical Uncertainties through Learning Strategies.
- Develops and submits event-based and annual recommendations, such as changes to operations, data collection, or other adaptive modifications, including MAM Plan revision, to the OMT.
- Manages the models and outputs. In addition, they may be called upon to evaluate questions and/or issues that arise during operational periods.
- Authors the periodic Adaptive Management Report that provides a longer-term view for planning purposes, including model outputs and evaluations of potential project features, alternate operations regimes, etc. The AMT may engage Technical Focus Groups (2.3.2.3.) to provide input and/or review of the report. See Section 5.2.3 for the planned reporting schedule.
- Directly authors and/or manages development of issue-specific reports to address questions and concerns that arise from stakeholders. The AMT may convene Technical Focus Groups (2.3.2.3) to assist in evaluation and reporting as needed.
- Coordinates with overall Coastal Program Project Planning.

#### 2.2.1.4. *Data Management Team*

##### 2.2.1.4.1. Membership

- CPRA Planning & Research Division/Research Section Data Manager
- Additional State Agency support

##### 2.2.1.4.2. Responsibilities

- Manages (collate, host and archive) project monitoring data.
- Manages and/or directly conducts Project data Quality Assurance/Quality Control (QA/QC).
- Works with the OMT and AMT to develop data reports and data interpretations and assessments.
- Works with the AMT, Technical Focus Groups and/or the External Peer Reviewers (2.3.2.3).

### **2.2.2. *Other Teams***

#### 2.2.2.1. *Stewardship Group*

##### 2.2.2.1.1. Membership

- State and Federal agency representatives engaged in implementation of stewardship measures.

##### 2.2.2.1.2. Responsibilities

- Provides insight, comments, and guidance on the Annual Operations Plan as it relates to the effective implementation of Project stewardship measures.

#### 2.2.2.2. *Stakeholder Review Panel*

##### 2.2.2.2.1. Membership

- CPRA Executive Director or designee (*Chair*);
- Barataria-Terrebonne National Estuarine Program;
- Louisiana Mid-Continental Oil & Gas Association;
- Commercial fisheries:
  - Crab fisheries;
  - Finfish fisheries;
  - Oyster fisheries;
  - Shrimp fisheries;
- Federal agencies;
- Marsh property owners;
- Navigation;
- Parish governments:
  - Jefferson Parish;
  - Lafourche Parish;
  - Plaquemines Parish;
  - St. Charles Parish;
- Protected property owners;
- Recreational fisheries;
- State agencies:
  - Louisiana Department of Environmental Quality (LDEQ);
  - Louisiana Department of Health (LDH);
  - Louisiana Department of Natural Resources;
  - Louisiana Department of Wildlife and Fisheries (LDWF).

##### 2.2.2.2.2. Responsibilities

- Provide insight and comment on a draft Annual Operations Plan
- Share expertise and perspectives on short-term issues
- Disseminate information to other stakeholders / public (each group's representative will report back to their respective group as they see fit)

#### 2.2.2.3. *Technical Focus Group(s) / Peer Review*

##### 2.2.2.3.1. Membership

- Federal Subject Matter Experts (SMEs)
- State SMEs
- Non-agency (e.g., academic, non-governmental, private sector) SMEs

##### 2.2.2.3.2. Responsibilities

- Provide technical support and use in long-term project planning.
- Assist in the evaluation and interpretation of project monitoring



- External peer review of the Multi-year Monitoring and Adaptive Management Report, outside of the Technical Focus Groups, may be needed or desired
- Groups will be constituted and convened on an as-needed basis.
- Evaluate the state of science concerning adaptive management and tools for adaptive management

### **2.3. Data and Information Requirements**

It is important that project decisions are transparent and data and science-based to the extent possible. This will require:

- A Monitoring Plan that outlines monitoring for sediment delivery efficiency and both ecological and sociological response.
- Data Analysis: The AMT (2.3.1.3) will analyze the Project data. A data analysis plan that provides details on when, where, and how data will be analyzed and what will be produced as a result of the assessment(s).
- Project-specific recommendations for adaptive management actions based on the data assessments, with input from the Technical Focus Groups (2.3.2.3) as needed. Draft recommendations will be assembled into a draft operations plan. It will be important to address and incorporate, to the extent practicable, public input into the operation plan early in the process.

A Data Management Plan to describe how Project-specific data need to be managed to facilitate analysis (Section 7 of this Plan).

### **3. PROJECT MONITORING PLAN**

#### **3.1. Monitoring Plan Development**

This section describes the plans to collect pre-operations and post-construction data. With collaboration with the partner resource agencies, CPRA, as the Implementing Trustee, has developed the draft plan with guidance from the Monitoring and Adaptive Management Procedures and Guidelines Manual (DWH Natural Resource Damage Assessment Trustees 2017). The plan describes the types of sampling, methods, and other data that will be used to evaluate Project performance and natural system change and inform AM decision making (Section 4). Monitoring variables were selected to evaluate Project performance in meeting objectives, inform modeling and projection, and conform to accepted measurement techniques.

The pre-operations and post-construction monitoring plans have the following goals:

1. Outline the early deployment of monitoring equipment and sites to ensure the pre-operations conditions are adequately characterized prior to Project implementation;
2. Identify essential variables for evaluating progress towards meeting Project restoration objectives, detecting system change and improving analytical tools over time; and
3. Ensure the update or development of standard operating procedures and quality plans.

#### **3.2. Baseline and Project Monitoring Approach**

Pre-operations baseline data collection defines current conditions and trends to compare against observed changes in the system that will occur following initiation of operations. The 'Before-After-Control-Impact' (BACI; Underwood 1992, Smith et al. 1993) monitoring approach in areas anticipated to change is commonly applied with ecosystem restoration projects, and will be used to evaluate parameter data as they pertain to the Project objectives (see Section 4). The long-standing network of existing gauges and sample locations across the Barataria Basin will enable a robust baseline for the Project, against which to compare post-construction data. Additionally, the network of Coastwide Reference Monitoring System (CRMS)-*Wetlands* and System-wide Assessment and Monitoring Plan (SWAMP) sites across coastal Louisiana will be used to understand broader regional drivers and ecosystem trends that may be separate from Project effects. As described in detail below, some of the CRMS-*Wetlands* and SWAMP sites, together with to-be-constructed sites dedicated to Project effects monitoring, will also provide direct observations of Project effects.

#### **3.3. Monitoring and Assessment Design**

The sampling design for SWAMP and the additional project-specific sampling proposed herein meets requirements for assessment and AM in the following ways:

- The design provides the basis to reduce uncertainty, improve analytical solutions, and support effective decisions that meet the infrastructure, resource, and social requirements.
- The system variables are measured at frequencies and spatial scales to support evaluation of Project performance.

- Consistency with existing long-term data collection facilitates multiple comparisons (e.g., BACI, baseline, gradient) of Project data. Long-term sampling such as CRMS and the LDWF fisheries-independent monitoring program (FIMP) will provide a solid baseline that can be followed and estimated through the Project life.
- The SWAMP coast-wide spatial coverage increasingly will help separate otherwise potentially confounding regional processes (e.g., RSLR, temperature), event perturbations (e.g., storms, drought,) and climate cycles from real Project effects

The locations, types of data collected, and frequency of post-construction data collection will be reviewed and refined during the Project lifespan to improve operations (e.g., sediment capture from the river and sediment retention in the basin). Monitoring design refinement may involve

- identifying and addressing spatial or temporal data gaps,
- adding or modifying parameters (e.g., physical, biological, chemical, geologic),
- changing, adding and/or removing data collection station locations, and
- undertaking special research or studies (e.g., landscape hydraulic studies; habitat mapping).

### **3.3.1. *Sampling Stratification***

A stratified sampling approach will

- structure sampling based on known landscape or population (fish and wildlife, human) attributes,
- improve sampling efficiency and thereby reduce monitoring effort and costs, and
- reduce the uncertainty of population estimates within each stratum, which could reduce the number of plot measurements.

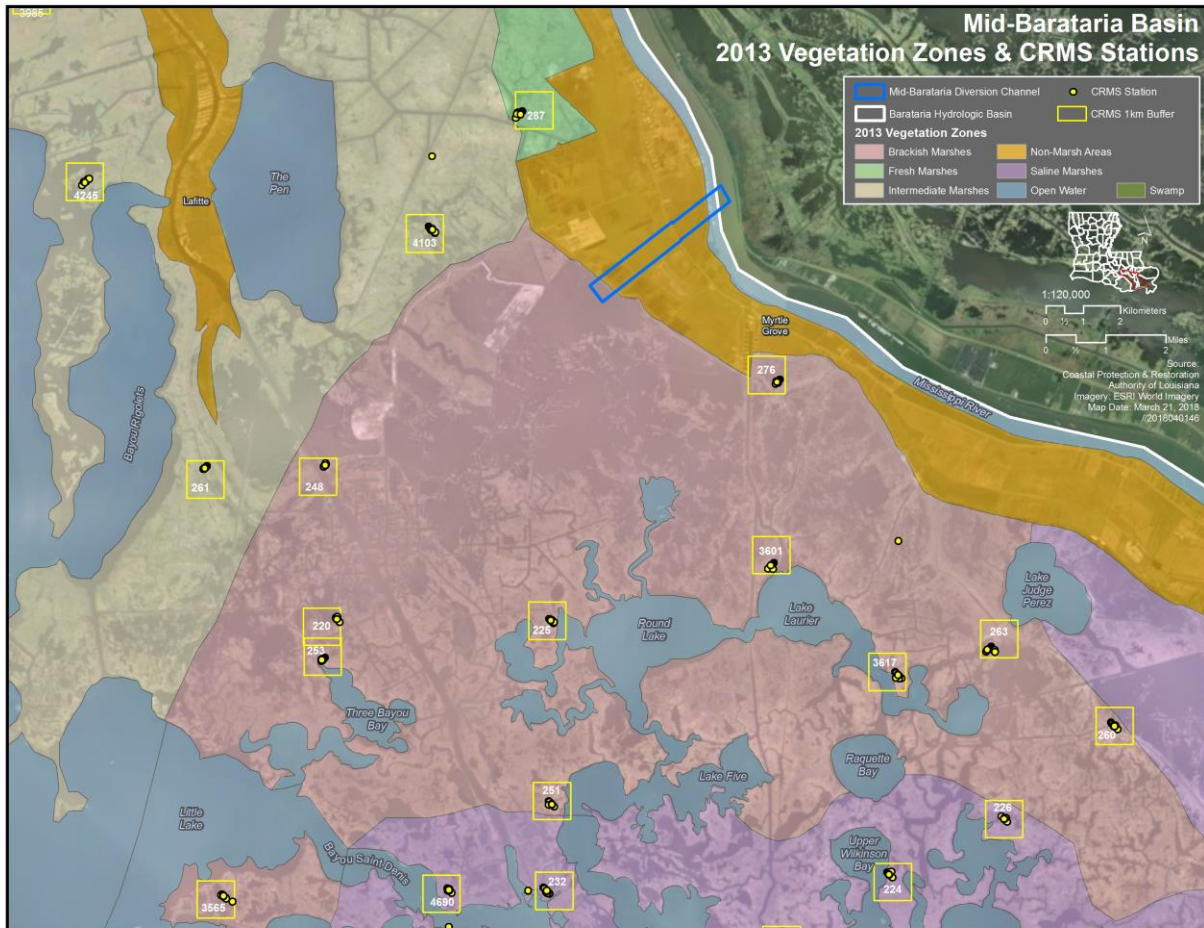
Given the dynamic nature of the environment and Project, fixed sampling locations may need to be changed before and after the onset of Project operations. Thus, re-stratification may be necessary over the life of the Project. Examples of habitat strata (Figure 3.3-1) could include, but are not limited to, created and natural wetlands, marsh type, and land/terrestrial vs. open water/aquatic.

### **3.3.2. *Estimation of Project Delta Development and Project Influence Areas***

The proposed Project would introduce sediment, freshwater, nutrients and flows into the Barataria Basin, beyond that already provided by the Davis Pond Freshwater Diversion Project and the Naomi and West Point a la Hache siphons. Operational histories of those other projects will need to be examined to be able to parse out Project effects from those other structures. The extent of the area of influence will be different for specific system resources.

To guide selection of locations for pre-operations monitoring where potential data gaps may occur, two areas of projected Project effects were defined. A smaller Project Delta Development Area (PDDA; Figure 3.3-2) was defined as the spatial extent that the Delft Basin-wide Model projected bed elevation differences would occur between the FWOP and the FWP alternative corresponding to the Applicant's Preferred Alternative (FWP/APA) of a 75,000 cubic feet per second (cfs)-capable diversion structure without associated terraces. A slightly larger Project Influence Area (PIA; Figures 3.3-3 and 3.3-4) was defined that approximates the geographical extent that the Basin-wide Model projected water level

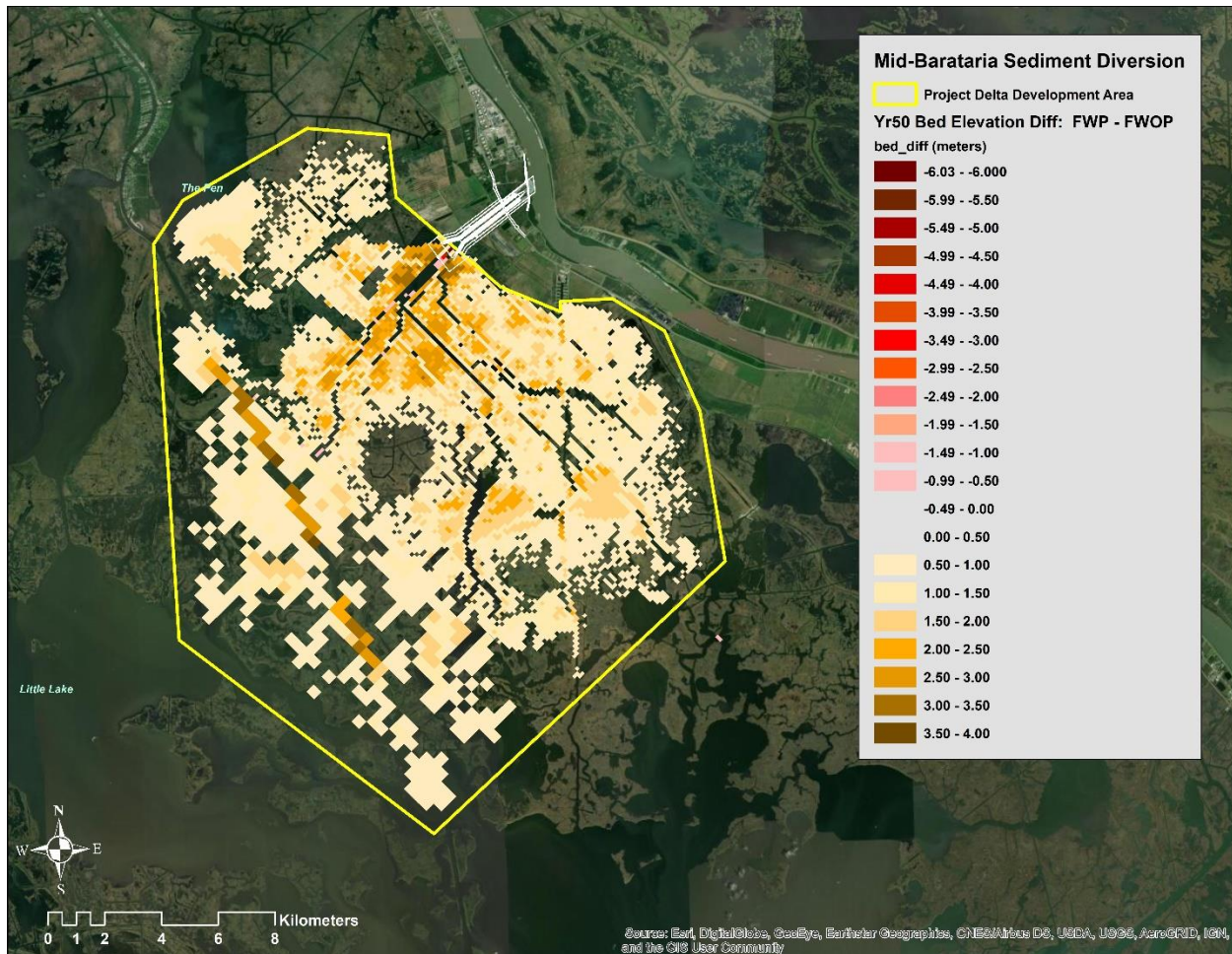
differences between the FWOP and the FWP/APA.



**Figure 3.3-1.** Example of supporting data to inform stratification and potential selection of additional sites based on vegetation community type from CRMS-Wetlands sites and other survey data in the diversion primary influence area. The blue polygon shows the location and orientation of the proposed Project conveyance channel.

While the geographic scope of the monitoring plan is therefore focused on the middle portion of Barataria Basin, it does include the entire basin. Additionally, the PDT is developing riverside monitoring. The Plan was developed with existing monitoring locations and expert knowledge, and is partially informed by statistical analyses completed coast-wide and for Barataria Basin (Hijuelos and Hemmerling 2016).

The monitoring plan includes continuous and discrete sampling of natural system variables, collecting and analyzing remotely-captured data (satellite, aerial), and periodic large-scale surveys. Continuous monitoring refers to the collection of data using automated data recording systems that are permanently deployed with constant and evenly-spaced sampling intervals (e.g., hourly). Discrete monitoring refers to on-the-ground collection usually conducted between longer intervals. Continuous sampling satisfies needs for rich temporal data, while discrete sampling allows for greater spatial information.



**Figure 3.3-2.** A Project Delta Development Area (yellow polygon) was defined around the Project outfall as the extent of the area where the Delft Basin-wide Model projected bed elevation differences greater than 0.5 meters between the Future without Project and the Future with Project for the 75,000-cfs Project alternative without terraces after 50-years of Project-effects modeling.

Project alternatives numerical modeling suggested that Project operations may have effects on ecosystem resources in the lower Breton Sound Basin and Mississippi River Balize Delta. Current plans are to rely on the existing SWAMP network sites to continue characterizing the status of those basins.

### 3.4. Data Sources

The field data to support assessment of baseline and project conditions for the Project have long-standing historic value and are expertise-driven.

#### 3.4.1. CPRA-Coordinated Monitoring Data

CPRA, cooperating State and federal agencies, and TWIG have contributed to the development and ongoing implementation of SWAMP, which is being implemented throughout the Louisiana coastal zone as a long-term monitoring program to ensure a comprehensive network of data collection activities is in place to support the development, implementation, and AM of restoration and risk-reduction projects. While the Barrier Island Comprehensive Monitoring (BICM) and CRMS-Wetlands programs have been



well established, SWAMP has also deployed monitoring stations in the bays, lakes, and bayous of the Barataria Basin to provide a more extensive spatial and temporal capacity to detect change and system function. The SWAMP monitoring design provides the framework upon which additional Project-specific locations and variables will be needed to evaluate Project effects.

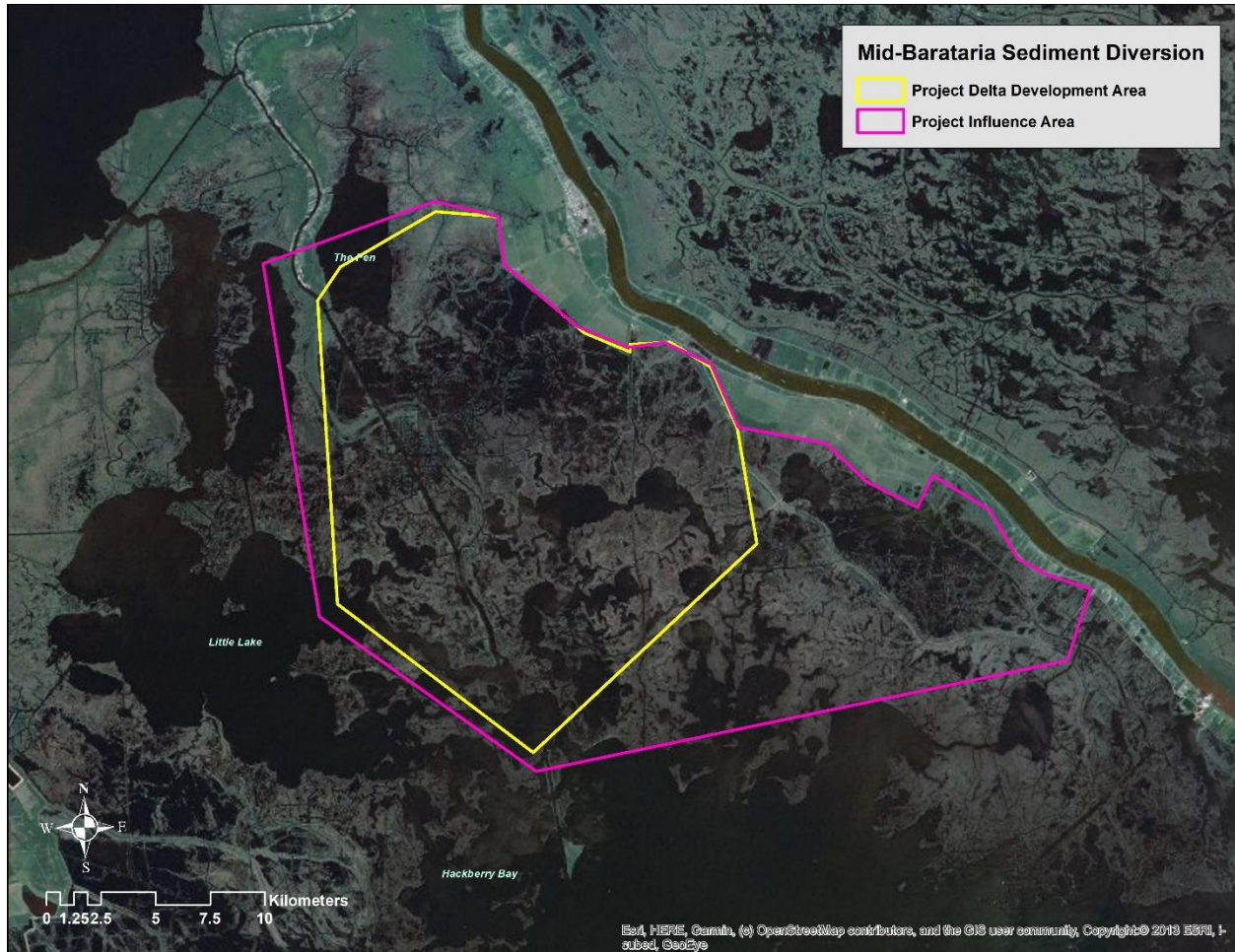


**Fig. 3.3-3.** A Project Influence Area (magenta polygon) was defined around the Project outfall as the maximum extent of the area where the Delft Basin-wide Model projected water level differences of at least 0.5 meters (white lines) between the Future without Project and the 75,000-cfs Applicant’s Preferred Alternative without terraces. The water level differences shown are specifically for the third week of May during the first decade modeled, using a 2011 Mississippi River hydrograph.

### 3.4.2. Other Monitoring and Survey Data

There are numerous historic and ongoing data collection efforts in Barataria Basin that will provide data for baseline and project assessments of system resources and change (Hijuelos and Hemmerling 2016). CPRA is coordinating with other State and federal agencies to supplement and maintain quality long-term data collection efforts in the basin (e.g., LDWF fish and invertebrate sampling programs; LDEQ water quality sampling; repeated National Oceanic and Atmospheric Administration (NOAA)/DWH-funded marine mammal surveys). Monitoring of previously-constructed restoration projects in the Project area (Figure 3.4-1) and Barataria Basin will provide valuable data to define historic and current trends, and thus clarify Project effects and potential synergistic or antagonistic responses from those of

other restoration and risk reduction efforts in the basin. CPRA will continue to evaluate other sources of research, surveying, and monitoring data that are acceptable for Project use to reduce monitoring costs.

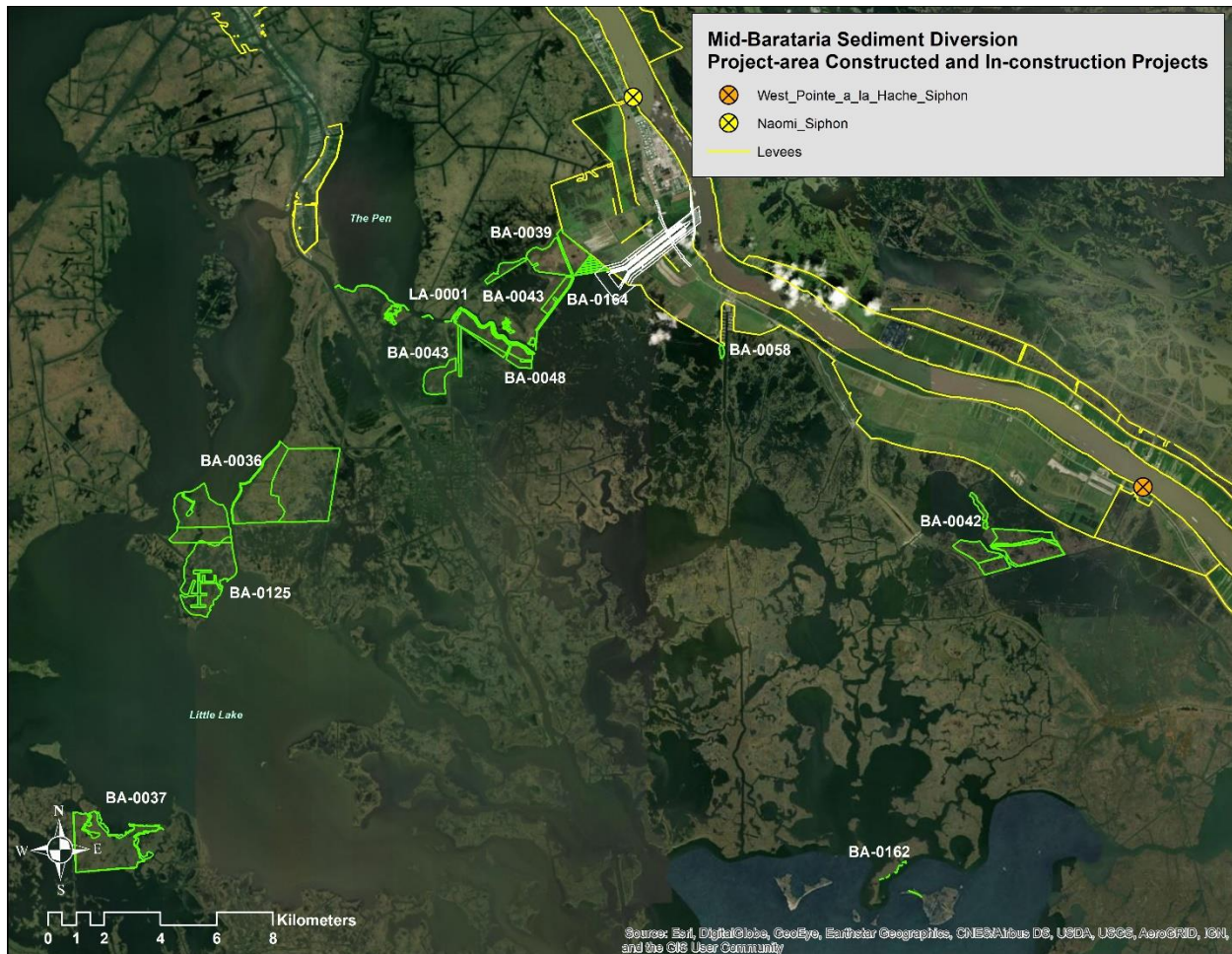


**Figure 3.3-4.** Comparison of the spatial extent of the Project Delta Development Area (yellow polygon) and the Project Influence Area (magenta polygon).

### 3.5. Pre-Operations (Baseline) Monitoring

To establish baseline conditions in the main stem of the MR and in the Barataria Basin, data will be collected prior to the onset of Project operations upriver of the diversion structure, from the Alliance South lateral sandbar in front of the eventual diversion structure, from near the planned structure intake, and from environmental gradients radiating from the outfall into Barataria Basin and from existing SWAMP monitoring stations in the Breton Sound Basin and the modern Balize Delta. In addition to the existing SWAMP monitoring locations, monitoring plans will evolve as needed to include additional variables and/or locations where data collection will be required to evaluate system change and Project performance. For example, the types and locations of river monitoring to inform operations will progressively be elaborated upon with progress on the design of the intake and conveyance structure and physical modeling.





**Figure 3.4-1.** Previous restoration projects in the Project region are shown with the green polygons, and in relation to the locations of the existing freshwater siphon projects in the area. The white polygon shows the location and orientation of the proposed Project conveyance channel. Yellow polygons indicate levees.

Components of SWAMP monitoring in Barataria Basin are operational and others are in development, consistent with the SWAMP implementation strategy for the basin (Hijuelos and Hemmerling, 2016). Additional Project-specific monitoring sites (such as hydrographic and water quality data collection platforms) will be established to better inform Project effects. Specific locations for some additional monitoring sites have been identified, while decisions on others are still pending. While Project-specific baseline data will be collected for a minimum of three years prior to the onset of Project operations, the Plan will further describe other relevant long-term data that will be used to strengthen baseline trends assessment. For example, wetland condition variables and process rates have been monitored extensively in Barataria Basin at 65 CRMS-*Wetlands* sites for more than 10 years. In addition, there are numerous CPRA-coordinated project data sets and other long-term natural systems data that have been collected by researchers and both State and federal agencies that support comprehensive ecosystem and project-scale assessment (Hijuelos and Hemmerling 2016).

### 3.6. Post-Construction (Operations) Monitoring

Following the onset of Project operations, data collection will continue as discussed in Section 3.5 above, and from within the diversion conveyance channel. Post-construction, hydrographic stations in the MR will be real-time and accessible from satellite networks to enable forecasting water and sediment arrival. Along the gradient from the MR through the diversion and into the basin, CPRA is planning for the use of real-time data for key hydrographic variables (turbidity, stage, velocity, and water quality). CPRA will also monitor structural and operational features of the Project structure (see the OMRR&R Plan for those details).

### 3.7. Parameters for Evaluating Project Effectiveness and Ecosystem Response

Effectiveness monitoring provides the basis for determining whether the Project objectives outlined in Section 1.2 will be met. Those restated objectives (below) frame the structure and activities of the detailed pre-operations and post-construction monitoring plans that follow. The empirical parameters and any secondary calculations based on those parameters are outlined below relevant to each of the three Project objectives.

#### 3.7.1. ***Objective #1: Deliver freshwater, sediment, and nutrients to Barataria Bay through a large-scale sediment diversion from the Mississippi River***

Objective 1 reflects the primary operational goal of the Project and rationale behind the construction of a large sediment diversion, which is that operation of a diversion structure is the most efficient, effective and sustainable mechanism for moving large amounts of MR sand-size suspended sediments into the middle region of the Barataria Basin.

Many of the monitoring parameters and resulting calculations listed below will be limited to post-construction monitoring because they will involve monitoring aspects of the constructed Project structure. However, some in-river monitoring components will be developed for pre-operations monitoring to establish baselines of MR resource status and variability and to evaluate potential impacts in the MR and the Basin.

##### 3.7.1.1. *Empirical Monitoring Parameters in Support of Objective 1*

###### 3.7.1.1.1. Mississippi River water discharge

- **Rationale:** As proposed in the Project permit request, expectations for an MR discharge of 450,000 cfs on a rising limb at Belle Chasse will trigger Project operations beyond a base flow of up to 5,000 cfs. Sand-size sediment does not typically start mobilizing from lateral bars until the MR flow is at 600,000 cfs (Allison et al., 2012), but the first flush of fine sediments typically occurs at lower discharges. Mississippi River water discharge is thus fundamental to monitor throughout the Project life.
- **Schedule:** Real-time measurements planned currently for the entirety of both pre-operations and the 50 years of post-construction monitoring. Event-based transect monitoring will occur during the first five years of Project operations to confirm real-time estimates.

- Locations: Multiple upstream gauging stations will be monitored for different purposes. The U.S. Geological Survey’s (USGS) Mississippi River at Memphis, Tennessee, gauge (#07032000) will be used to initiate planning for Project operations, given that typical water velocities in the MR mean that discharge at Memphis is a three-week lead-in to flows reaching the Project location. This data will be evaluated in concert with MR discharge forecasts provided daily by the National Weather Service’s Lower Mississippi River Forecasting Center (LMRFC). Current plans are for observations at the USGS Mississippi River at Belle Chasse, LA gauge (#07374525), which is not included in LMRFC discharge forecasts to govern Project operations. Several years of anticipated pre-operations monitoring will allow for the confirmation of the mathematical relationship between Belle Chasse and the other gauges mentioned.

The USGS Mississippi River at Baton Rouge, LA (#07374000) and the aforementioned Mississippi River at Belle Chasse, LA gauges will also be monitored to support continued estimations of coarse and fine suspended sediment load, as was done for the Delft Basin-wide Project modeling. This data will help verify past model estimates and support future modeling.

The PDT has proposed that anticipated MR discharges at Belle Chasse of 450,000 cfs should initiate empirical, boat-based data collection of MR discharge at a cross-river transect (Table 3.7-1 and Figure 3.7-1) used during pre-operations to support E&D activities. The “2018 Reference Section” transect was used during the 2018 MR data collection.

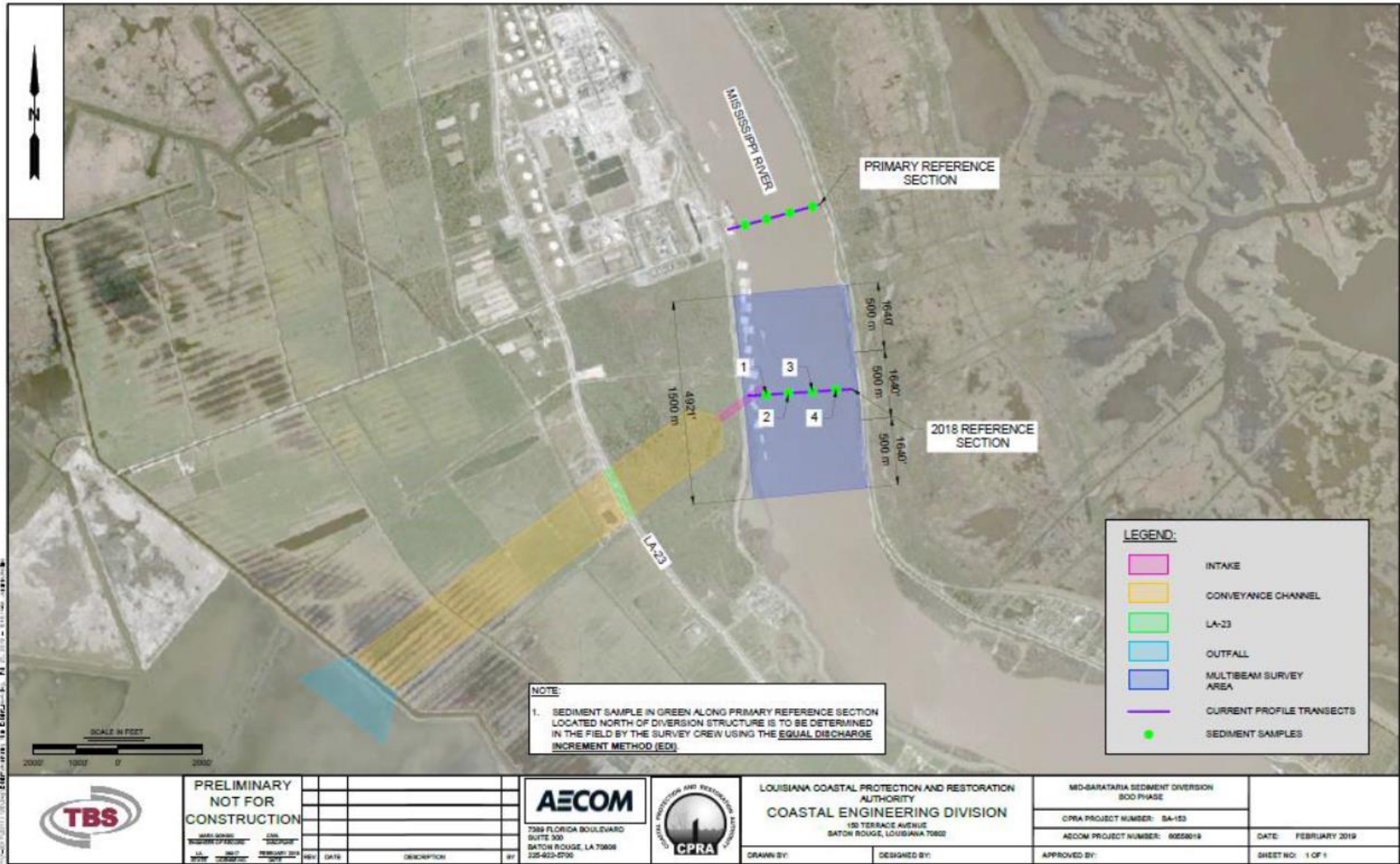
**Table 3.7-1.** Endpoint coordinates of Mississippi River Project cross sections used for preliminary E&D. All coordinates are in UTM 15N meters NAD83. Transect locations are shown in Figure 3.7-1.

Location	Right Water Edge/ Right Descending Bank (Northing, Easting)	Left Water Edge/ Left Descending Bank (Northing, Easting)
Primary Reference Section	3286460.680, 793822.861	3286655.441, 794486.710
2018 Reference Section	3285238.719, 793987.484	3285299.128, 794737.097

- Methodology:
  - Continuous estimated MR discharge is provided in real time by USGS at the Baton Rouge and Belle Chasse gauge locations referenced above.
  - Direct empirical estimations of velocity will be made during operational events using Acoustic Doppler Current Profilers (ADCPs; see Oberg et al. 2005 for discussion of the methodology). Measured concurrently with bathymetric measurements of the cross-sectional area of flow, these data allow an estimation of MR discharge via Equation 1.

$$Discharge (cfs) = Cross-sectional\ area\ of\ flow\ (square\ feet) \times velocity\ (f/s) \quad Eqn. 1$$

- Parties Responsible for Data Collection
  - Continuous discharge estimations at Mississippi River Memphis, Baton Rouge and Belle Chasse gauges: USGS
  - Boat-based direct empirical discharge estimations: CPRA contractor.



**Figure 3.7-1.** Location of the Mississippi River near the Mid-Barataria Sediment Diversion, showing transects and sampling points currently being studied for E&D purposes. The sampling points (green squares) on the two transects (purple lines) are shown in relation to the Project construction footprint, just south of the Alliance refinery.



### 3.7.1.1.2. Mississippi River suspended sediment concentrations

- Rationale: River suspended sediment measurements will provide estimations of the inorganic sediment load characteristic of the MR and the sediment load anticipated for the Project, analyzed on an event-by-event basis. Sediment characteristics in each flood event are dependent on weather and associated erosion within the entire MR watershed. As such, while each independent flood event may be similar to historical flood events, each event will be unique in the flow rates, wash load, duration, and ability to initiate bed load transport and suspension of sand within the diversion.
- Schedule: Real-time measurements are currently planned for the entirety of both pre-operations and the 50 years of post-construction monitoring at the USGS Baton Rouge and Belle Chasse gauges discussed for monitoring of *Mississippi River water discharge* (3.7.1.1.1). The PDT estimates five years of additional boat-based data collection at the Belle Chasse gauge and at or nearer the Project structure to refine sediment availability estimates.
- Locations: Suspended sediments will continue to be monitored at the USGS Baton Rouge and Belle Chasse stations to identify the sediment availability for the proposed diversions dependent on the characteristics of each individual flood event.

The E&D activities are designed to investigate suspended sediment load at transects and sample points described in Table 3.7-1 and Figure 3.7-1 and those to be defined for the Project operational phase. Sediment concentration samples will be collected at four locations (vertical stations; Table 3.7-2) along each cross-section and at five depths at each of the vertical stations.

**Table 3.7-2.** Coordinates of sampling points on 2018 Mississippi River cross-section. Points correspond to those shown in Figure 3.7-1.

Point	Northing	Easting
1	3285250	794121
2	3285260	794280
3	3285280	794453
4	3285300	794622

- Methodology:

USGS currently monitors turbidity at the Baton Rouge and Belle Chasse gauges via continuously-recording turbidity probes. However, USGS does not regularly collect physical samples of suspended sediments for laboratory analysis of grain size, nor to support estimates of sediment load at Belle Chasse. Data and samples collected from October 2012 through May 2016 do show a strong direct relationship between turbidity and both total suspended sediment concentration (USGS P80154;  $R^2 = 0.8262$ ;  $n = 55$ ) and estimated total suspended sediment discharge (USGS P80155;  $R^2 = 0.5699$ ;  $n = 55$ ) at the site.

There were direct relationships between turbidity and the percent of suspended sediments smaller than 0.0625 mm ( $R^2 = 0.4961$ ) and smaller than 0.125 mm ( $R^2 = 0.5278$ ) for December 2015 - June 2016 samples collected at Belle Chasse, but the number of observations were small

(n = 7 and 6, respectively), and the data reflect only a single MR flood season.

Observed gauge height did provide some predictability with suspended sediment mass for data and samples collected at Belle Chasse from December 2018 through January 2020. The direct relationship between gauge height and mass of suspended sediments larger than 0.063 mm (i.e., sand; USGS P91159) was strong ( $R^2 = 0.5636$ ; n = 16), while the relationship between observed gauge height and the mass of suspended sediments smaller than 0.063 mm (i.e., silts and clays; USGS P91158) was weaker ( $R^2 = 0.2363$ ; n = 16).

The USGS Mississippi River at Belle Chasse, LA gauge is roughly 13 miles north of the Project site. If used for the continuous monitoring of turbidity, discrete sampling of suspended sediments would be required at that site to establish the regression model needed to use turbidity as a surrogate for suspended sediments. Prior to selecting this site as the permanent continuous monitoring location for turbidity, suspended sediments sampling at the Project site may also be required to determine if there is a significant difference in turbidity between the two locations.

Sediment concentration samples at the reference and Project cross-sections will be taken using a P-6\_200 isokinetic sampler. TSS and concentrations of sand (> 63 micron) and silt/clay ( $\leq 63$  micron) will be determined using methods similar to the 2008-2011 (Allison, 2011) and 2018 (Allison et al., 2018) studies.

Replicate sediment concentration measurements will be made at the two most westward vertical stations at 70 and 90% water depth, to provide sufficient sand sample volume for sieve analysis. Conductivity/temperature/depth (CTD) casts will be made at the same time as the sediment concentration measurements at each vertical station to help calibrate measurements.

ADCP data will be collected during every isokinetic suspended sediment collection activity and the start and ending ensemble should be separately noted for the duration of each point collection (i.e., the interval between each bottle opening and closing). This data will be used to correlate the backscatter data to the sediment concentration data from the isokinetic sampling.

Sediment concentration samples will be collected at four locations (vertical stations) along each cross-section and at five depths at each of the vertical stations. The depths are 10, 30, 50, 70 and 90 percent of the local water depth. At each cross section, the Equal Discharge Increment method should be used in the field to determine the four vertical stations. The four vertical stations that were sampled at the 2018 cross section are located at coordinates in Table 3.7-2.

- Parties Responsible for Data Collection
  - Continuous turbidity and discrete suspended sediment load estimations at Mississippi River Baton Rouge and Belle Chasse gauges: USGS
  - Boat-based direct empirical suspended sediment load estimations: CPRA contractor.

#### 3.7.1.1.3. Mississippi River nutrient concentrations

- Rationale: Nutrients in Mississippi River water, primarily nitrogen (N), phosphorus (P) and sulfur (S), are necessary for phytoplankton and emergent vegetation growth in estuarine ecosystems. While those resources in Barataria may benefit from diverted MR water, there are concerns that



nutrient delivery in excess of the needs of primary producers could lead to phytoplankton blooms in the open estuary, growth alterations to emergent vegetation, and increases in the rate of bacterially-mediated soil organic carbon decomposition. Measuring nutrient concentrations entering the diversion discharge will support the calculation of *Nutrient loads conveyed into Barataria Basin* (3.7.1.2.4).

- Schedule: Planned to occur once monthly for the first three years of Project operations to confirm relationships between the USGS regular monitoring at the Belle Chasse gauge. After that, the Project team plans to rely on ongoing USGS monitoring.
- Locations: Currently the USGS estimates MR (nitrate + nitrite)-N concentrations at the Mississippi River at Baton Rouge, LA gauge (#07374000) using a continuously-reading sensor. USGS periodically collects and analyses grab samples of river water at Baton Rouge for several chemical species of N, P and S.

- Methodology:

USGS measures (nitrate + nitrite)-nitrogen at the Baton Rouge gauge using a continuously-reading sensor. USGS periodically collects and analyses grab samples of river water at both Baton Rouge and Belle Chasse for (nitrate + nitrite)-N (USGS P00631), (ammonia + ammonium)-N (USGS P00608, total Kjeldahl N (ammonia + organic N; USGS P00623), and total N (USGS P00602).

Dissolved orthophosphate ( $\text{PO}_4^{3-}\text{-P}$ ) is typically determined through wet chemistry of grab samples (USGS P00671), as is total P (USGS P00666). However, newer sensors that can detect orthophosphate may be installed at Baton Rouge and/or Belle Chasse. However, because orthophosphate adsorbs to clay particles in riverine water, it is necessary to use an acid digestion to free orthophosphate from suspended sediments to better characterize concentrations in the river. As well, total P in a sample of river water can be determined through similar laboratory analyses.

Dissolved sulfate is likewise analyzed by USGS at the Baton Rouge gauge using the same grab samples and respective analytical chemical methods (USGS P00945).

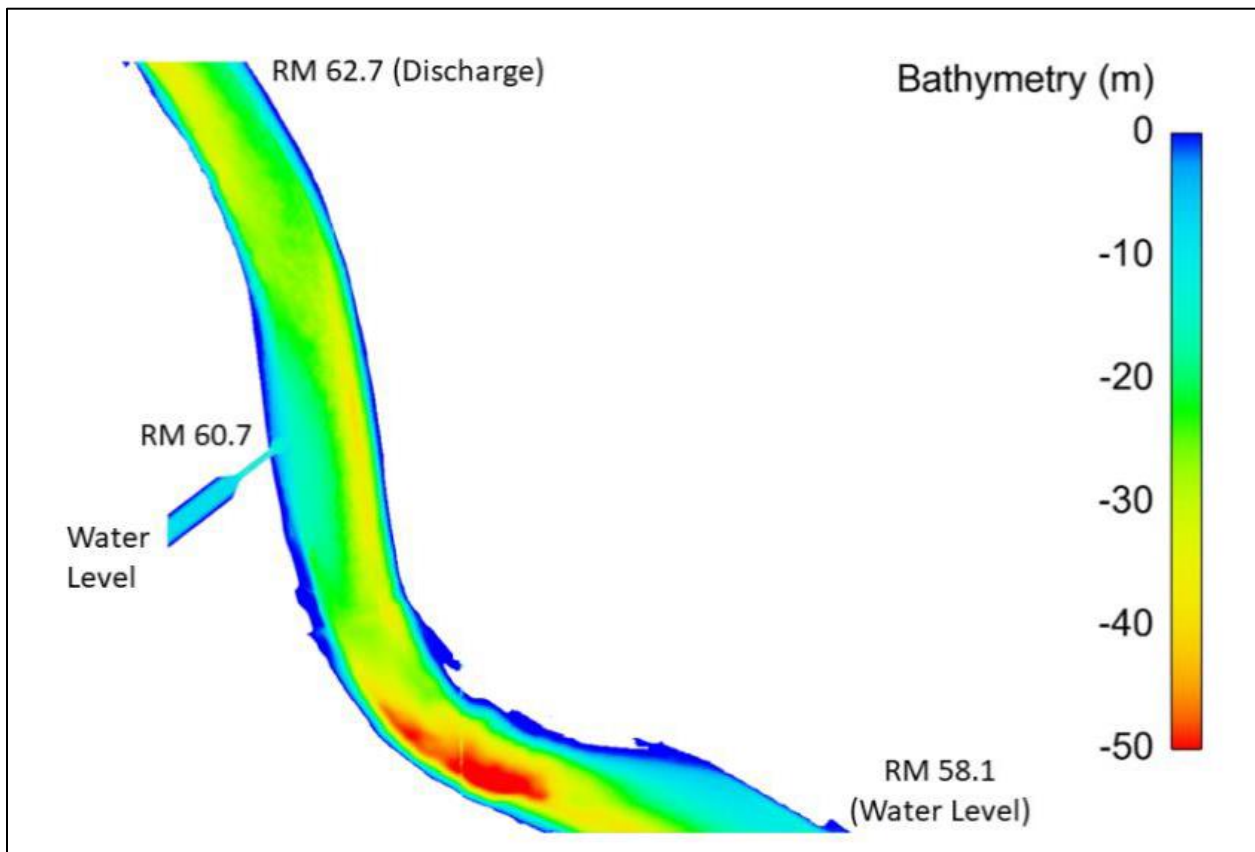
- Parties Responsible for Data Collection

Continuous sensor-based and discrete nutrient concentration sampling and analysis at the Mississippi River Baton Rouge and Belle Chasse gauges: USGS and/or CPRA contractor.

#### 3.7.1.1.4. Bathymetry of the Alliance South sand bar

- Rationale: Multi-beam bathymetric measurements will support estimations of sediment consumption and replenishment, and thus the productivity and sustainability of the Alliance South lateral sandbar as a sediment source for the project through calculations of the change in volume of the Alliance South sand bar. The multi-beam bathymetry will also record the morphology of the lateral bar and provide a calibration data source for the Deltf3D Outfall Management Model.

- Schedule: Planned annually during the pre-operations period and both before and after each Project operational event for the first five years of post-construction monitoring. The Project Operations Team will evaluate then what frequency of operations will be maintained.
- Locations: The Alliance South sandbar (Figure 3.7-2; will be monitored routinely with high-resolution velocity and bathymetric surveys along transects that were established for design data collection and earlier studies. Transects were arranged to capture upstream and downstream bar morphology changes. The monitoring of the bar dynamics during and after annual operations will be essential to understanding stability of the sand-size sediment supply through both diversion and replenishment of the lateral bar.



**Figure 3.7-2.** The lateral bar near the River Mile 60.7 diversion intake (area of shallow bathymetry in front of the diversion structure) will be monitored routinely with high-resolution velocity and bathymetric surveys along transects that have been established for design data collection and earlier studies. Figure from (Moffat & Nichol, 2012)

- Methodology: During Project E&D, the multi-beam surveys will be conducted during two discharge events and both before and after the flood season. The surveys during the flood event should be coordinated with the cross-section sampling, which will occur when the discharge at Belle Chasse is at least above 600,000 cfs. The PDT prefers that the other event survey occurs near 1,000,000 cfs or at the flood event peak, and then on the falling limb at 850,000 cfs or 600,000 cfs, depending on the flood event and the data needs for calibration/validation of the Delft Outfall Management Model.

The flood season survey should be made before the rising limb of the first event reaches 450,000 cfs at Belle Chasse and one during a falling limb of the river discharge at the end of the flood season, also below 450,000 cfs. These surveys should be carefully coordinated between CPRA, USGS and the sediment and water quality testing laboratories and monitoring teams.

The pre- and post-season surveys will cover the entire lateral bar, while the during-event surveys will be concentrated within 750 meters upstream and 750 meters downstream of the diversion sampling location. The event surveys will include the entire width of the river and be centered on the monitoring cross-section station. These during event surveys are required for tracking bed form movement and associated bed load transport. The bed load surveys shall be taken in 500-meter sections within the river to ensure an area is collected within an approximated 2-hour period. A 25-meter overlap between each 500-meter section is planned to provide adequate linkage of the survey transects. At each sampling station survey, there should be two surveys – one taken at the time of initial sediment sampling and the second survey should be taken within approximately 24 hours.

The rate and magnitude of change in the volume of the Alliance South sand bar will be calculated as

$$\text{Rate of change} = \frac{((\text{Volume of the Alliance South sand bar at time } x+1) - (\text{Volume of the Alliance South sand bar at time } x))}{\text{Time between measurements.}} \quad \text{Eqn. 2}$$

$$\text{Magnitude of change} = (\text{Volume of the Alliance South sand bar at time } x+1) - (\text{Volume of the Alliance South sand bar at time } x) \quad \text{Eqn. 3}$$

- Parties Responsible for Data Collection
  - Repeated channel conditions surveys: USACE
  - Pre- and post-season surveys for at least the first five years of operations: CPRA contractor

#### 3.7.1.1.5. Sedimentology of the Alliance South sand bar

- Rationale: Sediment sampling of the Alliance sand bar will support estimations of the sustainability of the sand bar as a coarse-grained sediment source for the project.
- Schedule: See discussion of schedule under 3.7.1.1.2. *Mississippi River suspended sediment concentrations* (sampling will be coincident for both parameters).
- Locations: Sedimentology samples will be collected coincident with the *Bathymetry of the Alliance South sand bar* (3.7.1.1.4).
- Methodology: Bed samples will be taken at each vertical station using a BM-54 sampler (<https://water.usgs.gov/fisp/products/4103004.html>). These should be taken at the same time as the sediment concentration samples and CTD casts. The BM54 sampler will typically take a sample 3 inches deep into the sediment. Samples will be transported to the testing laboratory where the grain size of the sediment and sand- and silt-size sediment volumes will be determined. The PDT has coordinated with Mead Allison, who will be conducting a similar data

collection for the Mid-Breton Project, to assure that they will take a similar depth sample with the Shipek sampler (*sensu* Ramirez and Allison 2013) and thus provide consistency in measurements.

- Parties Responsible for Data Collection: CPRA contractor

### 3.7.1.1.6. River bathymetry at and around the Project structure inlet

- Rationale: Repeated bathymetric surveys of the MR and the Project structure inlet are necessary to support calculations of the rate and magnitude of change in river bathymetry at the Project structure inlet to determine if bed scour/erosion or shoaling are occurring. Both siltation and scour would limit Project operations and would form the basis for AM actions. Erosion has been seen at the mouth of the West Bay Sediment Diversion where it penetrates the right descending bank of the river downstream of Venice, Louisiana (Brown et al., 2009), and in the batture in front of Mardi Gras Pass on the left descending bank downstream of the terminus of the MR&T levee (Lopez et al., 2014).

Calculation of the rate and extent of change in the elevation of the MR bottom at the Project inlet structure inlet will indicate if siltation or scour is occurring.

- Schedule: See discussion under 3.7.1.1.4. *Bathymetry of the Alliance South sand bar*. Surveys will be coincident for the two variables.
- Locations: Specifics will be coordinated with the event surveys – standard and reference cross sections.
- Methodology: Boat-based multi-beam bathymetry on 50-foot centers at the structure inlet and for 1,500 feet both upstream and downstream of the structure. Exact methodologies are expected to be similar to those used by the USACE New Orleans District when they conducted a multi-beam bathymetric survey from Mississippi River Mile (RM) 0 – 324 during July 2011 – June 2013. Data are available at <https://www.mvn.usace.army.mil/Missions/Engineering/Channel-Improvement-and-Stabilization-Program/2013MBMR/>.

The rate and magnitude of change in river bathymetry will be calculated as

$$\text{Change rate} = \frac{((\text{River bathymetry at the Project structure inlet at time } x + 1) - (\text{River bathymetry at the Project structure inlet at time } x))}{(\text{Time between measurements})}$$

Eqn. 4

*Change magnitude*

$$= (\text{River bathymetry at the Project structure inlet at time } x + 1) - (\text{River bathymetry at the Project structure inlet at time } x)$$

Eqn. 5

- Parties Responsible for Data Collection: CPRA contractor

### 3.7.1.1.7. Topography/bathymetry of the Project Influence Area

- Rationale: Repeated topographical/bathymetrical monitoring of the Project Influence Area will support calculations of the rate and magnitude of change in topography/bathymetry of the Project outfall area and ensure the viability of the Project to convey river water, sediment and nutrients into Barataria Basin. Calculation of the rate and magnitude of change in landscape elevations (topography and bathymetry) of the PIA will indicate if siltation or scour is occurring.
- Schedule: Planned for both pre-operations and post-construction monitoring. Topography and bathymetry will be assayed once prior to the onset of Project operations, annually for years 1-5 after the onset of Project operations, and then at years 10, 15, 20, 30, 40 and 50. Light Detection and Ranging (LiDAR) surveys will be scheduled preferentially in winter to survey as much as possible a “leaf off” environment, but that may not always be possible.
- Locations: The Basin-wide Model projected the extent of the PIA as shown in Figure 3.3-3. The actual extent of detailed receiving basin topographical and bathymetric monitoring may be modified as required based on the first five years of surveys.

Elevation surveys may also need to be conducted up to two times at up to two additional wetland areas. A conventionally restored wetland and an unrestored wetland, as described in Section 4.1.3, may be used to assess the relative performance of different marsh restoration treatments.

- Methodology: Subaerial elevation surveys will require LiDAR and processing to reduce error associated with plant canopy. The bathymetric surveys may include traditional point survey and other instruments (fathometer, multi-beam) depending on the water depth and vertical/horizontal resolution required. CPRA expects that data collection will be similar to that used by USGS during collection of northern Gulf of Mexico combined bathymetric and topographic data within its Coastal National Elevation Database (CoNED), accessible at <https://www.usgs.gov/land-resources/eros/coned>

The rate and magnitude of change in topography/bathymetry of the Project delta development area will be calculated as

$$\text{Rate of change} = \frac{((\text{Topography/bathymetry of the Project delta development area at time } x+1) - (\text{Topography/bathymetry of the Project delta development area at time } x))}{(\text{Time between measurements})}$$

**Eqn. 6**

$$\text{Magnitude of change} = ((\text{Topography/bathymetry of the Project delta development area at time } x+1) - (\text{Topography/bathymetry of the Project delta development area at time } x))$$

**Eqn. 7**

- Parties Responsible for Data Collection: CPRA contractor

#### 3.7.1.1.8. Water volume conveyed into Barataria Basin

- Rationale: Measuring the discharge of water through the diversion structure will provide direct estimates of riverine freshwater transfer into Barataria Basin and support estimations of *Sediment:water in the flows conveyed into Barataria Basin (3.7.1.2.2)*, *Sediment volume conveyed into Barataria Basin (3.7.1.2.3)*, and *Nutrient loads conveyed into Barataria Basin (3.7.1.2.4)*. As per the Project permit request submitted to USACE, Project discharge will be capped at 75,000 cfs at *Mississippi River water discharges (3.7.1.1.1)* greater than or equal to 1,000,000 cfs.
- Schedule: Planned only for post-construction monitoring during the entire flood season each year for the life of the Project.
- Locations: Specifics locations within the conveyance channel will be identified by CPRA.
- Methodology: At the entrance of the intake and the bar area, it is anticipated that an array of velocity and turbidity instrumentation will be deployed. It is uncertain if sediment, water, and nutrient capture is best monitored in the conveyance channel. The most advantageous locations are under consideration by the PDT.
- Parties Responsible for Data Collection: CPRA contractor

#### 3.7.1.1.9. Sediment concentrations in the flows conveyed into Barataria Basin

- Rationale: Measuring inorganic sediment concentrations in the diversion discharge will support the calculation of *Sediment:water in the flows conveyed into Barataria Basin (3.7.1.2.2)* and *Sediment volume conveyed into Barataria Basin (3.7.1.2.3)*.
- Schedule: Planned only for post-construction monitoring during the entire flood season each year for the life of the Project.
- Locations: Sample locations will be the same as those developed for *Water volume conveyed into Barataria Basin (3.7.1.1.8)*.
- Methodology: See discussion under *Water volume conveyed into Barataria Basin (3.7.1.1.8)*. Analyses of sediment samples taken from the conveyance channel, including calculations of *Sediment:water in the flows conveyed into Barataria Basin (3.7.1.2.2)* and *Sediment volume conveyed into Barataria Basin (3.7.1.2.3)*, will include measurement by primary grain size (sand/silt/clay).
- Parties Responsible for Data Collection: CPRA contractor



### 3.7.1.2. Multi-Parameter Calculations in Support of Objective 1

#### 3.7.1.2.1. Mississippi River sediment load

- Rationale: The intent of the Project is to capture a substantial portion of the Mississippi River's sediment load for transport through the Project structure and into the receiving basin.
- Schedule: Planned for both pre-operations and post-construction monitoring.
- Locations: Sample locations will be the same as those developed for *Mississippi River water discharge (3.7.1.1.1)* and *Mississippi River suspended sediment concentrations (3.7.1.1.2)*.
- Methodology:

$$\text{Mississippi River sediment load} = \text{Mississippi River water discharge (3.7.1.1.1)} \times \text{Mississippi River suspended sediment concentrations (3.7.1.1.2)}$$

**Eqn. 8**

#### 3.7.1.2.2. Sediment:water in the flows conveyed into Barataria Basin

- Rationale: Based on extensive empirical data collection and numerical modeling, the Project is being designed to optimize the delivery of sediment into the Barataria Basin. Calculation of cumulative inorganic sediment:water is the fundamental metric of the efficiency of diversion sediment transport. Estimating the actual Project sediment:water through the calculations below is needed to confirm those design assumptions, or it could suggest opportunities for additional operational modifications to achieve subsequent improvements in sediment:water. These estimations will also be needed for subsequent numerical model refinement.
- Schedule: Planned only for post-construction monitoring.
- Locations: Depends on the specific monitoring locations developed for *Water volume conveyed into Barataria Basin (3.7.1.1.8)* and *Sediment concentrations in the flows conveyed into Barataria Basin (3.7.1.1.9)*
- Methodology:

$$SWR = \frac{\left( \frac{\text{Sediment Concentrations in the flows conveyed into Barataria Basin (3.7.1.1.9)}}{\text{Mississippi River suspended sediment concentrations (3.7.1.1.2)}} \right)}{\left( \frac{\text{Water volume conveyed into Barataria Basin (3.7.1.1.8)}}{\text{Mississippi River water discharge (3.7.1.1.1)}} \right)}$$

**Eqn. 9**

#### 3.7.1.2.3. Sediment volume conveyed into Barataria Basin

- Rationale: This calculation will establish estimates of the amount of inorganic sediment transported by the structure.
- Schedule: Planned only for post-construction monitoring.

- Locations: Same sampling stations identified for *Water volume conveyed into Barataria Basin* (3.7.1.1.8), and *Sediment concentrations in the flows conveyed into Barataria Basin* (3.7.1.1.9)
- Methodology:

$$\text{Sediment volume} = \text{Water volume conveyed into Barataria Basin (3.7.1.1.8) * Sediment concentrations in the flows conveyed into Barataria Basin (3.7.1.1.9)}$$

Eqn. 10

#### 3.7.1.2.4. Nutrient loads conveyed into Barataria Basin

- Rationale: Nitrogen and phosphorus are the primary inorganic nutrients that support primary production in the estuarine emergent wetlands and open water bodies. Concerns exist that excess nutrient delivery to Barataria Basin could lead to phytoplankton blooms (see Section 3.7.3.9), harmful algal blooms (3.7.3.10) and/or the development of low dissolved oxygen (see Section 3.7.3.7). This calculation will establish estimates of the amount of nutrients transported by the structure.
- Schedule: Planned only for post-construction monitoring.
- Locations: Same sampling stations identified for *Mississippi River nutrient concentrations* (3.7.1.1.3) and *Water volume conveyed into Barataria Basin* (3.7.1.1.8)
- Methodology:

$$\text{N/P/S load} = \text{Water volume conveyed into Barataria Basin (3.7.1.1.8) * Mississippi River nutrient concentrations (3.7.1.1.3)}$$

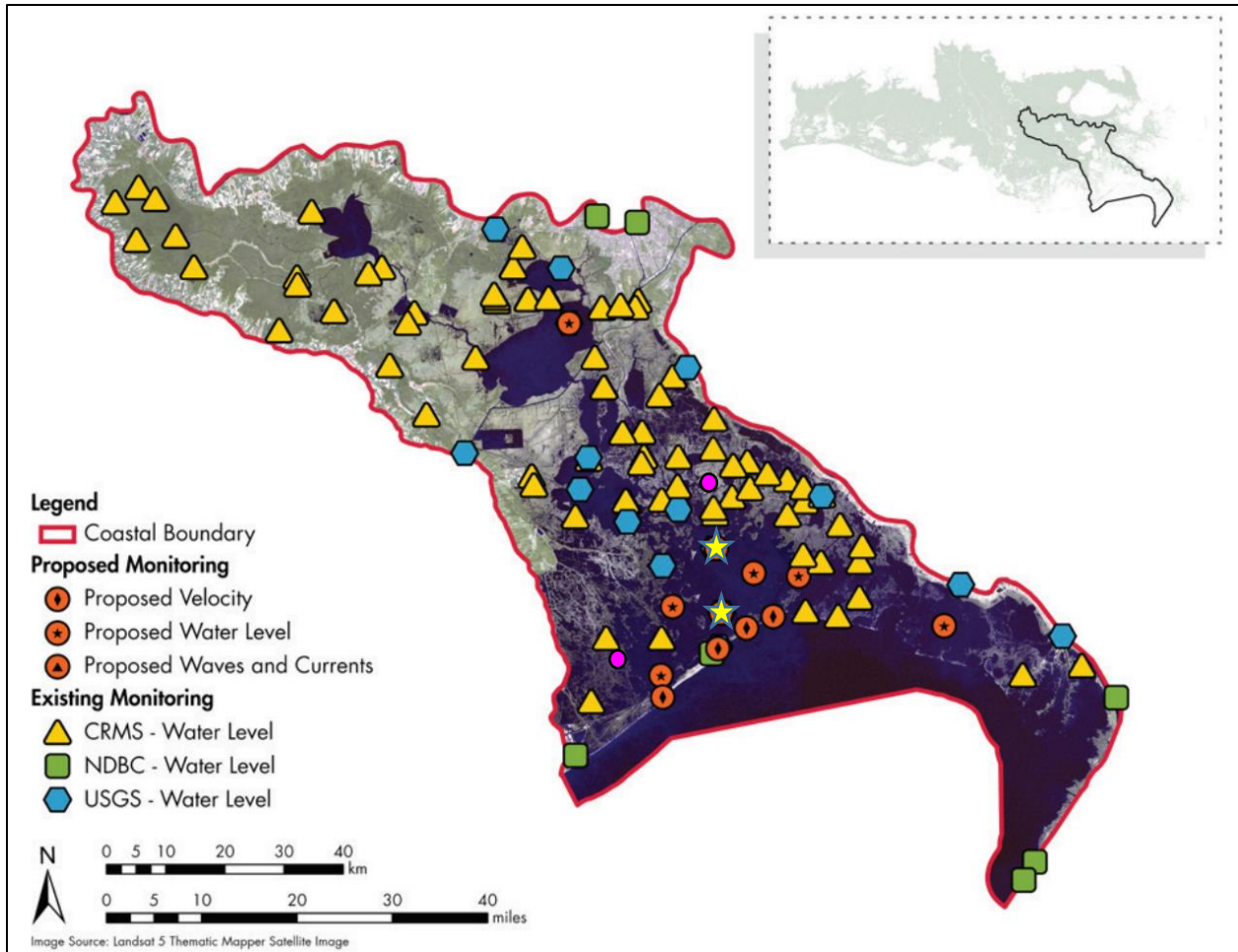
Eqn. 11

### 3.7.2. **Objective #2: Reconnect and re-establish sustainable deltaic processes between the Mississippi River and the Barataria Basin**

#### 3.7.2.1. *Empirical Monitoring Parameters in Support of Objective 2*

##### 3.7.2.1.1. Water velocities at multiple locations in the Barataria Basin

- Rationale: The fundamental objective of hydrography is to document changes to the horizontal and vertical movement of water within the Project area. This has bearing on changes to the physical environment as well as to the deposition of sediments and the zonation and persistence of wetland vegetation.
- Schedule: Planned for both pre-operations and post-construction monitoring.
- Locations: Two velocity meters are currently being installed in Barataria Basin (Figure 3.7-3), with another four proposed. Project-specific velocity meter locations are still being determined.
- Methodology: Use of real-time or continuous ADCPs to determine velocity of water movement, may be depth-averaged or point values



**Figure 3.7-3.** Existing hydrologic sampling stations within the Barataria Basin. The approximate location of two stations that CPRA contracted USGS to install are shown with magenta circles. Two ADCPs are currently being installed at the locations shown with the yellow stars.

- Parties Responsible for Data Collection: CPRA contractor.

3.7.2.1.2. Frequency, depth and duration of inundation at multiple locations on the marsh in the Project Influence Area

- Rationale: Measure the variability and patterns of water movement within the Project Influence Area and suitability for different types of habitats and organisms. Coastal water levels are important to understanding short term, high-intensity events that regulate organism access and materials exchange to and from the wetland surface. Long-term trends of optimal or prolonged inundation influence wetland plant productivity.
- Schedule: Planned for continuous collection during both the pre-operations and post-construction monitoring phases.
- Locations: Currently there are 65 CRMS-*Wetlands* water level gauges (56 shown in Figure 3.7-3) and 15 data collection platforms in Barataria Basin. CPRA proposes to install five new CRMS-*Wetlands* stations in the basin, in the immediate outfall area. Up to three will be installed

during pre-operations monitoring in existing PIA marshes, while up to two will be installed in the PIA after the onset of operations results in the subaerial development of new wetlands.

- Methodology: Empirical measurements of the height of the water level surface referenced to a geodetic or tidal datum will be made at the locations described above (Folse et al. 2020). Frequency, depth and duration of inundation will be calculated as

$$\text{Frequency of inundation} = \text{Number of days annually where water level exceeds marsh surface elevation} / 365 \text{ (366 for leap years)}$$

**Eqn. 12**

$$\text{Depth of inundation} = \text{Water depths at multiple locations on the marsh in the Project Influence Area} - \text{Marsh surface elevation}$$

**Eqn. 13**

$$\text{Duration of inundation} = \text{Number of consecutive days where water level exceeds marsh surface elevation}$$

**Eqn. 14**

- Parties Responsible for Data Collection: CPRA contractor.

#### 3.7.2.1.3. Soil bulk density

- Rationale: Understand the spatial extent and magnitude of effect of the Project on emergent wetland soil properties and sustainability in Barataria Basin. Soil bulk density is useful in understanding the relative exposure of an area to fluvial or marine sediment sources, and for a better understanding of the response of other soils parameters.
- Schedule: Planned for both pre-operations and post-construction monitoring. Soils at existing CRMS-*Wetland* stations within Barataria Basin are sampled every 10 years. Soils from CRMS-*Wetlands* stations and new transect stations (below) in the PIA will be sampled shortly prior to the onset of Project operations, and every five years after the onset of Project operations.

Locations: Existing and up to five new CRMS-*Wetlands* stations in the PIA (Figure 3.7-4). CPRA may augment that sampling with up to 15 points along three transects (five points per transect) radiating from the Project outfall to encompass the PIA, if the existing and new CRMS stations are judged to be insufficient. Exact transect locations will be determined by the Project AMT.

- Methodology: Soil cores will be obtained with a push corer (Folse et al. 2020). Bulk density will be determined for 4-cm depth increments within cores. Mass per unit volume of water and soil particles on a dry and wet basis will be calculated.
- Parties Responsible for Data Collection: CPRA contractor.

#### 3.7.2.1.4. Soil organic matter content

- Rationale: Understand the spatial extent and magnitude of effect of the Project on emergent wetland soil properties and sustainability in Barataria basin. Organic matter content of wetland soils is a key determinant of soil development and quantifies organic contributions to soil

volume. Organic matter burial is especially important for maintaining soil elevation and positive feedback from plant productivity of existing wetlands. Carbon accumulation in emergent wetlands is also an important ecosystem service of these communities.

- Schedule: Planned for both pre-operations and post-construction monitoring. Soils will be sampled shortly prior to the onset of Project operations, and every five years thereafter.
- Locations: Same sampling locations identified for *Soil bulk density* (3.7.2.1.3).
- Methodology: Soil cores will be obtained with a push corer. Organic matter content will be determined by loss on ignition (LOI), wherein a soil sample is combusted at a temperature that burns off organic matter and retains mineral content. LOI will be determined for 4-cm depth increments within cores as per the existing CRMS methodology (Folse et al. 2020).
- Parties Responsible for Data Collection: CPRA contractor.

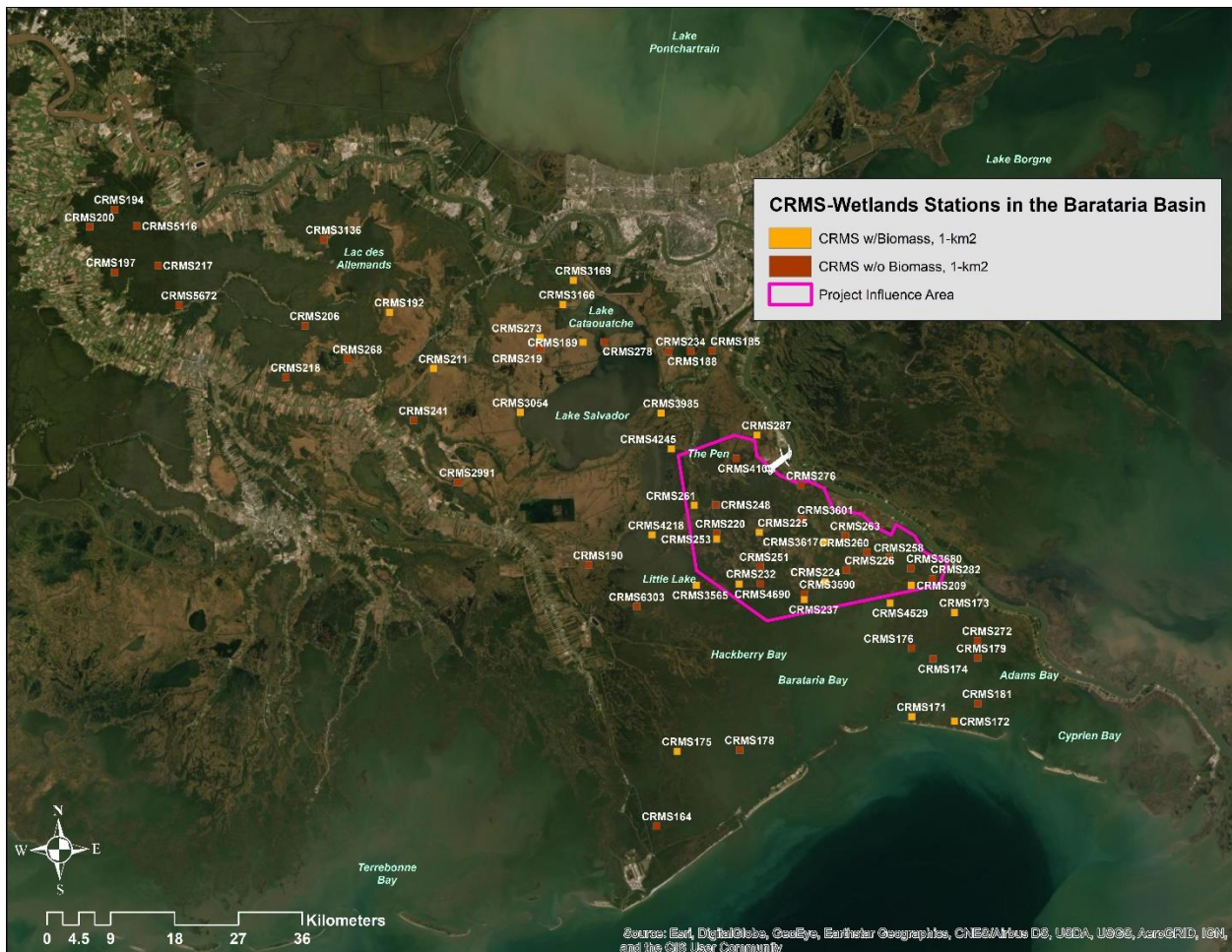


Figure 3.7-4. Existing CRMS-Wetlands locations for vegetation community sampling in Barataria Basin.

#### 3.7.2.1.5. Soil mineral matter grain size

- Rationale: Understand the spatial extent and magnitude of effect of the Project on emergent wetland soil properties and sustainability in Barataria Basin. Mineral content of wetland soils is a key determinant of soil development and are often used to describe the role of mineral contributions to soil volume.
- Schedule: Planned for both pre-operations and post-construction monitoring. Soils will be sampled shortly prior to the onset of Project operations, and every five years thereafter.
- Locations: Same sampling locations identified for *Soil bulk density* (3.7.2.1.3).
- Methodology: Soil cores will be obtained with push corer. Grain size will be determined on residual mineral matter following *Soil organic matter content* (3.7.2.1.4) (Folse et al. 2020).
- Parties Responsible for Data Collection: CPRA contractor.

#### 3.7.2.1.6. Soil total nutrients

- Rationale: Understand the spatial extent and magnitude of effect of the Project on emergent wetland soil properties and sustainability in Barataria Basin. The soil biogeochemical environment determines nutrient availability and the capacity for plants to uptake essential macro- and micro-nutrients for growth. Soil nutrition can provide an understanding of nutrient limitation to plant vigor. Measurements of soil total nutrients (i.e., TN, TP, TC), when coupled with other measures, can provide an understanding of what nutrients limit plant production and the burial rate of common limiting nutrients, such as nitrogen and phosphorus.
- Schedule: Planned for both pre-operations and post-construction monitoring. Soils will be sampled shortly prior to the onset of Project operations, and every five years thereafter.
- Locations: Same sampling locations identified for *Soil bulk density* (3.7.2.1.3).
- Methodology: Soil cores will be obtained with a push corer. Soil total carbon is a direct measure of total carbon content with combustion and gas analysis. Indirectly, a conversion factor applied to the organic matter content can be used to determine soil carbon content based on literature or local relationships. Direct measure of total nitrogen with combustion and gas analysis. Direct measure of total phosphorus content with spectrophotometry following acid digestion.
- Parties Responsible for Data Collection: CPRA contractor.

#### 3.7.2.1.7. Rate of accretion above feldspar marker horizons

- Rationale: Understand the spatial extent and magnitude of effect of the Project on building and sustaining emergent wetland elevation.



- Schedule: Planned annually for both pre-operations and post-construction monitoring.
- Locations: Existing CRMS-*Wetland* stations within the Project Influence Area (Figure 3.7-4), plus five additional CRMS or CRMS-like stations installed within the Project outfall area.
- Methodology: Installation of feldspar marker horizons and determination of mass/volume of material deposited above the horizon will be as per the CRMS-*Wetlands* Standard Operating Procedures (Folse et al., 2020).

Rate of accretion is determined as the slope of repeated measurements of accretion over time above feldspar marker horizons.

- Parties Responsible for Data Collection: CPRA contractor.

#### 3.7.2.1.8. Soil strength

- Rationale: Understand the spatial extent and magnitude of effect of the Project on emergent wetland soil properties and sustainability in Barataria basin and enable identification of changes and suitability for various types of habitats and organisms. Also, determine whether total organic matter changes following diversion operation. Measures of soil strength may be deemed important for understanding resistance to erosion.
- Schedule: Planned for both pre-operations and post-construction monitoring.
- Locations: See discussion of CRMS-*Wetland* and additional Project-specific stations under *Rate of accretion above feldspar marker horizons* (3.7.2.1.7).
- Methodology: Methodology for sampling soil strength will be identified after consultations with the academic community (see discussion in Jafari et al. (2019)). Both *in-situ* and laboratory instruments are available for measuring the shear failure or 'strength' of soils, depending on depth and soil type.
- Parties Responsible for Data Collection: CPRA contractor.

#### 3.7.2.1.9. Marsh surface elevation change rate in the Project Influence Area

- Rationale: Understand trends of vertical soil elevation change rates within the project area in relation to measured geodetic datums. Rod sediment erosion table (RSET) pin heights form the basis for calculations of marsh surface elevation change.
- Schedule: Planned for both pre-operations and post-construction monitoring. Marsh surface elevation change will be calculated semi-annually, consistent with existing CRMS-*Wetlands* protocols.
- Locations: See discussion of CRMS-*Wetland* and additional Project-specific stations under *Rate of accretion above feldspar marker horizons* (3.7.2.1.7).

- Methodology: Installation of RSETs and measurement of average elevation of the marsh surface will be as per the CRMS-*Wetlands* Standard Operating Procedures (Folse et al., 2020). The rate of change of marsh surface elevation is determined as the slope of repeated measurements over time of RSET pin heights.
- Parties Responsible for Data Collection: CPRA contractor.

### 3.7.2.2. *Calculations in Support of Objective 2*

#### 3.7.2.2.1. Sediment dispersal and retention on the emergent marsh surface

- Rationale: Estimate the amount of sediment retained in geographic areas of the project area.
- Schedule: Planned for both pre-operations and post-construction monitoring. Sampling sites will be visited twice annually. Calculations will be made annually.
- Locations: See discussion of CRMS-*Wetland* and additional Project-specific stations under *Rate of accretion above feldspar marker horizons* (3.7.2.1.7).
- Methodology: Mineral sediment content in the material accreting on the marsh surface will be determined following collection of *Rate of accretion above feldspar marker horizons* (3.7.2.1.7) and *Soil organic matter content* (3.7.2.1.4).
- Parties Responsible for Data Collection: CPRA contractor.

#### 3.7.2.2.2. Soil organic matter density

- Rationale: Understand the spatial extent and magnitude of effect of the Project on emergent wetland soil properties in Barataria basin
- Schedule: Planned for both pre-operations and post-construction monitoring. Soils will be sampled shortly prior to the onset of Project operations, and every ten years thereafter.
- Locations: Same sampling locations identified for *Soil bulk density* (3.7.2.1.3).
- Methodology: Conversion: soil organic matter percent is converted into a mass per unit volume
- Parties Responsible for Data Collection: CPRA contractor.

#### 3.7.2.2.3. Soil mineral matter density

- Rationale: Understand the spatial extent and magnitude of effect of the Project on emergent wetland soil properties in the Barataria basin
- Schedule: Planned for both pre-operations and post-construction monitoring. Soils will be sampled shortly prior to the onset of Project operations, and every ten years thereafter.

- Locations: Same sampling locations identified for *Soil bulk density* (3.7.2.1.3).
- Methodology:

$$\text{Mineral density} = \text{Soil bulk density (3.7.2.1.3)} - \text{Soil organic matter density (3.7.2.2.2)} \quad \text{Eqn. 15}$$

- Parties Responsible for Data Collection: CPRA contractor.

### **3.7.3. Objective #3: Create, restore, and sustain wetlands and other deltaic habitats and associated ecosystem services**

The objective of physical terrain measurements is to determine topographical and areal changes of natural or restored landscapes and built structures that are vulnerable to submergence. The physical terrain of the coastal environment in this context refers to natural land (e.g., wetlands, barrier islands, uplands, ridges). The coastal terrain serves a multitude of functions from buffering storms, filtering nutrients, pollutants, and sediments, and supporting a variety of flora and fauna. Land submergence threatens all aspects of the coastal ecosystem, from increasing fetch in open water bodies to reducing habitat for ecologically important fish and wildlife (Chesney et al., 2000; Fagherazzi & Wiberg, 2009).

#### **3.7.3.1. Land and water extent / Area of new delta formation in the Project Influence Area**

- Rationale: The Project is intended to build and more importantly sustain new emergent wetlands during 50 years of operations. Extent of land and water within the Barataria Basin is thus a fundamental metric for determining Project success. Periodic monitoring of land and water extent will allow for calculation of area of new delta formation.
- Schedule: Planned once pre-operations and every three years post-construction.
- Locations: Project Influence Area within the Barataria Basin (see Figure 3.3-3).
- Methodology: Remote sensing / satellite imagery will be used to determine the spatial extent of emergent wetland and open water areas within the basin, consistent with the methods used for the CRMS Program (Folse et al. 2020). The area of new delta formation is calculated as

$$\text{Area of new delta formation} = (\text{Land and water extent within the Barataria Basin at time } x) - (\text{Land and water extent within the Barataria Basin prior to onset of operations}) \quad \text{Eqn. 16}$$

- Parties Responsible for Data Collection: USGS, possibly a CPRA contractor in the long-term.

#### **3.7.3.2. Emergent wetland area**

- Rationale: Measure changes in wetland spatial extent by traditional wetland type (fresh + intermediate, brackish, and salt marsh; to relate to Basin-wide Model projections) and by recent Louisiana Vegetation Class (*sensu* Snedden 2019) in the Project area.

- Schedule: See Schedule under 3.7.3.1. *Land and water extent / Area of new delta formation in the Project Influence Area*. The data collection efforts for both parameters will be coincident.
- Locations: Project Delta Development Area within the Barataria Basin (see Figure 3.3-2).
- Methodology: Specification of some of the satellite-based data under *Land and water extent within the Barataria Basin* (3.7.2.1.3) to parse out vegetated emergent wetlands (i.e., will not include non-vegetated subaerial flats), as described in Folse et al. (2020).
- Parties Responsible for Data Collection: CPRA contractor.

#### 3.7.3.3. *Vegetation Cover, Abundance, and Height*

- Rationale: Assess condition and changes in vegetation in the Basin. Data collected form the basis for assignment of *Emergent and submerged vegetation community type* (3.7.3.5) and detection of invasive species (e.g., hydrilla, water hyacinth, salvinia) presence and location as an indicator of ecosystem change and range shift.
- Schedule: Data are and will be collected annually both pre-operations and post-construction.
- Locations: 65 existing and five new Project-specific CRMS-*Wetlands* stations (Figure 3.7-4).
- Methodology: Permanent plots. Methods are detailed in Folse et al. (2020).
- Parties Responsible for Data Collection: CPRA contractor.

#### 3.7.3.4. *Submerged aquatic vegetation area*

- Rationale: SAV provides fish and shellfish habitat, improves water quality, and contributes organic matter to the estuarine ecosystem. Measuring changes in SAV spatial extent in Barataria Basin is therefore important for multiple stakeholders. The objective of the Project to build emergent wetlands in existing open water bodies does imply localized losses of SAV, particularly close to the Project outfall. As well, SAV abundance and distribution is highly variable year to year, which will be necessary for Project partners to consider in data evaluation.
- Schedule: Planned twice pre-operations and once every five years post-construction.
- Locations: Barataria Basin
- Methodology: Boat-based transects or point observations in the PIA, and remote sensing-based analyses of SAV area for the full Barataria Basin, using algorithms for coverage developed by LSU and USGS. The boat-based information will be used to further develop the remote sensing-based estimates, and the Project partners anticipate that at some point the boat-based surveys in the PIA will be replaced by remote sensing analyses for the entire Basin, including the PIA.

- Parties Responsible for Data Collection:
  - Boat-based surveys: CPRA or CPRA contractor
  - Remote sensing: CPRA contractor

3.7.3.5. *Emergent and submerged vegetation community type*

- Rationale: Assess changes in vegetation structure in the Barataria Basin, including both the PIA and PDDA.
- Schedule: Planned annually for both pre-operations and post-construction monitoring. See Schedule under 3.7.3.1. *Land and water extent / Area of new delta formation in the Project Influence Area*. The data collection efforts for both parameters will be coincident
- Locations: 65 CRMS-Wetlands and 5 new Project-specific stations (Figure 3.7-4)

Methodology: Permanent plots, data collected at the end-of-season; visual estimate of the percentage cover by plant species; different canopy heights are measured (carpet, understory, overstory). Data document changes in the coverage of all species and note any presence of invasive species. Methods are detailed in Folse et al. (2020). Community type will also be determined for a broader area from aerial imagery.

- Parties Responsible for Data Collection: CPRA contractor.

3.7.3.6. *Emergent vegetation biomass in the Project area.*

- Rationale: Assess changes in vegetation structure in the Project Influence Area.
- Schedule: Planned for both pre-operations and post-construction monitoring. The SWAMP Program is collecting both above- and below-ground biomass at a subset of CRMS-Wetlands stations coast-wide, and is currently planning on a 5-year return rotation for that sampling. CPRA will rely on that same return schedule, and conduct two pre-operation biomass samples and post-construction samples every five years throughout the 50-year Project study period.

Locations: The SWAMP Program is augmenting the non-destructive *Vegetation Cover, Abundance, and Height* (3.8.3.3) at 25 of the 65 existing CRMS-Wetlands stations in Barataria with plots for the destructive sampling of aboveground and belowground biomass (Figure 3.7-10). Not all of the CRMS-Wetlands stations in the Project Influence Area have been identified for biomass collection (e.g., CRMS stations 225, 232, 253, 3617, and 4103). CPRA will extend biomass collection to those stations for purposes of supporting Project adaptive management, and will include biomass collection in the 3-5 new CRMS stations that will be established in the Project outfall area.

- Methodology: Direct measure of standing live and dead plant material that is destructively harvested for herbaceous wetlands. Live aboveground biomass will be separated and measured for each species in the harvest plot. Species-specific biomass data support an understanding of individual species tolerance and/or competitiveness with system change. The production of belowground biomass often exceeds that of aboveground biomass. The total live belowground biomass

may complement measurements of soil strength. Disparities in root-to-shoot biomass may provide an indicator for plant health.

- Parties Responsible for Data Collection: CPRA contractor.

#### 3.7.3.7. *Dissolved oxygen in Barataria Surface Waters*

- Rationale: DO monitoring is necessary for understanding pelagic and benthic respiration (Kemp et al., 1992) and it affects the availability of nutrients (Valiela, 1995). Chronic or acute effects of low DO could cause displace organisms or change community structure of aquatic fauna.
- Schedule: Planned monthly at all stations listed below, for both pre-operations and post-construction monitoring.
- Locations: 23 SWAMP stations in the Barataria Basin, and 26 LDEQ stations in the Barataria and Mississippi River Delta Basins (Figure 3.7-5). For reference, seven of the SWAMP stations are also USGS *in situ* gages. There is an additional station (USGS 07380255 Bayou DuPont), not shown in Figure 3.7-5, that also collects DO in the basin.

Dissolved oxygen measurements in the Gulf of Mexico along Louisiana are not being collected as part of this MAM Plan. However, annual baseline data (1985-2021) are available and similar data collections to map Gulf are expected to continue (see [www.gulfhypoxia.net](http://www.gulfhypoxia.net)). These data are relevant to the uncertainty around Project influence on the size, shape, and severity of the Gulf Hypoxic zone.

- Methodology: Concentration of oxygen dissolved in water or percentage saturation. Measured as mg oxygen per liter sampled discretely, or by *in situ* sonde.
- Parties Responsible for Data Collection: CPRA contractor.

#### 3.7.3.8. *Salinity in Barataria Surface Waters*

- Rationale: Estuarine salinity affects the distribution, growth, and productivity of nekton communities (Minello et al., 2003; Zimmerman et al., 2000), vegetation community composition (Pennings et al., 2005), and ultimately the functions and services that wetlands provide (Odum, 1988).
- Schedule: Continuous monitoring planned for both pre-operations and post-construction monitoring.
- Locations: 77 stations currently monitored continuously in Barataria Basin: 65 CRMS-Wetlands stations and 12 SWAMP stations. See Figure 3.7-6.
- Methodology: Concentration of dissolved ions or salts in water typically measured with conductivity probes and may be reported in practical salinity units (PSU) or other (reference SWAMP)





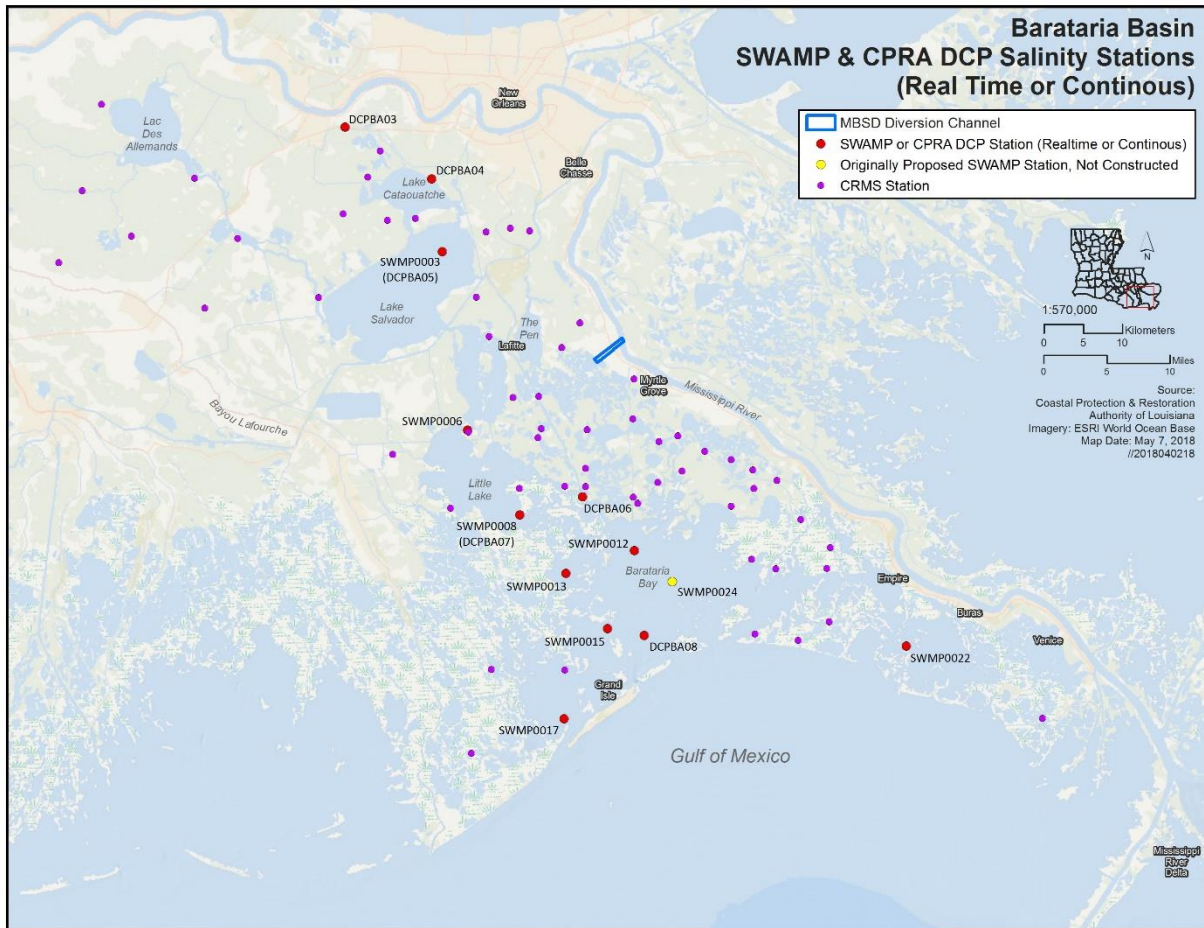


Figure 3.7-6. Existing locations for salinity sampling in Barataria Basin.

- Remote sensing products will cover the entire Project Area of Analysis (white polygon in Figure 3.7-5 encompassing both Barataria and the Mississippi River Delta). Additional discrete sampling locations would occur in response to observations of increased Chlorophyll *a* not coincident with existing stations (e.g., observations via remote sensing or other relevant data such as CPRA survey flights, LDH Molluscan Shellfish Program, NOAA Phytoplankton Monitoring Network).
- Methodology: Multiple methods are used because algal blooms can initiate and intensify over the course of days or weeks, may occur in areas that are not routinely monitored by fixed instrumentation and regularly-schedule discrete sampling, and because different technologies have different strengths and shortcomings (e.g., biofouling of continuous monitors if not serviced biweekly, while turbidity reduces remote sensing accuracy). Concentration of Chlorophyll *a* in discrete water samples is measured in the lab with fluorescence techniques (*sensu* USEPA Method 445) to estimate the biomass of phytoplankton (Hijuelos and Hemmerling 2016).

Remote sensing products will be consistent with the Cyanobacteria Index calculated by the Harmful Algal Bloom Forecasting Branch of the National Centers for Coastal Ocean Science (Wynne et al. 2018). Those products employ algorithms to detect high biomass blooms in the surface water layer and to separate bloom types by measuring proxies that estimate Chlorophyll

*a*, the main component of the blooms, or to look at the optical characteristics of the bloom and surrounding waters in which they occur (NCCOS 2017). Analysis of the remote sensing products over several days will document the size, location, development, and movement of the bloom, initiate additional boat-based response sampling that would be necessary to identify species and sample for potential analysis of toxins, and can also fill data gaps when routine *in situ* monitoring plans are interrupted (e.g., gauge damage from hurricanes, COVID-19 disruption of field work).

- Parties Responsible for Data Collection:
  - Hourly *in situ* sampling: USGS;
  - Monthly discrete sampling: CPRA contractor;
  - Remote sensing data products: NOAA.

#### 3.7.3.10. *Phytoplankton Species Composition (including Harmful Cyanobacterial/Algal Bloom Species)*

- Rationale: Phytoplankton blooms are controlled by several factors, such as nutrient type and loading rate, light availability, water residence time, temperature, and grazing by zooplankton and benthic filter feeders (Boyer et al., 2009). Determination of the cyanobacterial and/or eukaryotic algal species present can provide an indication of the ecological effects of a bloom, whether known harmful cyanobacterial and/or algal bloom (HCAB) species (e.g., *Microcystis* spp.) are present, and whether follow-up sampling for associated toxins is warranted. Because toxins can reach levels of concern before or after Chlorophyll *a* counts are high (e.g. for *Pseudo-nitzschia* and *Dinophysis*), and because bloom toxicity is difficult to predict, species composition monitoring is independent of Chlorophyll *a* thresholds.
- Schedule: Planned monthly for both pre-operations and post-construction monitoring, with additional sampling in response to observations of elevated *Chlorophyll a in Barataria Surface Waters*, increases in the ratio of Chlorophyll to Phycocyanin (a pigment-protein complex that is specific to cyanobacteria, described in section 3.7.3.11), estimated from remote sensing (3.7.3.9), or observed in other relevant data (e.g., CPRA survey flights, LDH Molluscan Shellfish Program, NOAA Phytoplankton Monitoring Network, and other Chlorophyll *a* and HCAB monitoring programs).
- Locations: Samples will be collected at all *Chlorophyll a in Barataria Surface Waters* (3.7.3.9) sampling stations. Additional discrete sampling locations would be dependent on observations of elevated *Chlorophyll a in Barataria Surface Waters* (3.7.3.9), increases in the Phycocyanin:Chlorophyll ratio, or other relevant data as discussed under “Schedule” above.
- Methodology: Collected water samples will be analyzed for the Phycocyanin:Chlorophyll ratio (e.g., using CyanoFluor or another method; final determinations on methodology will be made if, and if so when, the USACE issues the Project permit to CPRA) to estimate the abundance of cyanobacteria in a mixed algal population. A spike in the ratio compared to preceding months would indicate a likely cyanobacteria bloom. Additionally, water samples will be examined in the lab for the presence of toxigenic HCAB species using microscopy or automated detection methods (e.g., Flowcam or Imaging FlowCytoBot), and cell counts of toxigenic HCAB species will be performed.

- Parties Responsible for Data Collection: CPRA contractor.

### 3.7.3.11. Harmful Cyanobacterial/Algal Bloom Toxins in Barataria Surface Waters

- Rationale: Cyanobacterial and eukaryotic algal species capable of producing toxins that pose a risk to aquatic and human resources in the Barataria Basin include the toxic diatom *Pseudo-nitzschia* spp., raphidophytes, several species of toxic dinoflagellates (including *Akashiwo sanguinea*, *Alexandrium monilatum*, *Dinophysis* spp., *Gymnodinium* spp., *Heterocapsa*, *Lingulodinium polyedrum*, and *Prorocentrum* spp and *Dinophysis* spp.), the brown-tide alga *Aureoumbra*, and toxic cyanobacteria (*Anabaena* spp., *Anabaenopsis* cf. *elenkenii*, *Cylindrospermopsis raciborskii*, *Dolichospermum*, *Microcystis* spp., and *Raphidiopsis curvata*), and, if transported from the eastern Gulf, *Karenia brevis* (red tide). Toxicity varies depending on species, strains, and environmental conditions, so chlorophyll cannot be used to predict toxicity, though higher chlorophyll levels do indicate an increased likelihood that HCABs will occur.
- Several of these species are often observed in bloom abundances and may produce toxins that are known to accumulate in fish and shellfish which may serve as vectors of exposure to higher trophic wildlife (e.g., bottlenose dolphins) and people. Some toxins are transferred via the food chain, while others may affect wildlife through dermal (cyanobacteria) or aerosol (brevetoxins) contact. *Pseudo-nitzschia*, present during most of the year, occurs in high abundances inshore and offshore of Louisiana, and sometimes in estuaries over oyster reefs, and is likely to bloom in response to enhanced nutrient inputs. It produces domoic acid that is sometimes detected in filter feeders such as oysters and menhaden and in higher trophic species such as marine mammals. Cyanobacteria, commonly found within the fresh and brackish waters of many estuaries in Louisiana, are associated with hepatotoxin and/or neurotoxin production and likely to increase in low salinity environments and with enhanced nutrient inputs. Less frequently, blooms of raphidophytes occur and can produce brevetoxins.
- Schedule: Planned monthly for both pre-operations and post-construction monitoring, with additional sampling in response to observations of presence of cyanobacterial and/or eukaryotic algal species associated with harmful algal blooms, as determined in *Phytoplankton species composition in Barataria Surface Waters* (3.7.3.10).
- Locations: See discussion for *Phytoplankton species composition in Barataria Surface Waters* (3.7.3.10).
- Methodology: To identify particulate toxins in water, water samples will be collected whenever *Phytoplankton species composition in Barataria Surface Waters* (3.7.3.10) samples are collected for monthly sampling and additional discrete sampling. Samples will be filtered through an appropriate filter and frozen at -80°C. Toxin analysis will be done through both quick tests (using existing kits and filtered samples) and confirmatory methods (using laboratory analysis on some of the samples). During and after suspected bloom events, additional water sampling for dissolved and extracellular toxin may need to be conducted because filter analysis does not allow particulate intracellular and dissolved extracellular toxin determination.

- Cyanobacteria: If known harmful cyanobacteria species are observed during analysis of *Phytoplankton species composition in Barataria Surface Waters* (3.7.3.10), or if a bloom is suspected to have occurred within the previous month based on other observations, then the water samples will be tested for both particulate and dissolved forms of microcystin, the most common cyanobacteria toxin. If microcystin is not detected, then the water samples will be tested for other cyanobacteria toxins (e.g., anatoxin, saxitoxin).
- Harmful algae: For collected water samples with high *Pseudo-nitzschia* cell counts, or if a bloom is suspected to have occurred, then the water samples will be tested for domoic acid. If other harmful algal species are observed, then the water samples will be tested for other relevant toxins.

Additionally, to link toxins to potential food web impacts, whole filter feeding fish that are prey for bottlenose dolphins (e.g., anchovy, herring, menhaden, spot, mullet) will be collected based on phytoplankton cell counts and bloom locations. Toxins (domoic acid, brevetoxins, okadaic acid and related toxins) in fish tissue will be analyzed in the lab, and extracts will be frozen, using established methods.

- Parties Responsible for Data Collection: CPRA contractor.

#### 3.7.3.12. *Nutrient constituents in Barataria Surface Waters*

- Rationale: Nutrients stimulate the growth of aquatic primary producers. The primary limiting nutrients often include nitrogen, phosphorus, and silicate. The types of nutrients and ratios in Basin surface waters are subject to changes in MR concentrations (Turner & Rabalais, 1991) and operations of existing and proposed siphons and diversion structures.
- Schedule: Planned monthly for both pre-operations and post-construction monitoring.
- Locations: Same 23 SWAMP stations described for *Dissolved oxygen in Barataria Surface Waters* (3.7.3.7).
- Methodology: Concentration of selected elements or molecules dissolved in water (reference SWAMP). Measured as mass of nutrient per liter of sample. CPRA's current contract with ENCOS provides for monitoring TN, total Kjeldahl N, nitrate + nitrite, ammonium, TP, orthophosphate, and silica as SiO<sub>2</sub>.
- Parties Responsible for Data Collection: CPRA contractor.

#### 3.7.3.13. *Temperature of Barataria Surface Waters*

- Rationale: Estuarine temperature affects the distribution, growth, and productivity of nekton communities (Minello et al., 2003; Zimmerman et al., 2000), vegetation community composition (Pennings et al., 2005), and ultimately the functions and services that wetlands provide (Odum, 1988).

- Schedule: Continuous monitoring planned for both pre-operations and post-construction monitoring.
- Locations: Same 153 stations described for *Salinity in Barataria Surface Waters* (3.7.3.8).
- Methodology: Temperature will be measured with thermometers or thermocouples and will be reported in degrees Centigrade.
- Parties Responsible for Data Collection: CPRA contractor.

#### 3.7.3.14. *Turbidity of Barataria Surface Waters*

- Rationale: The turbidity of Barataria Basin surface waters influences both primary producers (e.g., phytoplankton and SAV) and consumers (e.g., filter feeders and visual predators) in the estuary. Numerical modeling of Project alternatives supports an expectation of short-term increases in turbidity in Basin surface waters during Project operations.
- Schedule: Planned monthly for both pre-operations and post-construction monitoring.
- Locations: Same 23 SWAMP stations described for *Dissolved oxygen in Barataria Surface Waters* (3.7.3.7).
- Methodology: Optical (or other) measure of water clarity, which can be influenced by particles or dissolved colored materials and may be reported in various turbidity units (reference SWAMP). Measured as Nephelometric Turbidity Units.
- Parties Responsible for Data Collection: CPRA contractor.

#### 3.7.3.15. *Total suspended solids in Barataria Surface Waters*

- Rationale: The transport of substantial amounts of suspended sediments in diverted Mississippi River water into the Basin will result in likely increases to localized suspended sediment concentrations in Barataria surface waters, especially during Project operational flows.
- Schedule: Planned monthly for both pre-operations and post-construction monitoring.
- Locations: Same 23 SWAMP stations described for *Dissolved oxygen in Barataria Surface Waters* (3.7.3.7).
- Methodology: Concentration of particles larger than 2  $\mu\text{m}$  in the water column, comprising organic or inorganic matter, which are filtered from a complete water sample and then dried and weighed.
- Parties Responsible for Data Collection: CPRA contractor.



### 3.7.3.16. *Lower Trophic Level Organisms*

- Rationale: Lower trophic level organisms (e.g., amphipods) are a foundational component of the Barataria Basin food web, and provide a critical link between wetland restoration and ecological service flows to injured fish and water column invertebrates. The Project may influence environmental conditions (salinity, sediment composition) that are known to regulate local distribution of lower trophic level assemblages in estuarine systems. Additionally, this data set was identified as needed for improvement of the CASM ecosystem model described in Section 1.5.1 by an independent, external advisory panel.

There may be an opportunity to leverage other efforts to develop this dataset. In 2020, the LA TIG allocated funding, separate from this Project, to develop a plan to assess Lower Trophic Level organisms in the Barataria Basin (<https://www.fws.gov/doiddata/dwh-ar-documents/1207/DWH-ARZ009103.pdf>) and may consider a second phase to collect field data. In that case, the Project Management Team would coordinate with the separate LA TIG effort to develop an implementation plan that would also address the needs for this Project.

- Schedule: Once pre-construction to create a baseline inventory, and every ten years after operations begin, or in coordination with parallel sampling if funded, as described above.
- Locations: Sampling protocols will be designed to capture the spatial and temporal variation within the Barataria Basin and will be compatible and coordinated with the separate LA TIG planning effort described above.
- Methodology: Sampling protocols will be designed to capture the spatial and temporal variation within selected locations in the Barataria Basin and to address key management questions and data needed to refine ecosystem models of the Barataria Basin food web for application in the adaptive management framework. This will include benthic infauna and epifauna. Methodology will be compatible and coordinated with the separate LA TIG planning effort described above.
- Parties Responsible for Data Collection: CPRA contractor.

### 3.7.3.17. *Aquatic Invasive (Algae and Invertebrate) Species*

- Rationale: The transport of substantial amounts of diverted Mississippi River water into Barataria Basin may result in the introduction of new invasive species, or increased numbers and/or spatial extent, of aquatic invasive species.
- Schedule: Planned for both once pre-operations and once every five years after operations begin.
- Locations: Will be identified following the onset of Project operations.
- Methodology: A rapid assessment survey will identify the presence of invasive algae and invertebrates (e.g., zebra mussel). A team of trained field samplers (scientists or trained volunteers) will visit in-water structures (e.g., marinas) and other selected habitats within Barataria Basin to observe, identify, and record estuarine algal and invertebrate organism

presence, abundance, and location. Samples will be collected for identification in a laboratory.

- Parties Responsible for Data Collection: CPRA contractor.

3.7.3.18. *Nekton (Fish and Shellfish) Species Abundance and Composition/Assemblage*

- Rationale: Documenting the distribution and abundance of important fish and invertebrate species, within the project area allows for examination in trends of time (such as Catch per Unit Effort) or in space and allows for the detection of new or increased presence and range shifts or expansions, of aquatic invasive fishes and invertebrates.

The objective of nekton community sampling is to document the population status of commercially- and recreationally-important fish and invertebrate species, as well as representative guilds. Sampling is designed to: (1) evaluate patterns of distribution, (2) evaluate changes in abundance and composition, and (3) evaluate habitat association patterns.

To meet the monitoring objective for nekton community composition, sampling must be effective at detecting changes in abundance of resident and transient species to fully capture the diversity of species and their life stages. LDWF uses several fisheries-independent gear types across the freshwater to marine gradient (Table 3.7-3), including: entanglement nets, trawls, seine, and electrofishing. Collection of finfish and shellfish (shrimp, crab) using standardized gear can be used as an indicator of relative abundance and can be used to develop diversity indices and to quantify resource availability within estuarine habitats. Standardized gear also targets specific size classes, which provides an opportunity to examine ecological differences among life stages of a given species (Livingston, 1988). CPRA may additionally perform analyses to evaluate food web changes (e.g., stable isotope analysis on nekton gut contents).

**Table 3.7-3.** Example fish and shellfish and the gear type that is generally used to assess abundance and other population characteristics.

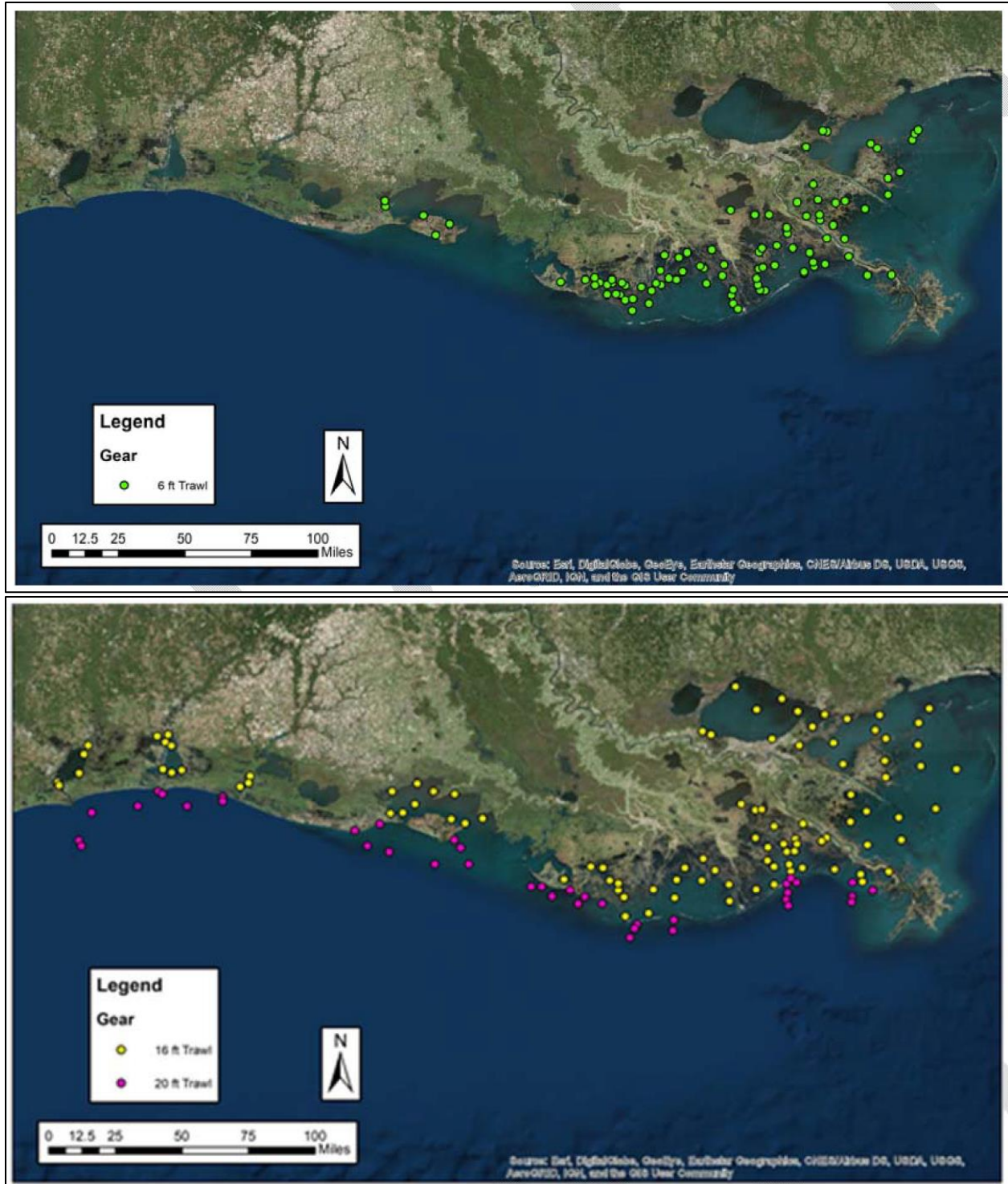
Scientific Name	Common Name	Gear Type
<i>Anchoa mitchilli</i>	Bay anchovy	Trawls
<i>Brevoortia patronus</i>	Gulf menhaden	Trawl/Gillnet
<i>Callinectes sapidus</i>	Blue crab	Trawl/Seine
<i>Cynoscion nebulosus</i>	Spotted seatrout	Gillnet/Trammel Net
<i>Farfantepenaeus aztecus</i>	Brown shrimp	Trawl/Seine
<i>Leiostomus xanthurus</i>	Spot	Trawl/Seine
<i>Litopenaeus setiferus</i>	White shrimp	Trawl/Seine
<i>Micropogonias undulates</i>	Atlantic croaker	Trawl/Seine
<i>Micropterus salmoides</i>	Largemouth bass	Gillnet/Electrofishing
<i>Paralichthys lethostigma</i>	Southern flounder	Trawls
<i>Scomberomorus maculatus</i>	Atlantic Spanish mackerel	Gillnet/Trammel Net

- Schedule: Planned for both pre-operations and post-construction monitoring. See Table 3.7-4 for discussion of sampling frequencies for fisheries-independent data collection.

**Table 3.7-4.** Sampling details for selected fisheries-independent nekton community variables.

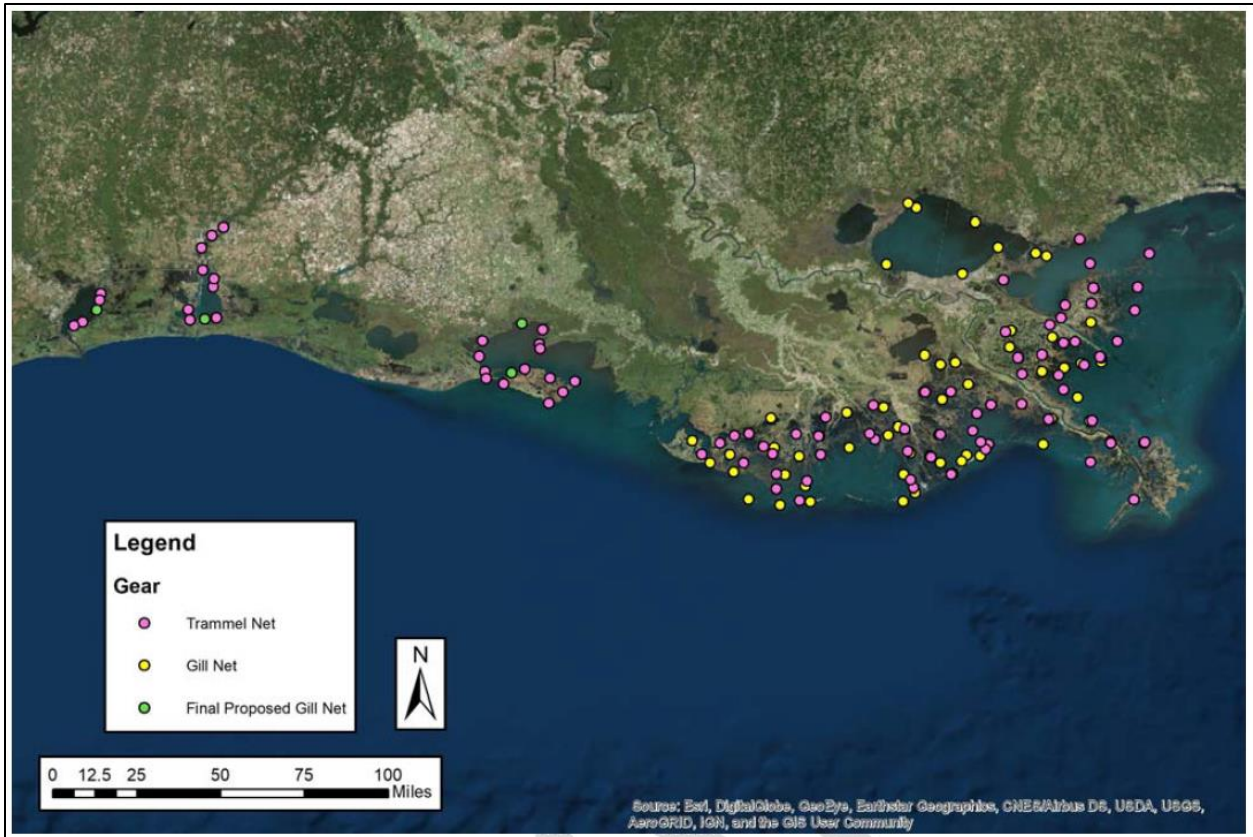
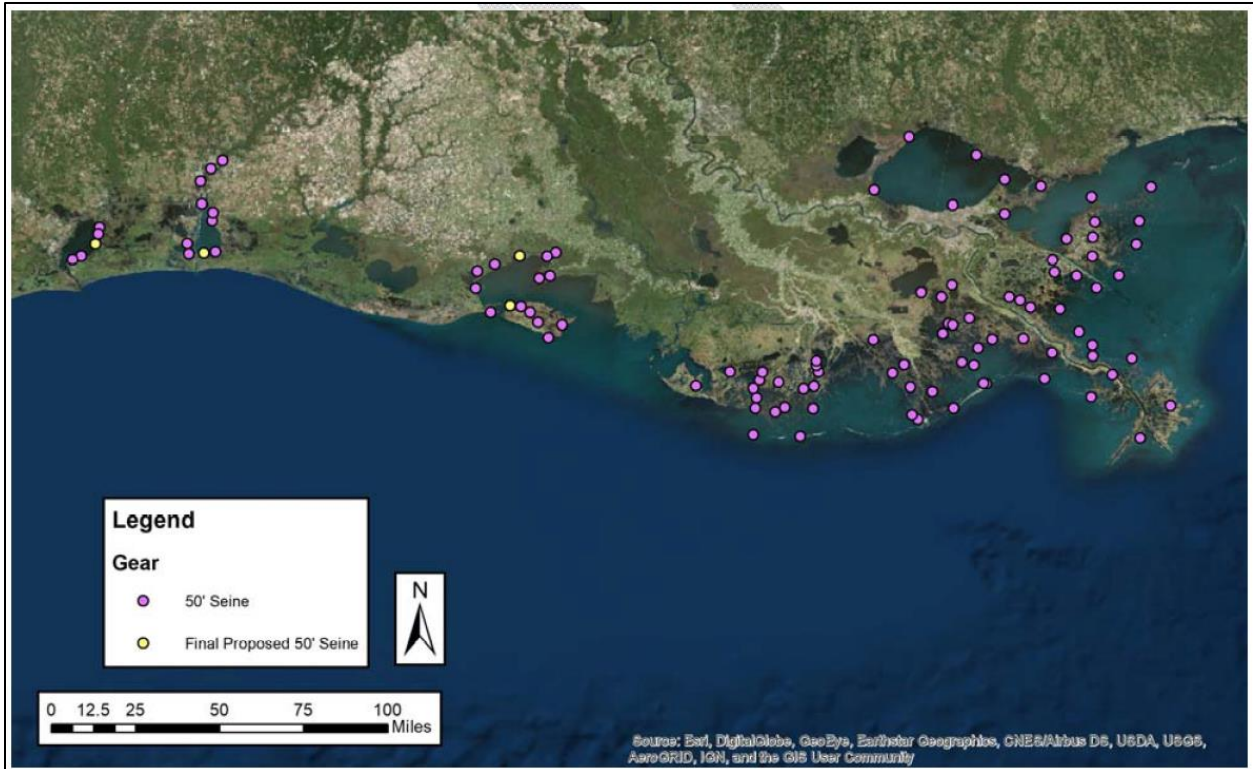
Gear Type	Sampling Frequency	Number of Sites
Trawl (6-ft)	Weekly: April – early May Semi-monthly: June-July	92
Trawl (16-ft)	Semi-monthly: April-July, December Monthly: August-November, January-March	92-102
Trawl (20-ft)	Semi-monthly: April, December Monthly: January, March, May, November	39
Seine	Monthly	102
Electrofishing	Monthly	12
Gill Net	Semi-monthly: April-September Monthly: October-March	52
Trammel Net	Monthly: October-March	45

- Locations: See Figures 3.7-7 and 3.7-8.
- Methodology: Individuals species sampling methods are as per LDWF 2018. Data collection for fisheries-dependent data collection is generally accomplished with creel surveys (weekly) and trip-ticket and oyster boarding (both variable in terms of frequency and number of data collection points).
- Parties Responsible for Data Collection: LDWF.



**Figure 3.7-7.** Existing LDWF trawl locations for along the Louisiana coast. Shown are locations of 6-ft (top) and 16-ft and 20-ft trawls (bottom). Figures from CPRA & LDWF 2019.





**Figure 3.7-8.** Existing LDWF seine (top) and trammel and gill net (bottom) sampling locations along the Louisiana coast. Figures from CPRA & LDWF 2019.

### 3.7.3.19. *Atlantic Bottlenose Dolphins (Tursiops truncatus)*

Rationale: Document changes to the abundance, distribution, population demography, density, survival, health and reproduction of the Barataria Bay Estuarine System (BBES) stock of bottlenose dolphins, their prey, and their habitat that may result from the operation of the Project and resulting low salinity. In addition, to the extent practicable and consistent with the purposes of the Project, minimize impacts on marine mammal species and stocks, and monitor and evaluate the impacts of the project on such species and stocks.

DWH Trustees have invested heavily in understanding the effects of DWH on the BBES stock of bottlenose dolphins. The BBES stock of dolphins was heavily impacted by the DWH oil spill (see the PDARP), and the DWH NRDA Trustees used a combination of stranding response and investigations, capture mark recapture, photo-ID surveys, remote biopsies, and capture release health assessments from April 2010 through 2015 to investigate the injury to the population. Additional studies on BBES dolphins were conducted using capture release health assessments, Capture-Mark-Recapture surveys, stranding response and investigations, and photo-ID surveys from 2016- 2019 to determine the long-term effects of the spill on this population. Dolphins are resident in Barataria Basin, and dolphins exposed to DWH oil during the spill continue to have underlying long-term health impacts from the spill.

In addition, this plan is being implemented in conjunction with planned mitigation and stewardship measures (see the Project Mitigation Plan) to address CPRA's responsibility under the Bipartisan Budget Act of 2018 (Public Law 115-123; hereafter the Budget Act). Section 20201 of the Budget Act indicates that

*“(b) Upon the issuance of a [Marine Mammal Protection Act] waiver ... the State of Louisiana shall, in consultation with the Secretary of Commerce [as delegated to NMFS]: (1) To the extent practicable and consistent with the purposes of the projects, minimize impacts on marine mammal species and population stocks, and (2) Monitor and evaluate the impacts of the projects on such species and population stocks.”*

Adaptive management strategies to monitor, respond to, intervene, and minimize impacts on BBES dolphins from Project operations include a framework for data collection on dolphins and their environment, coordination between CPRA and the Dolphin Resource Team (DRT; composed of the group of individuals actively working on marine mammal data collection and stranding response in the Barataria Basin) before and during operations, an ongoing evaluation of the ability of diversion operations to be modified (to meet the purposes of the Project and reduce impacts to marine mammals), and the execution of those modifications. In addition to the contributions of data and information described here, the Dolphin Intervention Plan contains information about potential intervention activities to increase survival; reduce illness, pain, and suffering; and further contribute to the collection of scientific information that may inform mitigation activities and adaptive management of the monitoring and response activities.

- Schedule: Planned for pre-operations and post-construction monitoring. The schedule for sampling frequency for the various methods may be different in pre-operations and post-construction phases. To collect the data necessary to monitor and evaluate the impacts of the Project on dolphins and guide consideration of adaptive management actions, a variety of methods may be used. Efforts pre-operations and monitoring during the first year(s) of



operation will guide consideration of operational adaptive management decisions. Results from the first five years of monitoring during operational years will guide scheduling or the need for continuation of monitoring for future years.

- Pre-operations: During the five years prior to operations, several methods will be used to identify baseline information on the abundance, distribution, density, health, stranding rates/types/causes, survival and fecundity of the resident population prior to operations to be able to identify changes once the Project is operational. The data will also help update the Intervention Plan. Given the length of time between past data collection efforts and Project operations, this additional sampling is necessary. In addition, a single effort in any given year may not be sufficient given inter- and intra-annual variability, seasonal habitat and potential changes in dolphin spatial distribution within Barataria Basin. The plan below presents a reasonable sampling design to capture both inter- and intra-annual variability.
  - Enhanced stranding response and investigations (stranding rates, causes of illness and death, standardized effort) as part of this MAM plan would be ongoing beginning five years prior to operations.
  - Active surveillance surveys (stranding rates, causes of illness and death, standardized effort) will include a pilot study in the first two years. If those drone- or boat-based surveys increase/improve detection of carcasses, then consistent and standardized surveys will be conducted from years 3-5 prior to operations to establish baseline stranding rates.
  - Capture-Mark-Recapture (CMR) surveys (abundance, distribution, density) will be conducted basin-wide, including at least one survey during the pre-operations period (e.g., 4 years prior to operations).
  - Visual assessment surveys (skin health, body condition, and reproductive follow-up).
  - Capture Release Health Assessment (CRHA) sessions will be conducted to include animals captured in locations across the basin. Health data analyses will include a variety of samples and procedures.
  - Tagging (movement and possibly salinity) from several areas across the bay.
  - Biopsies (for omics, hormones, fecundity, nutrition, contaminants, and disease) and associated analyses in different geographic areas during years without a CRHA.
  - New technologies as they become available may be used to assist in assessing dolphin habitat use. For instance, the collection of environmental DNA (eDNA) data through boat-based water collections or from archival or continuous eDNA sensors might be paired with the continuous salinity sensor platforms. The remote dolphin targeted eDNA might provide dolphin presence or absence during periods in which boat access is not possible.
  - Baseline dolphin habitat water quality monitoring will be fulfilled through other ongoing or planned resource monitoring (e.g., 3.7.3.7 - 3.7.3.15).
  - Prey data (quantity, quality, species) will be collected and analyzed seasonally by the State's FIMP (Section 3.7.3.18), and from stranding samples. These data will be shared with the Dolphin Resource Team. Whole fish samples representative of dolphin prey (no less than 10 per prey type) will be collected, preserved and analyzed by calorimetry and other parameters for evaluation of the nutritional content of current pre-operations prey.
  - Analysis of dolphin samples for evidence of contaminants, HABS, or other

- potential stressors will be closely coordinated in terms of time and scope with the results from similar analyses in other resources, such as dolphin prey or habitat quality monitoring (e.g., 3.7.3.24).
- The DRT will act as a technical focus group and will meet as needed (at least annually) to review monitoring data and adaptive management strategies, with one ongoing task of providing recommendations for potential adaptive management actions for minimizing impacts on dolphins. Pre-operations activities will include collating and assessing literature and data that can provide context for future decision making, including potential operational adaptive management actions in response to disasters (e.g., oil spills, hurricanes, etc.). The group will also assess Project-related pre-operations monitoring activities to evaluate potential dolphin-based or habitat-based indicators for informing specific adaptive management actions that are intended to be practicable and consistent with the purposes of the Project. Observations triggering potential adaptive management considerations may include response/intervention capacity, as well as morbidity and mortality of dolphins. The DRT will also evaluate the potential benefits and risks to dolphins for various operational adaptive management strategies to inform potential recommendations. In addition to activities/modifications related to managing daily, weekly, and/or monthly marine mammal response and data collection in real time, the DRT will provide the Adaptive Management Team with information to assist with their annual evaluations related to operational adaptive management actions.
  - Post-Construction: Up to 10 years of post-construction monitoring will begin with the onset of Project operations to support understanding of the short and long-term impacts of the project on BBES dolphins. The DRT will review dolphin and environmental data as they become available and provide recommendations to the AMT on mitigation (including, but not limited to operation strategies, adaptive management of monitoring activities, and implementation of intervention strategies (based on the most recent version of the Intervention Plan), when warranted. The DRT will review datasets as needed. Annual review of the data collected, and results will inform planning for the following year's data collection efforts.
    - Enhanced stranding response and investigations (stranding rates, causes of illness and death, standardized effort, rapid response for live animals) as part of this MAM plan will be ongoing in the BBES and adjacent coastal areas.
    - Active surveillance (stranding rates, causes of illness and death, standardized effort, rapid response for live animals) as part of this MAM plan will be ongoing in the BBES and adjacent coastal areas (pending pilot study for effectiveness and feasibility).
    - CMR surveys bay-wide (abundance, distribution, density) will be conducted basin-wide periodically, including a survey at one year post-construction. It is anticipated that CMR surveys will be conducted during the early years of operations as this is the period of greatest expected change in survival rates.
    - Visual assessment surveys (skin health, body condition, reproductive follow-up) will be done via unmanned aircraft system (UAS; i.e., drone) and/or vessel-based assessments.
    - CRHA (health status) will be done periodically across geographic areas.
    - Biopsies (omics, hormones, fecundity, nutrition, contaminants, and disease) will be done during years without a CRHA.

- Tagging (movement and salinity) will include approximately 140 animals total over 10 years.
  - Prey species abundance and assemblage (3.7.3.18), contaminants in fish, shellfish, and wildlife (3.7.3.23), and water quality data (i.e., salinity, dissolved oxygen, Chlorophyll *a*, phytoplankton, and biotoxins (3.7.3.7-11) provided from the monitoring programs described above will inform adaptive management guidance for the dolphin monitoring and intervention activities.
  - Prey collected as part of nekton monitoring (3.7.3.18) will be analyzed twice in years 1-5, and every 3-5 years thereafter, for nutritional quality through methods such as whole fish calorimetry.
  - Analysis of dolphin samples for evidence of contaminants, HABs, or other potential stressors will be closely coordinated in terms of time and scope with the results from similar analyses in other resources, such as dolphin prey (3.7.3.18) or habitat quality monitoring (3.7.3.23).
  - The DRT will meet as needed (at least annually) to review monitoring data, operational conditions, triggers, and adaptive management strategies, to continue providing recommendations for potential adaptive management actions designed to minimize project impacts on dolphins. Rapid access to monitoring data (e.g., habitat and water quality parameters) for a core team of the DRT, Louisiana stranding network and others, as needed, will be critical to their ability to assess conditions for dolphins and provide timely recommendations for adjustments to the adaptive management program that minimize dolphin impacts (see Section 5).
- Locations: Basin-wide environmental data collected through the current and additional real-time salinity stations and other efforts (e.g., dolphin prey base collected through the FIMP program, contaminants, HCABs, salinity/temperature) will inform stranding investigation and monitoring efforts.
  - Pre-Operations: Basin-wide studies will occur as described above ensuring that the full areas of dolphin habitat within Barataria Basin are represented.
  - Post-Construction: The basin-wide abundance, distribution and density surveys identified above will continue post-operations. Initial health assessments will be focused basin-wide, with out-year locations being dependent upon potential changes in habitat and dolphin distribution. Year-round marine mammal and environmental monitoring and stranding response basin-wide.
- Methodology: The methodologies proposed here allow for data collection efforts supported through the Project. Data consistency and scientific integrity of the data will be important. Several categories of data must be collected to monitor and evaluate the effects of the Project on dolphins using various data collection methods (Table 3.7-5). Efforts carried out separately from the Project can be leveraged, but surveys specific to this plan must be able to be integrated with past, present and future data collection, including with the DWH NRDA long-term data set.
  - Enhancing the Marine Mammal Stranding Network (MMSN): At least five years prior to operations, the DRT core team will provide for an enhanced MMSN to establish baseline stranding information pre-operations. Support for stranding response personnel, outreach and education to the community to increase reporting, active surveillance for strandings (see next bullet), and diagnostic analyses to determine causes of illness and death will be necessary. For instance, if strandings increase above the pre-operation

level (for example, mean plus 2 standard deviations) or there is an increase in the proportion of cases with cause of illness/death determined to be low salinity exposure, then an increase in effort, analyses, and response will be initiated.

**Table 3.7-5.** Bottlenose dolphin monitoring parameters and associated methods. Note that each parameter relies on a suite of methods, and that each method contributes to the measurement of a suite of parameters, but that no one method can measure all parameters required for project evaluation and adaptive management.

Parameters	Methods						
	CMR Survey Photo-ID	Visual Surveys (UAS, Photo-ID vessel)	Captures	Tagging (with salinity sensors)	Biopsy	Stranding Response	Prey and Water Quality
Abundance, distribution, density	X			X			
Survival	X	X	X	X		Mortality Trends	
Reproductive status/success		X	X		X	X	
Body/skin condition/nutritional status	X	X	X		X	X	
Overall in-depth health assessment or cause of death/injuries or lesions			X (in-depth health and tagging)			X (cause of death/lesions only)	
Prey or trophic level			X		X	X (stomach content)	X
Habitat (salinity, contaminant/HAB)	X	X	X	X	X		X

- Active surveillance: Dedicated survey effort to identify and recover marine mammal carcasses within defined search areas at consistent intervals will be crucial to address variation in effort and public reporting that confound development of reliable baselines and interpretation of changes in stranding rates. A pilot study 4-5 years prior to construction will include vessel- and UAS-based surveys to examine variability by region and season, as well as evaluate effectiveness and assess protocols for documenting carcasses by drone and/or photography. A standardized, consistent survey effort will then be designed based on the pilot study’s findings and implemented to establish baseline stranding rates in the three years prior to operations and ongoing through the Project lifetime.
- Periodic visual health assessment in specific geographic areas: Use UAS, vessel-based, or alternative techniques to visually assess the health of dolphins as described above. The assessment will be adaptive. For instance, if mortality increases in specific regions, dolphin body condition decreases, or skin lesions become more prevalent, sampling frequency may be increased (see Table 4.1-3). This effort might be combined with stranding response active surveillance to maximize efficiency.
- CRHA with or without tagging: These assessments will be performed similar to the assessments from 2010-2018; however, diagnostics, tag types, and sample analyses may be different. Tagging would be performed depending on the timing of the assessments

and availability of satellite tags with or without salinity sensors.

- CMR Surveys: These surveys will be conducted similar to the 2019 CMR survey and may incorporate UAS and additional simultaneous photography for visual health assessments. If mortality or morbidity increases in specific areas, targeted CMR surveys may be implemented or increased in frequency.
- Remote biopsy studies: Remote biopsy may be undertaken particularly in years in which CMR or CRHA studies are not being completed and there is a need to have additional information on some health parameters, nutritional parameters, and hormone status, particularly reproductive hormones in the population. In addition, biopsy frequency or implementation may occur in response to increased morbidity or mortality. These studies provide information on pregnancy, other steroid hormone status that may inform nutritional status, and other parameters such as stable isotopes or contaminants.
- If fisheries surveys indicate that the prey base has shifted, and dolphin body condition decreases, a bioenergetics study would occur.
- Additionally, a monitoring lab and office will be established within an existing facility or via mobile facilities, with associated equipment (e.g., vessels, trailers, truck, freezer). The DRT will regularly evaluate: 1) the operational modifications that are appropriate for considering adaptive management and/or adjustments to monitoring plans and addressing data gaps, 2) monitoring data relevant to those operational modifications/data gaps, and 3) appropriate potential adaptive management actions for minimizing impacts on dolphins. Operational modifications could be based on dolphin stranding rates; prevalence of adverse health effects; dolphin movements; qualified personnel and resources available for response/intervention (e.g., stranding network capacity); impacts from disasters; and/or habitat/water quality. The DRT will be tasked with integrating various data sources and appropriate additional analyses to best consider recommendations to the Project AMT. The specific process by which the DRT will transmit their recommendations to the State, and the State responds to those recommendations, will be identified on further discussion.

- Parties Responsible for Data Collection

CPRA and NOAA will ensure that the Marine Mammal Monitoring and Adaptive Management addresses their respective obligations under the Bipartisan Budget Act of 2018; and NOAA will ensure that the Marine Mammal Monitoring and Adaptive Management addresses their obligations under the MMPA.

DRT activities related to mitigation, monitoring, and intervention will be led by NOAA with a dedicated liaison to the AMT. The DRT will execute the monitoring and AM strategy (which includes both live animal fieldwork and stranding response) for up to 15 years (five years pre-construction; 10 years post-construction). The group will consist of a core team of experienced dolphin staff (including NOAA and contractors) with assistance from additional experienced dolphin staff from partners, as needed. The core team and partners will accomplish the dolphin monitoring and response fieldwork, data and sample collection, data and sample analyses, data management, sample processing, necropsies, outreach/education, and information synthesis. In addition, the group will incorporate the relevant information received from other environmental and biological monitoring sources into marine mammal recommendations to the AMT. The team will also work with federal, state and local partners to increase capacity, public awareness, and

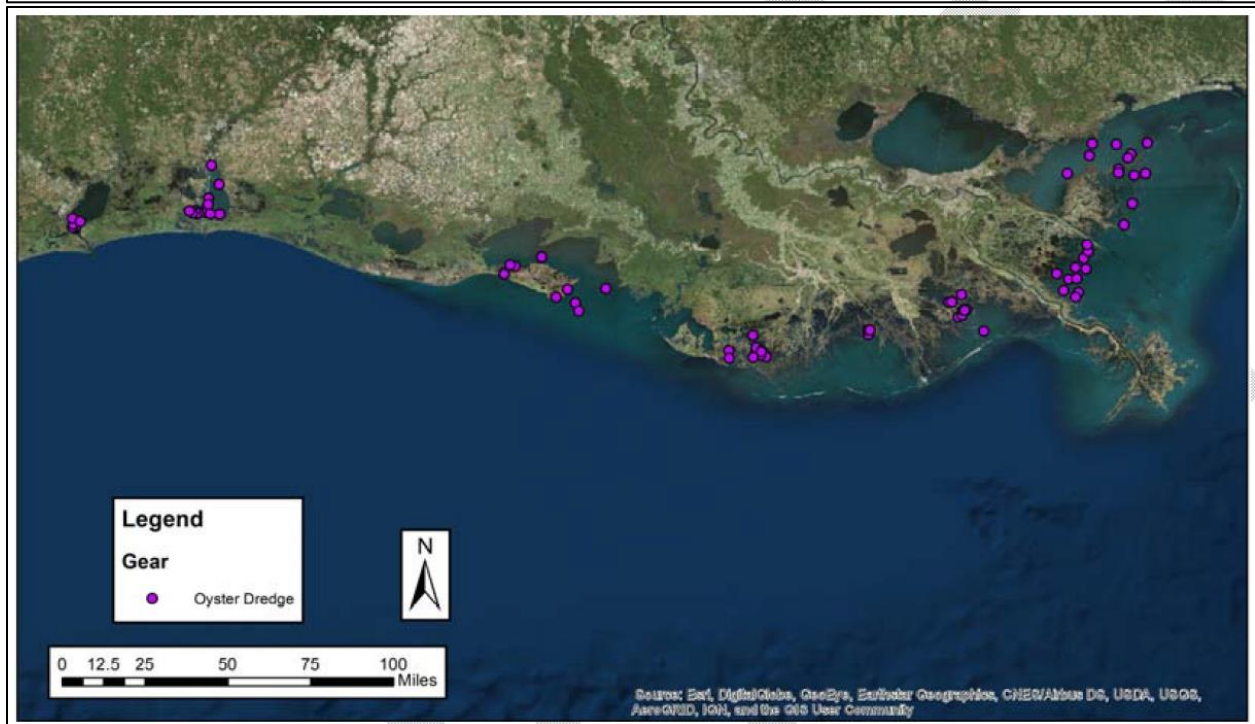
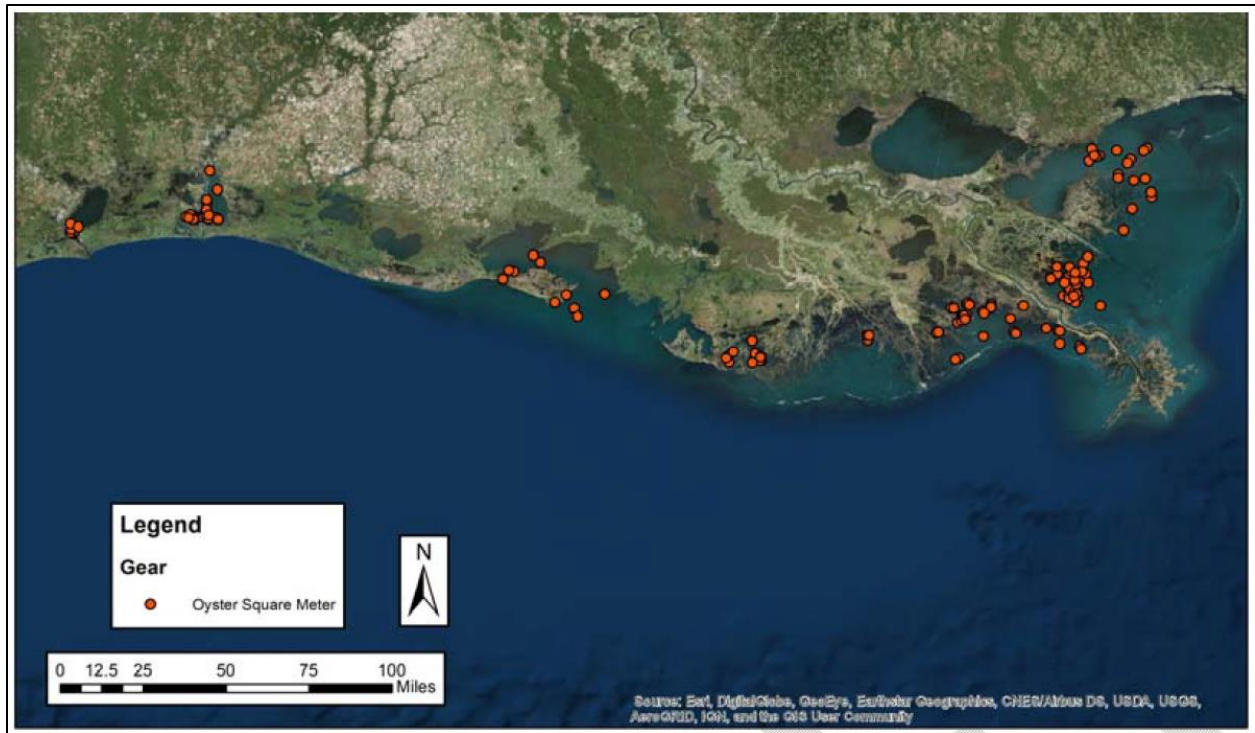
education opportunities on dolphins within Barataria Bay and may provide training opportunities for partners throughout the state.

The DRT anticipates using a tailored version of the CETACEAN platform being developed in partnership with the International Ocean Observing System under the Open Ocean TIG for data intake, management, integration, and synthesis. NOAA will ensure that this system should be compatible with the data management practices outlined in Section 6.

#### 3.7.3.20. *Eastern Oysters (Crassostrea virginica)*

- Rationale: Document oyster population dynamics and abundance to assess the status and trends of the resource within the project area. The distribution of oysters within an estuary is largely a function of salinity, freshwater input, depth, and substrate (Melancon et al., 1998), although sedimentation, coastal disturbances and overharvesting also control their distribution (Oyster Technical Task Force, 2012). Storm surge and wave action can also result in the destruction of oyster reefs, killing of spat and juvenile oysters, or displacement of oysters onto habitats that cannot support them (Banks et al., 2007).
- Schedule: Planned for both pre-operations and post-construction monitoring. LDWF samples at varying frequencies depending on the methodology and the time of year:
  - Dredge:
    - Monthly, except for July
    - LDWF may also sample weekly in April and May in order to adaptively manage the oyster fishery
  - 1-m<sup>2</sup> quadrat:
    - Coast-wide annually between late June and early July
    - In the Barataria and Pontchartrain Basins only, twice annually in May-June and September-October
- Locations: 34 existing locations shown in Figure 3.7-9.
- Methodology: The LDWF oyster-sampling plan uses square meter plots and dredge sampling to assess oyster density, abundance, and mortality. CPRA proposes to continue that monitoring at the current sampling spatial and temporal density (see Banks et al. 2016).
- Parties Responsible for Data Collection: LDWF.

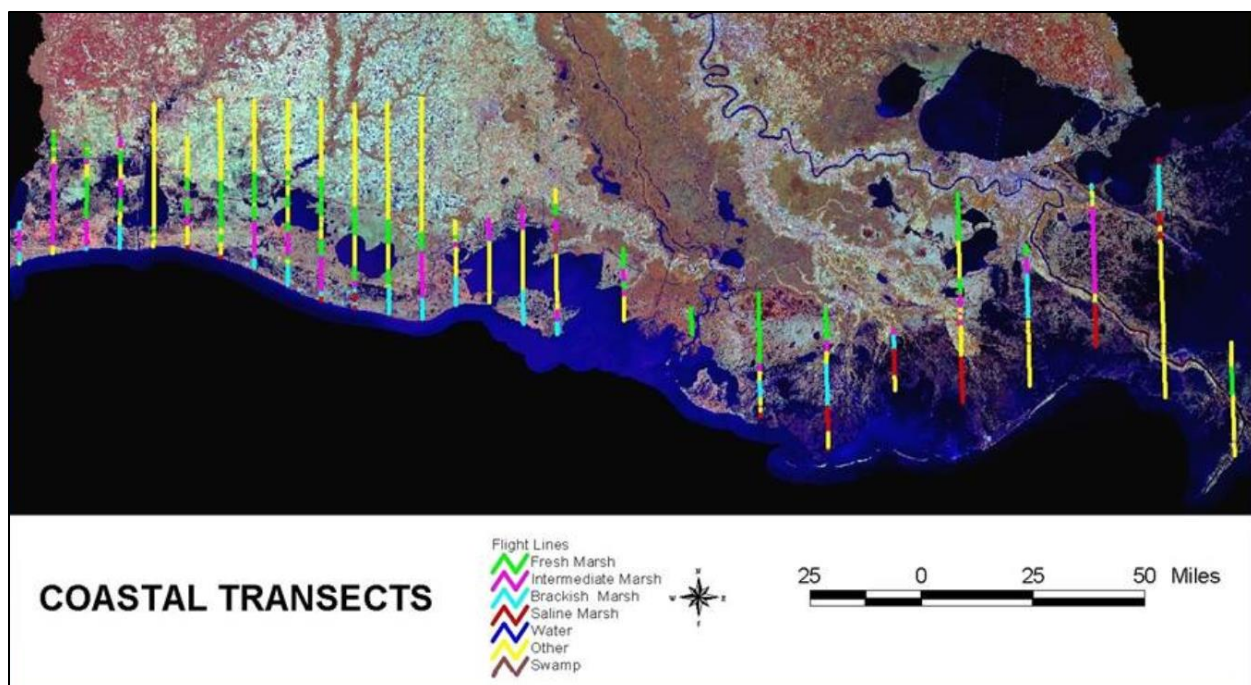




**Figure 3.7-9.** Existing LDWF locations for oyster density sampling along the Louisiana coast. Shown are locations for square-meter (top) and dredge sampling (bottom). Figures from CPRA & LDWF 2019.

### 3.7.3.21. Wildlife

- Rationale: Document changes in selected wildlife abundance within the project area. The data will support estimations of *Aquatic resource and terrestrial wildlife utilization of created/restored habitat (3.7.3.22)*. The following wildlife species are priorities for Project monitoring, as there were identified in DWH Trustees (2016) as having been injured during the 2010 spill, were the subject of Project-effects estimation of habitat suitability (via the use of HSIs) or were otherwise identified as priorities for continued monitoring by Project partners.
  - *Alligator mississippiensis* (American alligator),
  - *Anas carolinensis* (green-winged teal),
  - *Anas fulvigula* (mottled duck),
  - *Mareca strepera* (gadwall), and
  - *Pelecanus occidentalis* (brown pelican).
- Schedule: Planned for both pre-operations and post-construction monitoring. Schedule varies by species; see Methodology below for details.
- Locations: Survey locations for the species listed above will be consistent with existing LDWF aerial surveys paths.
- Methodology:
  - LDWF conducts annual aerial surveys coast-wide to estimate the number of waterfowl (Figure 3.7-10). The survey consists of 27 north-south transect lines from the Gulf northward to U.S. Highway 90 that are one-quarter mile in width and vary in length from 8 to 48 miles. Survey lines are spaced at 7.5-mile intervals in the southwest and at 15 miles in the southeast resulting in 3% and 1.5% sampling rates in the two areas, respectively. A fixed-wing aircraft is used for this inventory from an altitude of 125 feet at approximately 100 mph. The number of ducks and type of waterfowl species are recorded by habitat type on each survey line. The AMT will rely on the continuation of those data-collection efforts, and will consult with LDWF staff to determine reasonable approaches to estimate those relevant population estimates for the PIA.
  - LDWF conducts nesting surveys for brown pelicans. The AMT will rely on the continuation of those data-collection efforts, and will consult with LDWF staff to determine reasonable approaches to estimate those relevant population estimates for the PIA.
  - LDWF also conducts annual aerial surveys coast-wide to estimate the number of alligator nests, for purposes of setting the annual limits for the taking of eggs in support of the alligator farming industry. The AMT will rely on the continuation of those data-collection efforts, and will consult with LDWF staff to determine reasonable approaches to estimate those relevant population estimates for the PIA.
- Parties Responsible for Data Collection: LDWF.



**Figure 3.7-10.** Locations of coastal transects flown by LDWF for waterfowl population estimations. Transects are shown in relation to marsh type from 2001 (see Linscombe and Hartley (2011)). Figure courtesy of LDWF.

### 3.7.3.22. Aquatic resource and terrestrial wildlife utilization of created/restored habitat

- Rationale: Estimate utilization of created or restored habitat by aquatic resources and terrestrial wildlife. The DWH PDARP (DWH Trustees 2016) discussed several fish and wildlife species that served as indicators of injury to the coastal vegetated marsh ecosystem caused by the 2010 spill (though it is noted that these were not the only species for which Deepwater Horizon injuries were documented):
  - *Fundulus grandis* (Gulf killifish),
  - *Cyprinodon variegatus* (sheepshead minnow),
  - *Palaemonetes pugio* (grass shrimp)
  - *Callinectes sapidus* (blue crab)
  - *Littorina irrorata* (marsh periwinkle), and
  - *Uca longisignalis* (Gulf marsh fiddler crab).
- Schedule: Planned to occur once pre-operations and every five years post-construction.
- Locations: Will include a mix of existing marsh sites within the PIA and newly-created marshes in the PDDA, and in two additional wetland areas (a conventionally restored wetland and an unrestored wetland) as described in Section 4.1.3, for purposes of assessing the relative ecosystem function of different marsh restoration treatments.
- Methodology:
  - Entrapment gears will be used to sample nekton such as *Gulf killifish* and grass shrimp in the tidal creeks, marsh and at the marsh edge.
  - Data from *Nekton (Fish and Shellfish) Species Abundance and Composition/Assemblage* (3.7.3.18), *Eastern Oysters* (3.8.3.20), and *Wildlife* (3.7.3.21) surveys will be combined

with data collection at historically-occurring emergent wetlands within the Project Influence Area and newly-created emergent wetlands in the Project delta development area to provide an estimate of wildlife utilization.

- *Gulf marsh fiddler crabs* will be surveyed non-destructively, through either burrow counts or visual counts of individual crabs (see discussion in Miller (no date)).
  - Marsh periwinkles will be sampled through visual counts.
- Parties Responsible for Data Collection: CPRA contractor.

### 3.7.3.23. *Contaminants in Fish, Shellfish, and Wildlife*

- Rationale: Document 1) presence of Contaminants of Concern (COCs) on fish and wildlife resources within the Project Influence Area and 2) potential risks to human health and wildlife from consuming fish and shellfish from the Project Influence Area. Many of the soluble organic contaminants in the Mississippi River (e.g., hexachlorobenzene and polychlorinated biphenyls) are associated with the suspended sediment fractions that contain the most organic carbon. Contaminants can bioaccumulate in organisms, and higher trophic levels exhibit higher concentrations (biomagnification).
- Schedule: One pre-operations sampling event to establish baseline concentrations of COCs in sediment, fish, and shellfish in the Project Influence Area. Initial post-operations fish and shellfish sampling schedules will be informed by baseline results of COCs found in the sediment of the Project Influence Area. For example, elevated levels of certain contaminants in baseline samples (e.g., mercury) may necessitate more frequent sampling. The periodic post-operational sampling of fish and shellfish will begin after sufficient time for potential contaminants to accumulate (2 to 5 years). The frequency, intensity, and potential expansion of subsequent periodic sampling (e.g., 2 to 5 years, or later) will be predicated upon the type and level of contaminants detected in tissue and/or sediment.
- Locations: Within the outfall area and the Mississippi River.
- Methodology:
  - CPRA, in coordination with the US Fish & Wildlife Service (USFWS), will develop
    - A list of contaminants to be analyzed, taken from the most recent EPA Priority Pollutants list (40 CFR Part 423 Appendix A) and relevant to Mississippi River water quality; and
    - A list of fish and shellfish to sample for the selected contaminants. Recommended species and analytes are detailed in USEPA (2000). A bottom-dwelling species of finfish will be included in all sampling events due to proximity with sediments.
  - Expansion of sampling to local nesting bald eagles (e.g., fecal and blood samples analyzed for the same contaminants) would also be predicated upon the type and level of contaminants detected.
  - Sediments will be sampled once pre-operations. Post-operations sampling may be added after sufficient time for potential contaminants to accumulate.
  - Analytical results will be shared with USFWS and LDWF. Based upon results and in consultation with USFWS and LDWF, the MAM plan may be modified as appropriate.

- Parties Responsible for Data Collection: CPRA contractor.

### 3.7.3.24. Socio-economic Data

At this time, CPRA is proposing to rely on the Human Dimensions data collection in Barataria Basin outlined in the SWAMP implementation plan (Hijuelos and Hemmerling, 2016; <https://cims.coastal.louisiana.gov/RecordDetail.aspx?Root=0&sid=11464>). To summarize the proposed information outlined in Table C:1 therein, the categories (*in italics*) and variables proposed by Hijuelos and Hemmerling (2016) are listed in Table 3.7-6. The Multi-year Project Synthesis Reporting (5.2.3) will summarize these data for interested parties.

- Parties Responsible for Data Collection: Most of these parameters are collected and archived by the US Census Bureau or other federal agencies. CPRA or its contractor will obtain and summarize the federal data to be considered as part of the 5-year synthesis (Section 5.2.3).

**Table 3.7-6.** Socio-economic parameters and data repositories. See Hijuelos and Hemmerling (2016) Table C:1 for additional details.

Category/Parameter	Currently Collected By	Data Availability
<b>Population and Demographics</b>		
Number of Households	Census Bureau	<a href="https://data.census.gov/cedsci/">https://data.census.gov/cedsci/</a>
Total Population	Census Bureau	<a href="https://data.census.gov/cedsci/">https://data.census.gov/cedsci/</a>
Race and Ethnicity	Census Bureau	<a href="https://data.census.gov/cedsci/">https://data.census.gov/cedsci/</a>
<b>Housing and Community Characteristics</b>		
Residential Stability	Census Bureau	<a href="https://data.census.gov/cedsci/">https://data.census.gov/cedsci/</a>
Home Ownership	Census Bureau	<a href="https://data.census.gov/cedsci/">https://data.census.gov/cedsci/</a>
Residential Occupancy Rates	Census Bureau	<a href="https://data.census.gov/cedsci/">https://data.census.gov/cedsci/</a>
Property Values	Census Bureau	<a href="https://data.census.gov/cedsci/">https://data.census.gov/cedsci/</a>
<b>Economy and Employment</b>		
Economic Development	Bureau of Economic Analysis	<a href="https://apps.bea.gov/itable/index.cfm">https://apps.bea.gov/itable/index.cfm</a>
Income Levels	Bureau of Labor Statistics	<a href="https://beta.bls.gov/dataQuery/find?removeAll=1">https://beta.bls.gov/dataQuery/find?removeAll=1</a>
Poverty Rates	Census Bureau	<a href="https://www.census.gov/library/publications/2021/demo/p60-273.html#:~:text=The%20official%20poverty%20rate%20in,and%20Table%20B%2D4">https://www.census.gov/library/publications/2021/demo/p60-273.html#:~:text=The%20official%20poverty%20rate%20in,and%20Table%20B%2D4</a>
Unemployment Levels	Bureau of Labor Statistics	<a href="https://beta.bls.gov/dataQuery/find?removeAll=1">https://beta.bls.gov/dataQuery/find?removeAll=1</a>



**Table 3.7-6 (continued).** Socio-economic parameters and data repositories.

Category/Parameter	Currently Collected By	Data Availability
<b>Ecosystem Dependency</b>		
Natural Resource Extraction (agriculture and forestry, fisheries landings, oil & gas production)	Several including US Department of Agriculture (USDA), US Department of Energy, Bureau of Land Management, Federal Emergency Management Agency (FEMA), USGS; USDA Census of Agriculture ZIP code agricultural yield data; Louisiana State University AgCenter parish agricultural totals; LDWF trip ticket zone fisheries landings data; LDNR oil and gas production data	<a href="https://www.ers.usda.gov/about-ers/partnerships/strengthening-statistics-through-the-icars/natural-resources-datasets/">https://www.ers.usda.gov/about-ers/partnerships/strengthening-statistics-through-the-icars/natural-resources-datasets/</a>
Cultural and Traditional Uses of Natural Resources	Louisiana Division of Archaeology, State Division of Historical Preservation, LDWF, LDNR; additional sampling surveys needed	
Natural Resource-based Employment (agriculture, forestry, fishing and hunting, and oil & gas):	Bureau of Labor Statistics; 5-year American Community Survey block group estimates of employment in agriculture, forestry, fishing and hunting, and oil and gas extraction	<a href="https://www.bls.gov/iag/tgs/iag10.htm#workforce">https://www.bls.gov/iag/tgs/iag10.htm#workforce</a>
Tourism, Commercial and Recreational Use of Natural Resources (e.g., number of recreational fishing and hunting licenses, number of recreational trips to the area)	Louisiana Wildlife and Fisheries; additional sampling surveys needed	<a href="https://www.wlf.louisiana.gov/page/wma-gis-data-download">https://www.wlf.louisiana.gov/page/wma-gis-data-download</a>
<b>Residential Properties Protection</b>		
Residential Risk Reduction	FEMA digital flood maps	<a href="https://www.fema.gov/about/openfema/data-sets#hazard">https://www.fema.gov/about/openfema/data-sets#hazard</a>
Households Receiving Structural Protection	FEMA; USACE levee locations	<a href="https://www.fema.gov/about/openfema/data-sets#hazard">https://www.fema.gov/about/openfema/data-sets#hazard</a>
Residential Properties Receiving Nonstructural Protection	FEMA; Louisiana Governor’s Office of Homeland Security and Emergency Preparedness (GOHSEP) mitigated structures data	<a href="https://www.fema.gov/about/openfema/data-sets#hazard">https://www.fema.gov/about/openfema/data-sets#hazard</a>
<b>Critical Infrastructure and Essential Services Protection</b>		
Risk Reduction for Critical Facilities	NOAA; FEMA’s Hazus Multi-Hazard tool data; GOHSEP Severe Repetitive Loss Data	<a href="https://coast.noaa.gov/digitalcoast/data/criticalfacilities.html">https://coast.noaa.gov/digitalcoast/data/criticalfacilities.html</a>
Miles of Levees Created and Maintained	USACE	<a href="https://levees.sec.usace.army.mil/">https://levees.sec.usace.army.mil/</a>
Number of Critical Facilities Protected by Levees	USACE	<a href="https://levees.sec.usace.army.mil/">https://levees.sec.usace.army.mil/</a>
Public and Commercial Properties Receiving Nonstructural Protection	Regional Planning Commission; GOHSEP mitigated structures data	



### **3.7.4. Compliance Monitoring**

The purpose of compliance monitoring is to document the ability of those managing the Project to meet permitting requirements.

#### **3.7.4.1. National Historic Preservation Act, Section 106 Monitoring Requirements**

- Rationale: In compliance with Stipulation X. Monitoring Plan of the Programmatic Agreement among USACE, the State Historic Preservation Officer, the Advisory Council on Historic Preservation, and CPRA, CPRA will monitor the effects of the diversion on archaeological sites within the Operations Impact Area of Potential Effect.
- Schedule: Planned to occur once pre-operations and annually, after the cessation of operational flows and return to base flow, for the first fifteen years after the onset of Project operations.
- Locations: Documented historical sites in the Project Influence Area.
- Methodology: CPRA will use a team of Secretary of the Interior Qualified Archaeologists to conduct an annual one-day reconnaissance of the Operations Area of Potential Effect (APE)/PIA by boat. The first reconnaissance visit will occur within three months before the first operation of the MBSD and will document current conditions prior to operation for later, post-operation comparison. This reconnaissance team will take photographs and document visible changes to the landscape within the Operations APE/PIA, including in proximity to the National Register of Historic Places (NRHP) properties (16JE2, 16JE3, 16JE11, 16JE147, and 16JE237), with the particular attention to any evidence of previously undiscovered cultural resources and the appearance of human remains at known archaeological sites. If an apparent cultural resource is/are located by the reconnaissance team, CPRA will notify all Consulting Parties within 24 hours pursuant to Stipulation VIII.B.1 of the Programmatic Agreement. If apparent Human Remains are found, the provisions of Stipulation IX of the Programmatic Agreement will be followed. CPRA will comply with the Louisiana Unmarked Human Burial Sites Preservation Act (La. R.S. 8:671 et seq.). CPRA will notify local law enforcement and the Louisiana Division of Archaeology (LDOA), within the Louisiana Department of Culture, Recreation and Tourism, Office of Cultural Development, by telephone to assess the nature and age of the human skeletal remains within 24 hours of the discovery of unmarked human remains and will accompany local law enforcement during all field investigations.
- Parties Responsible for Data Collection
  - CPRA
  - Contracted team of Secretary of the Interior Qualified Archaeologists

#### **3.7.4.2. Sea Turtles (Green, Kemps Ridley, Loggerhead) Fishery-related Take**

- Rationale: The National Marine Fisheries Service's (NMFS) Biological Opinion Reasonable and Prudent Measure (RPM) 1 requires monitoring and reporting of LDWF collected annual brown shrimp fishing trip ticket data for area 211 to determine if shrimp fishing activity over a 3-year running average is within the range considered in the consultation.

- Schedule: Annually.
- Locations: Area 211, which covers most of the lower Barataria Basin and nearshore waters where increased sea turtle interactions resulting from relocation of shrimping activity are most likely to occur.
- Methodology: The level of fishing activity (number of brown shrimp fishing trips) that will occur in the lower basin (area 211) will be reported based on data collected by LDWF. The annual brown shrimp trip ticket data for area 211, along with the 3-year running average of brown shrimp fishing trips in area 211, will be reported to NMFS Protected Resources Division (PRD).
- Parties Responsible for Data Collection: CPRA contractor will request and synthesize the trip ticket data collected by LDWF.

#### 3.7.4.3. *Sea Turtles (Green, Kemps Ridley, Loggerhead) Habitat change-related Take*

- Rationale: The Delft3D-based alternatives modeling outlined in the FEIS provided estimates of projected salinity conditions at various locations throughout the basin under FWOP and FWP scenarios. Staff from the NMFS Southeast Regional Office used those modeling outputs as a basis for drafting the Biological Opinion on the effect of the proposed Mid-Barataria Sediment Diversion Project on sea turtles in the Barataria Basin. The NMFS Biological Opinion RPM 2 requires the inclusion of a monitoring component in this Plan that establishes measurable triggers to determine if seasonal salinity conditions under actual project operations are within the expected range projected by the Delft 3D based model, to confirm that the level of take analyzed and authorized in the Biological Opinion is not exceeded.
- Schedule: CPRA and the NMFS Southeast Regional Office (SERO) will fully develop the monitoring plan prior to commencement of operations and will implement the plan prior to or immediately following commencement of operations. The monitoring plan will be integrated into this MAM Plan.
- Locations: Lower Barataria Basin.
- Methodology: The actual salinity levels occurring in the action area will be monitored as a surrogate for the level of sea turtle exclusion and harm occurring in the action area. See methods described under 3.7.3.8. *Salinity in Barataria Basin Surface Waters*. CPRA and NMFS SERO and Southeast Fisheries Science Center (SEFSC) will implement a monitoring program and analytical design that establishes measurable triggers that will indicate when salinity conditions have exceeded the levels anticipated and analyzed in the Biological Opinion. An annual report of the data and analytical output from this monitoring shall be sent to NMFS.
- Parties Responsible for Data Collection:
  - Salinity at select monitoring stations: USGS and/or CPRA contractor.
  - Sea turtle location: TBD.

#### 3.7.4.4. *Sea Turtles (Green, Kemps Ridley, Loggerhead) Use and Abundance*

- Rationale: There is a scarcity of information on sea turtle activity and use of the action area. The NMFS Biological Opinion RPM 3 requires the inclusion of a monitoring plan targeting sea turtle abundance, distribution, health, and habitat use within the Barataria Basin.

Schedule: 3 years of field work pre-operations, 3 years of field work immediately post-construction, and 1 year of data analysis.

- Locations: Turtle monitoring and tagging field work will be conducted in selected areas of the lower Barataria Basin, from the area below the proposed outfall, down to and including the passes and inlets around the barrier islands and the Gulf-side shallow water habitat adjacent to the barrier islands at the southern end of Barataria Bay.
- Methodology: CPRA and NMFS SEFSC will develop and implement a monitoring plan approved by PRD, targeting sea turtle abundance, distribution, health, and habitat use within the Barataria Basin. Data collected will be used to analyze habitat use in relation to physical and biological habitat characteristics and salinity level parameters. Once finalized, the monitoring plan will be integrated into this MAM Plan.

The field work will include trawl vessel surveys, satellite tag deployment, health assessment, and data analysis including the following:

- Transect surveys - Direct capture of sea turtles using otter trawl and skimmer trawl vessels using standardized seasonal 30-minute transects during spring, summer, and autumn of each year to obtain a statistically appropriate sample size in the action area. Turtles will be captured using skimmer trawls in shallow areas (<10ft), focusing on salt marsh habitat where we expect to find smaller juvenile sea turtles, and larger otter trawl vessels using paired otter trawls in depths > 10 ft. Appropriate scientific research and collection permits will be required for these activities.
- Health assessments -Turtles captured in trawl surveys will be measured, weighed, tagged with flipper and passive integrated transponder tags, tissue sampled (for genetic analysis and stable isotopes), and blood sampled (for blood chemistry analyses). Environmental data (salinity, water temperature, etc.) will be collected in conjunction with sea turtle capture efforts. Turtles will be released at or near the capture site.
- Satellite Tagging – Up to 240 turtles (target of 40 per year, with selection based on appropriate size and condition) captured in the trawl surveys will be satellite tagged to monitor location, dive behavior, salinity, and temperature. Salinity sensor-equipped satellite tags will be used on a portion of these turtles to better understand habitat use patterns relative to salinity regimes and if shifts in salinity affect behavior.
- Annual and seasonal estimates of relative abundance will be generated from the trawl data at the conclusion of each year’s sampling.

The data analysis and modeling will include the following:

- Estimate habitat use by overlaying our satellite tracking data on available benthic habitat geospatial data, as well as salinity information collected by the satellite tags. Additionally, data from any current in-water environmental monitoring stations could be used to provide additional supplemental environmental data. In addition, we plan to coordinate with other research groups, such as benthic researchers studying lower trophic level organisms to provide abundance and species composition data for key prey organisms to further understand habitat use and sea turtle distribution.

- Complete development of a predictive model for sea turtle species habitat use and distribution in relation to physical and biological habitat characteristics and salinity level parameters. The model can be used to assess the overlap of sea turtle distribution with known and emerging threats to prioritize the type and location of restoration activities and to evaluate their effectiveness.

Due to uncertainties related to sea turtle activity and use of the study area, monitoring results and efficacy, and extrinsic factors (e.g., hydrologic conditions), monitoring activities will be adaptively managed. A team consisting of up to 3 state (CPRA) and 3 federal (NMFS SEFSC, NMFS PRD, and NOAA Restoration Center) representatives (along with any technical experts invited by these entities) will meet at least once a year to review progress and results of the monitoring activities. The USACE may also participate on this team if they wish. This team may make recommendations on any necessary changes to the monitoring and tagging activities, locations, timing, or level of effort, based on current information and monitoring/tagging results to date. Any proposed changes to the sea turtle monitoring activities must be approved by NMFS PRD before implementation.

- Parties Responsible for Data Collection:
  - Salinity at select monitoring stations: USGS and/or CPRA or its contractor.
  - Sea turtle location: CPRA or NOAA contractor.

#### 3.7.4.5. *Pallid Sturgeon*

Project operation poses the risk of entrainment of all life stages of pallid sturgeon present in the area near the structure. Therefore, the USFWS Biological Opinion Terms and Conditions require the inclusion of a monitoring component in this Plan to confirm that the level of incidental take analyzed and authorized in the Biological Opinion is not exceeded, a condition that might require the re-initiation of formal consultations between USFWS and CPRA. CPRA has agreed to jointly develop a monitoring plan for pallid sturgeon with USFWS if, and if so after, the USACE awards a Project permit. That plan will be completed prior to construction and will detail schedule, locations, methodology and parties responsible for data collection. The monitoring plan will be approved by USFWS and integrated into this MAM Plan before construction of the cofferdam begins.

#### 3.7.4.6. *Bald Eagle Nests and Wading Bird Colonies*

CPRA has agreed to jointly develop a monitoring plan for bald eagles and wading bird colonies in the vicinity of the Project during construction with USFWS. That plan will provide in part that if a bald eagle nest is within or adjacent to the proposed project area during construction, CPRA will follow the bald and golden eagle guidelines found on-line at <https://www.fws.gov/library/collections/bald-and-golden-eagle-management> to determine whether disturbance will occur and/or an incidental take permit is needed. That plan will further detail schedule, locations, methodology and parties responsible for data collection. Once finalized, the monitoring plan will be integrated into this MAM Plan.

#### 3.7.5. ***Variables Associated with the Mitigation and Stewardship Plan***

This section describes monitoring parameters that will inform or evaluate actions associated with the

separate Mitigation and Stewardship Plan. These parameters are not expected to directly inform Adaptive Management Actions undertaken as part of the MAM Plan.

#### 3.7.5.1. *Fecal Coliform*

- Rationale: This dataset will inform actions described in the Aquatic/Fisheries Impact of the Mitigation and Stewardship Plan (Section 6.3.3) related to re-establishment of oyster reefs within Public Seed Grounds.
- Schedule: Pre-operations and post-operations, monthly
- Locations: Hackberry Bay Seed Reservation and Lower Barataria Basin
- Methodology: Monthly boat-based water sample collection at 165 established LDH sampling stations (Figure 3.7-11). Water samples undergo fecal coliform testing per methods established for the state laboratory (IDEXX 2000 - 5 step decimal dilution method using Most Probable Number/100mL) and results analysis (applying the geometric mean, 90% tile and percentage greater than 43).
- Parties Responsible for Data Collection:
  - Empirical data collection: LDH
  - Data synthesis: CPRA contractor.

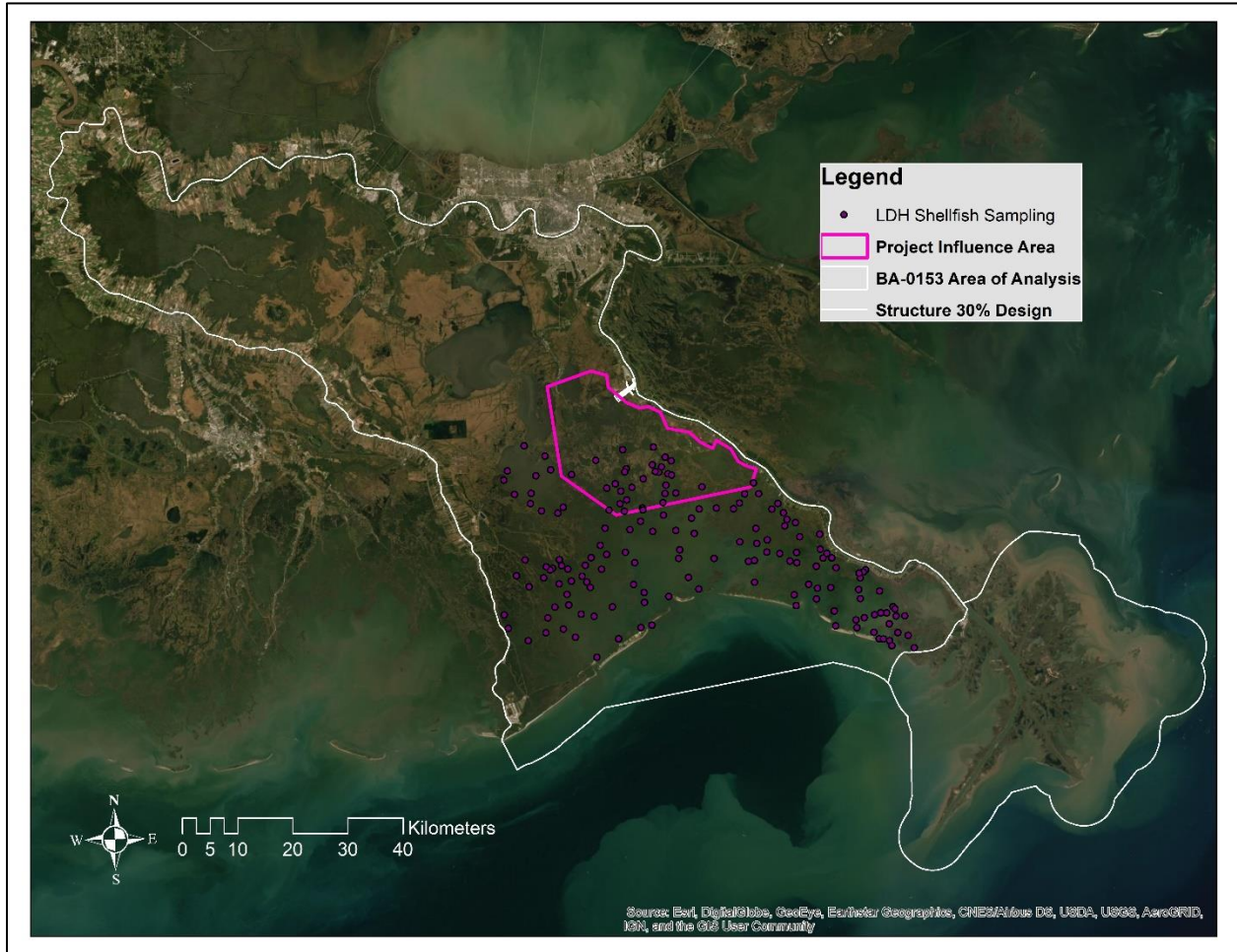
#### 3.7.5.2. *Effectiveness of Investment in Vessel/Facility Improvements in the Finfish and Shrimp Fisheries*

- Rationale: These datasets will help to evaluate the success of mitigation actions described in the Aquatic/Fisheries Impact of the Mitigation and Stewardship Plan (Section 6.3.3) related to investments in improvements to dockside facilities and vessels (such as refrigeration or gear improvements) and acquisition of new vessels for the finfish and shrimp fisheries.
- Schedule: Annually, pre-operations and post-construction, for 5 years following completion of Project investment in vessel/facility improvements.
- Locations: Within the Barataria Estuary (BA-0153 Area of Analysis in Figure 3.7-11)
- Methodology: Use LDWF LA Creel and/or Trip Ticket data for landings by weight for finfish, brown shrimp, and white shrimp from within the Barataria Estuary. Evaluate changes for fishers that received grants related to the Project's Stewardship and Mitigation Plan.
- Parties Responsible for Data Collection:
  - Empirical data collection: LDWF
  - Data synthesis: CPRA staff or contractor.

#### 3.7.5.3. *Effectiveness of Marketing Support for the Oyster, Finfish, and Shrimp Fisheries*

CPRA will develop a protocol to monitor and evaluate the success of mitigation actions described in the

Aquatic/Fisheries Impact of the Mitigation and Stewardship Plan (Section 6.3.3) related to additional marketing for the oyster, finfish, and shrimp fisheries. Once finalized, the monitoring protocol, including schedule, locations, and methodology, will be integrated into this MAM Plan.



**Figure 3.7-11.** Louisiana Department of Health (LDH) shellfish sampling stations in the Barataria Basin.

#### 3.7.5.4. *Effectiveness of Workforce and Business Training for Commercial Fishing Industries*

- Rationale: Evaluate the success of mitigation actions described in the Aquatic/Fisheries Impact of the Mitigation and Stewardship Plan (Section 6.3.3) related to investments in workforce and business training within various sectors of the commercial fishing industry.
- Schedule: Annually, pre-operations and post-construction, for 10 years following completion of Project investment in training.
- Locations: Within the Barataria Estuary (BA-0153 Area of Analysis in Figure 3.7-11)
- Methodology:
  - Compare annual income of commercial fishing industry participants before and after receiving Project support for workforce training to transition into new employment or for business training to enhance revenue within current employment.



- For commercial fishers who are part of an identified community with environmental justice concerns that may be disproportionately impacted by the Project, compare number and income before and after being targeted by the Project outreach plan, to include the number of applicants assisted, the number of applications completed, the number of grants awarded to applicants, and the percentage of program resources that are utilized.
- Parties Responsible for Data Collection: CPRA contractor.

### 3.7.5.5. *Effectiveness of Environmental Justice Mitigation Measures*

- Rationale: These datasets will help to evaluate the success of mitigation actions described in the Environmental Justice section of the Mitigation and Stewardship Plan (Section 6.3.8) related to outreach and engagement to identified communities with environmental justice concerns that may be disproportionately impacted by the Project. Programs will include startup grants, workforce training, shrimping vessel and gear improvement grants, enhancing public and private oyster seed grounds, alternative oyster culture, and overall fisheries workforce and business training.
- Schedule: Annually, pre-operations and post-construction, for 10 years following completion of Project investments.
- Locations: Within the targeted Environmental Justice populations.
- Methodology: For commercial fishers who are part of an identified community with environmental justice concerns that may be disproportionately impacted by the Project, compare income before and after implementation of the Project mitigation and stewardship programs; the number of applicants assisted; the number of applications completed; the number of grants awarded to applicants; and the percentage of program resources that are utilized.
- Parties Responsible for Data Collection: CPRA contractor.

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#### 4. EVALUATION AND PROJECT-LEVEL DECISIONS FOR CONDUCTING MANAGEMENT ACTIONS

Evaluation in the context of the Project MAM Plan refers to the consideration of data collected from the monitoring protocols outlined in Section 2. Those data will inform future Project management decisions aimed at improving Project effectiveness and limiting ecological and/or human impacts when possible.

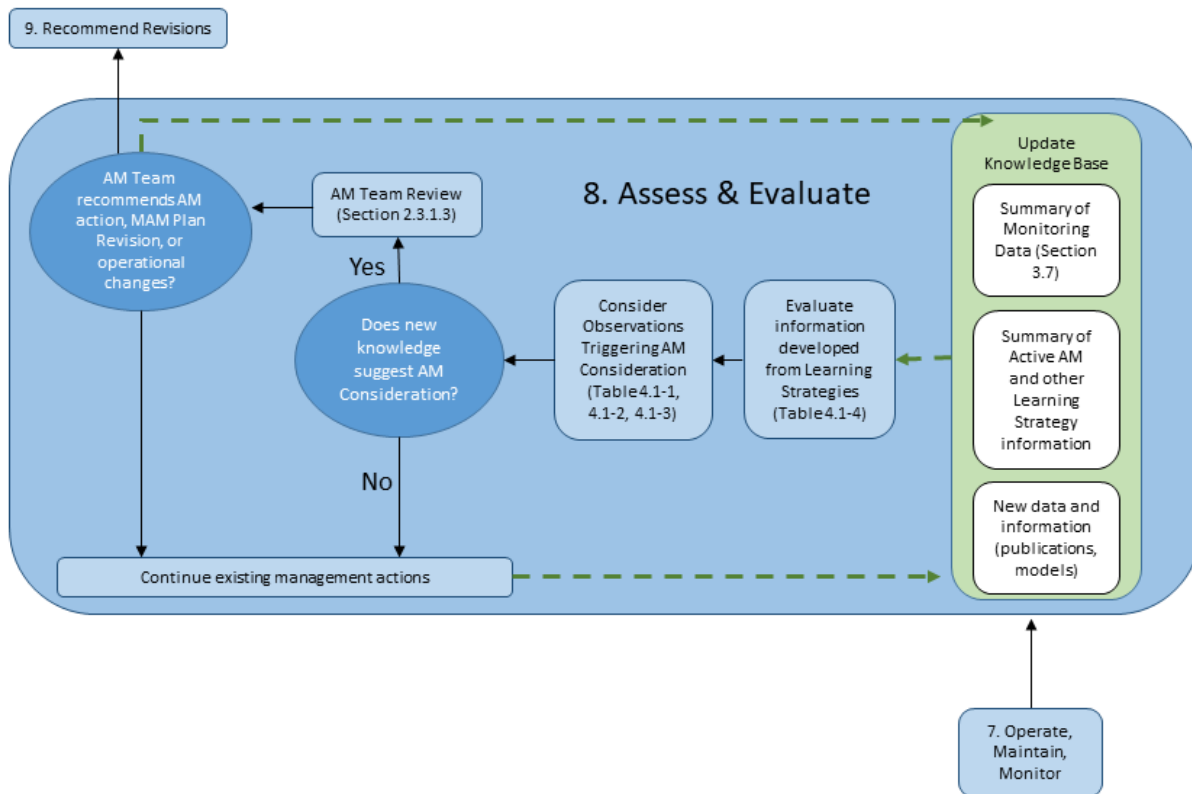
This section describes the general types and anticipated frequency of evaluations that will ultimately inform management actions, such as operations refinements and outfall management measures, changes to monitoring protocols, and refinements to modeling assumptions. Table 4-1 outlines the general classes of evaluations that correspond to the Project objectives that are described in detail in Section 1.

**Table 4-1.** A description of how evaluation will support the fundamental and secondary objectives.

Types of Monitoring (Section)	Fulfills:	Overarching Questions Linking Evaluation to Decision-making
<i>Effectiveness</i> (Section 3.6)	Fundamental Project Objectives (1,2,3)	How can the components of the Project (intake, channel, outfall transition) and/or operation strategies be optimized for sediment delivery between the river and basin? What measures are available? Is the pace or magnitude of wetland habitat creation and sustainability meeting expectations, within natural constraints?
<i>Compliance</i> (Section 3.8)	Resource management and permit conditions	How can Project components and/or operations be optimized to balance Project objectives and impacts?

Decisions on Project management actions, including the development and amendment of annual Operations Plans, will be made based on evaluation of the Project monitoring data. The basis for initiation of Project operations is outlined in Section 4.2 of the OMRR&R main report. The OMT will work with the AMT and other adaptive management partners to decide on continuation, alteration or discontinuation of operations (and subsequent amendments to the Annual Operations Plans) and/or the need for outfall management actions or other management responses during individual structure openings (events) and on annual and multi-year cycles as outlined in Section 5. An overview of the process of assessing and evaluating new and existing information to inform project management decisions is illustrated in Figure 4-1, which is Step 8 of the Project Adaptive Management cycle (Figure 1.1-1).

It is important to note that while Project alternatives modeling informs expectation of biophysical responses to Project operations, it isn't possible to know for certain prior to the onset of Project operations what the monitoring data will show, and thus what specific changes in Project operations or outfall management actions will be necessary. Outfall management actions, such as spoil bank gapping or construction of water-directing features, may be considered in the future as potential adaptive management actions, based on assessment of project performance and monitoring data and recommendations of the Project Adaptive Management Team to the Project Operations Management Team. Consideration of those actions would likely require NEPA evaluation of potential environmental impacts prior to implementation, as summarized in *Mitigation Measures Environmental Analysis* in this FEIS Appendix.



**Figure 4-1.** New and existing data are evaluated to reduce uncertainties and inform Project management decisions in Step 8 of the Project Adaptive Management cycle (Figure 1.1-1).

In the initial drafting of this section the focus has been to provide some considerations of the response to the Project Effectiveness data (Table 4-1), especially the efficiency by which the Project captures sediment from the MR and transports that sediment through the conveyance channel and into the Project receiving basin. CPRA expects these data will underpin the immediate needs and opportunities for adaptive management decision making. Evaluation of Project effectiveness in meeting Project objectives is described in Section 4.1. For critical uncertainties related to changes of existing conditions in response to the Project, a learning strategy to address each uncertainty is identified in Table 4.1-4.

To date, CPRA and LA TIG partners have proposed categorizing the monitoring parameters and evaluations into four categories. These categories reflect how the monitoring data will be evaluated, and whether the data evaluations would warrant or trigger considerations of some type of adaptive management action such as a change in operations or the implementation of outfall management. Those four categories are:

- Range: Data for these parameters will be evaluated with the goal of maintaining observations within a range of values based on documented historical and/or current variability, as well as scientific understandings of the parameter. Adaptive management actions will be considered if values were observed outside the range for a particular parameter.
- Presence/Absence: Data for these parameters will be evaluated in the binary of parameter occurrence or absence. Adaptive management actions will be considered if values occurred in the undesirable half of the binary (i.e., absent when presence is desired, or vice-versa).

- Trend: Data for these parameters will be evaluated as a progression of values in time and space. Adaptive management actions will be considered if the expected or desired trend (at least in part informed by Project alternative numerical modeling) does not occur or reverses from historical patterns.
- Context: Data for these parameters will be collected and analyzed due to broader interests in the values and trends. However, at this point, we do not anticipate data observations for these parameters triggering any considerations of adaptive management actions.

Initial categorization of each monitored parameter described in Section 3 is outlined in the tables below, with an emphasis on the term “initial.” Consistent with the idea of Project adaptive management, it is plausible that there may be changes in categorization of monitored parameters over time, as additional observations are made and data collected.

The authors also acknowledge that these bins may be artificially discrete. For example, a parameter might be assigned to be evaluated within a Range of values, but repeated observations of a Trend of values increasing unabated towards the maximum “acceptable” value within that Range might realistically trigger adaptive management considerations before values are observed exceeding that maximum.

#### **4.1. Evaluation of Project Effectiveness Monitoring Data**

There will be extensive monitoring of the Mississippi River, conveyance structure and Barataria Basin to inform Project effectiveness and document natural and human community response, as outlined in Section 3. Evaluation and decision making should be tempered by expected and empirical outcomes and the disparate timescales over which meaningful and discernable trends are exhibited by the resource or landscape. For example, the hydrologic impacts of the Project on basin habitats will be sudden and widespread; however, the emergence of new land area or plant community changes may experience various lag effects. There should be caution against premature evaluations on processes that require an accumulation of interacting processes over time; such an approach avoids cross-scale issues common to some large-scale restoration projects (Walters 1997). It is envisioned that peer review and collaborative analysis approaches will converge on accepted time scales for certain resource evaluations, especially as they pertain to further constraining an operation regime designed to meet the primary Project objectives.

##### **4.1.1. Evaluation of Monitoring Data in Support of Project Objective 1: Deliver Freshwater, Sediment, and Nutrients to Barataria Bay through a Large-Scale Sediment Diversion from the Mississippi River**

The overt, empirical basis for Project structure operations, at least in the initial years, will be continuous monitoring of *Mississippi River water discharge* (3.7.1.1.1). Additionally, early in Project operations, *Mississippi River suspended sediment concentrations* (3.7.1.1.2), and *Sediment concentrations in the flows conveyed into Barataria Basin* (3.7.1.1.9) will be collected and analyzed immediately, as they will provide the technical rationale for confirmation and potential changes in operations to optimize *Sediment:water in the flows conveyed into Barataria basin* (Section 3.7.1.2.2).

Longer-term plans for the specific time intervals to conduct evaluations have not been determined. Measurements and surveys of each operational event could occur at higher frequencies during early operations, for example, to evaluate the sediment transport performance of all the conveyance features. As learning increases, the evaluations may shift from event-based to periodic (e.g., annual) intervals to inform operation decisions. However, it is not possible in advance of Project operations to predict how quickly the Project Implementation Teams (Section 2.2) will learn from each operational event. A performance metric such as *Sediment: water in the flows conveyed into Barataria basin* (Section 3.7.1.2.2) may initially be studied on multiple events within a year, but as river discharge and sediment availability relationships improve, evaluations may be limited to the water year.

Equally important is the determination of the extent to which Project operational flows are leading to changes in *Topography/bathymetry of the Project outfall area* (3.7.1.1.7), especially erosion of the native soils and sediments in the outfall area. Erosion may exceed deposition at some specific locations, especially immediately after operations commence. The Project Implementation Teams will need to make those assessments during and after distinct operational flow events, determine whether erosion and deposition patterns are within or exceed expectations, and, after evaluating other relevant context variables such as *Water velocities at multiple locations in the Project Influence Area* (3.7.2.1.1), whether these changes warrant immediate adaptive management of operations, which could include adjustment of the timing or extent that the Project structure is opened between operational and base flows, within permitted ranges (see Table 4.1-1).

The focus of this monitoring will be outside of the immediate Project Outfall Area. For areas most proximal to the discharge of the Project, numerical modeling has projected the scouring of some existing marsh and subaqueous water bottoms. This phenomenon is necessary for the Project flows to build the distributary network in the receiving area needed to distribute freshwater, nutrients and sediments into the Basin. Table 4.1-1 identifies “outfall management actions” as an example of a potential adaptive management action in response to observations of excessive water velocities. Examples of outfall management actions, based on experience with management of the Caernarvon and Davis Pond Freshwater Diversion Projects, could include spoil bank gapping to increase dispersal of diverted water, or, conversely, construction of water control structures to focus diverted water dispersal to targeted areas and/or restrict dispersal to more vulnerable areas of the Barataria Basin. Those or other outfall management actions could be recommended by the AMT to the OMT in response to observed data for other parameters listed in Tables 4.1-2 and 4.1-3, depending on specific future observations.

#### **4.1.2. Evaluation of Monitoring Data in Support of Project Objective 2: Reconnect and Re-establish Sustainable Deltaic Processes between the MR and the Barataria Basin**

The parameters listed in Table 4.1-2 and Section 3.7.2 are proposed to support Objective 2 by informing how the Project would reconnect the Mississippi River to the Barataria Basin and re-establish delta building in the Basin. Objective 2 is explicitly centered on the movement of water and sediment through the Basin and the response of soil-building processes; specifically, the repeated addition of riverine mineral sediments to Basin wetland soils and the resulting increase in marsh soil surface elevation that help those marshes be sustainable intertidal habitats in the face of relative SLR.

Project alternatives modeling has projected that *Frequency, depth and duration of inundation at multiple locations on the marsh in the Project Influence Area* (3.7.2.1.2) will increase during Project operations. The Project partners will monitor this parameter to determine if, and if so the extent to



which, Project operations will result in inundation patterns that are limiting subaerial wetlands in the PIA. This limitation, if present, could result from excessive water levels physically inundating wetland surfaces, and/or the imposition of an inundation stress on emergent wetland vegetation. Currently the available science informing what inundation patterns are either optimal for or detrimental to marsh vegetation growth is inexact and hinders establishing firm limits. As a result, no explicit thresholds in inundation have been established *a priori*, and instead the intention is to monitor this parameter to see whether an increasing trend in inundation results over time from Project operations. While the Project Operations and Adaptive Management Teams await scientific advances and Project-specific data to inform eventual thresholds on optimal versus detrimental inundation to specific plant species, a consistent increase in inundation would be more broadly recognized as undesirable.

The hydrologic flows resulting from Project operations are ultimately what will transport the mineral sediments in diverted Mississippi River flows (Objective 1) into the Barataria Basin and distribute those sediments into open waterbodies and onto the marsh surface. The two remaining parameters proposed as adaptive management triggers in Table 4.1-2 reflect the fate and effect of those sediments.

Most central to the overall intention of the Project, and thus the determination of Project success and effects, is the effect of diverted freshwater, nutrients and sediments on the *Marsh surface elevation change rate in the Project Influence Area* (3.7.2.1.9), as measured at CRMS-Wetlands sites. The Project is intended to create and sustain emergent marshes in the Basin indirectly by stimulating plant growth that will contribute organic matter to the marsh soil profile, and by directly transporting mineral sediments onto the marsh surface and into the soil profile. Both of these processes would be manifested by increases in marsh surface elevation over time, with sustainability defined as rates of increase exceeding local estimates of RSLR and thus sustaining subaerial emergent marsh. Observations of declines in marsh surface elevation, especially at CRMS-Wetlands sites that currently demonstrate other elevation change patterns, would suggest either limitations in diverted material flows to the marsh or that Project operations are imposing other stresses on the wetlands.

Similarly, calculations of *Sediment dispersal and retention on the emergent marsh surface in the Project Influence Area* (3.7.2.2.1) will elucidate Project success by determining patterns of mineral sediment distribution onto the surface, and into the soil matrix, of the wetlands in the PIA. This parameter will be important for the Project Operations Management Team and Adaptive Management Team to monitor because unlike the well-recognized benefits of filling erosional open water bottoms with sediment and establishing new emergent wetlands, the available science suggests that there is a “Goldilocks” optimum to the benefits of dispersed sediments to intact marshes. Too few sediments transported to the marsh surface may not stimulate plant growth and maintain *Marsh surface elevation change rate in the Project Influence Area*, while too great a sediment delivery can impose lethal physical stresses to the native vegetation and lead to mineral lenses in the soil profile that hinder future marsh growth. The CPRA Executive Team, OMT and AMT will have to evaluate the observational data and, for example, decide if outfall management options that would limit short-term sediment deposition (to best achieve those “Goldilocks” rates and/or magnitudes) would negatively impact longer-term Project goals.

CPRA has proposed that a number of soil development parameters be relegated for now as Context variables; i.e., parameters for which data will be collected, but which at this time are not being identified as representing overt triggers for adaptive management consideration (see Section 4.2). As proposed, if there are issues noted with the soil-related triggers above, these parameters will be more fully investigated to determine why issues were identified.

Adaptive management actions to improve Project performance as measured by these parameters could include outfall management actions; maintenance dredging; or adjustment of the timing or extent that the Project structure is opened between operational and base flows, within permitted ranges (see Table 4.1-2).

#### **4.1.3. Evaluation of Monitoring Data in Support of Project Objective 3: Create, restore, and sustain wetlands and associated ecosystem services**

If the processes represented by the monitoring parameters designated in support of Objective 2 represent the secondary effects on Barataria Basin hydrology and soils of diverted Mississippi River freshwater, nutrients and sediments, then Objective 3, and the parameters intended to support the evaluations of meeting Objective 3 (Section 3.7.3) and the needs for adaptive management actions (Table 4.1-3), are the tertiary effects of the diverted flows, and are the primary goal of and need for this project. The proposed Objective 3 parameters are specifically concerned with the actual development of new wetlands, and restoration and sustenance of existing wetlands, resulting from sediment dispersal into the Basin, changes in water quality, and the response of living resources (plant, animal and human) to the diverted freshwater, nutrients and sediments.

As defined by Objective 3, *Land and water extent/Area of new delta formation* (3.7.3.1) and *Emergent wetland area* (3.7.3.2) will be priority parameters for mid-term consideration. These two parameters specifically follow the Objective 2 observations of dispersal of materials by the Project, and whether those material flows are resulting in new or sustained emergent wetlands within the Basin. This report has discussed earlier why the projections of wetland loss and gain from numerical modeling are inappropriate as temporal benchmarks of Project performance. However, the modeling can provide an order-of-magnitude estimate of what land gain and loss could be expected if the Project were to be operated over a particular time period under conditions (river discharge, operational frequency, sediment content, etc.) similar to those modeled. Those evaluations cannot be made *a priori*, and so will need to wait on both actual operations and the land/water data availability. That said, land building or land-loss that is anomalous to the model's order-of-magnitude projections will trigger closer looks at other variables (e.g., those described under Objective 2) that might provide an explanation for why.

To quantify the restoration benefits of the marsh that develops in the diversion outfall area, a Before-After-Control-Impact study will be established. Ecosystem function in the created marsh will be compared to the pre-construction existing condition using the following datasets: *Land and water extent* (3.7.3.1), *Emergent wetland area* (3.7.3.2), *Vegetation Cover, Abundance, and Height* (3.7.3.3), *Emergent and submerged vegetation community type* (3.7.3.5), *Emergent vegetation biomass in the Project area* (3.7.3.6), *Topography/bathymetry of the Project delta development area* (3.7.1.1.7), *Lower trophic level organisms* (3.7.3.16), *Nekton species abundance and composition/assemblage* (3.7.3.18), and *Aquatic resource and terrestrial wildlife utilization of habitat in the Project Influence Area* (3.7.3.22).

To compare the wetland function of a marsh built by a sediment diversion to that of a marsh built by conventional wetland restoration (marsh creation from dredged sediments), a study will be established to compare three types of wetland treatments. MAM partners will develop the experimental design for the study once the study goals and objectives are finalized. Assessment will rely heavily on the data collection that was otherwise established for this Project, planned coast-wide LiDAR surveys, existing CRMS-Wetlands stations (for unrestored marsh), and pre- and post-construction sampling from a conventionally-restored marsh. Wetland function will be evaluated using the same parameters listed in the paragraph above.

Regarding water quality parameters, the adaptive management focus will be on the response of *Dissolved oxygen* (3.7.3.7) and *Salinity* (3.7.3.8), as these are expected to drive many of the biological responses described below in the Basin, as well as fundamentally defining the ability of Project operations to still retain a functional estuary, from a *Salinity* standpoint. On that latter point, while Project alternatives numerical modeling does project that salinities will freshen substantially during Project operations beyond base flows, the same modeling projects a rapid return to a full range of estuarine salinities in the Basin once base flows are reinstated. Observations of freshwater salinities or hypoxic conditions that persist throughout the Basin even after Project operations return to base flow would trigger adaptive management considerations (see Table 4.1-3 for details).

Concerns have been expressed about the potential for Project operations to result in the development of phytoplankton blooms, and especially HCABs. The Project partners propose to capture these possible changes by systematically monitoring *Chlorophyll a* (3.7.3.9) using *in situ* sondes, remote sensing, and other relevant data; by identifying *Phytoplankton species composition* (3.7.3.10) both monthly and when *Chlorophyll a* (3.7.3.9) or other datasets warrant it; and by testing HCAB toxins both in water samples with a presence of cyanobacterial and/or eukaryotic algal species associated with harmful algal blooms, and in fish tissue.

The proposal described above for a Presence/Absence approach to evaluating *Salinity* data is similar to the proposal for evaluating a number of living resources; namely, *Submerged aquatic vegetation area* (3.7.3.4), *Emergent and submerged vegetation community type* (3.7.3.5), *Nekton species abundance and composition/assembly* (3.7.3.18), and *Aquatic resource and terrestrial wildlife utilization of habitat in the Project Influence Area* (3.7.3.22). The reason for this proposal is the same as described earlier as well. We expect, from the results of the Project alternatives numerical modeling, that Project operations will result in some persistent and some temporary changes in the salinity structure of the estuary, including localized salinity decreases (especially closer to the Project outfall). Living resource distributions are expected to likewise change, at least in so far as that described by the Basin-wide Model (for vegetation) and model outputs for fish and wildlife. No adaptive management considerations are proposed in the event that there are not persistent and large-scale changes in estuarine species distributions throughout the Basin as a whole; i.e., that Project operations do not result in major and widespread Basin-wide losses of estuarine plants and animals. Explicit in this proposal is the idea that localized estuarine species losses where salinities decrease would not trigger AM considerations.

The project may cause a change in the occurrence of invasive species. The new or increased occurrence of invasive nekton species (*Nekton species abundance and composition/assembly* (3.7.3.18)) or invasive aquatic invertebrate or algal species (*Aquatic Invasive (Algae and Invertebrate) Species* (3.7.3.17)) would trigger an adaptive management action to control species that are deemed as a threat to ecosystem function. The new or increased occurrence of invasive vegetation species (*Emergent and submerged vegetation community type* (3.7.3.5)) would be noted as a sign of changing conditions, and would provide context, but would not trigger an adaptive management action.

The exception to this Presence/Absence consideration of living resources data would be for consideration of *Emergent vegetation biomass in the Project Influence Area* (3.7.3.6), measured at the existing and proposed CRMS-Wetlands stations. It is uncertain how exactly emergent plant biomass will respond to the environmental changes resulting from Project operations. As mentioned earlier, numerical modeling projects localized increases in *Marsh surface elevation change rate in the Project*

*Influence Area* (3.7.2.1.9) during Project operations. Similar to the data evaluation for that parameter (described in section 4.1.2), repeated, consistent year-over-year decreases in emergent plant biomass would trigger data evaluation.

To evaluate changes in the Barataria Basin food web, multiple datasets will be used. Changes in community assemblage over time will be clarified through *Nekton species abundance and composition/assemblage* (3.7.3.18) and in *Lower Trophic Level Organisms* (Section 3.7.3.16). Questions about changes in the biodiversity of the aquatic food web, the food web links, and the benthic: pelagic ratios (biomass and productivity, including interannual and seasonal variability) over time will be explored through the use of ecosystem models refined and run as described in Section 1.5 and by incorporating additional information collected as described in *Lower Trophic Level Organisms* (Section 3.7.3.16) *Nekton species abundance and composition/assemblage* (3.7.3.18), and *Aquatic resource and terrestrial wildlife utilization of habitat in the Project Influence Area* (3.7.3.22). Refined models will also be used to qualify the ecosystem benefits of the Project; test and understand ongoing and potential future changes resulting from management actions to existing conditions; statistically relate environmental condition variability to food web responses; improve predictive capabilities. Adaptive management actions to improve Project performance as measured by these parameters could include outfall management actions; adjustment of the timing or extent that the Project structure is opened between operational and base flows, within permitted ranges; invasive species control; or changes in sampling frequency or intensity; and refinement of Learning Strategies to reduce Critical Uncertainties (see Tables 4.1-3 and 4.1-4).

## **4.2. Evaluation of Context Variables**

Comprehensive evaluation of all monitored parameters is anticipated to occur at every five years during the preparation of the Multi-year Project Synthesis Reporting (5.2.3). Some of these variables will be monitored due to substantial interest in changes in value, but we do not anticipate the data serving as triggers for adaptive management at this time (although consistent with the idea of adaptive management, those parameter classifications/considerations could change in the future); and are thus classified as Context variables. Other variables listed below are not proposed in themselves as potential triggers for adaptive management, but may contribute to calculations of other variables that are presented above as adaptive management triggers.

However, it is not that these parameters would not inform adaptive management considerations. In fact, when observations of the more actionable parameters described in Section 4.1 trigger adaptive management consideration, it is entirely likely that related or contributing parameter data will also be analyzed to help inform decision making on the best course of action. For instance, if consideration of an adaptive management action is triggered based on observations of *Sediment dispersal and retention on the emergent marsh surface in the Project Influence Area* (3.7.2.2.2) below the desired range of values, the Adaptive Management Team would likely examine *Soil mineral matter density* (3.7.2.2.3) or *Rate of accretion above feldspar marker horizons* (3.7.2.1.7) to help inform why dispersal may be insufficient.

Parameters proposed for classification as Context variables are

- Mississippi River nutrient concentrations (3.7.1.1.3),
- Sedimentology of the Alliance South sand bar (3.7.1.1.5),
- River bathymetry at and around the Project structure inlet (3.7.1.1.6),
- Water volume conveyed into Barataria Basin (3.7.1.1.8),
- Sediment concentrations in the flows conveyed into Barataria Basin (3.7.1.1.9),
- Mississippi River sediment load (3.7.1.2.1),
- Sediment volume conveyed into Barataria Basin (3.7.1.2.3),
- Nutrient loads conveyed into Barataria Basin (3.7.1.2.4),
- Water velocities at multiple locations in the Barataria Basin (3.7.2.1.1),
- Soil bulk density (3.7.2.1.3),
- Loss of soil organic matter on ignition (3.7.2.1.4),
- Soil mineral matter grain size (3.7.2.1.5),
- Soil total nutrients (3.7.2.1.6),
- Rate of accretion above feldspar marker horizons (3.7.2.1.7),
- Soil strength (3.7.2.1.8),
- Soil organic matter density (3.7.2.2.2),
- Soil mineral matter density (3.7.2.2.3),
- Vegetation Cover, Abundance, and Height (3.7.3.3),
- Nutrient constituents in Barataria surface waters (3.7.3.12),
- Temperature of Barataria surface waters (3.7.3.13),
- Turbidity of Barataria surface waters (3.7.3.14),
- Total suspended solids in Barataria surface waters (3.7.3.15),
- Lower Trophic Level Organisms (3.7.3.16)
- Wildlife (3.7.3.21), and
- Socio-economic data (3.7.3.23).

#### **4.3. Evaluation of Compliance Monitoring Data**

This placeholder exists for descriptions of the evaluation of compliance data identified in Section 3.7.4. If the Project permit is approved and issued identifying those requirements, the corresponding details will be developed accordingly.

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**Table 4.1-1.** Parameters monitored to ensure Project Objective 1 (Delivery of freshwater, sediment, and nutrients), proposed frequency of evaluation, categorization of parameter evaluation, and criteria that would trigger consideration of undertaking adaptive management action.

Parameter/Calculation	Frequency of Evaluation or Data Collection	Category	Observations Triggering Adaptive Management Consideration	Examples of Potential Adaptive Management Actions
Mississippi River water discharge (3.7.1.1.1)	Pre-operations: Continuous Post-construction: Continuous	Range	MR discharges less than 450,000 cfs would constrain operations to a base flow of up to 5,000 cfs, dependent on head differential between MR and basin. MR discharges 450,000 – 1,000,000 cfs would result in operational flows, also dependent on head differential between MR and basin. MR discharge greater than 1,000,000 cfs would constrain operational flows to maximum 75,000 cfs Outside that, irregular discharge patterns beyond those observed in the historical record (e.g., persistent high or low discharges outside expected seasonal patterns) would trigger consideration of flow alterations.	Adjust the extent that the Project structure is opened between operational and base flows, within permitted ranges.
Mississippi River suspended sediment concentrations (3.7.1.1.2)	Pre-operations: Continuous Post-construction: Continuous	Context/ Range	Initial considerations as a Context variable may be amended in the future to a Range variable, with learning following some period of data collection. As Range, decline of concentrations below expected for a particular <i>Mississippi River water discharge</i> (3.7.1.1.1)	None in the short term while this is considered a Context variable.
Bathymetry of the Alliance South sand bar (3.7.1.1.4)	Pre-operations: Annually Post-construction: before/after each Project operational event for first five years, every two years thereafter	Range	Excessive magnitude or rate of erosion in bar bathymetry would trigger consideration of adaptive management. Numerical criteria are pending continued high-resolution modeling outcomes by the PDT.	To be determined.
Topography/bathymetry of the Project Delta Development Area (3.7.1.1.7)	Pre-operations: Once prior to onset of operations Post-construction: before/after each Project operational event for first five years, every five years thereafter	Trend/Range	Year-to-year observations of a magnitude or rate of erosion of the Project outfall area, compared to model projections as order-of-magnitude expectations. Deposition in the Project outfall area without the development of a deltaic distributary network, compared to model projections as order-of-magnitude expectations.	Conduct maintenance dredging of the canals to address impacts from the Project. Implement outfall management measures to limit the loss of sediments to the canals. Implement outfall management measures to increase the deposition of sediments in shallow open water and onto the surface of intertidal wetlands
Sediment:water in the flows conveyed into Barataria Basin (3.7.1.2.2)	Post-construction: Biweekly during operational events, quarterly during base flows	Range	Persistent (greater than 5 year) sediment:water below initial operations values; declines in sediment:water through time during operational events and base flows. Numerical criteria are pending continued high-resolution modeling outcomes by the PDT.	With learning gained from monitoring, and if possible, adjust timing of Project operational flows in relation to river discharge and suspended sediment concentration. Optimize project to reduce freshwater inflows to the Basin while maintaining the efficacy of the Project consistent with goals and objectives.
Nutrient loads conveyed into Barataria Basin (3.7.1.2.4)	Limited analysis annually, comprehensive analysis every five years after the onset of Project operations	Context	None in the short term while this is considered a Context variable.	None in the short term while this is considered a Context variable.



**Table 4.1-2.** Parameters monitored to ensure Project Objective 2 (Reconnect and Re-establish Deltaic Processes), proposed frequency of evaluation, categorization of parameter evaluation, and criteria that would trigger adaptive management action.

<b>Parameter/Calculation</b>	<b>Frequency of Evaluation</b>	<b>Category</b>	<b>Observations Triggering Adaptive Management Consideration</b>	<b>Examples of Potential Adaptive Management Actions</b>
Frequency, depth and duration of inundation of marsh at locations in the Project Influence Area (3.7.2.1.2)	Limited analysis annually, comprehensive analysis every five years after the onset of Project operations	Trend	Persistent (greater than 5-year) trend of increasing frequency of inundation would trigger consideration of adaptive management if data and learning could lead to identification of a threshold. No explicit threshold value has been identified at this time. Potential for a revision of the parameter to be binned as Range if data and learning allow.	Adjust the timing or extent that the Project structure is opened between operational and base flows, within permitted ranges. Outfall management actions
Marsh surface elevation change rate in the Project Influence Area (3.7.2.1.9)	Limited analysis annually, comprehensive analysis every five years after the onset of Project operations	Trend	A decline in marsh surface elevation that exceeds the projected rate (considering RSLR) within the Project Influence Area would trigger consideration of adaptive management	Outfall management actions
Sediment dispersal and retention on the emergent marsh surface in the Project Influence Area (3.7.2.2.1)	Limited analysis annually, comprehensive analysis every five years after the onset of Project operations	Presence/ Absence	Absence of sediment dispersal onto marsh surface, or substantially lower values than modeling results as order-of-magnitude expectations. Values would be based on high-resolution design modeling, which is still ongoing.	Outfall management actions

**Table 4.1-3.** Parameters monitored to ensure Project Objective 3 (Create, restore, and sustain wetlands and associated ecosystem services), proposed frequency of evaluation, categorization of parameter evaluation, and criteria that would trigger adaptive management action.

Parameter/Calculation	Frequency of Evaluation or Data Collection	Category	Observations Triggering Adaptive Management Consideration	Examples of Potential Adaptive Management Actions
Land and water extent / Area of new delta formation in the Project Influence Area (3.7.3.1)	Pre-operations: Once prior to onset of operations Post-construction: Every three years after the onset of Project operations	Trend	Land building that does not occur after a reasonable amount of time, using the Delft Basin-wide Project modeling as an order-of-magnitude projection (e.g., if no land gain after five years IF the project operated during the first decade as proposed in response to environmental drivers).	Outfall management actions
Emergent wetland area (3.7.3.2)	Pre-operations: Once prior to onset of operations Post-construction: Every three years after the onset of Project operations	Trend	Repeated observations of loss of existing and lack of creation of new emergent wetlands from the Project Influence Area, using the Delft Basin-wide Project modeling as an order-of-magnitude projection (e.g., if no land gain after five years IF the project operated during the first decade as proposed in response to environmental drivers).	Outfall management actions
Submerged aquatic vegetation area (3.7.3.4)	Limited analysis annually; comprehensive analysis every five years after the onset of Project operations	Presence/Absence	Repeated observations of a complete loss of submerged aquatic vegetation from the Barataria Basin	Outfall management actions
Emergent and submerged vegetation community type (3.7.3.5)	Limited analysis annually, comprehensive analysis every five years after the onset of Project operations	Presence/Absence	A persistent (greater than five-year) shift in vegetation communities to a fully freshwater + intermediate character of the Barataria Basin	Outfall management actions
Emergent vegetation biomass in the Project Influence Area (3.7.3.6)	Limited analysis annually, comprehensive analysis every five years after the onset of Project operations	Trend	Reductions in emergent vegetation biomass in the Project Influence Area over a five-year period (dependent on Project operations) that suggests excessive inundation or other imposed stresses on the vegetation.	Outfall and operational adaptive management actions;
Dissolved Oxygen in Barataria Surface Waters (3.7.3.7)	Pre-operations: Continuous (sondes); monthly (discrete water sampling) Post-construction: Continuous (sondes); monthly (discrete water sampling); Comprehensive analysis every five years after the onset of Project operations	Range	Changes in oxygen within a "normoxic" range (4-14 mg/L) would be viewed as acceptable Development of hypoxic conditions ( $dO_2 < 4$ mg/L) that persist throughout the Basin for more than 3 months after Project operations return to base flow, as a result of Project operations in areas currently and historically normoxic.	Outfall management actions
Salinity in Barataria Surface Waters (3.7.3.8)	Pre-operations: Continuous (sondes); monthly (discrete water sampling) Post-construction: Continuous (sondes); monthly (discrete water sampling); Comprehensive analysis every five years after the onset of Project operations	Presence/Absence	Observations of freshwater salinities that persist throughout the Basin for more than 3 months after Project operations return to base flow would trigger adaptive management considerations.	Outfall management actions
Chlorophyll <i>a</i> in Barataria Surface Waters (3.7.3.9)	Pre-operations: Continuous (sondes), daily (remote sensing), monthly (discrete water sampling) Post-construction: Continuous (sondes), daily (remote sensing), monthly (discrete water sampling)	Trend	Increase in chlorophyll concentrations suggestive of a cyanobacterial bloom with a moderate probability of acute health effects (in-water samples with $> 10 \mu\text{g L}^{-1}$ per World Health Organization 2003, or remotely sensed cyanobacterial index of $>100,000$ cells $\text{L}^{-1}$ per WHO 1999) would trigger follow-up discrete sampling for <i>Phytoplankton species composition</i> (3.7.3.10) and <i>Harmful algal bloom toxins</i> (3.7.3.11)	Outfall and operational adaptive management actions;

**Table 4.1-3 (continued).** Parameters monitored to ensure Project Objective 3 (Create, restore, and sustain wetlands and associated ecosystem services), proposed frequency of evaluation, categorization of parameter evaluation, and criteria that would trigger adaptive management action.

Parameter/Calculation	Frequency of Evaluation	Category	Observations Triggering Adaptive Management Consideration	Adaptive Management Actions to Consider
Phytoplankton species composition in Barataria Surface Waters (3.7.3.10)	Pre-operations: Monthly (discrete sampling) Post-construction: Monthly (discrete sampling) and as needed	Presence/ Absence	Presence of cyanobacterial and/or eukaryotic algal species associated with harmful algal blooms would trigger analysis of discrete samples from 3.7.3.10 for <i>Harmful algal bloom toxins</i> (3.7.3.11) ( $\geq 5000$ cells L <sup>-1</sup> for <i>K. brevis</i> (LDHH guidelines) or $\geq 1,000$ cells L <sup>-1</sup> for <i>Pseudo-nitzschia</i> spp. (GOMA 2014) or $\geq 1,000$ cells L <sup>-1</sup> for <i>Dinophysis</i> spp. (GOMA 2014) <u>or</u> $> 20$ cells L <sup>-1</sup> for cyanobacteria (World Health Organization 2003)	Outfall and operational adaptive management actions.
Harmful Cyanobacterial/Algal bloom Toxins in Barataria Surface Waters (3.7.3.11)	Pre-operations: Monthly (discrete sampling) Post-construction: Monthly and as-needed sampling; analysis as needed based on Phytoplankton species composition (3.7.3.10)	Presence/ Absence	Presence of cyanobacterial and/or eukaryotic algal bloom toxins could trigger consideration of a receiving basin adaptive management action. Thresholds related to harvesting closures: 20MU/100g brevetoxins ((or $> 1.6$ ppm in clams, $> 1.8$ ppm in oysters using NSP ELISA) or $\geq 20$ ppm Domoic Acid or $\geq 0.16$ ppm Okadaic Acid or $\geq 0.16$ ppm Dinophysis toxins or $> 80$ $\mu$ g Saxitoxin eq./100 g (per GOMA 2014 and FDA National Shellfish Sanitation Program))  Thresholds related to recreational water advisories: $> 8$ ppm Total Microcystins (EPA 2019; note: $> 24$ ppm Microcystin-LR per WHO 2020) or $> 15$ ppm Cylindrospermopsin (EPA 2019; note: $> 6$ ppm per WHO 2020) or $> 60$ ppm Anatoxin-a (WHO 2020) or $> 30$ ppm Saxitoxin (WHO 2020)	Outfall and operational adaptive management actions; shellfish harvesting closures; recreational water advisories.
Aquatic Invasive (Algae and Invertebrate) Species (3.7.3.17)	Pre-operations: Once Post-construction: Once per five years	Presence/ Absence	The new or increased presence of aquatic invasive species could trigger an adaptive management action to address species viewed as an ecosystem threat.	If presence of aquatic invasive species is deemed a threat to ecosystem function, control or eradication measures may be initiated.
Nekton (Fish and Shellfish) Species Abundance and Composition/Assemblage (3.7.3.18)	Limited analysis annually, comprehensive analysis every five years after the onset of Project operations	Presence/ Absence	-Measuring a persistent basin-wide decline in abundance over five years for an estuarine assemblage could trigger an adaptive management action (NOT a change in community assemblage or location-specific shift from marine to freshwater character of the assemblage). The new or increased presence of aquatic invasive species could trigger an adaptive management action to address species viewed as an ecosystem threat. Sufficient project monitoring indicates that freshwater inflows to the Basin may be reduced while still maintaining the efficacy of the Project consistent with goals and objectives.	Outfall management actions  If presence of aquatic invasive species is threat to ecosystem function, control or eradication measures may be initiated.
Bottlenose Dolphins ( <i>Tursiops truncatus</i> ) (3.7.3.19)	Pre-operations: Varies over 5-year period Post-construction: Periodically, with annual analysis	Trend, Range	1. Increase in average stranding rate above the pre-operation level (for example, mean plus 2 standard deviations) or increase in the proportion of cases with cause of illness/death determined to be low salinity exposure 2. Increase in mortality in specific regions, decrease in dolphin body condition, or increase in prevalence of skin lesions 3. Increase in morbidity or mortality 4. Shift in prey base and decrease in dolphin body condition 5. Increase in dolphin stranding rates; prevalence of adverse health effects; dolphin movements; qualified personnel and resources available for response/intervention (e.g., stranding network capacity); impacts from disasters; and/or habitat/water quality.  Other indicators are TBD. See discussion in Section 3.7.3.19.	1. Increase in Marine Mammal Stranding Network effort, analyses, and response 2. Increase in visual health assessment sampling frequency, possibly combined with stranding response active surveillance 3. Increase in biopsy frequency or implementation 4. Bioenergetics study 5. Operational modifications

**Table 4.1-3 (continued).** Parameters monitored to ensure Project Objective 3 (Create, restore, and sustain wetlands and associated ecosystem services), proposed frequency of evaluation, categorization of parameter evaluation, and criteria that would trigger adaptive management action.

Parameter/Calculation	Frequency of Evaluation	Category	Observations Triggering Adaptive Management Consideration	Adaptive Management Actions to Consider
Eastern Oysters ( <i>Crassostrea virginica</i> ) (3.7.3.20)	Limited analysis annually, comprehensive analysis every five years after the onset of Project operations	Range	<p>Persistent decline in parameter values over three consecutive years that suggests the loss of a viable population in the Basin or current seed grounds would trigger additional analyses of the relationship between operations, freshwater, sediment and nutrient loads and oyster density, abundance and mortality to inform mitigation strategy actions</p> <p>Persistent decline over the five-year comprehensive analysis period could trigger consideration of actions outlined in the mitigation strategy, such as relocation of seed grounds to more environmentally-suitable areas within the Basin or establishment of brood-stock reefs to address larval supply.</p> <p>Observations that Project operations result in hydrodynamic barriers to larval dispersion</p>	Analysis of project operations and resulting conditions across the basin.
Aquatic resource and terrestrial wildlife utilization of habitat in the Project Influence Area (3.7.3.22)	Limited analysis annually, comprehensive analysis every five years after the onset of Project operations	Trend	Measuring a persistent decline in aquatic resource and/or terrestrial wildlife utilization of habitat in the Project Influence Area.	Outfall management actions
Contaminants in Fish, Shellfish, and Wildlife (3.7.3.24)	Will be determined by CPRA in consultation with USFWS pending the Project permit record of decision by USACE.	Range	Measuring a level outside of the acceptable range for any one EPA Priority Pollutant or Contaminant of Concern	Increase frequency and/or intensity, and potential expansion of sampling

**Table 4.1-4.** A learning strategy has been identified to address each uncertainty in responses of environmental resources to project inputs. Reducing these uncertainties will help to refine Project Adaptive Management. Other uncertainties that will not directly affect adaptive management decisions, such as quantifying restoration benefits, are listed in Section 10. The “Reference” column provides sources of additional information including this MAM Plan, the Project Phase II Restoration Plan, and the Diversion Expert Panel reports #1-7 (CPRA 2014/2015/2016).

Uncertainty	Reference	Purpose of Learning Goal	Learning Strategy
Effect of inundation patterns on subaerial wetlands in the Project Influence Area.	MAM Plan 4.1.2	Inform thresholds for <i>Frequency, depth and duration of inundation at multiple locations on the marsh in the Project Influence Area (3.7.2.1.2) / Objective 2 evaluation</i>	Determine whether limitation results from excessive water levels physically inundating wetland surfaces, and/or the imposition of an inundation stress on emergent wetland vegetation.
Optimum dispersal of sediments to intact marshes	MAM Plan 4.1.2	Weigh the costs and benefits of observed short-term sediment depositional patterns to the long-term goals of the Project	Evaluate <i>Sediment dispersal and retention on the emergent marsh surface in the Project Influence Area (3.7.2.2.1)</i> to determine patterns of mineral sediment distribution onto, and into the soil matrix of, the wetlands in the Project Influence Area.
Marsh surface capture of sediment	MAM Plan 4.1.2	Inform observations of <i>Marsh surface elevation change rate in the Project Influence Area (3.7.2.1.9)</i>	Identify cause, possibly including limitations in diverted material flows to the marsh, or Project operations stresses on the wetlands. Evaluate related parameters, including <i>Sediment dispersal and retention on the emergent marsh surface in the Project Influence Area (3.7.2.2.2)</i> , <i>Soil mineral matter density (3.7.2.2.3)</i> , <i>Rate of accretion above feldspar marker horizons (3.7.2.1.7)</i> , and vegetation parameters.
Project order-of-magnitude land building or land loss under future conditions (river discharge, operational frequency, sediment content)	MAM Plan 4.1.3	<i>Inform creation of trigger for Land and water extent/Area of new delta formation (3.7.3.1) and Emergent wetland area (3.7.3.2)</i>	Input post-operations conditions into model over time period of interest.
Ongoing and potential future changes resulting from management actions to existing conditions	MAM Plan 1.4 and 4.1.3	Adaptive management of project	Refine and run ecosystem models (Section 1.5).
Ability to reduce freshwater inflows to the Basin while maintaining the efficacy of the Project consistent with goals and objectives	MAM Plan 3.6, 3.8, 4.1.3	Optimize project to balance Project objectives and impacts; reduce freshwater influence on resources including Nekton (Fish and Shellfish) Species Abundance and Composition/Assemblage (3.7.3.18) and Bottlenose Dolphins ( <i>Tursiops truncatus</i> ) (3.7.3.19)	Input post-operations conditions into Delft Basin-wide model every 5 years post-operation; evaluate related parameters, including <i>Sediment:water in the flows conveyed into Barataria Basin (3.7.1.2.2)</i> , <i>Topography/bathymetry of the Project Delta Development Area (3.7.1.1.7)</i> , and <i>Marsh surface elevation change rate in the Project Influence Area (3.7.2.1.9)</i> .
Limits of vegetation growth at very low elevation marshes	TWIG 2016b	Land building in low elevation marshes	Prioritize model refinement to focus on vegetation species or communities that are most likely to influence land building
Indicators of Harmful Algal Bloom Toxins from <i>Pseudo-nitzschia</i> and <i>Dinophysis</i> cell counts	MAM Plan 4.1.3	Inform thresholds for follow-up analysis for <i>Pseudo-nitzschia</i> and <i>Dinophysis</i> as part of Phytoplankton species composition in Barataria Surface Waters (3.7.3.10) analysis and associated Harmful algal bloom toxins in Barataria Surface Waters (3.7.3.11)	Evaluate pre-operations and post-construction relationship between impacts on aquatic resources or human health, and combinations of cell counts and environmental conditions known to trigger toxin production in <i>Pseudo-nitzschia</i> and <i>Dinophysis</i> .
Correlation of changes in distribution and productivity of juvenile and adult fishery species to far-field changes in salinity and temperature	TWIG 2014a	Adaptive management of project	Salinity (3.7.3.8), Temperature of Barataria Surface Waters (3.7.3.13.), Nekton species abundance and composition/assemblage (3.7.3.18)

## **5. MONITORING AND ADAPTIVE MANAGEMENT SCHEDULE**

### **5.1. Project Monitoring Schedule 1**

#### **5.1.1. *Pre-operational Monitoring***

The Pre-operations Monitoring Plan introduced in Section 3 are currently being planned as up to a five-year effort (no less than three), to establish a robust baseline condition within the Project receiving area and the larger Barataria Basin during Project construction. Critical in that baseline monitoring will also be clarifying spatial variability in the data, as well as inherent temporal trends in the data that might refine considerations of when to undertake adaptive management action.

#### **5.1.2. *Post-operational Monitoring***

Given the intended 50-year life of the Project that guided Project E&D, at least some of the attributes outlined in Section 3 will be collected for that entire time. However, the planned length of monitoring for all attributes will ultimately depend on evaluation of the early datasets for responsiveness and variability.

### **5.2. Timeline of Adaptive Management Decision-Making and Implementation**

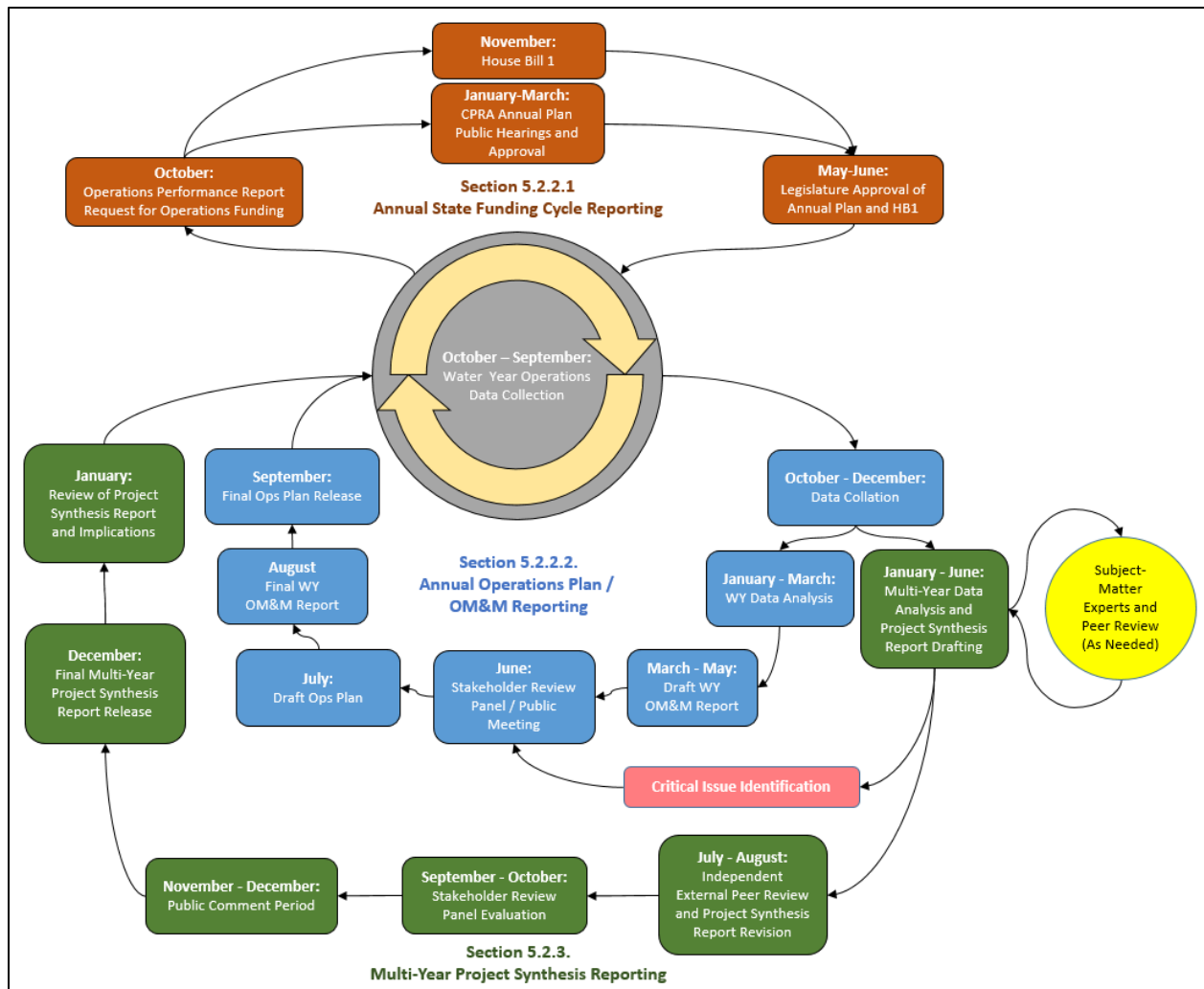
The overall timeline of adaptive management will include activities that take place during individual structure openings (events), annually, as well as activities occurring on a five-year planning cycle that will more comprehensively consider and integrate data across a longer cycle. Periods for evaluation of whether each adaptive management trigger has been met vary by parameter; see section 4 for details.

#### **5.2.1. *Event Timeline***

Evaluation and decision-making at the level of individual structure openings will occur as discussed in Section 4. Decisions made during individual events will be memorialized in the annual and multi-year reporting described below.

#### **5.2.2. *Annual Timeline***

Figure 5.2-1 proposes two categories of actions that will occur on an annual basis. The top of the figure illustrates a more expedited consideration of a limited set of operations performance data from the Water Year (WY) operations that ends on September 30, to provide CPRA with a rapid summary of the past year's Project operations and to support annual State funding requests for continued operations during the upcoming State Fiscal Year. In contrast, the bottom of the figure illustrates the consideration of a more comprehensive set of WY operations data that underpins the development of annual Operations, Maintenance and Monitoring (OM&M) Reports and the formal Operations Plan. Both sets of actions center on the annual management of the Project by the Operations Management Team and continuous collection of the data outlined in Section 3.



**Figure 5.2-1.** Idealized timeline of Annual Cycle Adaptive Management Activities discussed in Section 5.2.2 and the Multi-year Project data evaluations discussed in Section 5.2.3. The steps illustrated in the orange boxes are discussed in Section 5.2.2.1. The steps illustrated in the blue boxes are discussed in Section 5.2.2.2. The steps illustrated in the green boxes are discussed in Section 5.2.3.

### 5.2.2.1. State Funding Cycle Reporting

- October
  - Immediately following the end of the WY, the Data Management Team (DMT) and OMT will work to develop an Operations Performance Report to underpin upcoming State Fiscal Year funding requests.
- November
  - CPRA will submit the upcoming State Fiscal Year project operations funding request to the State’s Division of Administration for inclusion in the draft of House Bill 1.
- January - March
  - The upcoming State Fiscal Year Project operations funding request will be included in the draft of CPRA’s Annual Plan, which CPRA submits annually for a 3 year-budget outlook. Typically, CPRA releases the draft Annual Plan for public comment in January for the upcoming fiscal year, with CPRA Board vote for approval of the Annual Plan



occurring during the last Board meeting prior to the beginning of the annual Session of the Legislature. Following approval by the Board, CPRA submits the Annual Plan to the Legislature for consideration.

- May-June
  - Typically, the Legislature votes on both House Bill 1 and the CPRA Annual Plan late in the annual Legislative session. Both bills must pass the Legislature to appropriate Project operational funds in the next State Fiscal Year starting on July 1.

#### **5.2.2.2. *Annual Operations Plan / OM&M Reporting***

*The following idealized annual timeline may be adjusted to allow the Annual Operations Plan to be included in CPRA's Annual Plan and aligned with the State's funding cycle.*

- October to December, Year
  - Data collection will largely follow a WY schedule, but due to the nature of some data collection/analysis, the WY data inventory will likely not be complete until the end of the calendar year.
- January – March
  - Analysis of the WY data, along with relevant external data collection and publications, by the Data Management Team
- March – June
  - Preparation of the draft WY OM&M Report, including progress towards reducing identified Critical Uncertainties to address Learning Strategies and recommendations from the Adaptive Management Team for Adaptive Management actions, MAM Plan revisions, and operational changes.
- June-July: Stakeholder Review Panel / Public Meeting
  - CPRA will present the draft Operations Plan for the upcoming year, to gather input for possible incorporation into that plan, and to consider possible items to be evaluated and or addressed in an OM&M or Adaptive Management report.
  - CPRA will solicit comments, perspectives, and insights from stakeholders and the public on the information contained within the draft OM&M report and the proposed annual Operations Plan for the upcoming WY.
  - CPRA may convene additional meetings throughout the year as deemed appropriate and/or necessary.
  -
- August
  - Completion and release of previous WY OM&M Report, prior to the release of the draft operations plan. WY Project data will be uploaded to the Diver data server (Section 6).
- September: Final Operations Plan
  - Completion and public release of the upcoming WY Operations Plan, prior to October implementation.

#### **5.2.3. *Multi-year Project Synthesis Reporting***

In addition to the annual timeline of adaptive management activities, additional review and comprehensive synthesis of monitoring data and evaluation of management options will occur at five-year intervals, allowing for the consideration and evaluation of multiple years of monitoring data and to

assess processes on a longer time scale. It will also describe progress towards reducing identified Critical Uncertainties to address Learning Strategies, and recommendations from the Adaptive Management Team for Adaptive Management actions, MAM Plan revisions, and operational changes.

The comprehensive data syntheses will be based on multiple years-worth of Project Effectiveness evaluations (Section 4) and other data. The syntheses will be developed consistent with processes used to conduct other comprehensive data reviews.

#### *5.2.3.1. October-December: Data Collation*

The DMT will collate multi-year data in the last quarter of the Calendar Year following the end of a particular WY, with the same rationale as described in Section 5.2.2.2 above.

#### *5.2.3.2. January-June: Data Analysis and Project Synthesis Report Drafting*

The AMT will lead the analysis of the multi-year datasets and the drafting of the Multi-year MAM Report, in coordination with the OMT. Given the nature of the data, CPRA expects to conduct analyses using a mix of AMT members directly and outside contractors as needed. Note that any serious issues initially identified during this analysis/synthesis could be addressed by the AMT and PMT outside of the rest of the review and communication process below, and brought to the attention of the Stakeholder Review Panel during their June meeting (5.2.2.2).

#### *5.2.3.3. July-August: External Peer Review and Revision*

The AMT will coordinate an external peer review of the draft Multi-year MAM Report. The Team will develop the protocols for the external review in coordination with the Stakeholder Review Panel to ensure an objective process. This draft schedule assumes a 45-day review of the draft report, after which the AMT and any relevant contractors will revise the report based on the reviews received.

#### *5.2.3.4. September-October: Stakeholder Review Panel Evaluation*

The AMT will work with the OMT to present the revised draft Multi-year MAM Report to the Stakeholder Review Panel and solicit a review and comments from the Panel. CPRA will conduct this presentation as an in-person meeting or a web seminar with the Panel members. The Panel will have four weeks to review the report, after which time the AMT and its contractors will revise the document into a final draft report based on the reviews received.

#### *5.2.3.5. November-December: Public Comment Period*

The AMT will coordinate with the OMT to make the revised draft Multi-year MAM Report available for a 30-day public comment period on the final draft report, after which the Adaptive Management Team and any relevant contractors will revise the report based on the reviews received. CPRA will then publicly release the final report.

5.2.3.6. *January: Review of Project Synthesis Report Implications*

The AMT and OMT will review the Multi-year MAM Report for implications to Project operations and/or additional management actions. Recommendations based on that review will be made to the CPRA Executive Team, and if adopted will be discussed at the next Stakeholder Review Meeting.

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## 6. DATA MANAGEMENT

### 6.1. Data Description

Data collected as part of this Project will occur via site visits, field surveys, *in situ* continuous recorder devices, and remote sensing. As discussed in Section 3, data types include hydrologic (e.g., water level, water velocity), bathymetric/topographic (e.g., land/water area, elevations, accretion), geotechnical (e.g., soil characteristics), geophysical (e.g., sidescan sonar), chemical (e.g., salinity, water quality), biological (e.g., fish, invertebrates, wildlife, vegetation), and geospatial (e.g., vector, raster, aerial and satellite imagery). A substantial amount of data will be collected via existing programs, including those coordinated by CPRA (e.g., CRMS, BICM, SWAMP) as well as other agencies (e.g., LDWF, LDEQ, USGS, NOAA). Additional data collection will occur from targeted project-specific monitoring and research. The timing and frequency of data collection varies by parameter, ranging from continuous sampling (e.g., water level), to biannual or annual (e.g., biological surveys), to every few years (e.g., land change).

To the extent practicable, data collection will follow relevant standard operating procedures (SOPs). These include, but are not limited to

- A Standard Operating Procedures Manual for the CRMS – *Wetlands* (Folse et al., 2020).
- Standard Operating Procedures for Geo-scientific Data Management, Louisiana Sand Resources Database (Khalil et al., 2016)
- A Contractor’s Guide to the Standards of Practice for CPRA Contractors Performing GPS Surveys and Determining GPS Derived Orthometric Heights within the Louisiana Coastal Zone (CPRA, 2016)
- Coast-wide and Barataria Basin Monitoring Plans for Louisiana’s SWAMP (Hijuelos and Hemmerling, 2015)

Electronic data files will follow the file naming convention used by CPRA’s Coastal Information Management System (CIMS) as outlined in Appendix 4 of Khalil et al. (2016). Metadata will be developed for project data, and to the extent practicable will follow Federal Geographic Data Committee and International Organization for Standardization standards.

### 6.2. Data Review and Clearance

All data collected as part of the Project will undergo proper QA/QC, review, and clearance procedures consistent with the guidelines developed by the NRDA Cross-TIG Monitoring and Adaptive Management work group (<https://www.gulfspillrestoration.noaa.gov/project?id=71>). CPRA’s DMT will be responsible for data stewardship following CPRA’s documented policies, SOPs, data conventions, and QA/QC procedures (e.g., Folse et al., 2020; Khalil et al., 2015; CPRA, 2016; CPRA, 2017). Data integrity will be checked with detailed and complex QA/QC software routines prior to input into the database, and additional automated routines when input into the database. CPRA staff and contractors who collect and input data into the database may also provide feedback on data quality and software routines to the DMT. Following data QA/QC, CPRA will give the other TIG members time to review the data before publishing on a public site.

### 6.3. Data Storage and Accessibility

CPRA will provide an online information dashboard to keep the public informed of diversion operations and monitoring results, including real-time data where available (e.g., turbidity, river stage, velocity, and water quality).

All data collected and analyzed as part of this project will be stored on either CPRA's CIMS website (<https://cims.coastal.louisiana.gov/default.aspx>) and/or the NOAA's Data Integration, Visualization, Exploration, and Reporting (DIVER) tool. CPRA will submit Project data to CIMS and/or DIVER as soon as possible and no more than one year from when data are collected. NOAA will provide a link to CIMS in the DIVER Restoration Portal.

CIMS is the official repository for environmental, modeling, and monitoring data for restoration projects undertaken by the state, as well as programmatic data collected by CRMS and BICM. CIMS combines a network of webpages hosted by CPRA, a GIS database, and a relational tabular database into one public-facing, GIS-integrated system capable of data visualizations and data delivery. Data preservation of the CIMS database/application suite is largely done through regular tape back-up and/or cloud storage for disaster recovery and continuation of service. All data and documents in the CIMS database/application suite are publicly available will continue to be available in perpetuity and/or for the life of the agency.

DIVER serves as the public NOAA repository for data related to the DWH Trustees' NRDA efforts. To provide additional context to the NRDA data, the site also includes historical (pre-2010) contaminant chemistry data for the onshore area of the Gulf of Mexico, as well as contaminant chemistry data collected during the response efforts and by the responsible party, British Petroleum. These data are available to the public and are accessed through a query and mapping interface called DIVER Explorer. Categories of Trustee NRDA data in DIVER include:

- photographs of the emergency response, the oiled animals, plants, fish, and beaches;
- telemetry information collected from remote sensing devices such as transmitter data from animal monitoring;
- field observations such as notes about the condition of animals found in the spill and extent of oiling in marshes;
- instrument data such as water temperatures and salinity collected during the spill; and
- sample results of laboratory analysis on tissue, sediment, oil, and water.

CPRA and NOAA are discussing ways to establish links between the two systems (e.g., ways to point to NRDA project data stored in each system) so CIMS users can easily find relevant data stored in DIVER and vice versa.

### 6.4. Data Sharing

Preliminary datasets (e.g., data that have not yet been subject to QA/QC or do not have complete metadata) will be accessible to Project participants and partners through non-public repositories (e.g., DWH SharePoint) as they become available. Fully QA/QC'ed data will be made publicly available, in accordance with the Federal Open Data Policy, through either the CIMS Data Portal (<https://cims.coastal.louisiana.gov/>) and/or the DIVER Explorer (<https://www.diver.orr.noaa.gov>) within one year of data collection. In the event of a public records request related to data and information on a

project that is not already publicly available, the Trustee to whom the request is addressed will provide notice, and an opportunity to comment or object, to the other LA TIG Trustees prior to releasing any project data that is the subject of the request.

Any data that is protected from public disclosure under federal and state law (e.g., personally identifiable information under the Privacy Act or observer information collected under Magnuson–Stevens Fishery Conservation and Management Act) will not be publicly distributed.



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## **7. REPORTING**

### **7.1. DIVER Restoration Portal Reporting**

Once finalized, this MAM Plan will be uploaded to the DIVER Restoration Portal and made publicly available through the DIVER Explorer (<https://www.diver.orr.noaa.gov/>) and Trustee Council website (<https://www.gulfspillrestoration.noaa.gov/>). CPRA will also upload future revisions of the MAM Plan to the DIVER Restoration Portal following development and approval by the LA TIG, following discussions between CPRA and the TIG about the magnitudes of Plan amendments that would warrant reposting.

MAM activities and corresponding documents will be reported annually in the DIVER Restoration Portal. This will include information on the monitoring parameters, performance criteria (if applicable), monitoring duration and frequency, etc.

### **7.2. Mid-Basin Sediment Diversion Project Annual Operations Plans**

The basis of Project operations is the main OMRR&R Plan, and the Annual Operations Plan is its yearly implementation. Information and lessons learned from the previous year will be considered when adjusting the operations plan for each upcoming year. Draft Annual Operations Plans will be presented to the Stakeholder Review Panel and at public meetings to solicit comments, perspectives, and insights. Following any revisions, the plan will be finalized for approval by the CPRA Executive Director.

### **7.3. Annual Operations Performance Reports**

The Project DMT will develop Annual Operations Performance Reports to underpin CPRA's annual Project operations funding requests to the CPRA Board and the Louisiana Legislature. These reports will be limited to a summary of the Project Effectiveness monitoring data available in October of any Calendar Year, immediately following the end of a WY. Once developed, these reports will be posted onto CPRA's CIMS website, as well as uploaded to the DIVER Explorer and Trustee Council websites.

### **7.4. Annual Operations, Maintenance & Monitoring Reports**

Annual OM&M Reports of Water Year Project Effectiveness and Status & Trends Data will be developed by the Operations Management Team that provides data collection results, attribute outcomes, operations information, maintenance updates, recommendations for monitoring, additional project features, lessons learned, etc. from the previous year's operations. As described in Section 5.2.2, these reports will provide a summary of the monitoring data collected during the WY regarding Project Operations and river and basin responses. Some descriptive and initial statistical analyses will be conducted on the WY data. However, more robust analyses will be relegated to the Multi-Year Report described below. Once developed, CPRA will post these reports the CIMS website, as well as upload them to the DIVER Explorer and Trustee Council websites.

## **7.5. Multi-year Monitoring and Adaptive Management Reports**

Multi-year Monitoring and Adaptive Management Reports will be developed as described in Section 5.2.3 to provide a comprehensive analysis of Project Effectiveness and Status & Trends Data during the duration of the project. To the extent practicable, the interim and final MAM reports will be consistent with the MAM report template in the Deepwater Horizon TIG MAM Manual. Once developed, CPRA will post these reports the CIMS website, as well as upload them to the DIVER Explorer and Trustee Council websites.

## **7.6. Compliance Reporting**

### ***7.6.1. National Historic Preservation Act Annual Report***

A report documenting the results of the annual reconnaissance survey, developed by CPRA, will be provided to all Consulting Parties within 30 days after completion of the survey. CPRA shall share annual survey results only after USACE New Orleans District (CEMVN) has been allowed to review proposed language and redact any specific location data for the historic properties or new findings or other sensitive data under applicable law and regulations.

### ***7.6.2. US Fish & Wildlife Service Coordination Act Annual Report***

CPRA's responsibilities with regards to the US Fish & Wildlife Service (USFWS) Coordination Act require the development and communication of an annual report outlining data specific to USFWS trust resources in the Barataria Basin. CPRA intends for that report to represent a subset of, but otherwise largely mirror the level of analysis in, the Annual OM&M Reports (7.4). The final format, content, and review process for this report will be developed by CPRA and USFWS.

### ***7.6.3. Louisiana Trustee Implementation Group Annual Report***

CPRA will develop an annual report to the LA TIG outlining data specific to NRDA trust resources in the Barataria Basin. CPRA intends for that report to represent a subset of, but otherwise largely mirror the level of analysis in, the Annual OM&M Reports (7.4). The final format, content, and review process for this report will be developed by CPRA and the LA TIG.

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## 9. MONITORING AND ADAPTIVE MANAGEMENT BUDGET

The adaptive management component of a MAM strategy makes long-term budget estimating of a MAM budget difficult, given decisions that will be made throughout Project operations of continued need for collection of data on specific parameters. To match the analyses conducted in support of the Project EIS, however, the budget (Table 9-1) below projects out MAM costs through both a five-year pre-operations (baseline) period and 50 years post-construction (Project operations). Final MAM budget estimates are subject to further conversation between CPRA and the LA TIG agencies.

Table 9-1. Initial estimated costs for Project monitoring and adaptive management during the 5-years pre-operations and either 20 years (NRDA) or 50 years (Other) post-construction. Cost estimates shown are limited to estimated contractual costs for the empirical data collection items outlined in Section 3.

Time Period / Data Collection Are	Initial Proposed Funding Source		
	NRDA	Other	Total
Pre-operations (Baseline)	\$29,160,124	\$0	\$29,160,124
Post-construction (Operations)	\$119,577,350	\$40,167,600	\$159,744,950
<b>Total (Pre + Post)</b>	<b>\$148,737,474</b>	<b>\$40,167,600</b>	<b>\$188,905,074</b>

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## 10. INVENTORY OF PROJECT-RELATED DISCRETE/APERIODIC STUDIES

**Table 10-1.** A learning strategy has been identified to address uncertainties in responses of environmental resources to project inputs. In contrast to the uncertainties listed in Table 4.1-4, reducing the uncertainties in this table is not critical to the Adaptive Management cycle for this Project. The “Reference” column lists the source that identified the uncertainty (this MAM Plan, the Project Phase II Restoration Plan, and the Diversion Expert Panel reports #1-7 (CPRA 2014/2015/2016)).

Uncertainty	Reference	Purpose of Learning Goal	Learning Strategy
Ecosystem function in the created marsh (project outfall area) compared to pre-construction existing condition in the same area.	MAM Plan 4.1.3; Diversion Expert Panel Report #1	Quantify restoration benefits (Objective 3)	Compare pre-construction and 5-year post-operations values for <i>Land and water extent</i> (3.7.3.1), <i>Emergent wetland area</i> (3.7.3.2), <i>Vegetation Cover, Abundance, and Height</i> (3.7.3.3), <i>Emergent and submerged vegetation community type</i> (3.7.3.5), <i>Emergent vegetation biomass in the Project area</i> (3.7.3.6), <i>Topography/bathymetry of the Project delta development area</i> (3.7.1.1.7), <i>Lower trophic level organisms</i> (3.7.3.16), <i>Nekton species abundance and composition/assembly</i> (3.7.3.18), and <i>Aquatic resource and terrestrial wildlife utilization of habitat in the Project Influence Area</i> (3.7.3.22). Use an ecosystem model ensemble approach (spatially articulate and including trophic interactions) to increase confidence in conclusions.
Comparative wetland function of three types of wetland treatments: marsh built by this sediment diversion; a marsh built by conventional wetland restoration (marsh creation from dredged sediments); and unrestored marsh (CRMS-Wetlands stations).	MAM Plan 4.1.3	Quantify restoration benefits (Objective 3)	Develop experimental design and evaluate wetland function including <i>Topography/bathymetry of the Project Influence Area</i> (3.7.1.1.7) and <i>Aquatic resource and terrestrial wildlife utilization of created/restored habitat</i> (3.7.3.22)



**Table 10-1 (continued).** A learning strategy has been identified to address uncertainties in responses of environmental resources to project inputs (continued).

Uncertainty	Reference	Purpose of Learning Goal	Learning Strategy
Will the Project help to reduce the size, shape, or severity of the Gulf hypoxic zone by filtering some of the Mississippi River nutrients that would otherwise reach Gulf waters?	Restoration Plan 3.2.1.6.5	Quantify restoration benefits (Objective 3)	Evaluate <i>Dissolved Oxygen</i> (3.7.3.7) and data from the nearshore Gulf of Mexico (e.g. <a href="http://www.gulfhypoxia.net">www.gulfhypoxia.net</a> ), <i>Nutrient loads conveyed into Barataria Basin</i> (3.7.1.2.4), and <i>Nutrient constituents in Barataria Surface Waters</i> (3.7.3.12).
Changes in the Barataria basin community assemblage, biodiversity of the aquatic food web, the food web links, and the benthic: pelagic ratios (biomass and productivity, including interannual and seasonal variability) over time.	MAM Plan 4.1.3	Quantify restoration benefits (Objective 3)	Refine and run ecosystem models (Section 1.5) and evaluate additional parameters: <i>Lower Trophic Level Organisms</i> (Section 3.7.3.16), <i>Nekton species abundance and composition/assemblage</i> (3.7.3.18), and <i>Aquatic resource and terrestrial wildlife utilization of habitat in the Project Influence Area</i> (3.7.3.22).
Statistical relationship of environmental condition variability to food web changes	MAM Plan 4.1.3	Quantify restoration benefits (Objective 3)	Refine and run ecosystem models (Section 1.5).

**Table 10-1 (continued).** A learning strategy has been identified to address uncertainties in responses of environmental resources to project inputs (continued).

Uncertainty	Reference	Purpose of Learning Goal	Learning Strategy
Nutrient influence on soil strength and efficacy of land building; Effects of nutrients on floating marsh and emergent marsh soil strength, organic accretion rates, shallow rooting, increased rate of microbial decomposition of soil organic materials, and/or growth alterations to emergent vegetation	TWIG 2014a, TWIG 2015b; MAM Plan 1.4.3, 3.7.1.1.3	Quantify restoration benefits (Objective 3)	Evaluate <i>Topography/bathymetry of the Project Influence Area</i> (3.7.1.1.7), <i>Nutrient loads conveyed into Barataria Basin</i> (3.7.1.2.4), <i>Soil organic matter content</i> (3.7.2.1.4), <i>Soil total nutrients</i> (3.7.2.1.6), <i>Soil strength</i> (3.7.2.1.8), <i>Marsh surface elevation change rate in the Project Influence Area</i> (3.7.2.1.9), <i>Land and water extent / Area of new delta formation in the Project Influence Area</i> (3.7.3.1), <i>Emergent wetland area</i> (3.7.3.2.), <i>Vegetation Cover, Abundance, and Height</i> (3.7.3.3), <i>Emergent and submerged vegetation community type</i> (3.7.3.5), <i>Emergent vegetation biomass in the Project area</i> (3.7.3.6), <i>Nutrient constituents in Barataria Surface Waters</i> (3.7.3.12). Establish marsh experiments in controlled environments and in greenhouses. Consider data and publications from other Barataria Basin diversion studies.
Can nutrients be effectively filtered by vegetation and sediment in receiving basins, or will nutrient delivery exceed the needs of primary producers and lead to local and far-field algal bloom?	TWIG 2014a, MAM Plan 3.7.1.1.3	Effect of excess nutrients on water quality	Evaluate <i>Nutrient loads conveyed into Barataria Basin</i> (3.7.1.2.4), <i>phytoplankton blooms</i> (3.7.3.9), <i>harmful algal blooms</i> (3.7.3.10), <i>dissolved oxygen</i> (3.7.3.7). May require supplemental data collection (beyond the scope of this MAM Plan).
How will rates of nutrient and toxin assimilation change following Project Operations?	TWIG 2014a	Effects of nutrients on HCABs, toxins, and associated implications for ecosystem effects and human health	Phytoplankton Species Composition (including Harmful Cyanobacterial/Algal Bloom Species) (3.7.3.10), Harmful Cyanobacterial/Algal Bloom Toxins 3.7.3.11). May require supplemental data collection (beyond the scope of this MAM Plan).

**Table 10-1 (continued).** A learning strategy has been identified to address uncertainties in responses of environmental resources to project inputs (continued).

Uncertainty	Reference	Purpose of Learning Goal	Learning Strategy
Effects on SAV coverage related to dispersal opportunities (expansion) and reduced salinity and suspended sediments (shifts in composition)	TWIG 2014a	Quantify restoration benefits (Objective 3)	<i>Submerged aquatic vegetation area (3.7.3.4), Emergent and submerged vegetation community type (3.7.3.5), Salinity (3.7.3.8), Turbidity of Barataria Surface Waters (3.7.3.14)</i>
Recruitment potential of emergent marsh species in newly formed deltaic sediments, and colonization in receiving basins that are relatively isolated and degrading vs in vegetated basins with ample propagule sources	TWIG 2014a	Quantify restoration benefits (Objective 3)	Emergent wetland area (3.7.3.2.), Vegetation Cover, Abundance, and Height (3.7.3.3), Emergent and submerged vegetation community type (3.7.3.5), Emergent vegetation biomass in the Project area (3.7.3.6). May require supplemental data collection (beyond the scope of this MAM Plan).
Relationship of social factors to diversion performance and operations (e.g., sediment volumes affected by runoff throughout the watershed; future navigation needs related to economic activity)	TWIG 2014a	Socioeconomic influences on Project performance	Explicitly link social outcome analysis to biophysical models. Incorporate the role of upstream social and economic factors, including other diversions and restoration projects, into diversion project performance assessment.

**Table 10-1 (continued).** A learning strategy has been identified to address uncertainties in responses of environmental resources to project inputs (continued).

Uncertainty	Reference	Purpose of Learning Goal	Learning Strategy
Correlation of socioeconomic changes and biophysical changes, such as character of natural resources (e.g., land mass, water quality, flood risks, species abundance) and social resources (e.g., fishing, hunting, navigation, agriculture, community structure, property value).	TWIG 2014a, 2016b	Socioeconomic response to biophysical changes	Ecosystem Services analysis approach to link policy and management interventions to changed biophysical outcomes and then corresponding changes in social impacts, expressed as human health, financial, employment, and community welfare outcomes. Evaluate changes in community demographics; results of retail/service and housing market analyses; demand for public services; changes in employment and income levels; and changes in the aesthetic quality of the community.

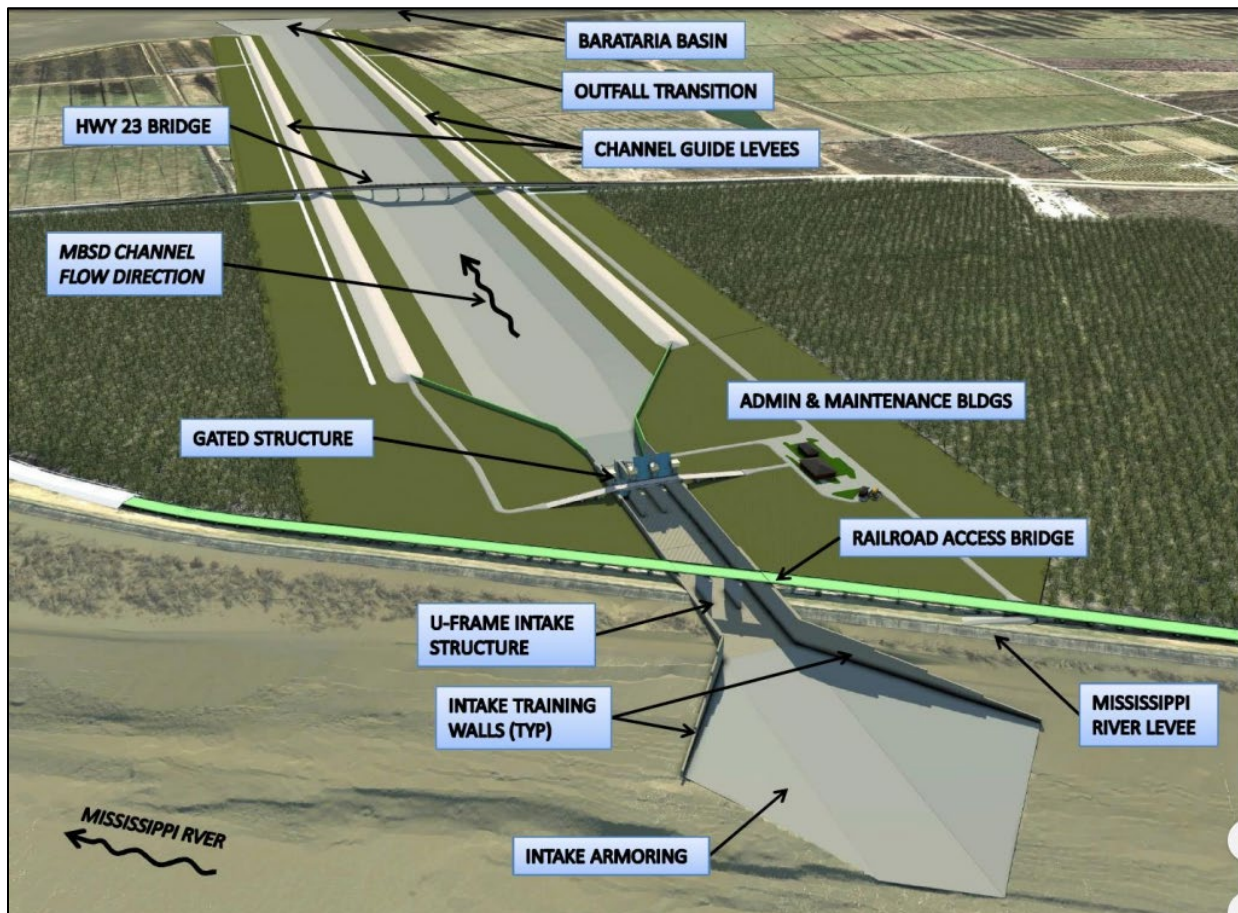
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**11. PROJECT ADAPTIVE MANAGEMENT DECISION LOG AND CATALOG OF UPDATES TO THE MONITORING AND ADAPTIVE MANAGEMENT PLAN**

This section will be populated through time as this Plan is updated.



# MITIGATION AND STEWARDSHIP PLAN FOR THE MID-BARATARIA SEDIMENT DIVERSION PROJECT (CPRA PROJECT NUMBER BA-0153)



25 July 2022



## TABLE OF CONTENTS

1. INTRODUCTION .....	2
2. PROJECT OVERVIEW .....	2
3. PROJECT SITE .....	3
4. PERMITTING HISTORY AND RELATED MITIGATION GUIDELINES AND REQUIREMENTS .....	6
4.1. Oil Pollution Act.....	6
4.2. Clean Water Act Section 404/Rivers and Harbors Act Section 10.....	6
4.3. Rivers and Harbors Act Section 408.....	7
4.4. National Environmental Policy Act.....	8
4.5. Endangered Species Act.....	8
4.6. Fish and Wildlife Coordination Act.....	9
4.7. Magnuson–Stevens Fishery Conservation and Management Act.....	15
4.8. Marine Mammal Protection Act.....	15
4.9. National Historic Preservation Act.....	16
5. PROJECT OPERATIONS, OBJECTIVES, AND BENEFITS .....	17
6. AVOIDANCE, MINIMIZATION, MITIGATION AND STEWARDSHIP MEASURES .....	18
6.1. Avoidance and Minimization Measures.....	18
6.2. Clean Water Act Section 404 Compensatory Mitigation.....	19
6.2.1. Wetlands and Jurisdictional Waters.....	19
6.3. Other Mitigation and Stewardship Measures.....	20
6.3.1. Impacts to Navigation.....	20
6.3.2. Property Impacts.....	22
6.3.3. Aquatic/Fisheries Impacts.....	33
6.3.4. ESA-Listed Species .....	42
6.3.5. Non-ESA Listed Fish and Wildlife.....	43
6.3.6. Marine Mammals.....	43
6.3.7. Essential Fish Habitat .....	45
6.3.8. Environmental Justice.....	45
6.3.9. Cultural Resources.....	50
7. PLAN IMPLEMENTATION .....	51
7.1. Performance, Monitoring, Maintenance, and Adaptive Management.....	51
8. FINANCIAL ASSURANCES.....	52

Appendix A: [Placeholder for NHPA Section 106 Programmatic Agreement]

Appendix B: Best Management Practices

## **MID-BARATARIA SEDIMENT DIVERSION MITIGATION AND STEWARDSHIP PLAN**

### **1. INTRODUCTION**

The Coastal Protection and Restoration Authority of Louisiana (CPRA) is planning to construct, operate, and maintain the proposed Mid-Barataria Sediment Diversion Project (Project). The Project is intended to address injuries caused by the *Deepwater Horizon* (DWH) oil spill by implementing a large-scale sediment diversion in the Barataria Basin. The sediment diversion will reconnect and re-establish sustainable deltaic processes between the Mississippi River and the Barataria Basin through the delivery of sediment, fresh water, and nutrients to support the long-term viability of existing and planned coastal restoration efforts.

The Project has the potential to directly and indirectly impact—both beneficially or adversely—jurisdictional wetlands and other waters of the United States, U.S. Army Corps of Engineers (USACE) civil works projects, threatened and endangered species, marine mammals, essential fish habitat (EFH), and other elements of the environment, as identified in the National Environmental Policy Act (NEPA) environmental impact statement (EIS) for the Project.

The Purpose of this Mid-Barataria Sediment Diversion Mitigation and Stewardship Plan (Mitigation Plan) is to demonstrate how adverse impacts of the Project will be avoided, minimized, or mitigated to the extent required under applicable federal law. In particular, the objectives of the Mitigation Plan include identifying mitigation that will: (1) offset unavoidable adverse impacts to jurisdictional waters of the United States; and (2) ensure the Project is not contrary to the public interest, pursuant to section 404 of the Clean Water Act (CWA), and sections 9 and 10 of the Rivers and Harbors Act.

The Mitigation Plan also identifies: (1) conservation measures to avoid and minimize potential effects to species listed as threatened or endangered under the federal Endangered Species Act (ESA); (2) conservation recommendations provided by the National Marine Fisheries Service (NMFS) to conserve, avoid and/or minimize adverse effects to EFH; (3) recommendations provided by the U.S. Department of Interior's Fish and Wildlife Service (FWS) under the Fish and Wildlife Coordination Act (FWCA); and (4) stewardship measures to address project-related changes to the environment.

CPRA will implement the mitigation and stewardship measures set forth in this Plan provided the Project receives all necessary approvals and is funded for construction.

### **2. PROJECT OVERVIEW**

The Project is a controlled intake diversion structure in Plaquemines Parish, Louisiana connecting the Mississippi River with the adjoining Barataria Basin. The structural features of the Project will be located on the west bank of the Mississippi River at River Mile (RM) 60.7. The Project is intended to convey sediment, fresh water, and nutrients from the Mississippi River

into an outfall area within the Barataria Basin in Plaquemines and Jefferson Parishes. After passing through a proposed intake structure complex at the confluence of the Mississippi River and the proposed intake channel, the sediment-laden water would be transported through a conveyance channel to an outfall area in the mid-Barataria Basin.

Flow in the diversion would be variable, with the gates opening when the Mississippi River gage in Belle Chasse reaches 450,000 cubic feet per second (cfs). The diversion would reach a peak flow of 75,000 cfs into the mid-Barataria Basin when the Mississippi River discharge is 1,000,000 cfs or more. When Mississippi River flows are below 450,000 cfs at Belle Chasse, the Project would maintain a background (base) flow of up to 5,000 cfs to protect, sustain, and maintain newly vegetated or recently converted fresh and intermediate habitats near the diversion outflow.

As more fully explained in Section 5 below, the Project is anticipated to have major, permanent benefits on wetlands and other U.S. jurisdictional waters in the Barataria Basin. The purpose of the diversion of fresh water, sediments, and nutrients into the Barataria Basin is to build, sustain, and maintain wetlands and riverine deltaic processes in an area that has been isolated from natural flooding inputs from the Mississippi River. A consistent and large magnitude input of sediment will lead to accumulation of diverted sediments and formation of new sub-areal features available for plant colonization. Direct deposition within existing wetlands contributes to surface accretion helping to offset the effects of sea level rise and subsidence.

### **3. PROJECT SITE**

The Project Area is shown in Figures 1 and 2 below. A detailed description of the ecologic characteristics of the Project site is presented in Chapter 3 of the Final EIS.

Figure 1

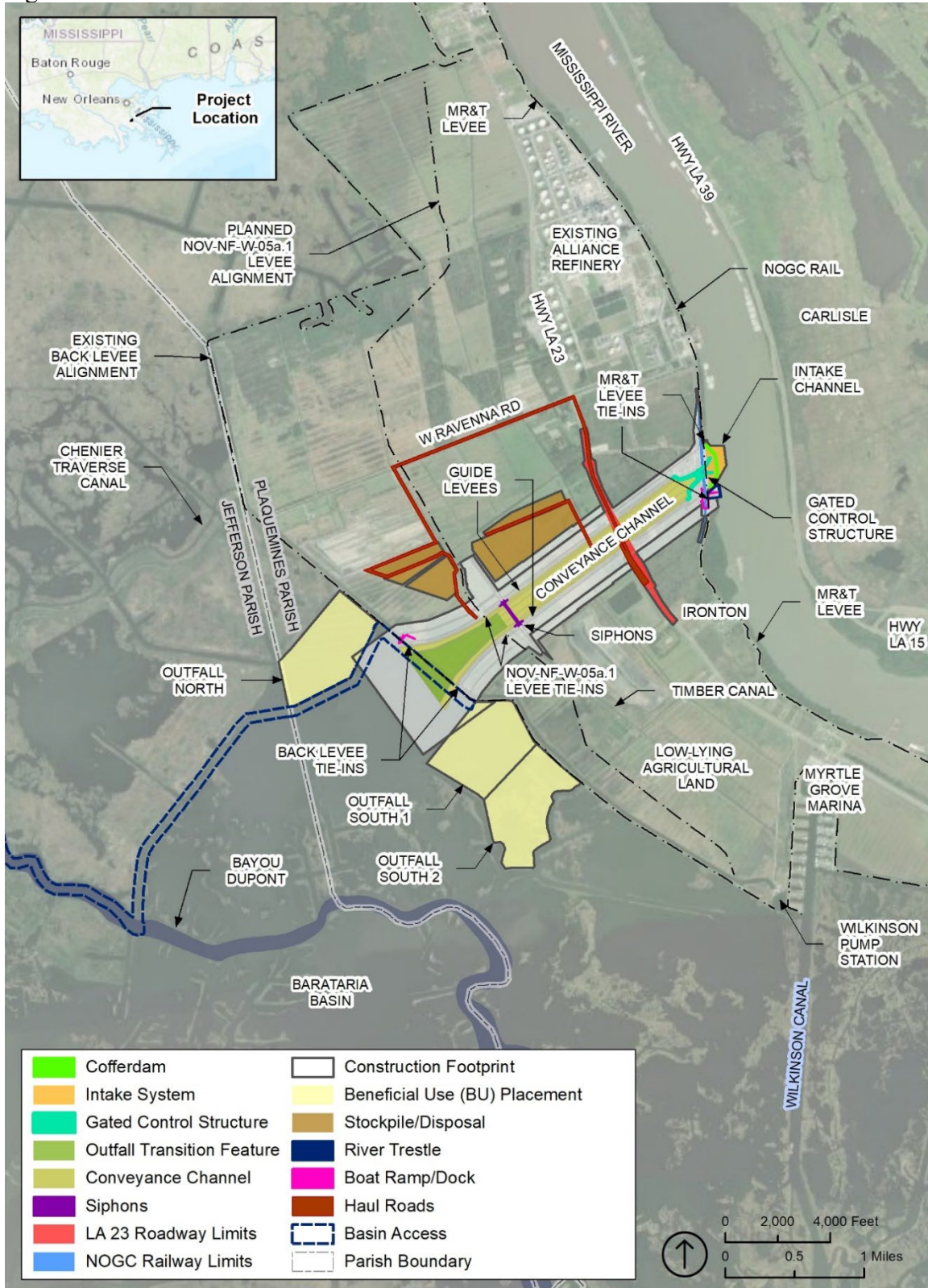
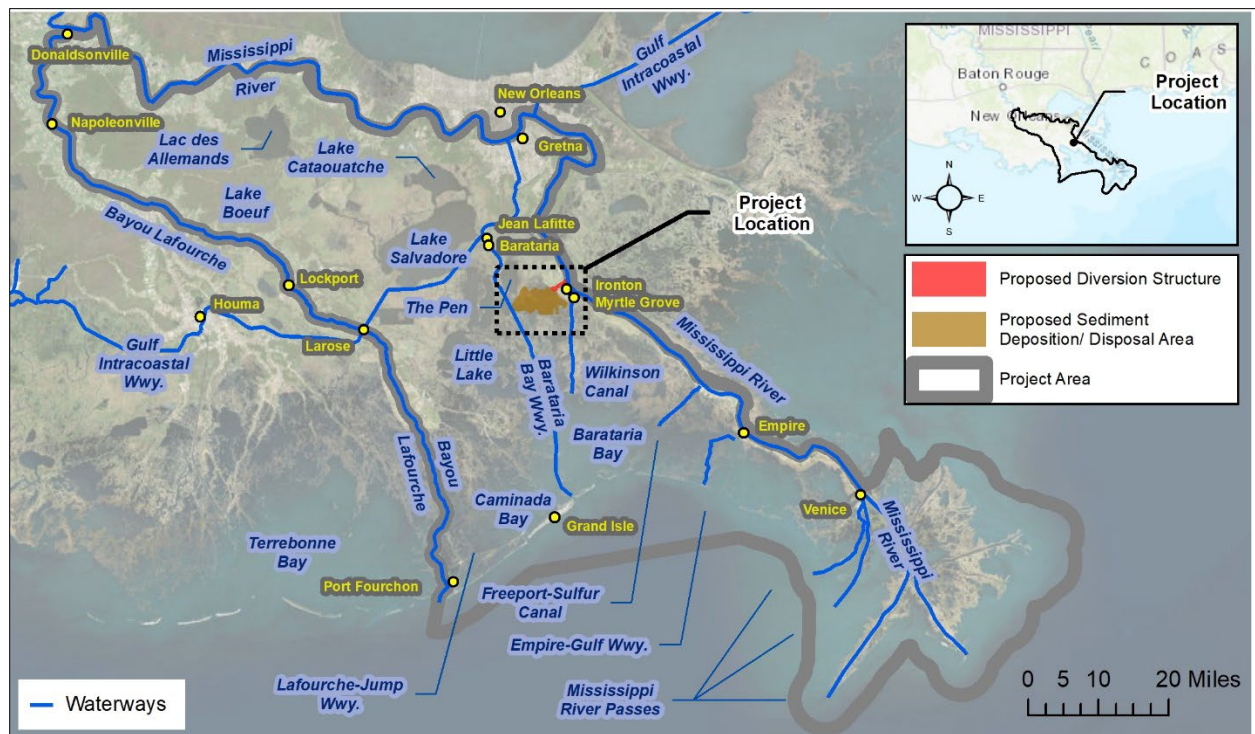




Figure 2



The marshes of the mid-Barataria Basin are increasingly fragmented due to increased saltwater intrusion, subsidence, and erosional forces and are losing land area at a more rapid rate than other areas of the basin (Ayres 2012; Couvillion et al. 2016; CPRA 2012 and 2017). As a result, this portion of the Basin is viewed as an area of critical need within the Barataria Basin that may benefit most markedly from a sustained infusion of sediment, fresh water, and nutrients from a sediment diversion.

If no action were taken, the trend of increasing land loss in the Barataria Basin would continue, resulting in the projected conversion of up to nearly 274,000 acres of emergent wetlands and other subaerial (above the water surface) landforms to subaqueous (below the water surface) shallow water by the year 2070 (see Table 4.2-3 in Final EIS Section 4.2.3 Geology, Topography and Geomorphology).

The Barataria Basin was identified in the Louisiana Trustee Implementation Group’s (LA TIG) Final Strategic Restoration Plan and Environmental Assessment #3: Restoration of Wetlands, Coastal, and Nearshore Habitats in the Barataria Basin, Louisiana (SRP/EA #3) as a focus area for restoration activities because within Louisiana, the Barataria Basin suffered the most severe and persistent oiling from the DWH oil spill (LA TIG 2017). It is also an “area of critical need” due to its significant and continuing land loss. In the SRP/EA #3, the LA TIG identified a combination of sediment diversions and marsh creation projects as the preferred restoration strategy for the Barataria Basin.

The proposed location for the Project is in the Middle Basin. As described in more detail in the Final EIS, a project in the Middle Basin allows for capture and redistribution of fine-grained and coarse-grained sediments, is buffered from excessive erosional forces, and is better protected from extreme changes in salinity.

#### **4. PERMITTING HISTORY AND RELATED MITIGATION GUIDELINES AND REQUIREMENTS**

##### **4.1. Oil Pollution Act**

On March 20, 2018, consistent with Oil Pollution Act (OPA), the LA TIG published the SRP/EA #3. In the SRP/EA #3, the LA TIG Trustees selected a large-scale sediment diversion for further planning as part of a suite of restoration projects that constitutes the Applicant's Preferred Alternative for restoring DWH oil spill injuries through restoration in the Barataria Basin. The Trustees further selected the Project, among others, for advancement and further evaluation under OPA and NEPA in a Phase II Restoration Plan and NEPA analysis.

##### **4.2. Clean Water Act Section 404/Rivers and Harbors Act Section 10**

Because the Project would involve the discharge of dredged and fill material into waters of the United States and requires construction to be performed in the Mississippi River and the Barataria Basin, a CWA Section 404 permit and a Rivers and Harbors Act (RHA) Section 10 permit are required for construction and operation of the Project. Permits for activities requiring approval under both Section 10 of the RHA and Section 404 of the CWA are processed simultaneously by the USACE.

CPRA submitted a Joint Permit Application on June 23, 2016, to the USACE, New Orleans District (CEMVN) for Section 404/10 permits. On March 26, 2018, CPRA submitted a revision to the permit application including a revised statement of Purpose and Need.

The USACE decision whether to issue Section 404/10 permits will be based on an evaluation of the probable impacts, including cumulative impacts, of the proposed activity and its intended use on the public interest.<sup>i</sup> Relevant factors in such evaluation include: "conservation, economics, aesthetics, general environmental concerns, wetlands, historic properties, fish and wildlife values, flood hazards, floodplain values, land use, navigation, shore erosion and accretion, recreation, water supply and conservation, water quality, energy needs, safety, food and fiber production, mineral needs, considerations of property ownership and, in general, the needs and welfare of the people."<sup>ii</sup> Compensatory mitigation may be required to ensure that an activity requiring authorization is not contrary to the public interest.<sup>iii</sup>

In addition, pursuant to CWA Section 404, compensatory mitigation is required to offset environmental losses from unavoidable impacts to waters of the United States.<sup>iv</sup> The U.S. Environmental Protection Agency (EPA) and the USACE have articulated the policy and procedures to be used in the determination of the type and level of compensatory mitigation necessary (Section 404(b)(1) Guidelines).<sup>v</sup> The Section 404(b)(1) Guidelines state that "the

district engineer will issue an individual Section 404 permit only upon a determination that the proposed discharge complies with applicable provisions of 40 CFR Part 230, including those which require the permit applicant to take all appropriate and practicable steps to avoid and minimize adverse impacts to waters of the United States.”<sup>vi</sup> Practicable means available and capable of being done after taking into consideration cost, existing technology, and logistics in light of overall project purposes.

Under the Section 404(b)(1) Guidelines, impacts must first be avoided and minimized.<sup>vii</sup> Avoidance of impacts to aquatic resources involves the least-damaging project type, spatial location and extent compatible with achieving the purpose of the project. Avoidance is achieved through an analysis of appropriate and practicable alternatives and a consideration of the impact footprint. Minimization involves managing the severity of a project’s impact on resources at the selected site. Minimization is achieved through the incorporation of appropriate and practicable design and risk avoidance measures. If impacts cannot be avoided or minimized, compensatory mitigation should be provided.<sup>viii</sup>

Compensatory mitigation involves replacing or providing substitute resources for impacts that remain after avoidance and minimization measures have been applied. The implementation of the compensatory mitigation should be in advance of or concurrent with the impacts.

### **4.3. Rivers and Harbors Act Section 408**

Section 408 of the RHA provides that the USACE may grant permission for another party to alter a Civil Works project upon a determination that the alteration proposed will not be injurious to the public interest and will not impair the usefulness of the Civil Works project.<sup>ix</sup> As in the context of Section 404/10 permits, the USACE may require mitigation to ensure the proposed alteration is not injurious to the public interest.<sup>x</sup>

The Project has the potential to alter USACE civil works projects and requires Section 408 permission to proceed. The following USACE civil works projects are located within the Project area: the Mississippi River Ship Channel Gulf to Baton Rouge Project, Saltwater Sill Mitigation Project, Gulf Intracoastal Waterway, Barataria Bay Waterway, Bayou Lafourche and Lafourche-Jump Waterway, Mississippi River and Tributaries Project – Mississippi River Levee, Hurricane and Storm Damage Risk Reduction System Projects, Larose to Golden Meadow Project, and Davis Pond Freshwater Diversion Project.

CPRA submitted a Section 408 Permission Request Letter on January 13, 2017, to CEMVN for a Section 408 permission. CEMVN determined that Section 408 permission was required with respect to the Mississippi River Ship Channel, the Mississippi River & Tributaries Levees, and the New Orleans to Venice (NOV) Non-Federal Levee (NFL) USACE, New Orleans District projects.



#### **4.4. National Environmental Policy Act**

NEPA requires federal agencies to assess the environmental effects of their proposed actions prior to making decisions. NEPA does not require federal agencies to prescribe mitigation for effects of their actions.

Because federal approvals, including Section 404 and 10 permits and Section 408 permission, are required for the Project, the Project is a federal action subject to NEPA. The USACE is the lead federal agency for compliance with NEPA. The USACE determined that the Project may significantly affect the quality of the human environment and therefore, decided to prepare an EIS. The USACE prepared a DEIS dated March 5, 2021, in accordance with NEPA and applicable NEPA implementation regulations (43 U.S.C. § 4321 *et. seq.*; 40 C.F.R. § 1500, as amended; 33 C.F.R. § 325, Appendices B and C). The USACE requested that six federal and state agencies with statutory authority or special expertise with an environmental issue participate in the EIS process as cooperating agencies, including the Environmental Protection Agency, the National Oceanic and Atmospheric Administration's (NOAA) National Marine Fisheries Service (NMFS), the NOAA Damage Assessment, Remediation, and Restoration Program (DARRP), the U.S. Department of Interior's FWS, the Louisiana State Historic Preservation Office (LA SHPO), and the Louisiana Department of Transportation and Development (LDOTD). The USACE also invited several federal, state, and local agencies to participate in the EIS process as commenting agencies, including the U.S. Geological Survey (USGS), the Natural Resources Conservation Service (NRCS), the Louisiana Governor's Office of Homeland Security and Emergency Preparedness (GOHSEP), the Louisiana Department of Wildlife and Fisheries (LDWF), the Louisiana Department of Natural Resources (LDNR), the Louisiana Office of State Lands (OSL), the Louisiana Department of Environmental Quality (LDEQ), the Plaquemines Parish Government (PPG), and the Jefferson Parish Government (JPG).

Impacts identified in the Draft and Final EIS and associated technical analyses (as well as in other analyses outside of the NEPA process) were used as the basis for mitigation in the Mitigation Plan. The Final EIS is expected to be published in 2022. The Final EIS will also inform decisions made by the LA TIG regarding restoration planning and related funding decisions relevant to the Deepwater Horizon natural resource damage settlement. The Final EIS evaluates any environmental consequences associated with implementation of the mitigation and stewardship measures presented here. That evaluation is included in Appendix R-3 and Appendix R-4 of the Final EIS.

#### **4.5. Endangered Species Act**

Section 7(a)(2) of the ESA requires federal agencies to consult with NMFS and/or the FWS (collectively the Services) to ensure that effects of actions that the federal agencies authorize, fund, or carry out are not likely to jeopardize the continued existence of listed species or adversely modify designated critical habitat. During this consultation, the federal action agency prepares an initial assessment of the potential impacts of the proposed action on listed species and critical habitat. If the action agency determines that an action is not likely to adversely affect

listed species or critical habitat, and the Services agree with that assessment, the ESA consultation is concluded informally.

If the action agency determines that an action is likely to adversely affect listed species or designated critical habitat, the action agency prepares an assessment of those potential impacts and provides it to the Services. The Services then evaluate the impacts to listed species and their designated critical habitat, including impacts resulting from any indirect and cumulative effects.<sup>xi</sup> Indirect effects are those effects that are caused by or will result from the proposed action and are later in time, but are still reasonably certain to occur.<sup>xii</sup> Cumulative effects are effects of future State, tribal, local, or private actions (not Federal actions) that are reasonably certain to occur in the action area.

The evaluation of the impact of the proposed action may take into account the actions to benefit or promote the recovery of listed species that are included by the federal agency as an integral part of the proposed action. If the applicable Service determines that the action is not likely to jeopardize the continued existence of the listed species and not likely to destroy or adversely modify its designated critical habitat, it will issue a “no jeopardy” biological opinion and an incidental take statement (ITS), detailing the amount and extent of anticipated incidental take.<sup>xiii</sup> The ITS will include reasonable and prudent measures—actions the Director believes necessary or appropriate to minimize the impacts, i.e., amount or extent, of incidental take. The ITS will also include additional terms and conditions that the federal agency and any applicant must implement to minimize the impact of such incidental take. If the applicable Service determines that the action is likely to jeopardize the listed species or to destroy or adversely modify its designated critical habitat, it will issue a “jeopardy” biological opinion and identify a reasonable and prudent alternative to the proposed action.

The USACE submitted a biological assessment to NMFS and initiated Section 7 consultation for the Project in February 2021. The USACE submitted a biological assessment to FWS and initiated Section 7 consultation for the Project on July 2, 2021. These consultations resulted in a biological opinion from each Service in December 2021. This documentation is provided in Appendix O of the FEIS.

#### **4.6. Fish and Wildlife Coordination Act**

The FWCA requires federal agencies to consult with FWS and the head of the agency exercising administration over the wildlife resources of the particular State regarding activities that affect, control or modify waters of any stream or bodies of water, in order to minimize the adverse impacts of such actions on fish and wildlife resources and habitat.<sup>xiv</sup> FWS and the state agency may make recommendations for consideration by the federal agency; the agency may consider the recommendations but is not required to follow them.<sup>xv</sup>

Pursuant to FWS guidance,<sup>xvi</sup> mitigation is accomplished through the use of a five-step process for reducing or eliminating losses from a project: avoidance, minimization, rectification, rectification over time, and compensation. Compensation is used to mitigate for unavoidable losses after the first four components of mitigation have been applied. Compensation means full

replacement—substitution of fish and wildlife resource losses with resources considered to be of equivalent biological value—of project-induced losses to fish and wildlife resources.

Under the policy, the mitigation goal depends on the category of resource to be impacted by the action, as follows:

- Resource category 1: Habitat to be impacted is of high value for evaluation species and is unique and irreplaceable on a national basis or in the ecoregion section.
  - Mitigation goal: no loss of existing habitat value.
- Resource category 2: Habitat to be impacted is of high value for evaluation species and is relatively scarce.
  - Mitigation goal: no net loss of in-kind habitat value.
- Resource category 3: Habitat to be impacted is of high to medium value for evaluation species and is relatively abundant.
  - Mitigation goal: no net loss of habitat value while minimizing loss of in-kind habitat value.
- Resource category 4: Habitat to be impacted is of medium to low value for evaluation species.
  - Mitigation goal: minimize loss of habitat value.

The USACE initiated consultation with the FWS and the state under the FWCA on January 19, 2021. FWS made the following recommendations:

1. The Service recommends the construction of crevasse projects that may include terracing to offset the indirect loss of 926 acres on the Delta NWR [National Wildlife Reserve] and 37 acres on the Pass-A-Loutre (PAL) WMA [Wildlife Management Area]. Funding for these crevasse projects is potentially available from a variety of sources, including the Coastal Wetland Planning, Protection and Restoration Act (CWPPRA), but should funding not be available through those sources to implement the crevasse projects, funding should be secured through Operations and Maintenance costs associated with the project or set aside in the Monitoring and Adaptive Management Plan to ensure wetland losses in Delta NWR and PAL WMA will be addressed. Any CWPPRA funding for these crevasse projects should be in addition to, and should not displace, CWPPRA funding that would otherwise be used to implement crevasse projects in Delta NWR and PAL WMA. The Service recognizes that the Birdfoot Delta Hydrologic Restoration Project, the Engineering and design of which were funded pursuant to Deepwater Horizon Oil Spill, Louisiana Trustee Implementation Group Final Restoration Plan and Environmental Assessment #7: Wetlands, Coastal and Nearshore Habitats and Birds (November 2020), will, if funded for implementation, provide further benefits to the Delta NWR and PAL WMA and offset the indirect losses on those resources from the MBSD. For additional information on possible projects, associated permits, and for all activities occurring on the Delta NWR, please coordinate with this office and the Southeast Louisiana Refuges by contacting Barret Fortier (985.882.2011, [barret\\_fortier@fs.gov](mailto:barret_fortier@fs.gov)), and for similar information on any activities planned for Pass a

Loutre WVA contact LDWF, Mr. Vaughn McDonald 225-765-2708, avtmcDonald@wlf.la.gov).

*Applicant Response:* Within 5 years of the commencement of Project operations, CPRA or the LA TIG will provide \$10,000,000 of additional funding for wetland preservation and restoration work in the Delta NWR and the PAL WMA to offset modeled acres of indirect wetland losses in those areas. That funding may be accomplished through additional funding through the CWPPRA program, through additional restoration work sponsored by the LA TIG (for example, construction of the E&D work discussed in the DWH LA TIG's Restoration Plan and Environmental Assessment #7), or through a direct contribution for additional work. The funding will be proportioned between the Delta NWR and the PAL WMA based on the magnitude of the predicted wetland loss in each area. FWS concurs with this implementation strategy for Conservation Recommendation Number 1.

2. The impacts to Essential Fish Habitat should be discussed with the NMFS to determine if the project complies with the Magnuson-Stevens Fishery Conservation and Management Act (MSFCMA), Magnuson-Stevens Act; P.L. 104-297, as amended, and its implementing regulations.

*Applicant Response:* CPRA agrees to Conservation Recommendation 2 and is actively coordinating with NMFS regarding potential impacts to Essential Fish Habitat.

3. In order to better coordinate and consider the overall health of the Barataria Basin, the Service recommends that a basin-wide operations and basin monitoring data repository be developed. The data and conclusions should be readily available to help in the general coordination among diversion operators, within their authorizations, and to understand both adverse and beneficial impacts to the overall basin. The Service and other natural resource agencies should be involved in reviewing and commenting on this data repository.

*Applicant Response:* CPRA agrees to Conservation Recommendation 3 and has developed a data repository consistent with this Recommendation. CPRA looks forward to discussing that repository with the Service and other natural resource agencies.

4. Monitoring of the Davis Pond and Caernarvon Diversions indicated that some contaminants were being introduced into the receiving areas from the Mississippi River. To address potential impacts of future contaminants on fish and wildlife resources, the Service recommends that pre and post sampling of fish and shellfish from the outfall area and the Mississippi River be undertaken. The Service recommends that CPRA, in coordination with the Service, develop a list of contaminants to be analyzed. The Service and CPRA should refer to the most recent EPA Priority Pollutant list in developing the list of contaminants to be analyzed. Periodic post-operational sampling should start after sufficient time for potential contaminants to accumulate (i.e., 3 to 5 years) and the frequency of subsequent periodic sampling (e.g., 3 to 5 years) would be predicated upon levels of contaminants detected. Expansion of sampling to local nesting bald eagles (e.g., fecal and blood samples analyzed for the same contaminant) would also be predicated

upon the type and level of contaminants detected. If high levels of contaminants are found, the Service and other resource agencies should be consulted. This adaptive sampling plan should be developed in cooperation with the Service and other natural resource agencies and implemented prior to operation.

*Applicant Response:* CPRA agrees to Conservation Recommendation 4.

5. The Service recommends that consideration be given to operating the diversion in a manner that would prevent or minimize adverse impacts to wetlands due to prolonged inundation and focus on the overall enhancement of the entire project area to the greatest extent possible.

*Applicant Response:* CPRA agrees to Conservation Recommendation 5.

6. The Service recommends development of a detailed Monitoring and Adaptive Management (MAM) Plan to inform operational decisions in order to minimize adverse impacts where possible. The MAM Plan should be developed through coordination with the Service, NMFS, and other resource agencies. At a minimum, the MAM Plan should address the following issues:
  - a. Receiving area water levels should be monitored to minimize any potential adverse impacts such as inundation impacts (refer to Services' recommendation 5, which should be included as part of the MAM plan).
  - b. The operational plan should include provisions for water level triggers to mitigate effects from coastal flood advisories during operation.
  - c. Implementation of water quality sampling for concentrations of nutrients and dissolved oxygen prior to and during operation to help determine impacts from diverted water on nutrient concentrations and resulting water quality effects.
  - d. Concentrations of EPA Priority Pollutants and Contaminants of Concern (COC) should be sampled in fish and shellfish from the outfall area and Mississippi River prior to and following operation to determine potential adverse effects to fish and wildlife. The frequency, intensity, and potential expansion of the sampling should be predicated upon containment levels detected (refer to the Services' Recommendation 4 which should be included in the MAM plan).
  - e. There should be monitoring of below- and above- ground biomass to understand inundation and salinity effects on wetland health.
  - f. Measurement of sediment accretion (water bottom and on the marsh surface) and bulk density should be conducted throughout the receiving area to provide the data needed to optimize sediment delivery and distribution to receiving area wetlands.
  - g. MAM plan results (i.e., sedimentation, fishery, water quality monitoring, etc.) should be used to refine and improve future operations (refer to the Services' Recommendation 3).

*Applicant Response:* CPRA agrees to Conservation Recommendation 6 and has worked closely with the Service, NMFS, and other resource agencies to develop a MAM plan that satisfies the components of this Recommendation.

7. The Service recommends adaptively managing the diversion outfall area to minimize stage increases and to maximize distribution and capture of suspended sediments within the immediate outfall area. This is needed to prevent the loss of diversion efficiency should diverted water attempt to circumvent the wetlands and flow directly into Wilkinson Canal or the Barataria Bay Waterway rather than flow over marsh where it will do the most good and ensure achieving project goals. Dredged material associated with achieving this recommendation should be beneficially used to create, restore, or enhance marsh within the basin or surrounding areas.

*Applicant Response:* CPRA agrees to Conservation Recommendation 7.

8. A report documenting the status of implementation, operation, maintenance and adaptive management measures should be prepared every three years by the managing agency and provided to the USACE, the Service, National Marine Fisheries Service, U.S. Environmental Protection Agency, Louisiana Department of Natural Resources, Louisiana Coastal Protection and Restoration Authority, and the Louisiana Department of Wildlife and Fisheries. That report should also describe future management activities and identify any proposed changes to the existing management plan.

*Applicant Response:* CPRA agrees to Conservation Recommendation 8.

9. Further detailed planning of project features and any adaptive management and monitoring plans should be developed in coordination with the Service and other State and Federal natural resource agencies so that those agencies have an opportunity to review and submit recommendations on work addressed in those reports and plans.

*Applicant Response:* CPRA agrees to Conservation Recommendation 9 and the MAM plan referenced in Conservation Recommendation 6 includes provisions on governance that establish the suggested inter-agency coordination.

10. The pallid sturgeon is found in the Mississippi River and is adapted to large, free-flowing turbid rivers with a diverse assemblage of physical characteristics that are in a constant state of change. Entrainment associated with the diversion of river water to coastal estuaries is a potential effect that should be addressed in coordination with the Service. The Service recommends consultation under the Endangered Species Act (ESA) with this office for pallid sturgeon.

*Applicant Response:* CPRA agrees to Conservation Recommendation 10.

11. West Indian manatees occasionally enter Louisiana coastal waters and streams during the warmer months (i.e., June through September). During in-water work in areas that potentially support manatees all personnel associated with the project should be instructed about the potential presence of manatees, manatee speed zones, and the need to avoid collisions with and injury to manatees. All personnel should be advised that there are civil and criminal penalties for harming, harassing, or killing manatees, which are protected under the Marine Mammal Protection Act of 1972, the Endangered Species Act of 1973, and state law. Additionally, personnel should be instructed not to attempt to feed or otherwise interact with manatees, although passively taking pictures or video

would be acceptable. For more detail on avoiding contact with manatees refer to the Endangered and Threatened Species section of this document and contact this office. Should a proposed action directly or indirectly affect the West Indian manatee, further consultation with this office will be necessary.

*Applicant Response:* CPRA agrees to Conservation Recommendation 11.

12. If implementation of the proposed action has the potential to directly or indirectly affect the red knot, piping plover, and eastern black rail or their habitat, further consultation with this office will be necessary.

*Applicant Response:* CPRA agrees to Conservation Recommendation 12.

13. Avoid adverse impacts to bald eagle nesting locations and wading bird colonies through careful design of project features and timing of construction. During project construction, a qualified biologist should inspect the proposed construction site for the presence of documented and undocumented wading bird colonies and bald eagles.

- a. All construction activity during the wading bird nesting season (February through October 31 for wading bird nesting colonies, exact dates may vary) should be restricted within 1,000 feet of a wading bird colony. If restricting construction activity within 1,000 feet of a wading bird colony is not feasible, CPRA should coordinate with FWS to identify and implement alternative best management practices to protect wading bird nesting colonies.
- b. During construction activities, if a bald eagle nest is within or adjacent to the proposed project area, then follow the bald and golden eagle guidelines found online at <https://www.fws.gov/library/collections/bald-and-golden-eagle-management> to determine whether disturbance will occur and/or an incidental take permit is needed.

*Applicant Response:* CPRA agrees to Conservation Recommendation 13.

14. The Service recommends that CPRA and the USACE contact the Service and LDWF for additional consultation if: 1) the scope of location of the proposed project is changed significantly, 2) new information reveals that the action may affect listed species or designated critical habitat, 3) the action is modified in a manner that causes effects to listed species or designated critical habitat, or 4) a new species is listed or critical habitat designated. Additional consultation as a result of any of the above conditions or for changes not covered in this consultation should occur before changes are made or finalized.

*Applicant Response:* CPRA agrees to Conservation Recommendation 14.

If, after further consultation with CPRA, USACE, and LDWF, the FWS modifies these recommendations in the future, the modified recommendations shall automatically supersede the recommendations set forth herein without the need to update this Mitigation Plan.



#### **4.7. Magnuson–Stevens Fishery Conservation and Management Act**

Under the Magnuson–Stevens Fishery Conservation and Management Act (MSA), NMFS approves, implements, and enforces fishery management plans (FMPs) that are developed and prepared by regional fishery management councils.<sup>xvii</sup> FMPs must identify EFH for each life stage of the managed fish species based on certain guidelines, minimize adverse fishing effects on EFH, and identify other actions to encourage the conservation and enhancement of EFH.<sup>xviii</sup> EFH is defined as “those waters and substrate necessary to fish for spawning, breeding, feeding or growth to maturity.”<sup>xix</sup> Once designated, the MSA requires that federal agencies consult with NMFS regarding actions that may adversely affect EFH.<sup>xx</sup>

The MSA consultation obligation is triggered when a federal action “may adversely affect” identified EFH.<sup>xxi</sup> EFH consultations evaluate potential adverse effects of actions separately from any proposed compensatory mitigation, even though the net effect of a particular project could be considered neutral or even positive for EFH if sufficient compensatory mitigation is attached to the action.<sup>xxii</sup> Where consultation is required, NMFS must provide EFH conservation recommendations (which may include measures to avoid, minimize, mitigate, or otherwise offset adverse effects on EFH), and the federal agency must respond to the recommendations, but is not required to follow them or to ensure that its action will not adversely affect EFH.<sup>xxiii</sup>

The USACE contacted NMFS regarding EFH consultation in December 2019 to notify NMFS that the Project may impact EFH. The USACE provided an EFH assessment and requested EFH consultation with NOAA in February 2021. NMFS issued a response to the EFH consultation in June 2021, in which NMFS concurred with USACE’s findings regarding EFH and provided conservation recommendations. This documentation, including the conservation recommendations, are provided in Appendix N of the FEIS. If, after further consultation with CPRA and USACE, NMFS modifies these recommendations in the future, the modified recommendations shall automatically supersede the recommendations attached in Appendix N of the FEIS.

#### **4.8. Marine Mammal Protection Act**

The Marine Mammal Protection Act (MMPA) prohibits the taking and importation of marine mammals and marine mammal products unless the taking or importation is authorized or exempt. Under certain circumstances, NMFS and FWS may waive the requirements of the MMPA for species under their jurisdictions so as to allow the taking, or importing of any marine mammal, or any marine mammal product.

Congress passed the Bipartisan Budget Act of 2018, Public Law 115-123 (BBA-18), which recognized the consistency of the Project, among other CPRA projects, with the findings and policy declarations in Section 2(6) of the MMPA. The BBA-18 included a requirement that the Secretary of Commerce, as delegated to the Assistant Administrator of the NMFS, issue a waiver of the MMPA moratorium and prohibitions for the Project. As directed by Congress, on March 15, 2018, NMFS issued the waver pursuant to BBA-18 and Section 101(a)(3)(A) of the MMPA: “National Marine Fisheries Service hereby issues this waiver pursuant to title II, section 20201

of the Bipartisan Budget Act of 2018 and section 101(a)(3)(A) of the MMPA for the three named projects, as selected by the 2017 Louisiana Comprehensive Master Plan for a Sustainable Coast. The requirements of sections 101(a) and 102(a) of the MMPA do not apply to any take of marine mammals caused by and for the duration of the construction, operation, or maintenance of the three named projects.”

BBA-18 also required the State of Louisiana, in consultation with the Secretary of Commerce (delegated to NMFS), to the extent practicable and consistent with the purpose of the Project, to minimize impacts on marine mammal species and population stocks and monitor and evaluate the impacts of the Project on such species and population stocks. The specific measures to be implemented as part of the Project are set forth in Section 6.3.6 below.

#### **4.9. National Historic Preservation Act**

The National Historic Preservation Act (NHPA) and its implementing regulations<sup>xxiv</sup> set out the requirements and process to identify and evaluate historical resources, determine effects on these resources, and resolve adverse effects on properties eligible for the National Register of Historic Places (NRHP) that occur as a result of the federal agency’s permitted undertaking. Where adverse effects are found, consultation among the federal agency, applicant, and consulting parties, including the Advisory Council on Historic Preservation (ACHP) in some cases, is pursued to develop avoidance alternatives or mitigation measures to resolve adverse effects.<sup>xxv</sup>

The USACE sent a letter of introduction and invitation to informally begin the NHPA consultation process on October 21, 2016. The USACE also made participating requests to the following Tribal Nations: Alabama Coushatta, Caddo Nation of Oklahoma, Chitimacha, Choctaw Nation of Oklahoma, Coushatta Tribe of Louisiana, Jena Band of Choctaw, Mississippi Band of Choctaw, Muscogee Nation, Seminole Nation of Oklahoma, Seminole Tribe of Florida, Tunica-Biloxi Tribe of Louisiana. The Alabama Coushatta, the Caddo Nation of Oklahoma, and the Choctaw Nation of Oklahoma are participating. In 2017, the USACE initiated formal consultation between the ACHP, SHPO, and participating Tribal Nations.

The USACE consulted with the SHPO and Federally-recognized Tribal Nations to identify concerns and determine survey requirements for Section 106 compliance. All consulting parties agreed to a Construction Impacts Area of Potential Effect (APE) of approximately 3,095 acres that encompasses the footprint of all Project features and an Operational Impacts APE of approximately 70,630 acres within the Barataria Basin.

A Phase I cultural resources survey was conducted from August to November 2019 in both the Construction Impacts and Operational Impacts APEs. Phase II National Register of Historic Places eligibility testing was conducted at one site (16PL107) in the Construction Impacts APE from January to March 2022. The cultural resources surveys found:

- 1) The majority of the 31 previously recorded archaeological sites within the Operational Impacts APE are submerged due to forces including subsidence and erosion, and the

identifiable portions do not contain qualities of significance or integrity and therefore, these sites are considered not NRHP-eligible; and

- 2) Four (4) previously-recorded archaeological sites within the Operational Impacts APE retain integrity and have been determined to be historic properties eligible for listing in the NRHP (Sites 16JE2, 16JE3, 16JE11, 16JE147); and
- 3) Two (2) new archaeological sites were identified in the Operational Impacts APE, but only one (Site 16JE237) retains integrity and is being treated as NRHP eligible; and
- 4) Numerous archaeological and architectural features within 16PL107 Locus 1 in the Project construction limits which contribute to Site 16PL107's significance. The portion of 16PL107 in the Project construction limits of the Construction Impacts APE has been determined eligible for listing in the NRHP; and
- 5) One (1) previously identified archaeological site within the Construction Impacts APE (Site 16PL269) was determined not eligible for listing in the NRHP.

The USACE determined that the Project would have an adverse effect on NRHP-eligible and NRHP-potentially eligible resources. The Section 106 Consultation concluded with execution of a Programmatic Agreement. The Programmatic Agreement is provided in Appendix K of the FEIS and attached as Appendix A to this Final Mitigation and Stewardship Plan.

## **5. PROJECT OPERATIONS, OBJECTIVES, AND BENEFITS**

The purpose of Project is to restore for injuries caused by the DWH oil spill by implementing a large-scale sediment diversion in the Barataria Basin that will reconnect and re-establish sustainable deltaic processes between the Mississippi River and the Barataria Basin through the delivery of sediment, fresh water, and nutrients to support the long-term viability of existing and planned coastal restoration efforts. The intent of sediment diversions, such as the Project, is to maximize development of new wetlands and increase the health of or sustain existing wetlands. Sediment diversions will best meet the objectives of capturing sediment and building wetlands when located and designed to maximize capture and distribution of coarse-grained sediment. Sediment diversions are designed at a discharge capacity (specific to the location) sufficient to mobilize and entrain (via turbulence in the water column) the appropriate range of sediment sizes, as well as draw material from the more sediment-rich portions of the riverbed (CPRA 2011; Allison et al. 2014).

The Project is designed to provide large-scale wetland restoration benefits while promoting and maintaining an estuarine characteristic within the Basin. The Project's operations plan as analyzed triggers the opening of the gates when the Mississippi River gage in Belle Chasse reaches 450,000 cfs and reduces the flow to a maximum base flow of up to 5,000 cfs when the gage falls below 450,000 cfs. This operation plan allows for diversion operations that capture the high sediment loads associated with rapidly rising river discharges and thus (1) more effectively allows for distribution of fine-grained and coarse-grained sediments, which in turn promotes the long-term sustainability of existing coastal resources that are currently degraded, (2) effectively addresses relative sea-level rise, and (3) effectively promotes the infilling of shallow open water areas. Following initiation of operations, CPRA will adaptively manage the Project consistent

with the Monitoring and Adaptive Management Plan (MAM Plan or MAMP), which is Appendix R-2 to the Final EIS. See Section 7.1 for additional details.

The Project would maintain a background (base) flow of up to 5,000 cfs to protect, sustain, and maintain newly vegetated or recently converted fresh and intermediate habitats near the diversion outflow. The base flow maximizes wetland benefits, relative to a future without sediment diversion or an operation plan with no base flow after 50 years. The base flow effectively promotes the long-term sustainability of existing marshes and sustainability of newly created wetland habitats.

At the end of 40-years of operation, the Project is projected to create and sustain approximately 17,100 acres of wetland habitat in the Barataria Basin when compared to the No Action Alternative. However, these wetland benefits are happening against a backdrop of significant land loss in the basin and across the region due to subsidence and sea-level rise, so that even as diversion operations are supporting wetland sustenance and creation, some acreage would be lost over time due to these ongoing processes. At the end of the 50-year analysis period, the Project is projected to create and sustain approximately 12,700 acres of wetland habitat in the Barataria Basin when compared to the No Action Alternative.

In addition to these wetland benefits, the Project will also result in the following habitat/aquatic species benefits: increase submerged aquatic vegetation coverage and biomass, increased shallow bottom habitat, net increase in structured essential fish habitat, moderate benefits to largemouth bass, moderate benefits to red drum, moderate benefits to gulf menhaden, minor benefits to bay anchovy, negligible to minor benefits to white shrimp and negligible to minor benefits to blue crab.

## **6. AVOIDANCE, MINIMIZATION, MITIGATION AND STEWARDSHIP MEASURES**

### **6.1. Avoidance and Minimization Measures**

The Project was designed and selected among other alternatives to minimize incidental environmental impacts, while achieving wetland benefits described above. The alternatives evaluated in detail under the NEPA environmental review include structural alternatives, including sediment diversions with different variable flow rates (50,000 and 150,000 cfs), and alternatives that include marsh terracing outfall features.

CPRA has committed to implement Best Management Practices (BMPs) to minimize the impacts associated with the construction and operation of the Project on each element of the environment (i.e., protection of land, water, fish and wildlife, and cultural resources). These BMPs are described in Appendix B to this Mitigation Plan.

## 6.2. Clean Water Act Section 404 Compensatory Mitigation

This section of the Mitigation Plan identifies compensatory mitigation to offset unavoidable adverse impacts to jurisdictional waters of the United States, including wetlands and special aquatic sites.

### 6.2.1. Wetlands and Jurisdictional Waters

Impacts. The Project would directly impact 182.9 acres of jurisdictional wetlands and 305.6 acres of waters of the U.S., however, wetlands created or sustained by the Project will be significantly greater than wetlands negatively impacted. Any permanent losses will be offset by wetland creation associated with the Project. Other wetland impacts are discussed in Chapter 4.6 of the Final EIS.

Mitigation. As discussed above, the Project itself is projected to create and sustain approximately 17,100 acres of tidal wetland habitat in Barataria Basin through operation of the diversion over a forty year operation period, which would thereafter decline due to the impacts of sea-level rise and subsidence. In addition to the wetland benefits built into the Project, CPRA will mitigate direct impacts (construction excavation and placement) to wetland soils through beneficial use placement, which will occur concurrent with construction impacts.

The construction footprint by design is constrained to minimize excavation and fill activities in the Mississippi riparian wetland area. It is anticipated that the limited quantity of wetland soil requiring excavation would result in dredge material displacement, processing, and use in upland construction. Excavation of the conveyance channel could result in excess upland and wetland soils that would need disposal. Nearby disposal areas include abandoned borrow pits that were excavated for Post-Katrina HSDRRS levee construction. See Figure 1. These abandoned borrow pits will be filled to address pre-existing impacts to the landscape and congruent with landowner and Parish interests. Also, in the area of the outfall transition feature, CPRA has designated three beneficial use placement areas, totaling approximately 770 acres, currently occupied by open water in the basin. These areas will be used for placement of suitable upland or wetland soils that will become available during construction and subsequent maintenance dredging. CPRA plans to place approximately two million cubic yards of suitable material in these areas to create 375 acres and nourish 92 acres of emergent marsh habitat concurrent with Project construction (Figure 3); this would be equivalent to a projected 402 net acres of direct benefits (or, 158 average annual habitat units) over 50 years.

In the Basin, the selected construction access routes—to allow access channels for vessels, equipment, and material transport—have been designed to avoid or minimize wetland impacts to the greatest extent practicable, along with minimizing the excavation footprint and subsequent volume of material displaced. The placement of soils in areas adjacent to channel excavation will be done in a manner to minimize the disruption of water circulation. Prior to construction completion, the material would be left in place as habitat enhancement or backfilled into the impacted, temporary access channel.

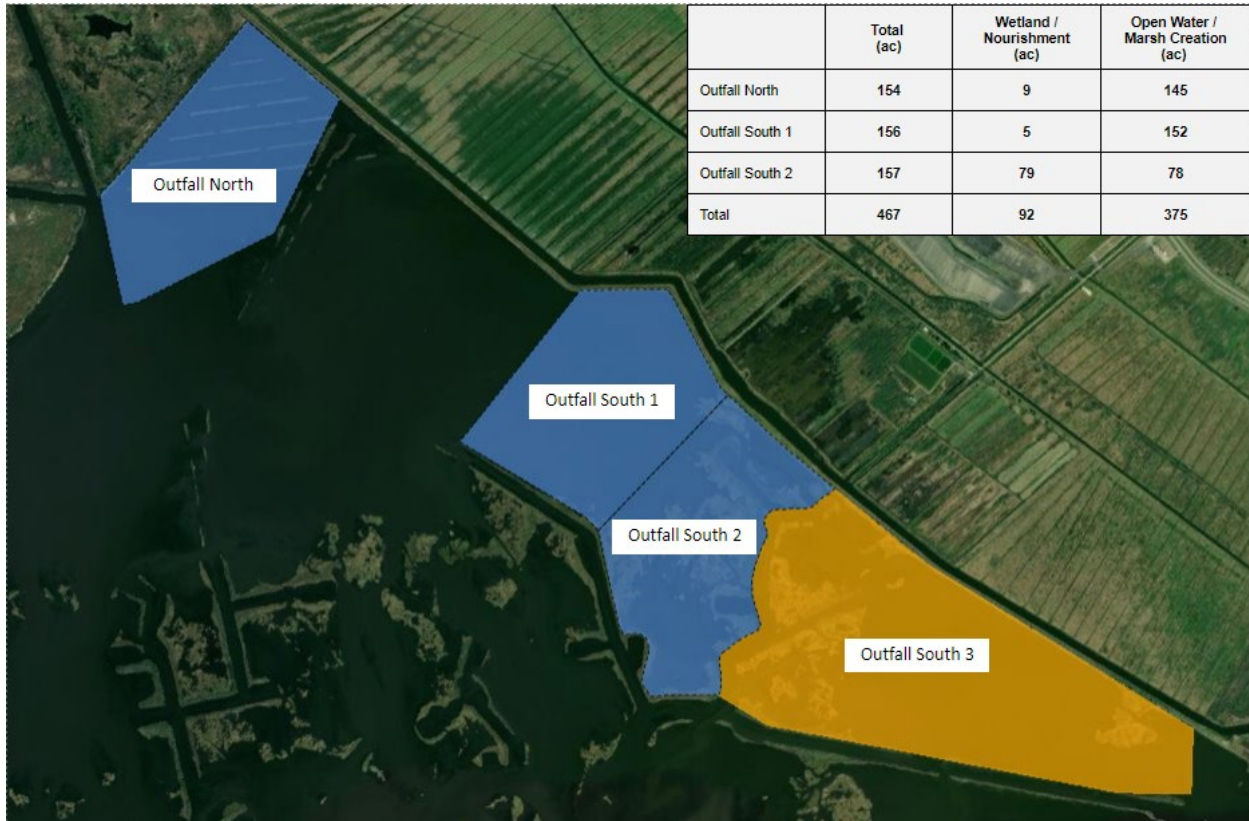


Figure 3. Locations of the beneficial use areas proposed for marsh creation and nourishment (Outfall North, Outfall South 1, Outfall South 2). The Outfall South 3 is reserved as a future beneficial use area for outfall maintenance dredged material placement for habitat creation.

### 6.3. Other Mitigation and Stewardship Measures

The purpose of the mitigation set forth in this section of the Mitigation Plan is to ensure that the Project is not contrary to the public interest, pursuant to Section 404 of the CWA and Sections 10 and 14 of the Rivers and Harbors Act. Mitigation measures have been developed to address certain impacts identified in the NEPA DEIS and in the public interest review. These are measures that CEMVN could consider including as conditions to any Section 404/10 permit or Section 408 authorization for the Project, but they are not required as compensatory mitigation to address the impacts of the Project on wetlands or other waters of the U.S.

#### 6.3.1. Impacts to Navigation

Impacts. Based on basin-wide modeling, the accumulation of sediment may affect navigation channel depths over time. Project impacts to navigation are projected to be primarily limited to changes in bed elevation (aggradation) that may occur in the Barataria Bay Waterway federal navigation channel and other frequently used privately-owned canals, such as Wilkinson Canal. Other non-federal channels and facilities (oil and gas facilities, oil and gas canals, privately owned water bottoms, marinas) near these channels can be assumed to also experience increased

sedimentation. It should be recognized that maintenance of navigation in the outfall area will be subject to private property rights, as the preponderance of existing canals, other waterways, and water bottoms are under private ownership. Further, as the delta channels evolve, new channels could support vessel access, but access would be subject to individual user and property owner's rights.

Mitigation. CPRA will undertake the following actions to mitigate impacts to navigation within the Project area.

- CPRA will undertake project specific Adaptive Management (AM) for the operation of the Mid-Barataria Sediment Diversion in regard to data collection, monitoring, and implementation of AM decisions. Monitoring will assess the Project's effect on bathymetry, consider required or authorized elevations, and operations and maintenance of the navigation channel. Details regarding this monitoring are set forth in Section 3.7.1.1.7 of the MAM Plan.
- To the extent the Barataria Waterway aggrades to a degree that inhibits navigation as a result of Project operations, CPRA will take one or more of the following actions to mitigate the identified Project impact:
  - adjust operations of the Project,
  - conduct maintenance dredging of the Waterway to provide sufficient depths for the safe transit of watercraft or to maintain authorized depths for navigation, or
  - implement outfall management measures to limit the loss of sediments to the waterway.
- To the extent that Project operations lead to aggradation within Wilkinson Canal<sup>1</sup> to a degree that inhibits navigation, and as long as Wilkinson Canal is being used for that purpose, CPRA will take one or more of the following actions to mitigate the identified Project impact:
  - adjust operations of the Project,
  - with approval from the underlying landowner, conduct maintenance dredging of the canal to provide sufficient depths for the safe transit of watercraft or to maintain authorized depths for navigation, or
  - provide alternative boat access to Myrtle Grove and Woodpark communities (e.g., as shown in Figure 4.13-2 in EIS Section 4.13 Socioeconomics).

CPRA does not intend to dredge any of the other privately-owned canals, waterways, or water bottoms in the Basin that may be impacted by the Project. The purpose of the Project is to create and maintain marshes in the Basin, and the continued dredging of private canals or private

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<sup>1</sup> Wilkinson Canal is a privately owned canal, and CPRA has recognized that the canal is used by the public as well. Given its current use and activity, CPRA recognizes its importance to local users, but CPRA cannot presume future use patterns or private intentions. Given the uncertainty of where and when impacts could occur with sedimentation and the nature of private property rights, CPRA must adopt an Adaptive Management approach regarding decisions to maintain navigability of the Canal; thus, improving and maintaining an alternate access route is proposed as a mitigation option depending on the time and location of impacts.



property (e.g., water bottoms) contributes to the loss of marshes the Project is seeking to maintain. See EIS Sections 3.6.2.2, 4.2.3.2, 4.2.4.2, 4.6.5.1, and 4.25. Further, the majority of private canals where sedimentation is projected to occur comprise inactive abandoned oil and gas facilities and wells that have been plugged and abandoned.

In addition, CPRA has proposed the following measures to address concerns about navigation impacts in the Mississippi River during Project construction. These measures have been forwarded to the U.S. Coast Guard for their review and input.

- CPRA will coordinate the location of Mississippi River Aids to Navigation (ATONS) associated with the MBSD structure with the USCG. The ATONS will be visually inspected each day and the operability recorded in the Daily Report and would be maintained for the duration of the Project.
- Whenever flow through the structure is started or stopped, on-site personnel shall notify the USCG via a Navigation Bulletin so that traffic is informed of the Project's operating condition.
- Before raising or lowering any gate at the entrance to the diversion channel, the operator should check the vicinity of the inflow, conveyance and outflow channels for boats, fishermen and swimmers and alert them to clear the area. Methods for these alerts may include horns, lights and/or audio messages.

The final mitigation and stewardship measures related to navigational impacts in the Mississippi River will be included in the USACE permit/authorization, if one is issued. CPRA will update the Mitigation Plan to reflect any changes to these conditions included in that permit/authorization, if one is issued.

### 6.3.2. Property Impacts

Impacts. Property related impacts from the Project are described in detail in Chapter 4 Sections 4.13 and 4.20 of the Final EIS. The following subsections provide a brief overview of the affected communities and the properties within those communities, the anticipated impacts of the Project on tidal flooding<sup>2</sup> in these communities, the outreach efforts undertaken to develop mitigation strategies, and the resulting mitigation and stewardship measures.

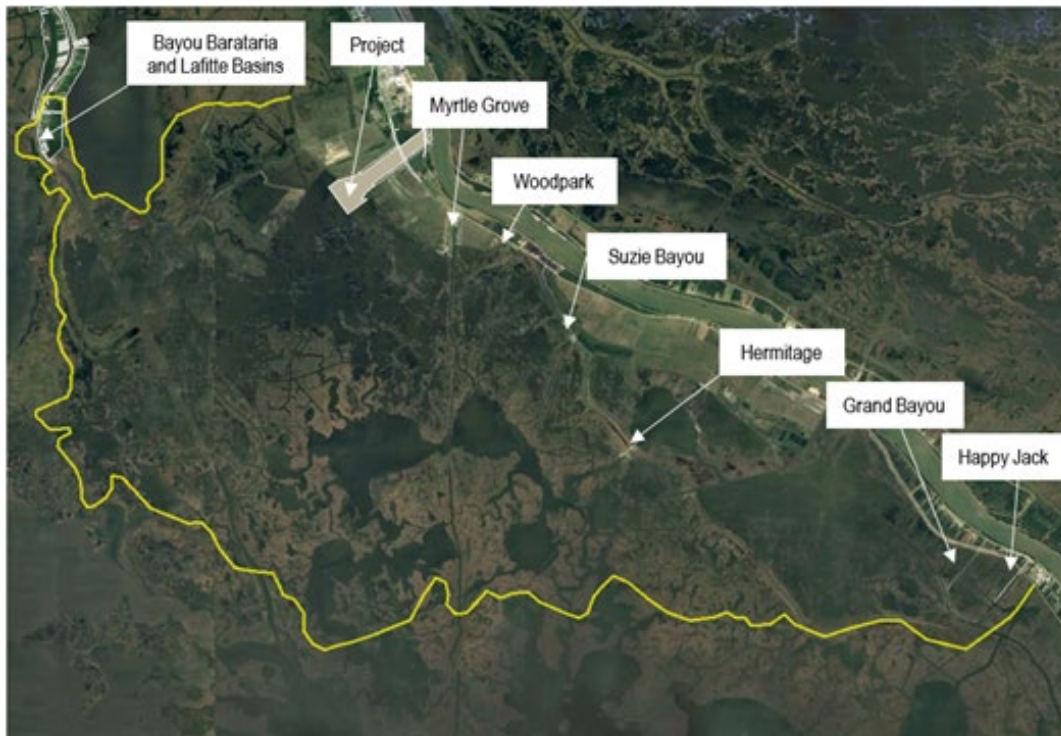
Overview of Communities in the Project Area. The properties in the tidal floodplain are subject to high rates of land subsidence and sea level rise, which has resulted in an increased frequency and overall duration of tidal flooding. With the implementation of the Project, low-lying properties of the communities outside flood protection will be subject to an increased annual

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<sup>2</sup> For purposes of this analysis, “tidal flooding” is comparable to “nuisance flooding” as defined by NOAA. Nuisance flooding refers to low levels of water that do not pose significant threats to public safety or cause major property damage, but can disrupt routine day-to-day activities, put added strain on infrastructure systems such as roadways and sewers and cause minor property damage. Nuisance flooding is also synonymous with high tide or minor flooding and is increasingly common due to years of relative sea level increases (Sweet et al., 2018; <https://repository.library.noaa.gov/view/noaa/17403>).

frequency and duration of nuisance flooding events as compared to the No Action Alternative. The impact area is projected to encompass the lower portion of Bayou Barataria to Happy Jack (see Figure 4), which includes the communities of Myrtle Grove, Woodpark, Suzie Bayou, Deer Range, Lake Hermitage, Grand Bayou, and Happy Jack, and to a lesser extent communities in the vicinity of Lafitte (i.e., Lower Lafitte, Goose Bayou polders).

The properties in this area occur in a *Coastal High Hazard Area*<sup>3</sup> and are subject to high rates of land subsidence and sea level rise. Since the properties occur outside of levee protection, they are exposed to at least 8 or more of the 11 identified flood hazards<sup>4</sup> (Figure 5). Not including tropical systems, the low-lying properties of each of the communities currently experience multiple annual flood events from combined astronomical and meteorological tides. Most parcels in this area have low-lying land at grade that is approximately 1 foot above the mean high tide (land elevation = 2 ft NAVD88<sup>5</sup>). See Figures 11 through 16 in the Coastal Water Surface Elevation Report for information regarding projected tidal flooding impacts without the Project (Final EIS, Appendix P. Part P2).



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<sup>3</sup> Coastal High Hazard Area – an area of special flood hazard along an open coast and any other area subject to high velocity wave action from storms or seismic sources (<https://repository.library.noaa.gov/view/noaa/17403>).

<sup>4</sup> See definition of Coastal Flood Hazard Composite (<https://coast.noaa.gov/data/digitalcoast/pdf/flood-exposure-faq.pdf>).

<sup>5</sup> Source: All South Consulting Engineers elevation survey, 2019; USGS LiDAR Digital Elevation Model, 2013.

Figure 4. Communities and subdivisions subject to potential inundation with the Project and the maximum extent of inundation impacts (yellow line).

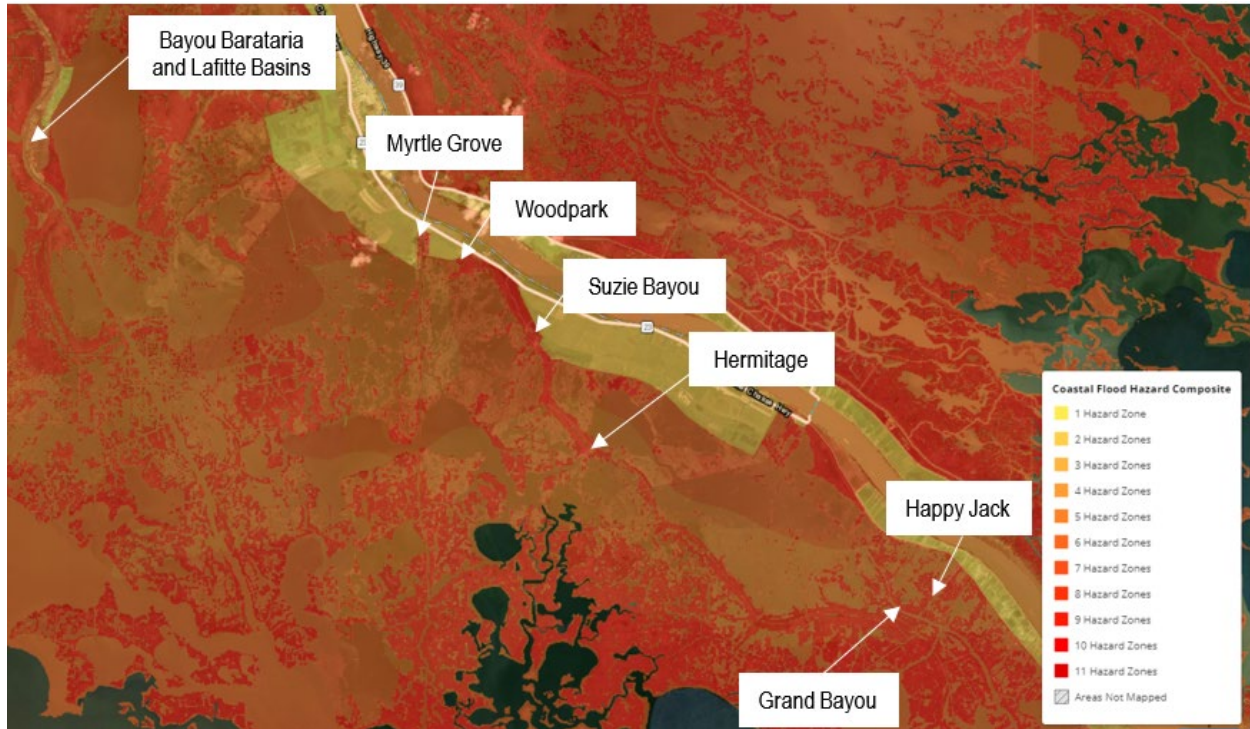


Figure 5. The communities and subdivisions subject to potential inundation with the Project are largely designated as Coastal High Hazard Areas. Image and data from the NOAA Coastal Flood Exposure Mapper (<https://coast.noaa.gov/digitalcoast/tools/flood-exposure.html>).

Types of Properties and Improvements. These communities are road accessible private subdivisions<sup>6</sup> supplied with municipal water, electricity, and other utilities. Most of the communities were originally developed without municipal water and sewerage. Newer developments such as the Myrtle Grove Marina Estates Subdivision and Happy Jack have municipal wastewater treatment, whereas the other communities rely on individual septic units. The communities are generally subdivided into private lots improved with residences and campsites. In some cases, residences occupy leased land. Some of the existing or newer construction may comply with Plaquemines Parish Floodplain Management Regulations<sup>7</sup> (or other state or local regulations that prescribe standards for the purpose of flood damage prevention and reduction); improvements on some properties may pre-date or be inconsistent with those regulations. For all properties in these communities, vehicular access to the properties is between approximately 10-11 feet below the FEMA Base Flood Elevation (BFE), and thus is

<sup>6</sup> Except for Grand Bayou, which is a water-based village near the end of Grand Bayou Way.

<sup>7</sup> The floodplain management regulations include zoning ordinances, subdivision regulations, building codes, health regulations, and special purposes ordinances.

at high risk in any given year for flooding from tidal or tropical cyclone events. Public property in the area is generally comprised of roads, lanes, and drainage canal rights-of-way that are maintained by Plaquemines Parish.

Impacts to Properties. As explained in the Final EIS (Section 4.20.4.2) and supporting technical appendices, the low-lying properties in these communities outside flood protection will be subject to an increase in water levels, which would increase the annual duration (i.e., number of days per year<sup>8</sup>) of tidal flooding with the operation of the Project. These flooding impacts consist of inundation to roads, driveways, parking areas, non-habitable structures at grade, and potential strain on support services (e.g., drainage and/or septic systems). For more information about these impacts, see Table 4.20-2 and Figure 4.20-3 to Figure 4.20-6 in the Final EIS (Section 4.20.4.2), and Appendix P, Part P2.

Process for Developing Mitigation and Stewardship Measures. Based on the impact projected from the Project reported in the EIS, CPRA undertook a multi-step process to solicit public input and to identify and refine the mitigation and stewardship measures. These steps included:

- Solicited public input (benefits, impacts, mitigation measures) through CPRA’s Coastal Connections (2016 – ongoing);
- Reviewed impact projections based on technical analysis reported in the EIS (see Appendix P to the Final EIS);
- Developed preliminary mitigation measures to address, offset, or minimize the impacts projected from Project operations (reported in the Draft Mitigation and Stewardship Plan published as Appendix R1 in the Draft EIS);
- Solicited additional detailed input from affected communities on the proposed mitigation and stewardship measures (see further description below); and
- Completed a technical evaluation of mitigation and stewardship measures, which led to the community-specific mitigation measures presented herein.

Public Input on Mitigation Measures. CPRA held twenty-three (23) meetings in the communities south of the diversion outfall outside of levee protection (from Myrtle Grove to Happy Jack and Grand Bayou) between February and August 2021 to solicit feedback regarding its proposed mitigation and stewardship measures. In addition to meetings held in the communities to have direct interaction with residents, several of these meetings were held with smaller groups of stakeholders or elected officials who represent these communities and constituencies to solicit feedback.

In addition to soliciting feedback through meetings, CPRA solicited feedback regarding its proposed mitigation and stewardship measures through a survey (available in person, online, and mailed via U.S. Mail). The survey was completed by 302 total respondents as of November 2021. The largest number of respondents live in Myrtle Grove (62 respondents), followed by

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<sup>8</sup> The annual duration of flooding is estimated comparing the number of days (With Project – No Action) above the specific flood threshold for the community.

Happy Jack (56 respondents), Hermitage (41 respondents), Woodpark (24 respondents), Grand Bayou (22 respondents), Suzie Bayou (20 respondents), and Deer Range (18 respondents). Thirty respondents indicated they live elsewhere in places such as Buras, Belle Chasse, Gretna, and Port Sulphur. The highlights of the feedback from respondents include the following:

- 134 respondents (44.4 percent) have made changes to their homes to mitigate flood risks.
- 32.5 percent of total respondents (98) say they will stay in their homes even if the flooding gets worse because of the Project.
- Respondents are most interested in CPRA paying property owners for losses in property values from flooding (178), elevating roadways or utilities (155), followed by elevating homes and structures (142), and to a lesser degree, reducing flooding of their septic/sewer systems and other utilities (124).

Surveys also solicited other ideas and solutions to address flooding impacts of the Project from each community. The mitigation ideas provided to CPRA consisted of buyouts, financial support, raising bulkheads, elevating lots, floodgates, levees, closing pipeline canals, and barrier island restoration (or, other wetland restoration projects).

Flood Impact Mitigation and Stewardship Measures. Definitions. To help in understanding the flooding impacts and proposed mitigation and stewardship measures, the following terms are used in this Plan:

*Flood Threshold Elevation* – The elevation within the community where tidal waters begin to exceed the ground elevation resulting in flooding. These threshold elevations are based on measurements taken within each community and reflect existing local conditions. See Appendix P, Part P2 of the EIS.

*Project Impact and Project Impact Water Surface Elevation (PIWSE)* - This is the difference in the maximum water surface elevation (WSE) between the No Action Alternative and with Project scenario; this difference in WSE is leads to increased frequency and duration of inundation. From the Final EIS analysis, a sustained, high discharge operation scenario<sup>9</sup> provided the basis for projecting the inundation impacts with Project operation. This difference is the maximum impact within the analyzed hydrograph year. In addition, CPRA selected near term values (i.e., WSEs for earlier decades within the period of analysis), which is the period projected to experience the largest difference between the No Action Alternative and with Project scenario. As identified in the Final EIS, Appendix P2, the Project Impact decreases with time due to Relative Sea Level Rise. For example, in the Myrtle Grove area, the PIWSE is the Flood Threshold Elevation + the Project Impact (e.g., in Myrtle Grove: 1.7 ft + 1.3 ft = 3.0 ft

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<sup>9</sup> The Mississippi River 2011 flood year scenario resulted in a long duration and high discharge diversion operation to evaluate maximum impacts to WSE.



NAVD88). The PIWSE is the minimum elevation to which improvements would need to be made to offset the impacts of water inundation resulting from Project operations.

*Mitigation Standard Elevation (MSE)* – The standard elevation to which CPRA will provide mitigation/stewardship measures in each community. The MSE exceeds the PIWSE, i.e., additional benefit above the Project Impact is provided.

<b>Community</b>	<b>Existing Conditions Flood Threshold Elevation (NAVD88)</b>	<b>Project Impact (FWP – FWOP WSE Difference) (ft)</b>	<b>Project Impact Water Surface Elevation (PIWSE) (NAVD88)</b>	<b>Mitigation Standard Elevation (NAVD88)</b>
Myrtle Grove, Woodpark	1.7 ft	1.3 ft	3.0 ft	4.0 ft or greater
Suzie Bayou, Deer Range, Lake Hermitage	1.5 to 2.0 ft	≤ 1.0 ft	2.5 to 3.0 ft	
Grand Bayou, Happy Jack	1.5 ft	0.5 ft	2.0 ft	

Determination of Mitigation Standards and Criteria. The PIWSE provided a starting point for determining the elevation necessary for structural improvements, such as elevating a road, dock, or residence to offset Project Impacts. From there, CPRA developed the Mitigation Standard Elevation (MSE) of 4.0 ft NAVD88 or greater considering the Project Impact, the communities, and feasibility. The rationale for selecting this MSE included:

- It provides a single, robust elevation that can be applied to each of the communities that mitigates against flooding impacts due to the Project as well as non-Project related flood risk reduction, e.g., low level tropical storm surge;
- It exceeds the PIWSE and thus provides an additional flood risk reduction benefit above the projected Project Impact (mitigation/stewardship measure constructed to elevation 4.0 feet while the Project Impact is limited to elevation 2.0 to 3.0 feet); and,
- It extends the time available to property owners to further adapt to an anticipated future of increased flooding from sea level rise and land subsidence.

Property owners within these communities will be eligible for mitigation and stewardship measures based on the Project Impact on the community and/or individual property owner. For example, septic tank systems effluent pipes or fields below the PIWSE would be eligible for replacement/rehabilitation.

<b>Table 1</b>									
<b>Number of days per year that mean Water Levels are projected to Exceed the local Flood Threshold (FT) Under No Action, Applicant's Preferred Alternative and Applicant's Preferred Alternative with Mitigations</b>									
<b>Community</b>	<b>2020's (short-term)</b>			<b>2040's (medium-term)</b>			<b>2060's (long-term)</b>		
	Existing (No Action)	With Project (Applicant's Preferred)	With Project (Applicant's Preferred)+ mitigation	Existing/ Future without the Project (No Action)	With Project (Applicant's Preferred)	With Project (Applicant's Preferred)+ mitigation	Existing/ Future without the Project (No Action)	With Project (Applicant's Preferred)	With Project (Applicant's Preferred)+ mitigation
<b>Myrtle Grove FT +1.75</b>	24	143	0	127	247	1	315	364	10
<b>Woodpark FT +2.0</b>	10	75	0	66	176	1	294	364	10
<b>Suzie Bayou FT +2.0</b>	10	75	0	66	176	1	325	339	10
<b>Hermitage FT +1.5</b>	33	123	0	198	285	0	333	352	6
<b>Grand Bayou Happy Jack FT +1.5</b>	17	64	0	199	248	0	333	339	1

All elevations are in ft, NAVD88. Mitigation standard elevation (all communities)=+4.0 ft, NAVD88  
 Source: Analysis of Delft 3D Water Surface Elevation data, 2011 Mississippi River Hydrograph, Water Institute (2019), CPRA (2020)



Table 1 explains the projected number of days that the mean water levels are projected to exceed the Flood Threshold in the communities south of the Project outfall to Grand Bayou and Happy Jack under three scenarios: (i) existing conditions and future conditions without the Project; (ii) future conditions with the Project in operations, but no additional mitigation; and (3) future conditions with the Project in operation and the mitigation measures set forth below in place.

This table demonstrates that the mitigation measures provide benefit that exceeds the projected Project Impact. In Myrtle Grove, the construction of the project and CPRA's construction of mitigation measures are anticipated to reduce flood risk below what is anticipated under the No Action Alternative. In the other communities, the construction of the Project and CPRA's construction of the mitigation measures are anticipated to allow better access to properties than what is anticipated under the No Action Alternative. In terms of impacts to particular properties in those communities, CPRA's compensation payments will allow property owners, at their discretion, to implement measures on their property to reduce flood risk below what is anticipated under the No Action Alternative.

Mitigations by community. The proposed mitigation and stewardship measures for the affected communities (Myrtle Grove, Woodpark, Suzie Bayou, Deer Range, Lake Hermitage, Happy Jack, and Grand Bayou) reflect the measures that best address: 1) the unique circumstances and variability of affected properties (e.g., their varied layouts and improvements); 2) projected impacts based on data analysis (see Table 1); and 3) the design and feasibility assessments that have been completed at this stage in the process.

Based on the EIS impact determinations and public input, CPRA has identified the following mitigation and stewardship measures:

- Road and lane improvements: CPRA will elevate publicly maintained roads or lanes that are currently below the PIWSE to the Mitigation Standard Elevation, and make corresponding road drainage improvements.
- Boat dock/boat house improvements: CPRA will provide property owners with funds sufficient to elevate boat docks and boat houses that are currently located below the PIWSE to the Mitigation Standard Elevation.
- Septic or sewerage treatment system improvements: In communities that rely on septic systems, CPRA will improve on-site septic systems impacted by Project operations that are located below or discharge below the PIWSE so that they are located at or above the MSE. In communities with community sewer systems, CPRA will improve and/or flood proof central sewerage elements (e.g. lift stations). Both measures are intended to ensure system function and treatment performance with increased water levels from the Project.
- Project Servitude Agreements (compensation): In exchange for monetary compensation, CPRA will acquire from affected property owners a permanent right known as a Project Servitude. That Project Servitude will allow CPRA to flow water over the property owner's property at heights and durations that are greater than would be in the case in the future without the Project. The Project Servitude will be recorded against title to the property and will run with the land. CPRA will attempt to negotiate with the affected

landowner to acquire the Project Servitude. If the CPRA and the landowner were unable to reach a negotiated agreement, CPRA would exercise its eminent domain authority to purchase the servitudes. CPRA will compensate those landowners for the value of the Project servitude. A property owner would be able to use the funds received in exchange for the servitude to implement flood mitigation measures, for example, raising the lot elevation or improving a bulkhead.

- Bulkhead improvements: In limited communities (Myrtle Grove), CPRA will improve the existing bulkhead along a property's edge abutting the Basin to the Mitigation Standard Elevation (in some cases, higher). This bulkhead will reduce the number of days that protected properties will experience tidal flooding.
- Elevating residences: Where the lowest floor of the living area of a residence is at or below the PIWSE, CPRA will provide the property owner funds sufficient to elevate the residence to, at a minimum, the Mitigation Standard Elevation.
- Voluntary individual buyouts: CPRA may consider purchasing an impacted property outright (i.e., in fee) if requested by the owner. Decisions about whether to purchase a property would be made on a case-by-case basis depending on the particular circumstances.

These measures will be further refined during mitigation implementation following Project approval and funding; implementation will include:

- Mitigation planning, design, and permitting;
- Engagement of property owners eligible for one or more of the mitigation and stewardship measures;
- Refine eligibility criteria for structures for improvement;
- Detailed design of improvements (roads, drainage, septic, bulkheads);
- Project Servitude details;
- Property appraisal standards and Uniform Relocation Act compliance; and,
- Clarify where CPRA would implement versus property owner.

Combinations of the mitigation and stewardship measures will be implemented in each of the affected communities as explained below. CPRA has taken a different approach to the mitigation and stewardship measures in Myrtle Grove than in the other affected communities. This is due to several factors. First, the drainage and road systems are principally different in Myrtle Grove than the other communities, such that drainage and road systems in Myrtle Grove are the low points (below mean water level) where water is collected and then drained via a pump station. In general, road systems of the other communities are the high points and designed to drain by gravity directly toward the closest receiving body (e.g., ditch, bayou, canal, or marshland). Second, Myrtle Grove is closest to the diversion outfall and is projected to experience the greatest change in water levels due to Project operations. Third, the existing layout of a continuous bulkhead/berm system around the Myrtle Grove Marina Estates Subdivision forms the primary barrier against flooding of the public access roads, property, road and utilities serving the community. Thus, improving the elevation of the existing bulkhead in Myrtle Grove will provide benefits to the entire community. Other communities have unique

layouts and variable construction and topographic differences that arise at the individual parcel scale. As such, comprehensive road improvements and offering compensation through Project Servitudes best allows individuals to make their own, necessary flood adaption improvements.

Also, CPRA is not proposing any tidal flooding mitigation in Lafitte as part of this Mitigation Plan. In the vicinity of Lafitte, there are two polders (Lower Lafitte and Goose Bayou) that are projected to experience an increase in water level with the Project (less than or equal to 0.5 ft). Impacts to properties in these areas are not projected to occur during the early years of the Project, but impacts are projected to occur in later years if no flood protection improvements were implemented. See Figures 18, 21 and 24 in Appendix P, Part P2 of the EIS. To prevent flood impacts due to the Project, CPRA is facilitating the funding and providing technical support to the Lafitte Independent Levee District to advance the construction (advertisement for construction bids are scheduled for late 2022) of tidal flood protection (elevation ~ 7.5 ft) for both polders.<sup>10</sup> These Projects would be completed prior to the operation of the Project.

- Myrtle Grove.

CPRA will implement the following mitigation and stewardship measures (as explained above) in the Myrtle Grove Marina Estates Subdivision prior to initiating operation of the Project:

- Improving/replacing boat docks, and boat houses;
- Improving/replacing bulkheads; and
- Voluntary individual buyouts.

By raising the bulkhead around the Myrtle Grove Marina Estates Subdivision, CPRA will reduce the number of days that properties in Myrtle Grove Marina Estates Subdivision experience tidal flooding compared to the No Action Alternative. Boat docks and boat houses will be improved or replaced to maintain functionality with the increases in water surface elevation.

For any improvements constructed by CPRA, CPRA will obtain the necessary permits prior to initiating construction. For purposes of Section 404 of the CWA (33 USC 1344), CPRA expects that it will be able to permit these measures using one or more regional general permits or nationwide permits. These permits may require additional consultation(s) (e.g., NHPA Section 106, ESA, EFH) if triggered by their conditions. They may also trigger additional mitigation, which CPRA will complete as part of implementing the measure. CPRA will complete construction or other implementation (for measures not requiring construction) of these measures prior to initiating operation of the Project.

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<sup>10</sup> Goose Bayou (Penn Levee, BA-0223) is currently identified in the Draft Fiscal Year 2023 Annual Plan (<https://coastal.la.gov/wp-content/uploads/2022/01/AP-FY-23.pdf>). Funding allocation for the Lower Lafitte polder is under coordination as of Jan 2022.

- Woodpark, Suzie Bayou, Deer Range, Lake Hermitage, Happy Jack, and Grand Bayou.

CPRA will implement the following mitigation and stewardship measures in Woodpark, Suzie Bayou, Deer Range, Lake Hermitage, Happy Jack, and Grand Bayou prior to initiating operation of the Project:

- Providing funds to property owners to improve/replace their boat docks and boat houses;
- Improving/raising access roads;
- Improving/replacing septic/sewerage systems;
- Providing Project servitudes;
- Providing funds to property owners to elevate their residences; and
- Voluntary individual buyouts.

By raising the access roads into each of these communities, CPRA will reduce the number of days that properties in these communities would not have access compared to the No Action Alternative conditions and improve access for emergency services (e.g., police and fire). Also, by funding the elevation of homes whose living areas is currently below the PIWSE, CPRA will reduce the incidence of damages to residences within these communities compared to the No Action conditions. Similarly, by improving/replacing the sewerage systems to address increases in water surface elevation, CPRA will improve water quality in the Basin compared to No Action conditions. CPRA would not elevate the lots or bulkheads within these communities, and instead would compensate landowners through a Project Servitude. Compensation paid to property owners may be used for flood adaptation improvements to their properties.

For any improvements constructed by CPRA, CPRA will obtain the necessary permits prior to initiating construction. For purposes of Section 404 of the CWA (33 USC 1344), CPRA expects that it will be able to permit these measures using one or more regional general permits or nationwide permits. These permits may require additional consultation(s) (e.g., NHPA Section 106, ESA, EFH) if triggered by their conditions. They may also trigger additional mitigation, which CPRA will complete as part of implementing the measure. CPRA will complete construction or other implementation (for measures not requiring construction) of these measures prior to initiating operation of the Project. In the case of home elevations, the property owner will be expected to obtain any necessary permits and complete the improvements.

- Additional Measures for Grand Bayou.

CPRA engaged in direct outreach with leaders of the community of Grand Bayou to identify additional specific mitigation and stewardship measures that support the community. Based on the results of that outreach, CPRA added additional mitigation and stewardship measures for Grand Bayou, including:

- Floating gardens;
- Community connecting sidewalks; and
- Backfilling and ridge restoration project (project funded for E&D through NFWF and CPRA; CPRA has received funding for construction).

More details regarding these mitigation and stewardship measures are set forth in Section 6.3.8 below.

### 6.3.3. Aquatic/Fisheries Impacts

Impacts to Oysters and Oyster Fisheries. The oyster resources within the Basin are projected to see declines in both the No Action Alternative and the Project related to loss of habitat primarily driven by changes in the estuary's salinity structure. The oyster fishery is expected to experience major, permanent, adverse impacts sooner under the Project relative to the No Action Alternative, primarily driven by Project-related reductions in salinity within the Basin. This determination considers expected impacts on oyster abundance as well as the anticipated response from commercial fishers. The potential impacts of fecal coliform contamination from introduced Mississippi River water could also have a major, adverse impact on beneficial uses related to oyster harvest. However, Project-related changes in the salinity structure within the lower Basin may also allow for re-habilitation of historic oyster growing areas that are currently non-supportive and may help mitigate impacts to other areas. Because these areas would be located further away from the Project outfall area than current oyster seed grounds, they would also be less susceptible to fecal coliform impacts.

Mitigation. CPRA will implement measures to both mitigate for the loss of oyster habitat within the Basin as well as the potential impacts to the oyster fishery within the Basin, including potential water quality impacts that could restrict oyster harvest. Any potential mitigation to the oyster resource is of benefit to the oyster industry and is expected to mitigate for the potential effects of the Project. Furthermore, given the dynamic conditions of any estuarine system, and the uncertainty around future conditions, some of the mitigation measures will rely on data from the MAM Plan to appropriately site and scale the measure based on post-operational conditions.

CPRA will implement the stewardship measures listed below for impacts to oysters. As the EIS identified the potential for the Project to result in disproportionate impacts to some low income and minority commercial oyster fishers, CPRA is developing options to tailor these measures to ensure they reach those populations. This is further discussed in Section 6.3.8 below.

- Establish New Public Seed Ground in Lower Barataria Basin  
Currently there are three public oyster areas within the Barataria Basin, the Hackberry Bay Seed Reservation and the Little Lake and Barataria Bay Seed Grounds. Given the current salinity regime, only the Hackberry area experiences oyster recruitment and growth on a recurring basis with some years showing no production due to suppressed salinities. The Little Lake Seed Ground salinities are too low except during

significant periods of drought, and the Barataria Bay Seed Ground salinities are elevated to a degree that promotes deleterious impacts from disease and predation. Predictive modeling indicates that conditions within the Hackberry seed ground may be impacted such that the POSR may not consistently support commercially viable populations of oysters in the future with Project operations. Conversely, modifications to the salinity regime of the lower Basin may allow for reestablishment of oyster recruitment and growth within the historically fished areas of the lower Basin. This mitigation measure would address the loss of a public oyster area with the potential establishment of a new area in the lower Basin if future conditions allowed. While modeling indicated that this new area will likely be in the Southwest quadrant of the Basin, post-operational monitoring is necessary to determine the best location. Therefore, the MAM Plan will include that after evaluation of the Hackberry area post initial Project operation, and with a favorable evaluation of lower Basin salinities and fecal coliform contamination, a new Public Seed Ground (or reservation) will be established on the state-owned water-bottoms within the Barataria Basin. This will include either the relocation of native cultch materials or the provision of new cultch material to establish the oyster beds.

This public seed ground will be established after operations have occurred for a sufficient length of time, considering initiation of operations, river flows in initial years of operations and other factors necessary to collect sufficient monitoring data to establish a reasonable baseline for the revised salinity regime in the basin. If no suitable conditions are found in lower Barataria Basin, this public seed ground would be sited in the nearest suitable area, with input from oyster fishers and oyster industry representatives.

The Louisiana Department of Wildlife and Fisheries will be the lead agency for siting and construction of this seed ground and will include oyster fishers in the construction, if possible. Oyster shell or other native materials will be used for establishing the seed grounds, if available. Total cost for this mitigation action is estimated at \$4,000,000.

- *Enhance Public and Private Oyster Grounds*. This program will have three primary components:
  - Cultch or spat/shell will be used to enhance public areas adjacent to Barataria Basin (Terrebonne, Pontchartrain and/or Breton Sound basins) prior to and after commencement of diversion operations.
  - For 10 years after Project operations commence, or until funds are expended, affected state leaseholders will be reimbursed for cultch or spat/shell used to rehabilitate leases in the lower Barataria Basin both prior to and after the commencement of diversion operations.
  - Affected state leaseholders will be reimbursed for cultch or spat/shell placed on new leases within Barataria Basin or in other suitable areas prior to and after the commencement of diversion operations.

Oyster fishers will be used to support bedding and transplanting efforts on public grounds. Eligibility in this program will be based on trip tickets from Barataria Basin, other supporting documentation, state issued lease ownership and considerations of equity based on level of impact. A portion of the funding from this program will initially be reserved for oyster fishers who are part of an identified community with environmental justice concerns that may be disproportionately impacted by the Project (see discussion under Section 6.3.8 below). This program will commence prior to the commencement of diversion operations and continue after operations commence. Total cost for this mitigation action is estimated at \$15,000,000.

- *Create or Enhance Broodstock Reefs*

Historically, Louisiana estuaries have had an adequate supply of oyster larvae to replenish reefs that were impacted by natural and anthropogenic events. However, modification to the estuaries altered hydrology in ways that have isolated oyster subpopulations. To mitigate for potential future adverse changes in hydrology, circulation, and overall habitat from the MBSD Project, broodstock reefs will be used to provide a larval supply to areas either separated hydrologically, or located in a salinity regime that does not result in an annual recruitment event. Through monitoring under the MAM Plan, hydrologic data will be assessed to understand the salinity regime within the Basin after Project operations commence, and density and abundance estimates of the Basin oyster resource will be used to determine the need for and potential location of these broodstock reefs. Broodstock reefs will be established after operations have occurred for a sufficient length of time, river flows in initial years of operations and other factors necessary to collect sufficient monitoring data to establish a reasonable baseline for the revised salinity regime in the basin. These reefs will be located, where possible, in shallow or intertidal areas to enhance that resource as well as protect new reefs from predators. The Louisiana Department of Wildlife and Fisheries will lead this effort and will utilize Barataria Basin oyster fishers for placement of reefs, using trip-tickets and other evidence for eligibility. Cost of this program is estimated at \$4,000,000.

- *Alternative Oyster Aquaculture*

To adjust to changing coastal conditions new techniques will be initiated or expanded to assist the oyster industry in remaining sustainable into the future. One such technique is the use of alternative oyster culture (AOC) opportunities. This technique allows for the cultivation of oysters while taking into account the possibility of natural and anthropogenic changes to an estuary. In Louisiana, the technique most often associated as alternative culture is that of “off-bottom” culture.

Off-bottom culture of oysters is done within floating or suspended containers that provide protection from predation and siltation as well as the give the operator ability to move to different growing areas in response to episodic events or longer-term changes in salinity.



The State of Louisiana recognizes AOC as an area of the oyster industry that can help diversify the oyster industry and add a level of sustainability as the industry adjusts to a changing coast. Specifically, to best mitigate the potential effects of the MBSD Project on the oyster fishery within the Barataria Basin, specific components of an AOC Program will include some or all of the following:

1. *Introduction and Training*

Establish a training program and information exchange for oyster industry members interested in transitioning/entering AOC activities. This program would introduce industry members to the tools, techniques, laws, and other necessary information necessary to participate in the AOC sector.

2. *Startup Assistance*

Small grants would be made available to procure equipment necessary to enter the AOC alternative oyster aquaculture industry, including seed oyster production.

3. *Hatchery establishment/enhancement*

Grants would be provided for establishing or enhancing hatcheries to provide a consistent seed supply for establishing and maintaining a robust AOC growing community.

4. *Designated Use Areas*

The State recognizes that siting and permitting may be a barrier to entry in alternative oyster culture. Under this strategy, areas on state-water bottoms would be designated specifically for use by oyster growers engaged in AOC and permitted as such by the State. While it would be the intent to locate these areas within the impacted Basin, future conditions will dictate the availability and location. Site selection may also include locations in adjacent Basins with suitable conditions.

Funds under this program would be available prior to the diversion commencing operations. A portion of the funding from this program will initially be reserved for fishers who are part of an identified community with environmental justice concerns that may be disproportionately impacted by the Project. See discussion in Section 6.3.8 below for details on this reservation program. The cost of this program is estimated at \$8,000,000.

- *Marketing*

Marketing will be a key component in the establishment of the AOC program and other efforts. The total cost for this program is \$1,000,000.

Impacts to Finfish Fisheries. Impacts assessed as a result of the Project vary between species. However, with the exception of flounder and spotted seatrout, the Project is predicted to have negligible impacts on the vast majority of commercially important fishes and in many cases trend to positive impacts. While the overall Project impact to the saltwater commercial finfish industry is anticipated to be small, the State will nevertheless enhance marketing efforts intended to

address any impacts. This enhanced marketing effort will also help to mitigate effects in other fisheries as fishermen may choose to switch to saltwater and freshwater finfish after operation of the Project.

Mitigation.

- Marketing

The finfish industry has long realized that effective marketing is invaluable to the adaptability and sustainability of the industry. Historically, the finfish industry has utilized marketing to aid in the exploitation of new resources adjusting to changes along Louisiana's coast. The State, through the Louisiana Department of Wildlife and Fisheries, working with guidance from the Louisiana Finfish Task Force, will assist in the marketing needs of fisheries impacted in the Barataria Basin as well as to help transition to other species if abundance patterns change. Funds for this marketing program will be available prior to the diversion commencing operations. The cost of this program is \$1,000,000.

Impacts to Crab Fishery. The Project is not anticipated to negatively impact Louisiana's crab fishery. Project operations are projected to benefit blue crab resources. Nevertheless, the State will offer two forms of stewardship to support the crab fishery.

Stewardship Measures.

- Marketing

The State, through the Louisiana Department of Wildlife and Fisheries, working with guidance from the Louisiana Crab Task Force, will assist in the marketing needs of blue crab fishers in the Barataria Basin. Funds for this marketing program will be available prior to the diversion commencing operations.

- Gear Funding

The State will make funds available for improvements to crab fishing gear through a grant program to be administered by the Louisiana Department of Wildlife and Fisheries, the Louisiana's Seafood Future Program, and industry partners. Eligibility requirements for this program will require use within the project area and may include information from trip tickets and vessel licenses.

The total cost for both elements of this program is \$1,000,000.

Impacts to Shrimp Fishery. The Project is projected to have a major, adverse permanent impact on the brown shrimp resource and a negligible to minor beneficial permanent impact on the white shrimp resource. Together these two species account for almost all of the shrimp landed from the Project Area. Given the resultant impacts to the individual species, and the reliance of fishermen on both species, the EIS concludes that the overall Project effect determination is a moderate to major permanent adverse impact to the commercial shrimp fishery. This is largely

driven by the predicted reduction in brown shrimp abundance and uncertainty around the offset of increased white shrimp production.

Mitigation. Proposed mitigation strategies for shrimp are directed at the fishery rather than the resource. As the EIS identified the potential for the Project to result in disproportionate impacts to some low income and minority shrimp fishers, CPRA will implement measures to ensure they reach communities with environmental justice concerns that may be disproportionately impacted by the Project. This is further discussed in Section 6.3.8 below.

- Vessel/Facility Improvements

The analysis in the Final EIS projects that the brown shrimp distribution pattern will likely shift down basin, and overall abundance may be reduced. When discussing how the industry might best adjust to coastal change and restoration projects (LSF 2019) vessel and gear modifications were repeatedly mentioned as strategy to help mitigate those changes. Equipping a vessel with new assets such as refrigeration can both extend the time the vessel can transit to and remain on the fishing grounds (or fish new areas) or allow for a better-quality product that results in a higher price. In addition, changing gear types on existing vessels (for example, from skimmer to trawl), or using substitute gears that increase efficiency and lower overall operating costs (for example, from nylon trawl to spectra trawl), would help mitigate impacts of the Project to shrimpers. Several commenters on the Draft EIS also noted that updates and improvements to dock facilities would provide significant benefits to the overall shrimp industry.

The State will make funds available for these types of improvements through a grant program to be administered by the Louisiana Department of Wildlife and Fisheries, the Louisiana's Seafood Future Program, and industry partners. The grant program will be available for vessel improvements (such as refrigeration or gear improvements), to help fund acquisition of new vessels, or to update and improve dockside facilities. Eligibility requirements for this program will require use within the project area and may include information from trip tickets and vessel licenses, with a goal of equitably apportioning grants to address potential impacts. A portion of this funding will be initially reserved for fishers who are part of an identified community with environmental justice concerns that may be disproportionately impacted by the Project. (See Section 6.3.8 below.) Additionally, to help address access issues to the mitigation programs, a portion of the funding will be reserved to assist fishers and dock owners with the application process. Funds for this initiative will be available before and after diversion operations commence for up to 10 years or until the funds are expended. The cost of this program is anticipated to be \$15,000,000.

- Marketing

The Louisiana Shrimp Industry routinely describes marketing as the one of the primary needs for the industry. Competition from imports suppresses domestic shrimp demand and price and places an overwhelming stress on the industry. To mitigate for additional stresses potential changes in brown shrimp abundance may have, marketing

would be used to help increase market-share of domestic shrimp. Specific targets could include marketing of the Barataria white shrimp resource similar to the success had in other estuaries of Louisiana (see Vermilion Bay). This program will be administered by the Louisiana Department of Wildlife and Fisheries with guidance from the Shrimp Task Force. The cost of this program is anticipated to be \$2,000,000.

- *Assistance with Federal Considerations*

Several Draft EIS commenters noted that some of the restrictions imposed by NOAA/NMFS, for example, the Federal Shrimp Permit Moratorium, and the shrimp trade imbalance, negatively impact Louisiana shrimpers' ability to compete in the marketplace. The State will work with NOAA/NMFS on the upcoming review of the Federal Shrimp Permit Moratorium, as well as in other ongoing efforts, to ensure Louisiana shrimpers' perspectives are factored into the decision-making process.

Overall Fisheries Mitigation.

- *Workforce and Business Training*

A common mitigation strategy mentioned within various sectors of the commercial fishing industry is workforce training. Under several survey activities workforce training and business training are listed as ways to either transition into new employment or enhance revenue within current employment, respectively. The State, working through the Louisiana Economic Development, the Louisiana Workforce Commission, local colleges, trade schools and other partners, will develop a workforce and business training program to provide business training to enhance current business operations and provide training in new skills for individuals that want to transition to new employment opportunities. This training would be made available to qualified participants<sup>11</sup> within the commercial fishing industry. A portion of this program would be reserved for fishers who are part of an identified community with environmental justice concerns that may be disproportionately impacted by the Project. The funds under this program would be available before diversion operations commence. The total cost of this program is anticipated at \$2,000,000.

- *Subsistence Fishing Access*

There are a number of subsistence fishers that access the Project Area. While impacts on subsistence fishing resources are not anticipated to be significant, the State will provide funding to enhance subsistence fishing opportunities. Funds in this program will be used to increase shore-based subsistence fishing in both Barataria Basin and along the Mississippi River prior to initiation of Project operations. Funds in this program may also be used to improve boat launch access. These funds will be used in Plaquemines Parish, and the program will be administered jointly by Plaquemines Parish and the state

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<sup>11</sup> For purposes of this program, qualified participants would include fishers who are able to demonstrate a recent history of fishing in Barataria Basin through trip ticket data.

prior to the initiation of Project operation. The total cost of this program is anticipated at \$1,000,000. Details regarding implementation of this measure are set forth in Section 6.3.8 below.

- Project Operational Considerations

Initial operations of the project will be closely monitored to assess changes within the Barataria Basin system. Data from these initial operations, along with consultations with experts and fishers, will allow the State to refine and optimize project operations to achieve project success while minimizing impacts where practical.

- Enhanced Resource Sampling

The State will continue the enhanced sampling effort put into place to characterize the baseline condition of the Barataria Basin as well as enhance monitoring to assess project-related changes. Information from this enhanced sampling effort will then be used to inform Project operational strategies that will meet project success objectives while minimizing impacts where practical.

Implementation of Aquatic Stewardship Measures. Table 2 below summarizes the various fisheries mitigation and stewardship measures that will be implemented as part of the Project. Where available, information is included as to timing, duration, potential linkages to existing programs, anticipated amounts and the entity(ies) associated with the day-to-day implementation of the activity. CPRA is also outreaching to the fishing community through a survey (similar to the survey used for to solicit feedback on the mitigation proposed for tidal flooding impacts, see discussion in Section 6.3.2 (Public Input on Mitigation Measures)) to request their input on the details and implementation of these fisheries measures. The results of those surveys may lead to refinements to these measures, but the general categories of measures and total funding allocation will remain as set forth herein. CPRA will continue to advance the implementation details for each measure.

Table 2.

<i>Measure</i>	<i>Location</i>	<i>Implemen- tation Period</i>	<i>Program Status</i>	<i>Project Associated Funding</i>	<i>Implementing Entity</i>
Re- establishment of Reefs within Public Seed Grounds	Barataria Basin or adjacent areas identified by industry	Operation	New	\$4,000,000	LDWF
Provision of Cultch Material	Barataria/ Outside	Construction/ Pre-operation	New program adapted from previous programs	\$15,000,00 0	LDWF

CPRA Final Mitigation and Stewardship Plan  
 July 25, 2022

Provision of Broodstock Reefs to provide larval supply, as needed	Barataria	Operation	New program but companion to NRDA program	\$4,000,000	LDWF
Alternative Oyster Culture (AOC) <i>Introduction and Training</i>	Barataria/ Outside	Pre-operation and Operations	New program building off existing statewide effort	\$8,000,000	Louisiana Seafood Future
Alternative Oyster Culture (AOC) <i>Startup Assistance,</i>	Barataria/ Outside	Pre-operation and Operations	New program building off existing statewide effort		Louisiana Seafood Future
Alternative Oyster Culture (AOC) <i>Designated Use Areas</i>	Barataria/ Outside	Pre-operation and Operation	New program building off existing statewide effort		Louisiana Seafood Future
Marketing to Support the Oyster Industry	Industry	Pre-operation and Operation	New Program informed by industry		\$1,000,000
Marketing to Support the Finfish Industry	Industry	Pre-operation and Operation	New Program informed by industry	\$1,000,000	Louisiana Seafood Future
Marketing and Gear Improvements to Support the Crab Industry	Industry	Pre-operation and Operation		\$1,000,000	Louisiana Seafood Future; LDWF
Grant Program for Shrimp Vessel/Facility Improvements	Basin/ Industry	Pre-operation and Operation	New, based on previous successful programs	\$15,000,000	Louisiana Seafood Future
Marketing to Support the Louisiana Shrimp Industry	Industry	Pre-operation and Operation	New Program informed by industry	\$2,000,000	Louisiana Seafood Future
Subsistence Fishing	Basin and River	Pre-Operation	New Program with stakeholder input	\$1,000,000	CPRA

Workforce and Business Training for Commercial Fishers	Basin/ Industry	Pre-operation	New	\$2,000,000	TBD
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The funds identified above will be fully committed for these measures to address Project related impacts. To the extent the dollars identified for a particular measure are not used by that measure, they will be reassigned to another measure.

To extent these measures will be implemented by an agency other than CPRA, CPRA will enter into a contract with the implementing agency specifying the implementation plan, including the schedule, duration and funding for the measure. CPRA has an established history of such arrangements for other programs (e.g., agreement with LDWF for implementation of Oyster Strategic Restoration and Rehabilitation Plan (OSRRP)).

#### 6.3.4. ESA-Listed Species

Impacts. Impacts to ESA-listed species from construction and operations of the Project are described in detail in the Biological Assessment and in the Draft EIS Chapter 4 Section 4.12. Formal consultation with FWS and NMFS resulted in issuance of two separate Biological Opinions, one from each agency.

Effects determination for six of the ten listed species and designated critical habitat are *Not Likely to Adversely Affect* or *No Effect*. Effect determinations for the remaining four species (pallid sturgeon, green sea turtle, Kemp’s ridley sea turtle, and loggerhead sea turtle) are *Likely to Adversely Affect* and include:

- (1) Minor adverse impacts to pallid sturgeon from underwater noise associated with pile driving in the river during construction.
- (2) Minor to moderate impacts to pallid sturgeon due to loss of individuals through entrainment by the diversion structure during operations.
- (3) Minor adverse impacts to green, Kemp’s ridley, and loggerhead sea turtles due to reductions in certain prey species and increased negative interactions with commercial shrimp fishing due to the spatial shift in shrimp fishing effort due to the Project.

Conditions and Recommendations. The Biological Opinions include Reasonable and Prudent Measures (RPMs) and Terms and Conditions (T&Cs) to avoid and minimize effects to listed species and designated critical habitat. CPRA anticipates that those RPMs and T&Cs will be conditions of any Corps permit or LA TIG funding decision and will undertake the RPMs and implement the T&Cs identified in the Services’ Biological Opinions for the Project. If those Biological Opinions are modified in the future through re-initiation of consultation, any modified RPMs and T&Cs shall automatically supersede those RPMs and T&Cs included in the Biological Opinions referenced herein.



### 6.3.5. Non-ESA Listed Fish and Wildlife

Impacts. The MBSD Project anticipates benefiting the Barataria Basin with a basin wide net increase of 12,684 marsh acres and near field (e.g., close proximity to the outfall) increase of 13,151 marsh acres (3,848 Average Annual Habitat Units (AAHUs)) over the 50-year period of analysis. The near field area (13,151 acres) focuses on a smaller lower-salinity portion of the basin (primarily an area of wetland gain) near the diversion outfall. The larger basin benefits (12,684 net acres) include the lower basin brackish and saline marsh losses, which offsets some of the fresh/intermediate gains seen in the diversion outfall area resulting in an overall smaller net wetland gain across the basin than when compared to the near field area alone.

The Project would directly impact 193.1 acres of jurisdictional wetlands and 225 acres of vegetated shallows (SAV) and other waters of the U.S. Of the 193.1 acres (-102 AAHUs) of total permanent direct wetland impacts, 26.1 acres (-14.9 AAHUs) are of bottomland hardwood forest, 163.4 acres (-66.9 AAHUs) are of wet pasture, and 3.6 acres (-20.3 AAHUs) are of scrub/shrub. The Project is expected to benefit (nourish and restore) 13,151 acres (3,848 AAHUs) of marsh in the Barataria Basin. Project benefits of wetland creation and nourishment offset the permanent loss in existing wetland function from Project construction.

Because sediments, freshwater, and nutrients transported by the Mississippi River would be diverted up river from the Birdfoot Delta of the Mississippi River, the Birdfoot Delta would experience an additional projected indirect loss of 2,891 acres of wetlands by 2070 when compared to the No Action Alternative. Changes in land area in the Birdfoot Delta between the Applicant's Preferred Alternative and the No Action Alternative would be relatively minor (3 to 6 percent in operational years 2030 to 2060). The expected total project benefits would far outweigh the indirect negative impacts to the Birdfoot Delta. However, of the loss to the Birdfoot Delta, 926 acres of marsh is projected to be lost in the Delta NWR and 37 acres on the PAL WMA because of the reduced sediment being delivered to the area.

See also the Fish and Wildlife Coordination Act recommendations set forth in Section 4.6 above, which are fully incorporated here.

### 6.3.6. Marine Mammals

Impacts to Bottlenose Dolphins. Impacts on the Barataria Bay Estuarine System (BBES) stock under the Project action alternatives include: (1) immediate and permanent, major, adverse impacts on survival from low salinity throughout the BBES stock area; (2) adverse effects on health and reproduction from multiple stressors including low salinity exposure, wetland loss in the BBES stock area (also occurring under the No Action Alternative), lower temperatures, an increased risk of HABs, and the residual effects from the DWH oil spill; and (3) based on the estimated decreases in survival rates, there may be a substantial reduction in population numbers. Thus, the Project is projected to have permanent, major, adverse impacts on BBES dolphins. The measures noted below will be implemented by NOAA and partners on behalf of CPRA in recognition of the anticipated impacts to bottlenose dolphins.

Operational Minimization Measures. CPRA will examine operational strategies to minimize, to the extent practicable and consistent with the purposes of the Project, the Project's impacts on bottlenose dolphins. Given the dynamic conditions of any estuarine system, and the uncertainty around future conditions, the minimization measures will rely on the MBSD MAM Plan to inform future implementation.

State-wide Stewardship Measures. CPRA will also support non-operational stewardship measures to reduce existing and future threats to Bay/Sound Estuary (BSE) and coastal dolphin stocks throughout and adjacent to Louisiana coastal waters. While these measures may not minimize impacts from the Project on BBES dolphins, they could enhance individual dolphin survival from other anthropogenic stressors. These measures will also improve understanding and management of Louisiana dolphins.

- Statewide Stranding Program

A statewide stranding program for a 20-year period to begin immediately following current funding expiration in 2026 will be provided. Stranding response in Louisiana would improve the survival and health outcomes of marine mammal populations injured by the DWH spill, especially coastal and estuarine stocks of bottlenose dolphins. Enabling a more rapid response to a live stranded cetacean will increase that animal's chance of survival by reducing the time spent on the beach, reducing stress on the animal, providing rapid treatment and, if appropriate, transport to an authorized rehabilitation facility for additional treatment and care. In addition, this program will increase the quality and quantity of data that can be collected from dead stranded cetaceans, by decreasing decomposition time on the beach and ensuring that fresher carcasses are recovered for necropsy. This will improve the ability to diagnose causes of illness and death in cetaceans to better understand natural and anthropogenic threats, which will inform restoration planning, monitoring and adaptive management.

- Human Interaction/Anthropogenic Stressor Reduction

CPRA will reduce existing and future stressors to bottlenose dolphins statewide, including within Barataria Bay, in several ways:

- Reduce bottlenose dolphin mortalities from rod and reel fishing gear,
- Reduce intentional injury and mortality (e.g., shooting) to bottlenose dolphins,
- Reduce illegal feeding of bottlenose dolphins, and
- Evaluate the potential impacts of noise, vessels, and other direct threats to identify and implement stewardship measures designed to address these threats.

- Contingency Fund for Stranding Surge, Unusual Mortality Events (UME), or Episodic Mortality Event Response

As described in the FEIS, survival rates of BBES dolphins are likely to be greatly reduced upon operation of the Project. To respond to the expected increase in dolphin strandings, CPRA will establish funds for stranding surge capacity in Barataria Basin. The national UME Contingency Fund is extremely limited and is used to respond and investigate UMEs nationally. Additional funds for a Barataria Basin Stranding Surge,

UME, or Episodic Mortality Event Response will be made available upon onset of operations for immediate use in or be reimbursable to the stranding network.

#### 6.3.7. Essential Fish Habitat

Impacts. Impacts to EFH as managed under the Magnuson-Stevens Act from construction and operations of the Project are described in detail in the Essential Fish Habitat Assessment and in the Final EIS Chapter 4 Section 4.10.3.3 and Section 4.10.4.3. Impact to EFH and managed species include:

- (1) Temporary to permanent, negligible to minor impacts from construction due to structure placement, dredging, and turbidity and sedimentation.
- (2) Major beneficial changes from conversion of more ubiquitous soft bottom habitats to higher value submerged aquatic vegetation and marsh habitats within Barataria Basin.
- (3) Moderate adverse impacts in the birdfoot delta from loss of marsh habitat.
- (4) Minor adverse impacts on reef fish from changes in prey species (gray snapper) and salinity and nursery habitat (lane snapper).
- (5) Major adverse impacts to brown shrimp and oysters from decreased salinities.

Conservation Recommendations. Formal consultation on EFH with NMFS resulted in the identification of the following EFH Conservation Recommendations:

- (1) The MAMP should clearly identify variables and conditions to be monitored and describe the monitoring protocols. The MAMP should also identify specific management alternatives including, but not limited to alternate flow rate, frequency, timing and duration, and an effective decision making regime to modify project management if monitoring and subsequent analyses indicate diversion operations are not providing the desired outputs, or are causing unexpected or unwanted effects to resources of concern.
- (2) CPRA should continue investment in ecosystem and individual species models development and refinement for their use in comparing alternatives in the MAMP.

These measures have been included in the MAMP for the Project, Appendix R2 to the Final EIS.

#### 6.3.8. Environmental Justice

Impacts. Impacts to Environmental Justice populations from the Project are described in detail in Chapter 4 Section 4.15 of the Final EIS, and briefly summarized below.

##### Construction Impacts

The Project is projected to have minor to moderate adverse construction-based impacts during the approximately 5-year construction period on properties in the immediate vicinity (about 0.5 mile) of the construction footprint, including portions of the community of Ironton, which is predominantly (97%) African American. This includes impacts to air (construction dust), noise

(pile driving), and land-based transportation (traffic congestion from construction trucks/vehicles and construction worker vehicles).

### Operations Impacts

The Project is projected to have minor to major impacts on populations near the Project immediate outfall area (within 10 miles to the north and 20 miles to the south) outside of levee protection due to increases in tidal flooding and storm hazards. These impacts may be disproportionately high and adverse for some communities with environmental justice concerns, including low income and minority populations, to the extent these populations are uniquely vulnerable to tidal flooding and storm hazards. The effects would be most pronounced within the first two decades of operation, after which time, impacts would be more minor as compared to the No Action Alternative. All tidal flooding impacts would be reduced to minor by 2070, when the dominant driver of tidal flooding would be relative sea-level rise.

The Project is also projected to adversely impact communities with environmental justice concerns, including low-income and minority populations engaged in commercial and subsistence fishing and dependent on adversely impacted fisheries in the Barataria Basin. These impacts may be disproportionately high and adverse depending on the degree of engagement and dependence by these populations on these fisheries.

### Mitigation.

Consistent with CEQ's guidance regarding outreach and engagement to communities with environmental justice concerns<sup>12</sup>, CPRA engaged in additional outreach to populations potentially impacted by the Project to seek their input on mitigation and stewardship measures. A summary of that outreach is included in Chapter 7 of the Final EIS. Based on CPRA's evaluation of the projected impacts of the Project, combined with the input received on the draft mitigation measures, CPRA has developed the following mitigation and stewardship measures to assist community members potentially affected by the Project.

### Construction Impacts

CPRA will implement a number of BMPs to minimize the construction based impacts, including:

#### A. ROAD CROSSINGS AND ACCESS POINTS

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<sup>12</sup> For purposes of the Mitigation Plan, the term "communities with environmental justice concerns" refers to communities overburdened by pollution as identified in Executive Order 12898 of February 11, 1994 (*Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations*). Those communities include communities of color, low-income communities, and Indigenous communities. The term also includes communities identified as "disadvantaged" from the Office of Management and Budget's interim implementation guidance for the Justice40 Initiative (July 20, 2021), available at <https://www.whitehouse.gov/wp-content/uploads/2021/07/M-21-28.pdf>.

- i. Maintain safe and accessible conditions at all road crossings and access points during construction. Details regarding implementation of this measure will be coordinated with and approved by the Louisiana Department of Transportation. A copy of that plan will be appended to this Mitigation Plan when available.
- ii. Minimize the use of tracked equipment on public roadways. Remove any soil or gravel spilled or tracked onto roadways daily or more frequent as necessary to maintain safe road conditions.

#### B. DUST MANAGEMENT

- i. Water or chemical dust suppressants will be used to control dust released during land clearing and grading and on dirt roads and material stockpiles to minimize the release of dust.

In addition, recognizing the unique vulnerability of the Ironton community, CPRA will, prior to the start of construction, engage a community liaison whose position will include receiving and responding to concerns from Ironton community members regarding Project construction impacts. This will include access to CPRA, via means such as a telephone hotline, email address, etc., where Ironton community members will be able to directly contact CPRA's community liaison.

In addition, prior to the start of construction, CPRA will develop a Community Communications Plan to assist with communications with community members. It will include a plan for periodic meetings with representatives from the Ironton community, as well as a plan for disclosure of the upcoming construction schedule and anticipated construction activities during that period. A copy of that Plan will be appended to this Mitigation Plan when available prior to commencement of construction, and may be revised as appropriate throughout the construction process.

#### Operations Impacts

*Subsistence and recreational fishing.* To address identified potential for disproportionately high and adverse impacts to subsistence oyster and brown shrimp fishing, CPRA will provide public access opportunities within the Barataria Basin and Mississippi River Basin. This is intended to address effects on proximity of resources for both consumptive and non-consumptive use. These effects will be primarily addressed through the provision of public shoreline access and watercraft launching around the project area to assist recreational and subsistence fishing. No later than 24 months prior to the anticipated commencement of operations of the Project, CPRA will convene a community working group to identify preferred locations for these new access points. CPRA will invite community representatives to participate in this working group, and will provide special outreach to individuals and communities that rely on fishing in the Basin for subsistence aimed at ensuring their participation. Based on the input received from this community working group, CPRA will identify and develop one or more additional public shoreline access points for fishing and/or boat launching.

*Commercial fishing impacts.* CPRA recognizes that certain individuals and communities with environmental justice concerns, including low income and minority populations, may experience unique vulnerabilities that may include difficulty switching to other industries due to economic challenges, age, educational or training background, and cultural or language barriers. These populations may also be less likely or able to relocate to other geographic areas for alternative employment opportunities due to economic or cultural reasons. Species substitution may require traveling long distances or investing in expensive new equipment, which adds costs that may be challenging for low-income and minority fishers.

In an effort to respond to these unique vulnerabilities, CPRA will reserve a portion of each of the following mitigation and stewardship programs for individuals from identified communities with environmental justice concerns that may be disproportionately impacted by the Project: shrimping vessel and gear improvement grants, enhancing public and private oyster seed grounds, Alternative Oyster Culture, and overall fisheries workforce and business training. CPRA will engage representatives from community-based non-profit organizations to assist in providing information to community members regarding available programs, to assist in developing eligibility criteria to utilize in approving program recipients, and to assist potential applicants in completing any application processes.

Following Project approval and funding and prior to Project operations, CPRA will implement an outreach plan targeting fishers from identified communities with environmental justice concerns to ensure they learn about and are able to access these programs. This plan will include:

- 1) coordination with local community organizations to advertise these programs and to assist fishers from identified communities with environmental justice concerns with completing the applications needed to participate in these programs; and
- 2) engaging an outreach coordinator to assist in implementation of the plan, including:
  - a) targeted advertising,
  - b) working with individual applicants to complete the application materials,
  - c) follow-up with individuals to ensure they receive the benefits of the program,
  - d) monitoring and reporting of the numbers of fishers identified from identified communities with environmental justice concerns who utilize the program, and
  - e) the percentage of program resources that are utilized by fishers from identified communities with environmental justice concerns each year.

*Water Level/Inundation Impacts.* CPRA will provide mitigation for projected increases in water level and corresponding increases in tidal flooding as explained in Section 6.3.2 above. CPRA recognizes that low income and minority community members may experience unique vulnerabilities that make it more difficult to respond or adapt to Project impacts, such as residing in sub-standard housing, having limited access to information about emergencies and hazard responses, as well as economic and social obstacles to relocating, finding housing, commuting to employment opportunities, or responding to environmental damage to homes and businesses.

In an effort to ensure that identified communities with environmental justice concerns affected by the projected water level increases are informed about and have an equal opportunity to

access the benefits of the mitigation and stewardship programs, CPRA will engage an outreach coordinator to:

- a) develop and implement targeted outreach,
- b) inform impacted community members of available programs and resources,
- c) work with individuals to assist them in pursuing benefits and completing the necessary materials,
- d) follow-up with individuals who are selected for benefits to ensure that they receive the benefits of the programs,
- e) monitor and report the number of community members who utilize the programs, and
- f) the amount and percentage of program resources utilized annually.

CPRA intends to follow the Uniform Relocation Act when engaging with any property owner or tenant who requests to relocate due to concerns about the impacts of Project operations on water levels prior to Project operations.

In addition, CPRA recognizes that Grand Bayou is a unique tribal community with deep connections to the natural environment. It is the ancestral village of the Atakapas-Ishak/Chawasha Tribe, and most of the residents are members of the Tribe. CPRA engaged in direct outreach with leaders of the community of Grand Bayou Indian Village to identify specific mitigation and stewardship measures that support the community. Based on the results of that outreach, CPRA added additional mitigation and stewardship measures for Grand Bayou, including:

- Floating gardens (funded through NRDA)
  - o Large, waterproof boxes designed to serve as a raised garden bed in close proximity to resident's home. Provides suitable planting ground for vegetables, plants, etc. that will float during flood season and prevent plant inundation.
- Community connecting sidewalks (funded through NRDA)
  - o Raised boardwalks connecting residents' elevated homes, community center, boat launches, etc. that will serve similar function to sidewalks and provide improve pedestrian connectivity for residents of the Grand Bayou community. These raised pathways for walking will allow continued access and increase community walkability during flood season.
- Grand Bayou Canal backfilling and ridge restoration project (project funded for E&D and construction)
  - o The project would restore wetlands and ridge habitat adjacent to the Grand Bayou Community through canal backfilling and ridge restoration. Plans include restoring wetland hydrology through canal backfilling and restoring approximately 50,000-linear feet of coastal upland habitat to provide wave and storm surge attenuation along Grand Bayou and Bayou Grand Cheniere, including for the Grand Bayou community. The ridge restoration component of this project



is adjacent to the DWH Trustee funded Bayou Grand Cheniere Ridge and Marsh Restoration Project. See figure depicting the project features in Appendix C.

With regard to the backfilling and ridge restoration project (third bullet above), CPRA pursued and received grant funding from the National Fish and Wildlife Foundation (NFWF) through their National Coastal Resilience Fund to conduct preliminary design for this project. NFWF granted this funding request in November 2021. Numerous canals have been constructed over the years through the marsh around the Grand Bayou community. Canal backfilling has successfully been used in coastal Louisiana to return canal spoil banks into canals to mitigate damage caused by construction of the canals. This project would create or restore approximately 1,500 acres of wetlands and roughly 50,000 linear feet of habitat, restore natural hydrology, and provide wave and storm attenuation along Grand Bayou and Bayou Grand Cheniere. The CPRA will collaborate with representatives from the community of Grand Bayou in the planning and development of the project including site investigations (bathymetric, topographic, geotechnical, pipeline, and cultural resources surveys), preliminary design, and robust outreach. CPRA requested and received funding for construction of this project as part of its 2022/2023 Annual Plan.

Ironton is located behind the USACE NOV-NFL levee and, therefore, would not be impacted by changes in tidal flooding resulting from the Project. The Final EIS, however, states that negligible to minor increases in levee overtopping could affect the community of Ironton inside the NOV-NFL system. CPRA is not proposing specific mitigation to address or offset this negligible to minor increased risk because this potential increased risk does not accrue until Project operations have resulted in the development of a delta (wetlands and marsh) in the area outside the NOV-NFL levee adjacent to Ironton (circa 2040), and because this risk was identified for only one of the 100-year storm scenarios modeled. However, to help Ironton prepare for and mitigate flood risk from storms generally, CPRA will designate a liaison to work with residents in Ironton prior to commencing operations of the Project on community preparedness for storm-based flooding and damage.

*Communications.* As part of the above measures, CPRA will provide, at no cost to the requester, language services to ensure that individuals with limited English proficiency can meaningfully participate in CPRA's programs and activities, including those described above.

#### 6.3.9. Cultural Resources

Impacts. Impacts to Cultural Resources from the Project are described in detail in Chapter 4 Section 4.23 of the Final EIS, and are briefly summarized below.

USACE determined, and consulting parties concurred, the Project will have an adverse effect on one (1) historic property in the Construction Impacts APE (Locus 1 within Site 16PL107), four (4) historic properties (archeological sites) eligible for the NRHP located within the Operational Impacts APE (Sites 16JE2, 16JE3, 16JE11, 16JE147), and one (1) additional archeological site in the Operational Impacts APE the eligibility of which has not been determined but which is being treated as NRHP eligible (Site 16JE237).

Examples of potential direct impacts on these historic properties during Project operations would include burial from sediment deposition and erosion resulting from changes in flow velocity. Given the large size and submerged nature of much of the Operational Impacts APE, as well as the multiple other processes affecting these submerged areas (such as subsidence, erosion, and channel dredging), it is not possible to fully separate the Project-caused impacts on historic properties from those impacts caused by subsidence, erosion and other processes unrelated to the Project, particularly over the 50-year analysis period in the EIS.

Mitigation. CPRA, USACE, federal agency members of the LA TIG, SHPO, federally-recognized Tribal Nations, and the ACHP consulted pursuant to Section 106 of the NHPA regarding the effects of the Project on historic properties in the APE. The consulting parties developed a Programmatic Agreement (PA) for the Project. With regard to Locus 1 of 16PL107 in the Project construction limits within the Construction Impacts APE, the consulting parties agreed that a treatment plan will be developed and appended to the PA.

For the Operational Impacts APE, the PA includes an alternative mitigation plan, agreed to by CPRA, to resolve adverse effects. That alternative mitigation plan includes a regional ethnohistory of Native American settlement in the southeastern coastal Louisiana region (Barataria Basin, Breton Sound Basin, and Pontchartrain Basin). The analysis conducted as part of the Alternative Mitigation Plan would include an examination of the archaeological record at the regional level as well as oral and archival sources. The plan would: (1) mitigate for the lack of cohesion among the archaeological record, scholarly literature on Native American history, and the available vital/archival records; (2) produce a series of documents and/or maps for participating Tribes to improve consultation with federal agencies in specific areas of Tribal interest within the alternative mitigation plan study area; and (3) make Tribal history available to the public online and in the classroom.

The PA also includes the agreed upon plan for monitoring Project impacts on cultural resources within the Operational Impacts APE which are included in the MAM Plan, as well as an unanticipated discoveries plan. The PA was executed by [TBD] concurrent with the Final EIS or Record of Decision (ROD) and is attached as Appendix A.

## **7. PLAN IMPLEMENTATION**

### **7.1. Performance, Monitoring, Maintenance, and Adaptive Management**

Evaluation metrics and implementation guidance and goals are identified in the MAM Plan, developed by the LA TIG. Performance evaluation metrics and parameters are also adopted for the Project to ensure that the Project is achieving its intended restoration benefits.

Such performance metrics and parameters will help determine if the Project and the related mitigation are achieving the overall objectives of the Project and this Plan. These standards are based on attributes that are objective and verifiable by field measurements and analysis. Data collection and analysis will be based on methods established and/or approved by CPRA using established best-practices.

The MAM Plan also identifies monitoring, maintenance, and adaptive management requirements to ensure that mitigation components and the Project restoration objectives are achieving the performance standards. Certain mitigation measures contained in the Mitigation Plan will be specifically contained within the MAMP. Once construction is underway, CPRA will be responsible for monitoring per the MAMP and implementation of any required mitigation.

If monitoring reports comparing progress on mitigation and stewardship measures to performance standards indicate progress for any USACE required mitigation is falling short of the identified performance standards, consultation with the USACE would be initiated regarding the need for adaptive management.

A table summarizing the mitigation and stewardship measures set forth herein is in Section 4.27 of the Final EIS.

## **8. FINANCIAL ASSURANCES**

If the *Deepwater Horizon* Louisiana Trustee Implementation Group decides to fund the Project, each component of this Mitigation and Stewardship Plan will be funded as part of the LA TIG's funding decision unless otherwise specified.

**APPENDIX A**

NHPA Section 106 Programmatic Agreement

*Placeholder pending final agreement*

**APPENDIX B**

MBSD Construction Best Management Practices

## ENVIRONMENTAL PROTECTION PLANNING DOCUMENT FOR THE CONSTRUCTION OF MID-BARATARIA SEDIMENT DIVERSION

PREPARED BY: CPRA  
PROJECT: Mid Barataria Sediment Diversion  
DATE: February 4, 2022

### PURPOSE AND SCOPE

This document provides a preliminary list of Best Management Practices (BMPs) that would be implemented during construction of the Mid Barataria Sediment Diversion. CPRA (or its Contractor's; hereafter referred to as CPRA) will implement each of these BMPs to the maximum extent practicable.

CPRA will develop an Environmental Protection Plan (EPP) that includes each of these BMPs and details, for each component of the environment, the procedures and measures for environmental protection during the construction of the project. Environmental protection is the prevention/control of pollution and habitat disruption that may occur during construction. The control of environmental pollution and damage requires consideration of air, water, land, biological and cultural resources; and includes management of visual aesthetics; noise; solid, chemical, gaseous, and liquid waste; radiant energy and radioactive materials; and other pollutants.

CPRA shall provide as part of the EPP a list of all Federal, State and local environmental laws and regulations which apply to the construction operations. The Plan shall detail the action which the contractor shall take to comply with all applicable Federal, State and local laws and regulation concerning environmental protection and pollution control and abatement, as well as any additional specific requirements. The EPP would also delineate the required environmental monitoring plan for compliance of various environmental regulations.

The EPP will include an approved Spill Control Plan, Waste Management Plan, Contaminant Prevention Plan, and Environmental Inspection Plan. Other plans that will be developed and are related to environmental protection include: Site Safety and Health, Accident Prevention, Organization and Authority, and Personnel Training.

BMPs here are presented in the following sections: 1) Protection of Land Resources; 2) Protection of Wetlands and Water-based Resources; 3) Protection of Fish and Wildlife Resources, and 4) Protection of Cultural Resources.

## SECTION 1: PROTECTION OF LAND RESOURCES

### I. GEOGRAPHIC APPLICABILITY

The Protection of Land Resources applies to upland areas of the Project, which predominantly occur between the Mississippi River Levee (MRL) and existing NOV back levee(s). Wetland and waterbody features of the Mississippi River and Barataria Basin are addressed in the Wetland and Water Resources section.

### II. ENVIRONMENTAL INSPECTION

- A. CPRA will ensure that the number and experience of inspectors assigned to the Project shall be appropriate for the size of the construction area, the level of activity, and the number/significance of resources affected.

Inspectors are responsible for:

- B. Inspecting construction activities for compliance with the requirements of the Environmental Protection specifications and plans, other environmental permits and approvals, and environmental requirements in landowner easement agreements;
- C. Identifying, documenting, and overseeing corrective actions as necessary to bring an activity back into compliance;
- D. Verifying that the limits of authorized construction work areas and locations of access roads are visibly marked before clearing, and maintained throughout construction;
- E. Verifying the location of signs and highly visible flagging marking the boundary of sensitive resource areas (e.g., cultural resource sites);
- F. Identifying erosion/sediment control and soil stabilization needs in all areas;
- G. Ensuring that erosion control devices are properly installed and determining the need for additional erosion control devices;
- H. Inspecting and ensuring the maintenance of temporary erosion control measures;
- I. Ensuring the repair of ineffective temporary erosion control measures;
- J. Verifying that dewatering activities are conducted according to the Storm Water Pollution Prevention Plan (SWPPP);
- K. Ensure that temporary construction areas are returned to surrounding conditions;
- L. Keeping records of on-site compliance with environmental protection specifications;
- M. Identifying areas that should be given special attention to ensure stabilization and restoration after the construction phase; and
- N. Verifying accepted material disposal locations and practices.



### III. PRECONSTRUCTION PLANNING

#### A. CONSTRUCTION WORK AREAS

- i. All construction work areas will be identified (e.g., project construction boundary, temporary construction right-of-way, work space areas, material storage, contractor yards, borrow and disposal areas, and access roads) that would be needed for safe construction.
- ii. The development of a Stormwater Pollution Prevention Plan (LAR100000 Storm Water Discharges from Construction Activities of 5 Acres or More; NPDES, LDEQ) will be developed during the preconstruction planning phase.

#### B. INTERIOR DRAINAGE SYSTEMS

- i. CPRA will develop a *Maintenance of Drainage Plan* that will ensure that the existing level of drainage be maintained during Project construction in areas bounded by the MRL and existing NOV back levee(s).

#### C. ROAD CROSSINGS AND ACCESS POINTS

- i. Plans will be developed for safe and accessible conditions at all roadway crossings and access points during construction and restoration.
- ii. Project access points with ingress and egress to state highways will be approved by Louisiana Department of Transportation and Development (LDOTD).

#### D. DISPOSAL AND HAZARDOUS SUBSTANCES PLANNING

- i. The methods and locations for the regular collection, containment, and disposal of excess construction materials and debris (e.g., timber, mats, garbage) throughout the construction process will be specified in a Waste Management Plan.
- ii. For work activities (such as painting, metal finishing, etc.) that will involve bringing hazardous chemicals, hazardous substances or hazardous materials onto the project site, the Contaminant Prevention Plan will specify practices for hazard communication, safe storage, waste identification and disposal. Licensed contractors will be responsible for removing and disposing hazardous materials.

- iii. For work activities that pose a risk of an oil or hazardous substance spill, a Spill Control Plan will include the procedures, instructions, and reports to be used in the event of an unforeseen spill, including:
  - 1. Party responsible for implementing and supervising the containment and cleanup;
  - 2. Training requirements of personnel and methods of accomplishing the training;
  - 3. A list of materials and equipment to be immediately available at the job site, tailored to cleanup work of the potential hazard(s) identified;
  - 4. The names and locations of suppliers of containment materials and locations of additional fuel oil recovery, cleanup, restoration, and material-placement equipment available in case of an unforeseen spill emergency;
  - 5. The materials, methods, and procedures to be used for expeditious contaminant cleanup; and
  - 6. The reporting process of any spills or hazardous substance releases and who will follow up with complete documentation.

#### IV. CONSTRUCTION

##### A. APPROVED AREAS OF DISTURBANCE

- i. Project-related ground disturbance shall be limited to the construction footprint. In the event temporary rights of way need to be established for construction (e.g., additional area or route), these will be subject to all applicable survey and permit requirements, and landowner easement agreements.

##### B. TOPSOIL

- i. Topsoil will be stockpiled and re-incorporated into the levee or work areas to enhance vegetation establishment.

##### C. INTERIOR DRAINAGE SYSTEMS

- i. The Maintenance of Drainage Plan will specify how flow collected from the existing drainage system affected by the construction of the project shall be collected and diverted into the existing or new operational downstream drainage system.
- ii. The installation, maintenance, and operation of drainage will be designed to: 1) collect and dispose of all storm water entering

- directly into the construction area, and 2) prevent flow in the downstream portion of the drainage system from backing into the work area.
- iii. Monitoring of rain events and water levels in drainage ditches will be implemented.

#### D. ROAD CROSSINGS AND ACCESS POINTS

- i. Maintain safe and accessible conditions at all road crossings and access points during construction.
- ii. Minimize the use of tracked equipment on public roadways. Remove any soil or gravel spilled or tracked onto roadways daily or more frequent as necessary to maintain safe road conditions.

#### E. DUST MANAGEMENT

- i. Water or chemical dust suppressants will be used to control dust released during land clearing and grading and on dirt roads and material stockpiles to minimize the release of dust

#### F. TEMPORARY EROSION CONTROL

CPRA will implement and pursue all measures required in the SWPPP to control soil erosion, and the resulting sediment, to the extent necessary, to prevent sediment from leaving the construction servitude and prevent pollution of any water body caused by the runoff from the areas of construction activities.

- i. Erosion and Sediment Controls
  - 1. The construction-phase erosion and sediment controls should be designed to retain sediment on-site to the maximum extent practicable.
  - 2. The best practicable technology currently available will be designed, installed and maintained such that erosion and sediment controls minimize the discharge of pollutants, which requires: 1) control of storm water volume and velocity to minimize soil erosion in order to minimize pollutant discharges; and, 2) control storm water discharges, including both peak flow rates and total storm water volume to minimize channel and stream bank erosion and scour in the immediate vicinity of discharge points.
  - 3. Structural measures to divert flows from exposed soils, retain flows or otherwise limit runoff and the discharge of pollutants from exposed areas to the degree attainable may

include but are not limited to: silt fences, earth dikes, drainage swales, sediment traps, check dams, subsurface drains, pipe slope drains, level spreaders, storm drain inlet protection, rock outlet protection, reinforced soil retaining systems, gabions, and temporary or permanent sediment basins.

4. All control measures must be properly selected, installed, and maintained in accordance with the manufacturer's specifications and good engineering practices. If periodic inspections or other information indicates a control has been used inappropriately, or incorrectly, the permittee must replace or modify the control for site situations.
5. If sediments escape the construction site, off-site accumulations of sediment must be removed at a frequency sufficient to minimize off-site impacts (e.g., fugitive sediment).
6. Sediment must be removed from sediment traps or sedimentation ponds as required by design.
7. Trapped sediment must be removed from a silt fence as required by the design in accordance with the manufacturer's specifications.
8. Material storage areas (also including overburden and stockpiles of dirt, borrow areas, etc.) used solely for the project are considered a part of the project and shall be addressed in the storm water pollution prevention plan.
9. Provide and maintain natural buffers around waters of the state, direct storm water to the vegetated areas and maximize storm water infiltration to reduce pollutant discharges, unless infeasible.

ii. Seeding and Mulching

1. Temporary erosion control including ground cover establishment will be described in a Sodding, Seeding, and Mulching specification, which will require that seed and sod sources are free of noxious species.
2. Mulch may be applied on levee slopes concurrent with or immediately after seeding, where necessary to stabilize the soil surface and to reduce wind and water erosion.
3. Mulch can consist of weed-free straw or hay, wood fiber hydro-mulch, erosion control fabric, or some functional equivalent.
4. When anchoring with liquid mulch binders, use rates recommended by the manufacturer. Do not use liquid mulch

binders within 100 feet of wetlands or waterbodies, except where the product is certified environmentally non-toxic by the appropriate state or federal agency or independent standards-setting organization.

5. Do not use synthetic monofilament mesh/netted erosion control materials in areas designated as sensitive wildlife habitat, unless the product is specifically designed to minimize harm to wildlife. Anchor erosion control fabric with staples or other appropriate devices.

## V. CONSTRUCTION CLOSE-OUT

### A. CLEANUP

- i. Commence cleanup of construction debris and temporary erosion control measures in areas where work activities have been completed.
- ii. Complete final grading, topsoil replacement, and installation of permanent erosion control structures. When access is no longer required, travel lanes must be removed, and the temporary construction right-of-way restored.
- iii. Grade the construction right-of-way to provide positive drainage.
- iv. Remove construction debris from all construction work areas.
- v. Remove temporary sediment barriers when replaced by permanent erosion control measures or when revegetation is successful.

### B. FINAL STABILIZATION AND REVEGETATION

- i. Final stabilization practices may include but are not limited to: establishment of permanent self-sustaining perennial vegetation, mulching, geotextiles, sod stabilization, vegetative buffer strips, and other appropriate measures.
  1. Vegetation establishment will follow the guidelines and project specific criteria as established by CPRA and USACE-MVN Agency Technical Review teams.
  2. CPRA will consult with USACE and other specialists regarding the selection and establishment of grass species along the conveyance channel levees.
- ii. Soil Additives
  1. Fertilize and or use pH modifiers in accordance with project specifications.
- iii. Seeding or Sodding Requirements

1. Perform seeding of permanent vegetation within the recommended seeding dates.
2. Seed all disturbed soils within the construction footprint but outside of the Project facilities permanent footprint as soon as practical.
3. Use seeding methods (broadcast, drill, or hydro) that best apply to the existing conditions to achieve the target establishment coverage.

#### C. SOIL COMPACTION MITIGATION

- i. Minimizing soil compaction is not required where the intended function of a specific area of the site dictates that it be compacted.
- ii. Severely compacted soils associated with temporary construction right-of-way outside of the construction boundary may include deep tillage or aeration to relieve compaction.

### VI. POST-CONSTRUCTION ACTIVITIES AND DOCUMENTATION

#### A. MONITORING AND MAINTENANCE

- i. Conduct follow-up inspections of all disturbed areas, as necessary, to determine the success of revegetation.
- ii. Continue revegetation efforts until revegetation is successful.
- iii. Monitor and correct problems with drainage systems resulting from construction in agricultural areas until restoration is successful.

#### B. DOCUMENTATION

Records shall be maintained that identify:

- i. Method of application, application rate, and type of fertilizer, pH modifying agent, seed, and mulch used;
- ii. Acreage treated;
- iii. Dates of backfilling and seeding;
- iv. Names of landowners requesting special seeding treatment and a description of the follow-up actions;
- v. The location of any subsurface drainage repairs or improvements made during restoration; and
- vi. Any problem areas and how they were addressed.

## SECTION 2: PROTECTION OF WETLAND AND WATER-BASED RESOURCES

### I. GEOGRAPHIC APPLICABILITY

The Protection of Wetland and Water Resources applies to in-water construction activities in wetlands and waters of the United States influenced by the Mississippi River (MR) and the Gulf of Mexico in the Barataria Basin (Basin).

### II. ENVIRONMENTAL INSPECTION

- A. CPRA will ensure that the number and experience of inspectors assigned to the Project shall be appropriate for the size of the construction area, the level of activity, and the number/significance of resources affected.

Inspectors are responsible for:

- B. Inspecting construction activities for compliance with the requirements of Environmental Protection construction specifications and plans, other environmental permits and approvals, and environmental requirements in landowner easement agreement;
- C. Identifying, documenting, and overseeing corrective actions as necessary to bring an activity back into compliance;
- D. Verifying that the limits of authorized construction work areas and locations of access are known and are acknowledged throughout construction;
- E. Verifying the location of signs and highly visible flagging mark vessel construction work area and vessel access routes;
- F. Identifying erosion/sediment control needs in all areas;
- G. Ensuring sediment containment, temporary or permanent soil stabilization devices are properly installed, maintained, and repaired to the design specifications;
- H. Keeping records of on-site compliance with environmental protection specifications; and
- I. Identifying areas that should be given special attention to ensure stabilization and restoration after the construction phase.

### III. PRECONSTRUCTION PLANNING

- A. A Waste Disposal Plan will be developed that identifies the methods and locations of disposal of materials, wastes, effluents, trash, garbage, oil, grease, chemicals, etc., and ensures that harmful debris will not enter ditches, rivers, bayous, canals, groundwater, and thus prevent the use of the area for recreation or present a hazard to wildlife.



- B. A Spill Control Plan for in-water vessels and personnel will be developed that meets state and federal requirements and identifies the responsibilities for structuring operations in a manner that reduces the risk of spills and accidental exposure of fuels or hazardous materials to waterbodies and wetlands. The Plan will specify procedures for:
- i. Party responsible for implementing and supervising the containment and cleanup;
  - ii. Training requirements of personnel and methods of accomplishing the training;
  - iii. A list of materials and equipment to be immediately available at the job site, tailored to cleanup work of the potential hazard(s) identified;
  - iv. The names and locations of suppliers of containment materials and locations of additional fuel oil recovery, cleanup, restoration, and material-placement equipment available in case of an unforeseen spill emergency;
  - v. The materials, methods, and procedures to be used for expeditious contaminant cleanup;
  - vi. The reporting process of any spills or hazardous substance releases and who will follow up with complete documentation.
- C. Disposal of Excavated Materials for Beneficial Use
- i. CPRA and Contractor responsibility for dredge material evaluation of possible contaminants of soil excavated from the conveyance channel and Outfall Transaction Feature (OTF) to be used for beneficial placement:
  - ii. CPRA is responsible for the reasonable identification and evaluation of all Hazardous, Toxic and Radioactive Waste (HTRW) contamination within the vicinity of the Project (the conveyance channel and the OTF).
  - iii. CPRA will provide a Phase I Environmental Site Assessment report prior to the Draft Environmental Impact Statement (DEIS) that will evaluate whether there is reason to believe the proposed dredge or fill material is or is not a carrier of contaminants (or material meets the testing exclusion criteria).
  - iv. The construction Contractor will also comply with the applicable permits or regulations and will be obligated to obtain a Phase I Environmental Site Assessment (ESA) report within at least 6 months prior to construction.
  - v. Regulations apply to cease construction if suspected HTRW materials encountered.

D. Vessel Access

- i. The route for construction vessels and work boats will be identified with temporary channel markers during construction.
- ii. Water bottom assessment surveys will be conducted to identify oyster beds.
- iii. Minimum depths of water above the bottom will be determined so that bottom resources are not impacted.
- iv. Vessel operators will operate along approved routes.

#### IV. IN-WATER CONSTRUCTION (MISSISSIPPI RIVER AND BARATARIA BASIN)

##### A. NOTIFICATIONS

- i. CPRA will notify the navigation sector of the United States Coast Guard providing the type and location of construction activities in the Mississippi River, so that a Local Notice to Mariners (LNM) can be issued.

##### B. CONSTRUCTION IN THE RIVER

- i. Aboveground and submerged construction of structures will require excavation and fill activities.
- ii. River bed or batture soils may be used for land- or water-based construction purposes. Excavation of bar sands may be used for land- or water-based project construction (e.g., fill material for cofferdam cells). During construction or de-construction the native fill will be resuspended to the river.
- iii. Removal of existing revetment will be reused or disposed of in an approved site.
- iv. Deep soil mixing (using bentonite/cement slurries/other) will be stabilized within the earth and any excess material or runoff will be collected, dewatered, and disposed.
- v. In cases of an imminent tropical cyclone, the cofferdam enclosure area will be filled with water from the river for safety purposes. Following storm passage, the enclosure will be de-watered to the river.

##### C. CONSTRUCTION IN THE BASIN

- i. General  
Beneficial Use Areas (BU Areas) have been located for excess soil placement. The route for vessel access and the excavation/placement areas have been located.

- ii. Excavation and Fill—Vessel Access
  - 1. Vessel Access: Excavation of waterbottoms may occur in navigable waters, private canals, sediment infilled natural bayous, and emergent wetlands to allow shallow draft vessel access, which could include tugs, scows, and barges with mounted equipment and/or materials.
  - 2. Where vessel access dredging of waterbottom sediments is required, the excavation and disposal methods will be designed to minimize hydrologic disruption, and when feasible, restore intertidal habitat.
  - 3. Excavation and subsequent disposal of soils excavated for access channel could include:
    - a. temporary disposal (side cast, temporary containment cells);
    - b. backfilling of artificial canals;
    - c. shallow water or wetland nourishment (thin spray, hydraulic dredge); or
    - d. wetland creation.
- iii. Excavation and Fill— BU Areas
  - 1. The excavation of the conveyance channel and the OTF will result in excess sediments that may be placed in the basin waterbottoms in the BU Areas.
  - 2. Existing natural or artificial features (e.g., canal spoil banks, marsh edge) may be used to retain pumped sediments. The construction of containment dikes may be necessary to limit sediment loss. Upon completion of filling, dikes may be gapped to maintain tidal exchange.
  - 3. The placement of fill material will avoid high elevation stacking and instead result in settled elevations that are conducive to shallow water or emergent wetland habitat.

## SECTION 3: PROTECTION OF FISH AND WILDLIFE RESOURCES

### I. GEOGRAPHIC APPLICABILITY

The Protection of Fish and Wildlife Resources applies to in-water and land-based construction activities, which would occur in the Mississippi River, Barataria Basin, Project construction limits and buffer areas adjacent to the construction limits as required.

### II. ENVIRONMENTAL INSPECTION

- A. CPRA will ensure that the number and experience of inspectors assigned to the Project shall be appropriate for the size of the construction area, the level of activity, and the number/significance of resources affected.

Inspectors are responsible for:

- B. Inspecting construction activities for compliance with the requirements of Environmental Protection construction specifications and plans, other environmental permits and approvals as described herein;
- C. Verifying and maintaining limits of authorized construction work areas and access routes (e.g., appropriate signage, or markers/flagging) throughout construction;
- D. Executing the proper protocols for reporting or notifications to resource agency personnel;
- E. Keeping records of on-site compliance with environmental protection specifications;

### III. PRECONSTRUCTION PLANNING

- A. CPRA will verify that Environmental Specifications and Special Provisions issued to the Contractor are current, accurate, and complete prior to construction.
- B. CPRA will ensure that required fish or wildlife field surveys are executed prior to construction.
- C. CPRA will consult with USFWS prior to land-based vegetation clearing to identify beneficial practices to minimize impacts to migratory birds.

### IV. IN-WATER OR LAND-BASED CONSTRUCTION MEASURES/REQUIREMENTS

- A. **LOCATION CHANGES:** Regarding location changes, modifications to construction areas, new information regarding presence or impacts to species, the USFWS recommends that CPRA and the USACE contact the Service and LDWF for additional consultation if: 1) the scope of location of the proposed project is changed significantly, 2) new information reveals that the action may affect listed species or designated critical habitat, 3) the action is modified in a manner that causes effects to listed species or designated critical habitat, or 4) a new species is listed or critical habitat designated. Additional consultation as a result of any of the above conditions or for changes not covered in this consultation should occur before changes are made or finalized.
- B. **PILE DRIVING:** A pile-driving plan to guide pile-driving operations will be developed. The plan will identify locations, approximate timing, and installation methods including any noise attenuation methods. This plan is required as part of the Endangered Species Act Consultation with US Fish and Wildlife Service and is intended to reduce potential impacts to listed species.

- C. DREDGING: Should dredging (cutterhead/suction dredge) activities be necessary in the Mississippi River, the cutterhead must remain completely buried in the bottom material during dredging operation. If pumping water through the cutterhead is necessary to dislodge material or to clean the pumps or cutterhead, etc., the pumping rate will be reduced to the lowest rate possible until the cutterhead is at mid-depth, where the pumping rate can then be increased. During dredging, the pumping rates will be reduced to the slowest speed possible while the cutterhead is descending to the channel bottom.
- D. NESTING BIRDS: Prior to construction, a qualified biologist shall inspect the proposed construction site for the presence of documented and undocumented wading bird colonies and bald eagles. All construction activity during the wading bird nesting season (i.e., February through October 31) should be restricted within 1,000 feet of a wading bird colony<sup>[1]</sup>. If restricting construction activity within 1,000 feet of a wading bird colony is not feasible, CPRA shall coordinate with FWS to identify and implement alternative best management practices to protect wading bird nesting colonies. During construction activities, if a bald eagle nest is within or adjacent to the proposed project area, then an evaluation must be performed to determine whether the project is likely to disturb nesting bald eagles. The evaluation may be conducted online(<http://www.fws.gov/southeast/es/baldeagle>). Following completion of the evaluation, that website will provide a determination of whether additional consultation is necessary, and those results should be forwarded to this office.
- E. PALLID STURGEON: The pallid sturgeon is found in the Mississippi River. CPRA and the USACE will coordinate with the Service to develop a Fish Monitoring and Removal Plan for pallid sturgeon. This plan will need to be completed and Service approved prior to the construction of the cofferdam and/or combi wall. Live sturgeon captured in the structure or cofferdam or combi wall area should be tagged and returned to the river.
- F. WEST INDIAN MANATEE<sup>[2]</sup>: The West Indian manatee may be present in the project vicinity. The Contractor shall instruct all personnel associated with the project of the potential presence of manatees in the area, and the need to avoid collisions with these animals. All construction personnel shall be advised that there are civil and criminal penalties for harming, harassing, or killing manatees, which are protected under the USFWS ESA and the MMPA. The Contractor will be responsible for any manatee harmed, harassed, or killed as a result of construction activities not conducted in accordance with these specifications. Special Operating Conditions If Manatees Are Present in the Project Area: (1) If a

manatee(s) is sighted within 100 yards of the project area, all appropriate precautions shall be implemented by the Contractor to ensure protection of the manatee. These precautions shall include the operation of all moving equipment no closer than 50 feet of a manatee. If a manatee is closer than 50 feet to moving equipment or the project area, the equipment shall be shut down and all construction activities shall cease to ensure protection of the manatee. Construction activities shall not resume until the manatee has departed and the 50-foot buffer has been re-established. (2) If a manatee(s) is sighted in the project area, all vessels associated with the project shall operate at "no wake/idle" speeds at all times while in waters where the draft of the vessel provides less than a four-foot clearance from the bottom, and vessels shall follow routes of deep water whenever possible. Boats used to transport personnel shall be shallow-draft vessels, preferably of the light-displacement category, where navigational safety permits. (3) If siltation barriers are used, they shall be made of material in which manatees cannot become entangled, are properly secured, and are regularly monitored to avoid manatee entrapment. (4) Manatee Signs. Prior to commencement of construction, each vessel involved in construction activities shall display at the vessel control station or in a prominent location, visible to all employees operating the vessel, a temporary sign at least 8-1/2-inch x 11-inch reading, "CAUTION: MANATEE HABITAT/IDLE SPEED IS REQUIRED IN CONSTRUCTION AREA." In the absence of a vessel, a temporary 3-foot x 4-foot sign reading "CAUTION: MANATEE AREA" shall be posted adjacent to the issued construction permit. A second temporary sign measuring 8-1/2-inch x 11-inch reading "CAUTION: MANATEE HABITAT. EQUIPMENT MUST BE SHUTDOWN IMMEDIATELY IF A MANATEE COMES WITHIN 50 FEET OF OPERATION" shall be posted at the dredge operator control station and at a location prominently adjacent to the issued construction permit. The Contractor shall remove the signs upon completion of construction. Manatee Sighting Reports: Any sightings of manatees, or collisions with a manatee, shall be reported immediately to the CPRA. The CPRA will report and coordinate with the U.S. Fish and Wildlife Service Louisiana Ecological Services Office (337/291-3100) and the Louisiana Department of Wildlife and Fisheries, Natural Heritage Program (225/765-2821).

- G. BASIN DREDGING AND IN-TRANSIT VESSEL REQUIREMENTS: The Contractor will be required to adhere to:
- i. PROTECTED SPECIES CONSTRUCTION CONDITIONS<sup>31</sup>, May 2021, NOAA Fisheries Southeast Regional Office SERO Protected Resources Division (PRD)

- ii. NOAA-NMFS VESSEL STRIKE AVOIDANCE MEASURES<sup>[4]</sup>, May 2021, and NOAA Fisheries Southeast Regional Office (SERO) Protected Resources Division (PRD).

## SECTION 4: PROTECTION OF CULTURAL RESOURCES

This section is a Draft until construction measures for cultural resources protection are finalized between CPRA and the consulting parties for the Programmatic Agreement.

The following sections provide an overview of CPRA's information on the Unanticipated Discovery Plan.

Unanticipated Discovery Plan (Draft Programmatic Agreement): All inspectors have the responsibility to monitor the construction sites for potential cultural/archaeological remains throughout construction. If any cultural materials (such as arrowheads, ceramic sherds, bricks, worked wood or bone, metal, or glass objects) or other potential historic properties are encountered, then the construction contractor will immediately halt all construction activity at the location of discovery and a fifty (50) foot buffer zone will be defined in all directions and appropriate measures to protect the find from further disturbance will be identified and implemented. CPRA will supply a Secretary of Interior (SOI)-qualified archaeologist to evaluate the discovery and make a written recommendation to CEMVN on the nature and eligibility of the discovery. If the discovery is recommended eligible or of undetermined eligibility, and the CEMVN agrees, then CEMVN and CPRA will assess whether the discovery can be avoided. If the discovery can be avoided, CPRA will implement measures to avoid the discovery. If abandoned cemeteries, unmarked graves, or human skeletal remains are found during construction, a stop work order will be issued, and CPRA will comply with the Louisiana Unmarked Human Burial Sites Preservation Act (R.S. 8:671-681). CPRA will notify local law enforcement and the Division of Archaeology within the Louisiana Department of Culture, Recreation and Tourism, Office of Cultural Development by telephone to assess the nature and age of the human skeletal remains within twenty-four (24) hours of the discovery of unmarked human remains and will accompany local law enforcement personnel during all field investigations. If the appropriate local law enforcement official determines that the remains are not a crime scene, and the remains are more than 50 years old, LDOA has jurisdiction over the remains. In no instance will human remains be removed from the discovery site until jurisdiction has been established. In cases where the LDOA assumes jurisdiction and the remains are determined to be American Indian, LDOA will consult with Tribes, CEMVN, and CPRA to determine the appropriate course of action.

[1] <https://www.fws.gov/southeast/pdf/guidelines/colonial-water-birds-and-wading-birds-louisiana.pdf>

[2] <https://www.fws.gov/southeast/pdf/guidelines/standard-manatee-conditions.pdf>

[3] [https://media.fisheries.noaa.gov/2021-06/Protected\\_Species\\_Construction\\_Conditions\\_1.pdf?null](https://media.fisheries.noaa.gov/2021-06/Protected_Species_Construction_Conditions_1.pdf?null)

[4] [https://media.fisheries.noaa.gov/2021-06/Vessel\\_Strike\\_Avoidance\\_Measures.pdf?null](https://media.fisheries.noaa.gov/2021-06/Vessel_Strike_Avoidance_Measures.pdf?null)



<sup>i</sup> 33 C.F.R. § 320.4.

<sup>ii</sup> 33 C.F.R. § 320.4.

<sup>iii</sup> 33 C.F.R. § 320.4(r).

<sup>iv</sup> 40 C.F.R. § 230.93(a)(1).

<sup>v</sup> 33 C.F.R. Part 332; 40 C.F.R. Part 230.

<sup>vi</sup> 40 C.F.R. § 230.93(a)(1).

<sup>vii</sup> 40 C.F.R. § 230.93(e).

<sup>viii</sup> 40 C.F.R. § 230.93(e).

<sup>ix</sup> 33 U.S.C. § 408(a).

<sup>x</sup> USACE, EC 1165-2-200 (2018), available at,

[https://www.publications.usace.army.mil/Portals/76/Publications/EngineerCirculars/EC\\_1165-2-220.pdf?ver=2018-09-07-115729-890](https://www.publications.usace.army.mil/Portals/76/Publications/EngineerCirculars/EC_1165-2-220.pdf?ver=2018-09-07-115729-890).

<sup>xi</sup> 50 C.F.R. § 402.14(g)(3), (4).

<sup>xii</sup> 50 C.F.R. § 402.02.

<sup>xiii</sup> 50 C.F.R. § 402.14(i).

<sup>xiv</sup> 16 U.S.C. § 662.

<sup>xv</sup> 16 U.S.C. § 662 (“The reporting officers in project reports of the Federal agencies shall give full consideration to the report and recommendations of the Secretary of the Interior and to any report of the State agency on the wildlife aspects of such projects, and the project plan shall include such justifiable means and measures for wildlife purposes as the reporting agency finds should be adopted to obtain maximum overall project benefits.”).

<sup>xvi</sup> 1981 Fish and Wildlife Service Mitigation Policy, 46 Fed. Reg 7644-7663 (Jan. 23, 1981). FWS adopted the 1981 guidance for personnel involved in making recommendations to protect or conserve fish and wildlife resources, including under the Fish and Wildlife Coordination Act.

<sup>xvii</sup> 16 U.S.C. § 1852(h)(1). The applicable regulations define “council” as including the Secretary, as applicable, when preparing certain FMPs. 50 C.F.R. § 600.810(a).

<sup>xviii</sup> 16 U.S.C. § 1853(a)(7).

<sup>xix</sup> *Id.* § 1802(10). The FMPs must include a textual description of the EFH as well as maps that display the geographic locations of EFH, explicitly distinguish EFH from non-EFH areas, and any habitat areas of particular concern. 50 C.F.R. §§ 600.815(a)(1)(iv)(B) & (a)(1)(v).

<sup>xx</sup> 16 U.S.C. § 1855(b)(2). While state agencies are not required to consult with NMFS on state actions that may adversely affect EFH, NMFS is required to provide EFH conservation recommendations for any state action that would adversely affect EFH. *Id.* § 1855(b)(4)(A); 50 C.F.R. § 600.925(c)(1).

<sup>xxi</sup> 16 U.S.C. § 1855(b)(2).

<sup>xxii</sup> NMFS, Essential Fish Habitat Consultation Guidance, Version 1.1 (2004).

<sup>xxiii</sup> 16 U.S.C. § 1855(b)(4).

<sup>xxiv</sup> 36 C.F.R. part 800.

<sup>xxv</sup> 36 C.F.R. § 800.6.

# Dolphin Intervention Plan: A framework for potential marine mammal interventions related to the Mid-Barataria Sediment Diversion Project

(CPRA Project Number BA-O153)

This Dolphin Intervention Plan for the Mid-Barataria Sediment Diversion (MBSD) Project (the Project) provides a strategy and best practices for marine mammal interventions. This Plan is by nature a living document and never “final”. This Plan will be “draft” at least until if, and if so when, the US Army Corps of Engineers (USACE) New Orleans District issues the permits and authorizations required for the Project and the Louisiana Trustee Implementation Group (LA TIG) decides to fund the Project. The State of Louisiana Coastal Protection and Restoration Authority (CPRA), at that point, will then work with the National Oceanic and Atmospheric Administration (NOAA) to add any Compliance Monitoring requirements contained in those permits related to marine mammal interventions to this Plan and make any decisions on implementation of any of the aspects of this framework.

## 1. Purpose and Goals

The purpose of the Dolphin Intervention Plan is to outline a framework for potential intervention activities and the process for decision making that may be used to respond to free-swimming, live dolphins that are ill; behaving abnormally; injured; in poor condition/health; or are at risk for injury, illness, or death due to adverse environmental changes in the Barataria Basin, Louisiana. Models project that the Project will result in substantial morbidity and mortality of dolphins in the Barataria Bay Estuarine System stock, including 585 dolphin mortalities (95 percent confidence interval [CI]: 131 to 1459) in the first year of operations alone and loss of 96% of the entire population (95 percent CI: 80% to 100%) by the end of the Project (Thomas et al. 2021). Obviously, no set of dolphin mitigation/intervention activities could entirely offset such an impact, however, the resources available (including trained and qualified personnel, equipment and supplies, budget, and time) need to be deployed in a strategic manner in order to be as effective as possible. The goals of this intervention framework for dolphins in the Barataria Basin are to reduce illness, pain, and suffering, as well as collect scientific information that may inform operational mitigation actions and adaptive management of the monitoring and response activities.

This Dolphin Intervention Plan for the Project will follow the Small Cetacean Intervention Best Practices (and other associated appendices) developed as part of the 2022 Marine Mammal Health and Stranding Response Program (MMHSRP) Programmatic Environmental Impact Statement (PEIS) to the best extent practicable, but may include modifications to meet the specific needs for MBSD interventions. This intervention framework includes activities above and beyond normal emergency response activities, either due to the scale or nature of the activities (such as rescues of dolphins in their usual habitat but when the conditions within that habitat are affected by the low salinities from the Project; remote treatment of free-swimming

dolphins that are not entangled or victims of a boat strike; or broader-scale hazing or translocations). Interventions may require no additional action beyond those in the MAM plan, or include such activities as remote sample collection, assessment, and/or treatment; capture and release, rehabilitation, and/or translocation of free-swimming individual(s); and/or capture and euthanasia of sick or injured, free-swimming animals.

### **1.1. Background**

In 1992, the MMHSRP, under the National Marine Fisheries Service (NMFS), was established by Congress under Title IV of the Marine Mammal Protection Act (MMPA). The goals of the program are to: collect and disseminate health and health trend data for marine mammals in the wild; correlate the health and health trends of marine mammals in the wild with biological, chemical, and physical environmental data; and to coordinate effective responses to marine mammal unusual mortality events (UMEs). As part of the work of the MMHSRP, the program develops best practices and guidance; maintains MMPA, Endangered Species Act (ESA), Convention on International Trade in Endangered Species (CITES) permits, and NOAA Institutional Animal Care and Use Committee (IACUC) authorizations; and maintains a PEIS that addresses responses and research activities nationally (NOAA 2021). Through these permits, the program authorizes qualified individuals to conduct interventions on small cetaceans (such as the bottlenose dolphins living in and near the Barataria Basin) as either response activities for animals with health concerns or as scientific studies on health conditions in order to reduce injuries or risks. The MMHSRP published best practice guidelines for free-swimming, distressed small cetacean interventions prior to onsite release, translocation, or admission to rehabilitation (NOAA 2021).

### **1.2. Legislation Pertinent to Non-ESA Small Cetaceans**

Marine Mammal Protection Act (MMPA): The MMPA, signed into law in 1972, prohibits the “take” of marine mammals, which includes harassing or disturbing these animals, as well as harming or killing, unless such take is specifically exempted in the statute or authorized. The MMPA divides responsibility for marine mammal species between the Secretary of Commerce, who oversees NMFS, and the Secretary of the Interior, who oversees the U.S. Fish and Wildlife Service (USFWS). NMFS has jurisdiction over cetacean (including the dolphins living in and near the Barataria Basin) and pinniped species (with the exception of walrus), and USFWS has jurisdiction over walrus, polar bear, sea otters, and manatees. The 1992 amendments to the MMPA included Title IV of the MMPA, which established the MMHSRP under NMFS to collect and disseminate information about the health trends in marine mammal populations through the collection of data from strandings, bycatch, subsistence harvest, and research. The PEIS best practices support these efforts and focus on data collection from small cetacean interventions using the Network or other authorized personnel.

On February 9, 2018, Congress passed the Bipartisan Budget Act of 2018 (Budget Act), Public Law 115-123, which included a requirement that the Secretary of Commerce, as delegated to the Assistant Administrator of the National Marine Fisheries Service (NMFS), issue a waiver of the Marine Mammal Protection Act (MMPA or Act) moratorium and prohibitions for three specific

Louisiana wetland restoration projects, including the MBSD. Specifically, Section 20201 in title II of the Budget Act directs the Secretary of Commerce to issue a waiver pursuant to section 20201 and section 101(a)(3) of the MMPA for three projects included in the 2017 Louisiana Comprehensive Master Plan for a Sustainable Coast. Specifically, in Congress' recognition of their consistency with the findings and policy declarations in section 2(6) of the MMPA, the Budget Act directs the Secretary to issue a waiver for the Mid-Barataria Sediment Diversion, the Mid-Breton Sound Sediment Diversion, and the Calcasieu Ship Channel Salinity Control Measures projects from the requirements of sections 101(a) and 102(a) of the MMPA for the duration of the construction, operation, and maintenance of the projects. NMFS issued the waiver on March 15, 2018. Section 20201 of the Budget Act further indicates that, upon the issuance of the waiver, the State of Louisiana (State) shall, in consultation with the Secretary of Commerce: (1) To the extent practicable and consistent with the purposes of the projects, minimize impacts on marine mammal species and population stocks, and (2) Monitor and evaluate the impacts of the projects on such species and population stocks.

### **1.3. Intended Uses of Best Practices**

NMFS and the Marine Mammal Stranding Network (the Network) have developed protocols and procedures for responding to live marine mammals stranded or otherwise in distress to ensure the health, welfare, and safety of human responders, animals, and the public (NOAA 2021). These protocols balance the need for standardized procedures while allowing flexibility to address the specific needs of different situations for diverse species and habitats, as well as unforeseen circumstances. In particular, this Intervention Framework will rely on the recommendations in (but not limited to) Appendix XII to the PEIS (Small Cetacean Intervention), Appendix X (Cetacean and Pinniped Transport), Appendix XIII (Euthanasia), Appendix XV (Mass Strandings), and Appendix XXI (Small Cetacean Entanglement). For more information on general stranded marine mammal rescue and rehabilitation, the reader should consult references such as *Marine Mammals Ashore* (Geraci *et al.* 2005) and the *CRC Handbook of Marine Mammal Medicine* (Gulland *et al.* 2018). Human and animal safety are the top priorities for NMFS and the Network, and these two entities evaluate many factors before making a decision to intervene. Each event is unique and requires the consideration of multiple aspects, some predictable (which are addressed below) and some unpredictable.

However, it is important to emphasize that MBSD interventions may require specific needs and modifications to the best practices. Operations of interventions will be handled based on the Incident Command System (ICS) standardized by the National Incident Management System (NIMS) and adjusted (with additional guidelines) for marine mammals and oil spill response by Ziccardi *et al.* (2015), with the Dolphin Resource Team working closely with the MMHSRP and the NOAA Southeast Stranding Program (Southeast Regional Office/Southeast Fisheries Science Center). Although these guidelines were developed specifically for oil spill response, the general structures and guidelines are applicable to the management of other marine mammal-related emergency situations (such as UME response and the responses to the projected freshwater impacts from the Project).

## **2. Planning Strategy for Interventions**

### **2.1. Authorization and Training**

Dolphin interventions in and around the Barataria Basin will be conducted under the MMHSRP's MMPA/ESA permit, a Stranding Agreement (for live strandings or out-of-habitat animals), or the MMPA 109(h) authority for local, state, and federal officials. The permit and Stranding Agreement activities fall under the MMHSRP's PEIS. Even though the specific Barataria Basin intervention activities will most likely be conducted under the MMHSRP's MMPA/ESA permit due to their complexity and risks, any dolphin intervention in the Barataria Basin should follow the ICS structure, including being discussed with the State Stranding Coordinator, Southeast Regional Stranding Coordinator(s) (RSC), and MMHSRP headquarters (HQ) staff in the planning and implementation phases as appropriate. Additionally, the Network, Dolphin Resource Team, and associated staff who have been authorized by NMFS to conduct monitoring, response, and interventions must have the training, experience, equipment, and necessary support to safely and humanely conduct those specific dolphin activities. In some cases, particularly if interventions include more than one animal, the Network and Dolphin Resource Team may also rely on partners such as local, state, and federal employees (including law enforcement, police, fire department, USFWS, and the U.S. Coast Guard), aquaria, non-governmental organizations, academic, and other appropriately trained and capable individuals/groups to assist.

To maintain safety and increase the capacity to conduct interventions, authorized Dolphin Resource Team and Network personnel will provide opportunities for apprenticeships or assistant roles to develop additional personnel with the necessary hands-on expertise, as well as conduct community outreach for more general assistance. Specific training issues or requirements may also exist for certain activities (e.g., in-water dolphin research or response captures outside of the Barataria Basin).

### **2.2. Strategy for Development of Intervention Activities**

The initial intervention planning will occur in phases, either in parallel or sequentially. However, some activities to benefit planning can begin as soon as possible. Consistent data collection and diagnostic analyses will occur (according to veterinary discretion) in live animal interventions for out-of-habitat dolphins, entanglement response, and live strandings as a part of ongoing MMHSRP-led response efforts. These data will be synthesized for discussions in Phase 1 planning efforts.

Phase 1: In the first 18-24 months of the pre-operational period, planning activities will consist of a series of workshops with a wide variety of subject matter experts (SMEs) in dolphin health, research, low salinity exposure, hydrology, dolphin welfare, population and abundance, and biology. These SMEs will evaluate a suite of potential intervention activities ranging from remote monitoring to hands-on capture, rehabilitation, release/translocation, and/or euthanasia. The assessments would consider such issues as health risks; human safety; animal welfare; likelihood of success in reducing illness, pain, and suffering; risk to the individual and

population(s) affected by these intervention activities; likelihood of increasing scientific understanding and improving future interventions/assessments; feasibility; benefits to individual and population; and enhancement of survival and/or resilience. The SMEs will also develop recommendations for how to triage cases when the number of animals in need of intervention is greater than the available personnel/resources can reasonably manage (see, for example, Figure 1). In addition, the workshop participants may also discuss data gaps that might improve our interventions and/or inform operational mitigation evaluations. Finally, Phase 1 may identify possible studies, including pilot studies, that might address those data gaps.

Phase 2: During the pre-operational period and/or in the first year/years of the post-construction period, pilot projects or studies may be initiated to investigate dolphins in the Barataria Basin that are exposed to low salinity waters for various periods of time using recommendations from Phase 1. The pilot studies will be developed based on the discussions and recommendations of the SME workshops and further evaluated with input from SMEs.

Phase 3: In the post-construction period (with particular emphasis on the first years of operations, and in areas likely to have the lowest salinities and the longest exposures), interventions will be implemented as informed by the monitoring and stranding programs, using intervention funds and personnel as needed.

### **3. Potential Intervention Activities**

#### **3.1. Overview**

There are many considerations that go into the decision of when and how to respond to free-swimming small cetaceans in distress. Based on past interventions with out-of-habitat dolphins, the following are a general progression of possible intervention actions, listed from least to most intensive/invasive. Combinations of these may be used for future out-of-habitat dolphins, including storm surge displaced animals, in the Barataria Basin as well as for MBSD-related interventions in which the animal is in adverse environmental conditions or exhibiting poor health. Intervention decisions and implementation will require rapid access to biological and environmental data and predictions/forecasts to identify intervention triggers, as well as for adaptive management of the dolphin monitoring program.

#### **3.2. Behavioral Observations (Remote)**

In each case/event, animals should be assessed through physical, behavioral, and environmental observations. The Dolphin Resource Team, as part of their monitoring effort, will undertake observations on groups and individuals throughout the year and throughout the basin. Based on specific environmental or animal triggers, additional observations may be needed for specific groups or individuals to identify any intervention actions needed. These targeted observations will enable better decision-making for the appropriate course of action for that particular individual or group of individuals (refer to Small Cetacean Intervention Best

Practices for individuals and the Mass Stranding Best Practices for information on groups of animals), but these observations will also provide important information for future cases. For these observations, a standardized remote health assessment form will be used. All data will be linked to the dolphin photo-id catalog number whenever possible, and the data entry and management will be integrated with the Dolphin Resource Team activities. In an emergency case (e.g., an animal in imminent danger of death, such as an anchored animal), immediate intervention (following approval from NMFS) may be necessary.

### **3.3. Sample Collection (Remote)**

Remote samples may be collected to provide additional data on the health of an individual, to aid in intervention decision-making. Samples that may be remotely collected may include, but are not limited to:

- Remote collection of floating feces for parasite identification, hormones, etc.
- Remote collection of breath via pole or UAS for microbiology, hormones, etc.
- Remote collection of skin and blubber via biopsy dart for genetics, epigenetics, omics, sex, hormones, pathogen screening/microbiome, contaminants, etc.
- Remote collection of blood for a variety of analyses

### **3.4. Herding/hazing/deterrence**

While more commonly used to prevent mass strandings of small cetaceans, herding or deterrence actions may be appropriate for single or small groups of dolphins for short distances and brief periods of time. Various methods of deterrence or hazing can be used by experienced individuals, including:

- Vessel action, close approaches, percussive slaps on the water, which can be attempted from non-motorized watercraft such as stand up paddleboards and kayaks, as well as motorized vessels (e.g., boats, jet ski)
- Pingers, playbacks, or other acoustic devices (e.g., diver recall sirens)
- Hukilau, Oikomi pipes, streamers, non-entangling nets, and bubble curtains

For a more in-depth discussion of various non-lethal deterrence options, see NMFS Marine Mammal Non-Lethal Deterrence Guidance.

## **4. Remote Treatments**

The development of remote treatments will leverage the ongoing work to develop remote delivery protocols, tools, and techniques for sedation of free swimming small cetaceans. As part of a NOAA John H. Prescott Marine Mammal Rescue Assistance Grant Program grant, Mote Marine Laboratory's Stranding Investigations Program is developing a remote sedation protocol and delivery device for free-swimming small cetaceans. This is a response to the increasing number of cases where existing small cetacean intervention tools are inappropriate or not possible. These tools and protocols will make inaccessible free-swimming small cetaceans more accessible for safer interventions.



The Mote Marine Laboratory's Stranding Investigations Program team has initiated a multi-step process for developing remote sedation as a potential tool for small cetacean interventions, to ensure that it is safe and effective, culminating in standardized protocols accepted by the National Marine Fisheries Service (e.g., IACUC and NMFS permitting office protocols), modeled on the existing Pinniped Remote Sedation Entanglement Response Capture Protocol and similar protocols being finalized for large whales. The steps include the establishment of an international SME working group to assist in the design of the development and testing, initiate the testing, evaluation of delivery devices, development of pilot projects, and development of protocols and procedures including training for deployment of remote sedation. The delivery mechanism for sedation will also open the path for remote delivery of antibiotics and other drug administration to free swimming cetaceans. The MBSD intervention strategy may utilize these tools and protocols once they are developed.

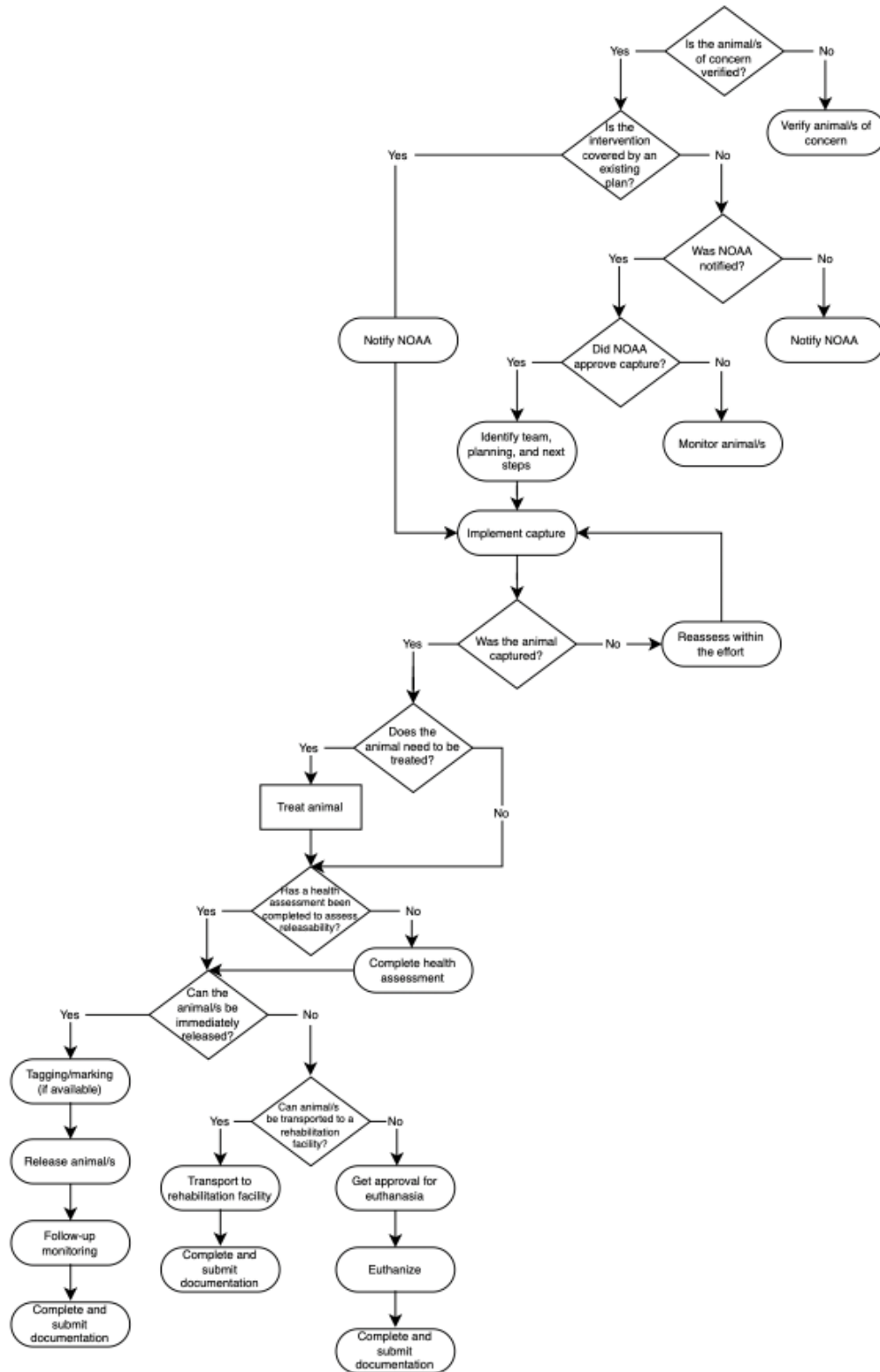


Figure 1: Potential Decision/Process Matrix for Dolphin Interventions. Diagram is provided as an example of what the SME working group will develop in Phase 1.

#### **4.1. In-Water Capture**

If a distressed cetacean is determined to have a life-threatening condition or is not likely to survive in its current habitat, a live capture may be warranted. This activity will require the availability of trained personnel, necessary resources, and safety considerations for both responders and the animal. The decision on when, where, and how to intervene needs to be approved by the RSC and MMHSRP HQ staff (following ICS procedures, e.g., Figure 1), and if needed, will include an intervention plan and follow an established protocol for the triage of cases when more than one animal requires a response. There are four potential methods for capture of small cetaceans: soft-tail line, hoop net, encircling net, or hand-set nets. For details for these procedures refer to the PEIS best practices (e.g., Appendix XII or XXI).

After the animal is captured, a thorough examination will be performed by an experienced marine mammal veterinarian. The animal may also receive appropriate treatment, such as removal of entangling gear, administration of medications, and marking/tagging if release is imminent. Following the examination, the appropriate course of action should be determined by the attending veterinarian and capture lead, in consultation with other experienced personnel and NMFS. Options may include immediate release, release in an alternate location, keeping the animal for rehabilitation prior to future release, and euthanasia. Project-specific criteria for this triage process, including the timing and location of releases, will be developed by the Core team and the SME workshops. Special consideration will be given for the potential capture and translocation of social groups, based on pilot projects and evaluations by outside experts for feasibility, safety, and other considerations. If animals are released, plans should be considered for follow-up monitoring of the individual.

### **5. Animal Disposition Options**

Once the animal(s) are in hand, there are four options for the animal disposition: 1) immediate release (*in situ* or after translocation to alternate release site; with or without treatment), 2) short term rehabilitation and release (with tag) into same area or translocated to areas with healthier habitat; 3) longer term rehabilitation (release at a later date), and 4) euthanasia.

#### **5.1. Immediate *in situ* Release or Translocation and Release**

Per the best practices in the PEIS, immediate release is an option if the following factors are met:

- The animal is healthy or medically stable, and able to function normally as determined by the NMFS, capture lead, and the Network veterinarian (on-site or via phone consultation). Certain situations (e.g., hurricanes) may have time constraints which may not allow for consultation with veterinarians and the only option may be transport/immediate release;
- Social requirements can be met (e.g., maternal care for young)
- It is highly recommended the animal be marked or tagged in some manner prior to release (only by trained individuals), using NMFS-approved methods such as:

- Marking – paint stick/crayon marking;
- Notching or freeze-branding of the dorsal fin; or
- Tagging - a roto tag or cattle ear tag or a single-pin radio or satellite tag (if available).

The animal may be released *in situ* if:

- Environmental conditions are favorable;
- The animal is unlikely to strand/re-strand; and
- The capture location is near the animal's natural habitat.

The animal may be translocated to a different site and released immediately if:

- A different release site is a more suitable site for release;
- The animal is manageable and adequate logistical support is available, including transport vehicles; and
- The new site is believed to improve the chances of a successful release for the captured cetacean, and reduce the likelihood of re-stranding.

## **5.2. Rehabilitation**

Rehabilitation, per 50 CFR 216.3, is defined as “treatment of beached and stranded marine mammals taken under section 109(h)(1) or 112 (c) or imported under section 109(h)(2) of the MMPA, with the intent of restoring the marine mammal's health and, if necessary, behavioral patterns.” An authorized animal care facility provides treatment with the goal of releasing the animal back to the wild. Short-term (i.e., <96 hours) rehabilitation in temporary pools may be an option, as well as longer term rehabilitation in more permanent, authorized rehabilitation facilities. Short- and long-term rehabilitation facilities are authorized by NMFS and require a Stranding Agreement.

## **5.3. Euthanasia**

The decision to euthanize a small cetacean is made in consultation with the RSC and other individuals (following the ICS) and the procedure must be conducted by one of the following:

- a Network veterinarian;
- an experienced, trained, and authorized Network member;
- an appropriately trained local, state, tribal, or federal law enforcement, or wildlife/animal control agent; or
- a non-marine mammal veterinarian in consultation with an experienced Network or federal veterinarian.

Euthanasia is an option when:

- The veterinarian determines that euthanasia is the most humane course of action, given the animal's prognosis. For example:
  - The animal is deemed to be critically injured or ill with little chance of recovery;

- The animal is suffering or unlikely to survive if released; and/or
- It is necessary to end the suffering of an animal.
- No rehabilitation facilities are available and immediate release is deemed inhumane or unlikely to succeed.

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## Appendix D: Alternatives Considered but Not Carried Forward for Detailed Evaluation



ID #	Diversion/No diversion	Alternative or Option Type	Description	Source	Source Details	Basis for Decision Not to Carry Forward for Detailed Review
22	diversion	design options	Construct guide levee with earthen material instead of concrete walls to allow for sustenance fishing when the structure is not in operation.	scoping		Not an alternative as contemplated by NEPA. Analysis as an alternative would not result in notably different potential environmental effects as compared to the Applicant's Preferred Alternative or the other action alternatives selected for more detailed review. In any case, not a reasonable alternative because the diversion will be fenced to protect public safety. Fishing will be available at either end of the diversion structure (either in the Mississippi River or the Barataria Basin), but not as part of the Applicant's Preferred Alternative or any of the action alternatives.
23	diversion	design options	Construct the MBSD structure with geopolymer concrete	scoping		Not an alternative as contemplated by NEPA. Analysis as an alternative would not result in notably different potential environmental effects as compared to the Applicant's Preferred Alternative or the other action alternatives selected for more detailed review. In any case, CPRA and its CMAR contractor are evaluating materials types for the diversion structure and this comment will be considered as part of that process.
24	diversion	design options	Justify having two gates versus the more cost effective option of one gate	scoping		Not an alternative as contemplated by NEPA. Analysis as an alternative would not result in notably different potential environmental effects as compared to the Applicant's Preferred Alternative or the other action alternatives selected for more detailed review. In any case, the engineering review conducted as part of the Section 408 analysis will consider this issue in regards to maintaining the integrity of the federal levee. The recommendations resulting from that review will be integrated into each of the alternatives considered in the EIS. Additionally, a reduction in the number of gates (<3) would result in the need for a larger structure to achieve proposed flow rate.
25	diversion	design options	Consider alternative rail alignment that excludes costly upgrades	scoping		Multiple rail alignment alternatives were considered by the Applicant. The Applicant's current design for the Proposed Project includes a rail alignment that maintains the current alignment and does not include costly upgrades. This alignment will be carried forward for detailed analyzed in the EIS.
26	diversion	flood reduction options	Rather than place excavated material into proposed disposal areas, use that material to raise ground in Ironton, fortify the back levee, or fill in borrow pits	scoping		Not an alternative as contemplated by NEPA. Analysis as an alternative would not result in notably different potential environmental effects as compared to the Applicant's Preferred Alternative or the other action alternatives selected for more detailed review. In any case, excavated material that is considered suitable for levee construction will be used for construction of the conveyance channel guide levees and the temporary reroute of the MRL levee system to maintain protection during construction of the Project. Material deemed unsuitable for use in levees is expected to be used beneficially. Additionally, CPRA is considering flood risk and potential mitigation measures that will be considered and included in the EIS analysis. See Chapter 4, Section 4.20 regarding Public Health and Safety, and Section 4.27, Mitigation Summary.
27	diversion	flood reduction options	Use some sediment from conveyance channel to create ring levees and raise homes for Ironton and other communities	scoping		Not an alternative as contemplated by NEPA. Analysis as an alternative would not result in notably different potential environmental effects as compared to the Applicant's Preferred Alternative or the other action alternatives selected for more detailed review. In any case, CPRA, CEMVN and cooperating agencies are considering mitigation from flood risk as part of the EIS analysis. See Chapter 4, Section 4.20 regarding Public Health and Safety, and Section 4.27, Mitigation Summary.

Chapter 2, Appendix D2

28	diversion	flood reduction options	Place material in the western reach of the Barataria Waterway to reduce tidal events in Upper Barataria and lessen potential Project-induced flooding impacts	scoping		Not an alternative as contemplated by NEPA. Analysis as an alternative would not result in notably different potential environmental effects as compared to the Applicant's Preferred Alternative or the other action alternatives selected for more detailed review. In any case, CPRA, CEMVN and cooperating agencies are considering mitigation from flood risk as part of the EIS analysis. See Chapter 4, Section 4.20 regarding Public Health and Safety, and Section 4.27, Mitigation Summary.
29	diversion	flood reduction options	Build guide levees to 100-year hurricane and flood protection standard so that guide levees and highway bridge will not have to be modified in future	scoping		Not an alternative as contemplated by NEPA. Analysis as an alternative would not result in notably different potential environmental effects as compared to the Applicant's Preferred Alternative or the other action alternatives selected for more detailed review. In any case, existing levee system is not built to 100-yr level of protection; levees will be designed consistent with direction from CEMVN based on integration into the existing system. As of 7/9/20, a levee design grade of EL 15.85 was recommended, which is 0.25 feet higher than the design grade recommended by USACE for the Reach NOV-NF-W-05c, 50-yr (2063).
3	diversion	freshwater diversion	Freshwater diversion similar to those previously implemented	previous studies	CPRA Master Planning	Addressed in Chapter 2 (evaluation of functional alternatives)
15	diversion	freshwater diversion	Ironton-Gated concrete box culverts at intake, conveyance channel, outflow channel into basin, pilot channel with locks also considered. 5kcfs, 15kcfs. RM 59.8	previous studies	MRSNFR Study	Addressed in Chapter 2 (evaluation of functional alternatives)
7	diversion	location options	Upriver over existing borrow pits to avoid stressed wetland area at proposed location and increase distance to residences	scoping		Addressed in Chapter 2 (evaluation of location within Basin)
8	diversion	location options	Down river toward Venice or even below Venice to protect a bigger area from storm surge and land loss	scoping		Addressed in Chapter 2 (evaluation of location within Basin)
9	diversion	location options	Not in vicinity of future RAM Terminals Coal Export Facility	scoping		See analysis in Chapter 2 for explanation of locations carried forward for detailed analysis. The Ram Terminal is no longer proposed at that location. Reasonably foreseeable projects are addressed in the EIS in Chapter 4.
10	diversion	location options	Optimize tidal mixing: Move marsh creation area to freshwater areas extending into brackish areas to allow for tidal mixing and prevention of hypoxia	scoping		Locations responsive to this comment are in the upper Basin. Location within the Basin is addressed in Chapter 2 (evaluation of location within Basin).
11	diversion	location options	Proposed location of MBSD at RM 60.7	application		Addressed in Chapter 2 (evaluation of location within Basin)

Chapter 2, Appendix D2

12	diversion	location options	Magnolia @RM 47.5	previous studies	Medium Diversion at Myrtle Grove with Dedicated Dredging (LCA, 2008-2014), 15 kcfs & 70 kcfs	Addressed in Chapter 2 (evaluation of location within Basin)
13	diversion	location options	Woodland @RM 51	previous studies	Medium Diversion at Myrtle Grove with Dedicated Dredging (LCA, 2008-2014), 15 kcfs & 70 kcfs	Addressed in Chapter 2 (evaluation of location within Basin)
14	diversion	location options	Myrtle Grove @ RM 59	previous studies	Medium Diversion at Myrtle Grove with Dedicated Dredging (LCA, 2008-2014), 15 kcfs & 70 kcfs	Addressed in Chapter 2 (evaluation of location within Basin)
16	diversion	location options	RM 60.8-61.3 (Between Alliance Refinery and Myrtle Grove)	previous studies	Myrtle Grove Ecosystem Restoration Project (CWPPRA)	Addressed in Chapter 2 (evaluation of location within Basin)
17	diversion	location options	Myrtle Grove @ RM 60.2	previous studies	Medium Diversion at Myrtle Grove with Dedicated Dredging (LCA, 2008-2014)	Addressed in Chapter 2 (evaluation of location within Basin)
1	no diversion	marsh creation	Marsh creation through Mississippi River dredging/pipeline sediment delivery	scoping		Addressed in Chapter 2 (evaluation of functional alternatives)
20	diversion	maximize sediment options	Pipe sediment directly into MBSD conveyance channel through dedicated dredging to maximize sediment/water ratio	scoping		This alternative was determined not to be practical or feasible from a technical or economic standpoint. Utilizing the lateral bar adjacent to the diversion in the Mississippi River as a sediment source for the piped sediment would decrease the efficiency of the diversion and availability of sediment. Piping sediment from a a more distant source would not be cost efficient due to the distance and maintenance of pipeline and could result in impact to navigation. Further, piping sediment directly into the conveyance channel could alter the movement of sediment within the channel, increasing maintenance costs. (See EIS Chapter 2, Section 2.4.4)

Chapter 2, Appendix D2

21	diversion	maximize sediment options	Use vortex generators near the intake of diversion structure or in conveyance channel to create turbulence near the bottom to keep sediment suspended while flows are low to increase amount of sediment transfer and keep channel bottom from shoaling	scoping		A vortex generator (VG) is generally considered an aerodynamic device, consisting of a small vane usually attached to a lifting surface (or airfoil, such as an aircraft wing) or a rotor blade of a wind turbine. As a result, a vortex generator is not a reasonable/feasible alternative in an aquatic environment. CPRA did, however, consider turbulence inducing structures intended to support sediment suspension during flow through the channel into the basin. Results from modeling of such structures found that the sufficient sediment exists in the system to meet the target sediment to water ratio without the need of additional turbulence structures. Further, the presence of such structures would lead to additional energy loss through the structures, and therefore, was not practical or technical feasible. As a result, turbulence generating structures were not carried forward for detailed review.
51	diversion	operations-trigger	Mimic Historic Hydrology: 5,000 cfs diversion at 50% duration river stage. Every 5th year 150,000 cfs	previous studies	Myrtle Grove Alt R3	Would not transport sufficient water, nutrients and sediment from the Mississippi River to the Barataria Basin to meet purpose and need. Consequently, not carried forward for detailed review.
52	diversion	operations-trigger	Mimic Historic Hydrology: 75,000 cfs at 50% duration river stage diverted for 3 months at 5-year intervals	previous studies	Myrtle Grove Alt M3: Mimic Historic Hydrology	At the proposed durations and intervals, this operational scenario would not transport sufficient water, nutrients and sediment from the Mississippi River to the Barataria Basin to meet purpose and need. Consequently, not carried forward for detailed review.
55	diversion	operations-trigger	Triggers specific to the health of different species (shrimp, oyster, marine mammals, protected species, overall fishery, EFH), or existing wetlands	scoping		Not technically feasible or reasonable. Data/technology do not currently exist to support this operational regime. Consequently, not carried forward for detailed review. Nevertheless, adaptive management of the proposed diversion will be addressed in the Operations Plan and Monitoring and Adaptive Management Plan.
56	diversion	operations-trigger	Maintain inter-annual consistency in operation	scoping		Not technically feasible because of the natural variability in the Mississippi River system. Operations will be largely determined by flows within the Mississippi River and water levels in the Barataria Basin. Flows in the Mississippi River are naturally variable, changing throughout each year and between years.
57	diversion	operations-trigger	Time pulses to maximize sediment capture	scoping		As part of the project design, CPRA considered multiple pulsing scenarios with the goal of maximizing sediment capture and transport. That analysis showed that applying pulsing to project operations significantly reduced the days of operation, and consequently this operational scenario would not transport sufficient water, nutrients, and sediment from the Mississippi River to the Barataria Basin to meet the purpose and need. Consequently, not carried forward for detailed review.
58	diversion	operations-trigger	Seasonal triggers	scoping		Addressed in Chapter 2 (evaluation of operational triggers)
59	diversion	operations-trigger	Salinity, turbidity, and water temperature triggers	scoping		Operating a diversion using these triggers would not meet project purpose and need, as salinity and temperature are not tied specifically to sediment availability, and real time sediment monitoring is not currently technically feasible (real time sediment monitoring does not provide consistent and reliable data to support diversion operations). Consequently, this alternative was not carried forward for detailed review. Nevertheless, adaptive management of the proposed diversion will be addressed in the Operations Plan and Monitoring and Adaptive Management Plan.

Chapter 2, Appendix D2

60	diversion	operations-coordination	Coordinate operations with other diversions in area to maximize benefits	scoping		Coordination with all other diversions in the area is not practical or technically feasible because CPRA does not control the operations of all other diversions and siphons in the Barataria Basin. Nonetheless, as part of evaluating the location and operations of the proposed Project and potential alternatives, CPRA and the AWG assumed operations of other diversions consistent with their current or anticipated operational protocols. Further, potential impacts to the Davis Pond Freshwater Diversion will be considered as part of the 408 process. CPRA will coordinate to the extent possible with other entities responsible for operation of other diversions and siphons.
61	diversion	operations-coordination	Create a basin-wide operation plan to coordinate all diversions and siphons to maximize benefits	scoping		Coordination of a basin-wide operation plan is not practical or technically feasible due to varied ownership and operational responsibility for other diversions and siphons in the Barataria Basin. Nonetheless, as part of evaluating the location and operations of the proposed Project and potential alternatives, CPRA and the AWG assumed operations of other diversions consistent with their current or anticipated operational protocols. Further, potential impacts to the Davis Pond Freshwater Diversion will be considered as part of the 408 process. CPRA will coordinate to the extent possible with other entities responsible for operation of other diversions and siphons.
62	diversion	operations-trigger	Make real-time trigger data publicly available	scoping		Not an alternative as contemplated by NEPA. Analysis as an alternative would not result in notably different potential environmental effects as compared to the Applicant's Preferred Alternative or the other action alternatives selected for more detailed review. In any case, river flow data is publicly available.
63	diversion	operations-NA	Develop operation plan in coordination with fishing, navigation, agencies, and non-profit organizations	scoping		Not an alternative as contemplated by NEPA. Analysis as an alternative would not result in notably different potential environmental effects as compared to the Applicant's Preferred Alternative or the other action alternatives selected for more detailed review. In any case, CPRA's proposed operations plan has been developed following significant engagement with the public, NGOs and other agencies. Additional comments regarding the operational plan should be made during the DEIS comment period.
69	diversion	operations-trigger	Maintain 200,000 cfs downstream of diversion	CPRA PED	Tech Memo-TO 05, TO 41, TO 44	This alternative was determined not technically feasible or reasonable. Reducing the water levels downstream in the Mississippi River is likely to result in salt water intrusion that could threaten several downstream freshwater drinking sources.
70	diversion	operations-trigger	600,000 cfs at Belle Chasse trigger	CPRA PED	Tech Memo-TO 05, TO 41, TO 45	Addressed in Chapter 2 (evaluation of operational triggers)
71	diversion	operations-trigger	450,000 cfs at Belle Chasse trigger	CPRA PED	Tech Memo-TO 05, TO 41, TO 46	Addressed in Chapter 2 (evaluation of operational triggers)
72	diversion	operations-trigger	Trigger for discharge at rising limb only	CPRA PED	Tech Memo-TO 05, TO 41, TO 47	Addressed in Chapter 2 (evaluation of operational triggers)
73	diversion	operations-trigger	Asymmetrical Trigger- for rising limb effect	CPRA PED	Tech Memo-TO 05, TO 41, TO 48	Addressed in Chapter 2 (evaluation of operational triggers)
74	diversion	operations-trigger	Pulsing	CPRA PED	Tech Memo-TO 05, TO 41, TO 49	Addressed in Chapter 2 (evaluation of operational triggers)
75	diversion	operations-trigger	Pulsing with reduced summer opening	CPRA PED	Tech Memo-TO 05, TO 41, TO 50	Addressed in Chapter 2 (evaluation of operational triggers)
76	diversion	operations-trigger	Pulsing with summer closed	CPRA PED	Tech Memo-TO 05, TO 41, TO 51	Addressed in Chapter 2 (evaluation of operational triggers)

Chapter 2, Appendix D2

77	diversion	operations-trigger	Simple sediment trigger	CPRA PED	Tech Memo-TO 05, TO 41, TO 52	Addressed in Chapter 2 (evaluation of operational triggers)
78	diversion	operations-trigger	Asymmetrical sediment trigger	CPRA PED	Tech Memo-TO 05, TO 41, TO 53	Addressed in Chapter 2 (evaluation of operational triggers)
53	diversion	operations-Base Flow	Base flow: No base flow—when there are no benefits of silt, close off the freshwater.	scoping		Addressed in Chapter 2 (evaluation of base flow)
54	diversion	operations-Base Flow	Base flow: Analyze impacts of different base flow scenarios	scoping		Addressed in Chapter 2 (evaluation of base flow)
64	diversion	operations-Base Flow	None	CPRA PED	Tech Memo-TO 46	Addressed in Chapter 2 (evaluation of base flow)
65	diversion	operations-Base Flow	1,000 cfs	CPRA PED	Tech Memo-TO 47	Addressed in Chapter 2 (evaluation of base flow)
66	diversion	operations-Base Flow	2,500 cfs	CPRA PED	Tech Memo-TO 48	Addressed in Chapter 2 (evaluation of base flow)
67	diversion	operations-Base Flow	5,000 cfs	CPRA PED	Tech Memo-TO 49	Addressed in Chapter 2 (evaluation of base flow)
68	diversion	operations-Base Flow	10,000 cfs	CPRA PED	Tech Memo-TO 50	Addressed in Chapter 2 (evaluation of base flow)
39	diversion	operations-Flow rates	2,100 cfs	previous studies	Myrtle Grove Freshwater Diversion (BA-24) (1996-1998)	Addressed in Chapter 2 (evaluation of functional alternatives)
40	diversion	operations-Flow rates	2,500 cfs	previous studies	Myrtle Grove Ecosystem Restoration Project (CWPPRA), Delta Building Diversion at Myrtle Grove (NMFS)	Addressed in Chapter 2 (evaluation of functional alternatives)
41	diversion	operations-Flow rates	5,000 cfs	previous studies	Myrtle Grove Ecosystem Restoration Project (CWPPRA), LCA Recon Rpt/EIS	Addressed in Chapter 2 (evaluation of functional alternatives)
42	diversion	operations-Flow rates	10,000 cfs	previous studies	Myrtle Grove Ecosystem Restoration Project (CWPPRA)	Addressed in Chapter 2 (evaluation of functional alternatives)

43	diversion	operations- Flow rates	15,000 cfs	previous studies	Myrtle Grove Ecosystem Restoration Project (Fed/State 1997- 98), Myrtle Grove Ecosystem Restoration Project (CWPPRA), MRSNFR Study, LCA Recon Rpt/EIS, Delta Building Diversion at Myrtle Grove (NMFS), Medium Diversion at Myrtle Grove with Dedicated Dredging (USACE)	Addressed in Chapter 2 (evaluation of functional alternatives)
44	diversion	operations- Flow rates	20,000 cfs	previous studies	Myrtle Grove Ecosystem Restoration Project (CWPPRA)	Addressed in Chapter 2 (evaluation of functional alternatives)
45	diversion	operations- Flow rates	38,000 cfs	previous studies	LCA Recon Rpt/EIS	Addressed in Chapter 2 (evaluation of functional alternatives)
46	diversion	operations- Flow rates	45,000 cfs	previous studies	Medium Diversion at Myrtle Grove with Dedicated Dredging (USACE)	Addressed in Chapter 2 (evaluation of functional alternatives)
47	diversion	operations- Flow rates	70,000 cfs	previous studies	Medium Diversion at Myrtle Grove with Dedicated Dredging (USACE)	Addressed in Chapter 2 (evaluation of functional alternatives)

48	diversion	operations- Flow rates	75,000 cfs	previous studies	LCA Recon Rpt/EIS, Medium Diversion at Myrtle Grove with Dedicated Dredging (USACE), MR Delta Management Study	Addressed in Chapter 2 (evaluation of functional alternatives)
49	diversion	operations- Flow rates	150,000 cfs	previous studies	LCA Recon Rpt/EIS, Medium Diversion at Myrtle Grove with Dedicated Dredging (USACE), MR Delta Management Study	Addressed in Chapter 2 (evaluation of functional alternatives)
50	diversion	operations- Flow rates	250,000 cfs	previous studies	CPRA 2012 Master Plan	Addressed in Chapter 2 (evaluation of functional alternatives)
80	Diversion	Operations- gate closure	300,000 cfs at Belle Chase to avoid backflow from head differential	CPRA PED	Tech Memo-TO 46	Alternative determined to be not reasonable or feasible. Operation/flow rate of the diversion will depend on a combination of flow rate in the Mississippi River and head differential in the Basin. It is not accurate or predictable to assert that 300,000 cfs in the Mississippi River will avoid backflow. Not carried forward for detailed analysis in the EIS.
18	diversion	outfall options	Construct canals, bayous, terracing, impoundments, weirs or Chenier-like ridges to manipulate the flow of water for water quality and sediment retention benefits, to create barriers for storm surge and wind, and to redirect waters away from oyster production and sensitive areas.	scoping		This issue is addressed in Chapter 2 (evaluation of sediment diversion outfall features).- It should be noted that because operation of the proposed diversion will result in freshening within certain portions of the basin, it is not feasible to redirect waters to avoid certain areas within the basin. Potential impacts associated with changes in salinity are addressed in Chapter 4, Section 4.5. Mitigation, if any, to address potential effects from water flow and to water quality will be addressed in Chapter 4, Section 4.27.
19	diversion	outfall options	Pump tidal saline waters into diversion outfall area to mitigate excess nutrients and allow for oxygenation of river water	scoping		This alternative does not meet purpose and need for the project. The intent is to restore the natural delatic process between the Mississippi River and Barataria Basin through the introduction of freshwater, sediment, and nutrients from the Mississippi River into the Basin. Additionally, the basin will experience periodic introduction of more saline water naturally through tidal processes and storm events. Potential impacts associated with changes in salinity are addressed in Chapter 4, Section 4.5.



Chapter 2, Appendix D2

6	no diversion	restore barrier islands	Barrier Islands: Focus on rebuilding barrier islands for storm surge protection and to reduce land loss	scoping		Addressed in Chapter 2 (evaluation of functional alternatives)
5	no diversion	shoreline protection	Shoreline Protection: Protect the coastal shoreline with rock or beach nourishment (through dredging/pipeline sediment delivery from lower Mississippi River or gulf nearshore areas) for storm surge protection and to reduce land loss	scoping		Addressed in Chapter 2 (evaluation of functional alternatives)
2	diversion	smaller diversion + marsh creation	Marsh Creation/Smaller Diversion: Smaller diversion/operate at lower flows (to lessen impacts on fisheries) in conjunction with Mississippi River dredging/pipeline sediment delivery	scoping		Addressed in Chapter 2 (evaluation of functional alternatives)
4	no diversion	structural barriers	Structural Barriers: Build rock barriers, retaining walls, a longer Barataria Land Bridge, or levees for storm surge protection and to reduce land loss/marsh erosion	scoping		Addressed in Chapter 2 (evaluation of functional alternatives)
30	diversion	Design-structural options	Siphon	previous studies	Myrtle Grove Freshwater Diversion (BA-24) (1996-1998)	Addressed in Chapter 2 (evaluation of additional design considerations)
31	diversion	Design-structural options	Gated concrete box culverts at intake, conveyance channel, outflow channel into basin	previous studies	MRSNFR Study 2000	Aside from the box culvert component of this design, this alternative is consistent with the diversion designs carried forward for detailed review in the EIS. The environmental impacts potentially resulting from a box culvert design are substantially similar to the environmental impacts potentially resulting from an open cut U-frame intake. As a result, the environmental impacts of this alternative will be evaluated in the EIS, although the box culvert specific design is not carried forward for detailed analysis in the EIS.
32	diversion	Design-structural options	Pilot channel with locks	previous studies	MRSNFR Study 2000	This alternative is not feasible and is not consistent with the project purpose and need. The diversion channel is not intended for, nor will it allow, vessel access between the Mississippi River and Barataria Basin.
33	diversion	Design-structural options	Gated structure at intake, conveyance channel, outflow channel into basin	CPRA PED	Design consideration with HDR	This is the Applicant's Preferred Alternative. It is carried forward for detailed analysis in the EIS.

Chapter 2, Appendix D2

34	diversion	Design-structural options	Gated structure at intake, conveyance channel, back structure	CPRA PED	Design consideration with HDR	Each of the alternatives carried forward for detailed evaluation includes a gated structure at intake and a conveyance channel. CPRA considered a diversion structure with a back gate structure. After detailed design consideration, however, CPRA proposed eliminating the back gate design and proceeded with a diversion structure with hurricane/guide levees and no back gate structure. CPRA worked with CEMVN to complete a USACE Risk Assessment of this proposed design. In any case, the inclusion or exclusion of a back structure would not result in notably different potential environmental effects as compared to the Applicant's Preferred Alternative or the other action alternatives, and consequently was not carried forward for more detailed review.
35	diversion	Design-structural options	Closed Conveyance Channel	CPRA PED	Design consideration with HDR	Addressed in Chapter 2 (evaluation of additional design considerations)
36	diversion	Design-structural options	Open Conveyance Channel	CPRA PED	Design consideration with HDR	This design feature is included with the action alternatives carried forward for detailed analysis in the EIS.
37	diversion	Design-structural options	Channel Configurations: Dog-leg	previous studies	CPRA's Delta Building Diversion Modeling effort	Addressed in Chapter 2 (evaluation of additional design considerations)
38	diversion	Design-structural options	Channel Configurations: Straight	previous studies	CPRA's Delta Building Diversion Modeling effort	Carried forward for detailed analysis in the EIS.
USACE-1f	Alternatives		Creation of a distributary network in the outfall area			All action alternatives considered in the EIS include an Outfall Transition Feature that is intended to expedite formation of a distributary network of channels to naturally form in the outfall area. This network may be slightly modified or maintained through dredging to support sediment distribution throughout the basin over the duration of the project. Need for such action would be considered through adaptive management and therefore is not considered an alternative.
USACE-1b	Alternatives		Addition of marsh creation features in the Project Area			Addressed in Chapter 2 (evaluation of functional alternatives)
	diversion		Multiple smaller diversions within Barataria Basin			Addressed in Chapter 2 (evaluation of functional alternatives)
	diversion		MBSD with beneficial use of material dredged from navigation canals			This alternative was determined to be not feasible. Materials dredged from the public navigation canals is already dedicated to other beneficial use projects. Material dredged from private navigation canals is privately owned and not necessarily available to CPRA. Additionally, it is unknown if the material from maintenance dredging of canals would be appropriate for beneficial use projects. Therefore, the ability to utilize sediment dredged from such waterways is speculative at this point and therefore not practicable or feasible.

	no diversion		Reduce the size of Bay Long Pass and 4 Bayou Pass to slow the tide water and save land	Draft EIS Public Comments		This alternative as presented, specifically reducing or narrowing the passes, would not meet the goals and objectives as stated in the purpose and need as described in Chapter 1, Section 1.4 Purpose and Need and Chapter 2, Section 2.2.1 in Steps Taken to Identify and Evaluate Reasonable Alternatives. It would not re-establish deltaic processes between the Mississippi River and Barataria Basin through the delivery of sediment, fresh water and nutrients.
	no diversion		Allow the levees to sink, erode, and collapse down to a normal height with annual widespread overflow distribution of the sediments in the historic and gentle way instead of the MBSD Project.	Draft EIS Public Comments		This alternative of removing levees and restoring natural processes is not feasible and was not considered further because levees are necessary for flood risk reduction for the communities and industries that line the Mississippi River in Barataria Basin.
	diversion		Suggestions such as barging in wood chips and placing in shallow waters, and using old sunken ships and barges to build land	Draft EIS Public Comments		Suggestions such as barging in wood chips and other organic material to the sediment deposited by the diversion or building upon old sunken ships and barges would not meet the scope and the scale of the proposed Project or its purpose and need, and therefore, would not be practicable. While alternative materials such as these may fill in small-scale areas, fill material such as these would not address the proposed Project's purpose of restoring deltaic processes to the Barataria Basin. Therefore, they were eliminated from further consideration.
	diversion/no diversion		Tear down spoil banks and backfill abandoned canals before, in addition to, or instead of implementing the proposed MBSD Project.	Draft EIS Public Comments		This suggested alternative would not meet the goals and objectives as stated in the purpose and need and described in Chapter 1, Section 1.4 Purpose and Need and Chapter 2, Section 2.2.1 in Steps Taken to Identify and Evaluate Reasonable Alternatives. It would not re-establish deltaic processes between the Mississippi River and Barataria Basin through the delivery of sediment, fresh water, and nutrients. However, the EIS acknowledges the influence of canals and spoil banks on wetland losses in Barataria Basin (see Chapter 3, Section 3.6.2.2 in Wetland Resources and Waters of the U.S. of the Final EIS), and has updated the analysis to include additional technical references regarding the influence of canals on the existing environment in the Barataria Basin.

	diversion		<p>Use a sediment diversion to selectively build land by directing water/sediment to a contained area for dewatering, such as a colmates system. A controlled system would be needed to create dry land where it is needed coupled with a system to contain sediment-infused river water in specific areas outside of the levee protection system.</p>	<p>Draft EIS Public Comments</p>		<p>This method of sediment transport and/or sediment containment and land-building would not meet the proposed Project's purpose and need of reconnecting and reestablishing sustainable deltaic process between the Mississippi River and the Barataria Basin. A colmate or other means of large-scale marsh creation using dewatered sediment would allow for sediment to be transported from the Mississippi River to the Barataria Basin and deposited into a location confined by containment berms, which would create an impoundment where the suspended sediment would settle out of the water column over time to create a marsh platform. Once the area dewatered and the platform stabilizes at an appropriate marsh elevation, the berms would be degraded or gapped to allow fish passage and hydrologic exchange. While this type of system would create marsh, it would not be a passive system and would require active management and maintenance, including potentially pumps to ensure sediment transport, mechanical gapping/degrading of the retention berms and periodic lifts to combat the effects of subsidence. It would not reestablish natural deltaic processes. A relatively short amount of time would be required to fill the colmate but this system would limit the amount and grain size of transported sediment in the water column and the transport system would be subject to clogging.</p>
	no diversion		<p>Use alternatives that transport more sediment and sand and less water, such as a conveyor belt or barge and utilizing a processing plant that removes the sediment from the Mississippi River to filter and neutralize the sediment before transport.</p>	<p>Draft EIS Public Comments</p>		<p>This suggested alternative would not meet the goals and objectives as stated in the purpose and need as described in Chapter 2, Section 2.2.1 in Steps Taken to Identify and Evaluate Reasonable Alternatives. CPRA's intent is to re-establish sustainable deltaic processes between the Mississippi River and Barataria Basin through the introduction of freshwater, sediment, and nutrients from the Mississippi River into the basin. Additionally, in light of the volume and nature of the material that would need to be transported, a conveyor belt is not feasible. In addition, as described in Chapter 2, Section 2.4 Step 2: Evaluation of Operational Alternatives - Location, Operational Trigger, Capacity, and Base Flow the proposed Project is designed to maximize sediment bed load transport. Previous studies of the Mississippi River have documented the positive correlation between river discharge and sediment load, demonstrating that higher river discharge levels are generally correlated with higher sediment loads.</p>

	no diversion		Use the funds to move people out of the area instead of implementing the proposed MBSD Project.	Draft EIS Public Comments		This suggested alternative would not meet the goals and objectives as stated in the purpose and need as described in Chapter 1, Section 1.4 Purpose and Need and Chapter 2, Section 2.2.1 in Steps Taken to Identify and Evaluate Reasonable Alternatives. It would not reestablish sustainable deltaic processes and help restore habitat and ecosystem services injured by the DWH oil spill.
	no diversion		Open the Morganza Spillway instead of implementing the proposed MBSD Project.	Draft EIS Public Comments		The Morganza Spillway, operated by USACE for emergency flood control, discharges into the Atchafalaya Basin. The scope of this EIS is the Barataria Basin and the Mississippi River birdfoot delta, which is the defined proposed Project area. This suggested alternative would not meet the purpose and need to reestablish sustainable deltaic processes between the Mississippi River and the Barataria Basin. The LA TIG identified the Barataria Basin in the SRP/EA #3 as the location for the proposed Project because within Louisiana, the Barataria Basin suffered the most severe and persistent oiling from the DWH oil spill. This suggestion would not provide any land-building benefits in the Barataria Basin because it is located outside of the basin.
	no diversion		Divert some of the Mississippi River water off to other states and areas.	Draft EIS Public Comments		The proposed MBSD Project purpose and need is to reestablish sustainable deltaic processes between the Mississippi River and the Barataria Basin. The LA TIG identified the Barataria Basin in the SRP/EA #3 as the location for the proposed Project because within Louisiana, the Barataria Basin suffered the most severe and persistent oiling from the DWH oil spill. This suggestion would not meet the purpose and need because it would not connect the Mississippi River to the Barataria Basin.

	no diversion		<p>Use an alternative that creates a split system to capture and concentrate sediment in one stage, followed by a transfer of the captured sediment to a separate second stage which delivers that sediment with a reduced volume of water having a chosen composition in terms of salinity and nutrients. This can be accomplished by capturing sediment in basins within the channel bottom, while curving the main channel back to the Mississippi River to return the majority of river water to the Mississippi, while delivering a more sediment-focused slurry to Barataria Bay via a separate outfall channel. A dredge operating in the basins, powered by river current, would move the captured sediment, under well-controlled conditions, the short distance from the basins to the outfall channel.</p>	Draft EIS Public Comments		<p>This suggested alternative would not meet the goals and objectives as stated in the purpose and need as described in Chapter 1, Section 1.4 Purpose and Need and Chapter 2, Section 2.2.1 in Steps Taken to Identify and Evaluate Reasonable Alternatives. The purpose of the Project is to re-establish sustainable deltaic processes between the Mississippi River and Barataria Basin through the delivery of sediment, fresh water, and nutrients from the Mississippi River into the Basin. Details as submitted by the commenter regarding this alternative are lacking making it difficult to evaluate. Based on the description provided by the commenter, it seems that this alternative would transport primarily coarse-grained sediments (for example, larger sediments and sand) collected in the Mississippi River and conveyance channel into the Basin, but, due to the collection method, would not convey substantial finer-grained sediments (for example, clay and silt) that are necessary to sustain existing wetlands in the basin. Also, with the significant reduction in fresh water transported into the basin, this alternative would not transport sufficient fresh water or nutrients to meet the Purpose and Need. Further, it is unclear whether or how the proposed alternative would mobilize the collected coarser-grained sediments. As explained in Section 2.4.3.2 Application of Additional Considerations to Capacity Alternatives of the Final EIS, a sufficient volume of water is needed to mobilize and entrain coarser-grained sediments and transport them into the basin. The commenter's description of the alternative suggests a significant reduction in the volume of water that would pass through the diversion channel. Absent diversion flows, the commenter did not explain how this alternative would transport these coarser sediments to the basin other than to mention a "dredge operating in the basin." Marsh creation through dredging was evaluated in the Draft EIS and eliminated from detailed consideration. See Section 2.3.5 Large Scale Marsh Creation of the Final EIS.</p>
	no diversion		<p>Dredge the passes (south pass and south east pass) along with building rock jetties along the Louisiana coastline to support marsh growth and protect from oncoming storms; then use dredging to build up areas inland.</p>	Draft EIS Public Comments		<p>This alternative as presented, specifically dredging the passes and building rock jetties to create marsh, would not meet the goals and objectives as stated in the purpose and need and described in Chapter 1, Section 1.4 Purpose and Need and Chapter 2, Section 2.2.1 in Steps Taken to Identify and Evaluate Reasonable Alternatives in the EIS. Similar to marsh creation alternatives (as described in Chapter 2, Section 2.3.5 in Step 1: Evaluation of Functional Alternatives), it would not deliver enough fresh water, nutrients, and fine sediments to sustain existing and created wetlands beyond the marsh creation area and over the long term would require repeated lifts and maintenance through placement of additional dredged material.</p>

	no diversion		Use suction dredge of Mississippi River beneficial material in South Pass, Pass A Loutre, Tiger Pass, and other tributaries to pump the river sand material through pipelines. This material can be delivered up to 25 to 30 miles upriver and could be used to build a series of ridges that can be planted with sustainable foliage.	Draft EIS Public Comments		This alternative as presented, specifically dredging the passes and other tributaries and creating marsh, would not meet the goals and objectives as stated in the purpose and need in Chapter 1, Section 1.4 Purpose and Need and Chapter 2, Section 2.2.1 in Steps Taken to Identify and Evaluate Reasonable Alternatives of the EIS. Similar to marsh creation alternatives (as described in Chapter 2, Section 2.3.5 in Step 1: Evaluation of Functional Alternatives), it would not deliver enough fresh water, nutrients, and fine sediments to sustain existing and created wetlands beyond the marsh creation area and over the long term would require repeated lifts and maintenance through placement of additional dredged material to maintain a marsh elevation despite subsidence and sea-level rise.
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## AC10000 – Agency Correspondence

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<b>Concern ID: 62958</b>	<b>The Department of Environmental Quality (LDEQ), Business and Community Outreach Division has received your request for comments on the proposed MBSD Project.</b>
	<b>After reviewing your request, the Department has no objections based on the information provided in your submittal. However, for your information, the following general comments have been included. Please be advised that if you should encounter a problem during the implementation of this proposed Project, you should immediately notify LDEQ’s Single-Point-of-contact (SPOC) at (225) 219-3640.</b>
<b>Response ID: 15888</b>	Thank you for your comments. USACE solicited review according to 40 CFR Part 1503.1. If a permit is issued, CPRA would be required to obtain all applicable federal, state, and local permits before starting construction of the proposed MBSD Project.

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<b>Concern ID: 62959</b>	<b>The Department of the Interior (Department) has reviewed the Draft Environmental Impact Statement (EIS) for the Coastal Protection and Restoration Authority of Louisiana’s (CPRA) Proposed Mid-Barataria Sediment Diversion Project, Plaquemines Parish, Louisiana.</b>
	<b>The following comments and recommendations are submitted pursuant to the authority of, and in accordance with, the provisions of the National Environmental Policy Act of 1969 (83 Stat. 852, as amended P.L. 91-190, 42 U.S.C. 4321 et seq.), and the Fish and Wildlife Coordination Act of 1956 (48 Stat. 401, as amended; 16 U.S.C. 661 et seq.).</b>
	<b>Upon review of the Draft EIS, the Service finds it addresses all impacts and benefits, including those related to fish and wildlife resources, coastal wetlands, and threatened and endangered species.</b>
	<b>The Applicant’s Preferred Alternative would directly impact 182.9 acres of jurisdictional wetlands and 266.3 acres of vegetated shallows (submerged aquatic vegetation or SAV) and other waters of the U.S. Additionally, because Mississippi River sediments would be diverted up river of the Birdfoot Delta, the Delta would experience a projected indirect loss of 2,891 acres of wetlands by 2070 when compared with the No Action Alternative, of which 926 acres would be indirectly lost on the Delta National Wildlife Refuge (Delta NWR) and 37 acres on Pass A Loutre Wildlife Management Area (Pass A Loutre WMA). The indirect wetland losses to Delta</b>



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**NWR and Pass- A-Loutre WMA would be offset by the construction of crevasse projects as described in Recommendation #1 of the Draft Fish and Wildlife Coordination Act Report for the proposed MBSD Project. The proposed Project anticipates a net benefit of 13,151 acres of marsh (3,848 AAHUs) near the outfall over the 50-year period of analysis. Overall, there would be positive net benefits to wetland resources in the proposed Project area, with the creation and preservation of emergent wetland habitat of high value to fish and wildlife resources.**

**The Service has continually been involved throughout the planning and evaluation process for the proposed MBSD Project. The CEMVN and CPRA have been responsive to all our data needs, questions, comments, and concerns. Because of our extensive coordination, and the positive net benefits to wetland resources, all of our comments and suggestions have been sufficiently addressed at this time and the Service has no further comment.**

**Response ID: 15887**

Thank you for your comments. USACE solicited review according to 40 CFR Part 1503.1. If a permit is issued, CPRA would be required to obtain all applicable federal, state, and local permits before starting construction of the proposed MBSD Project.

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**Concern ID: 62960**

**The U.S. Environmental Protection Agency (USEPA) has reviewed the U.S. Army Corps of Engineers (USACE) Draft Environmental Impact Statement (EIS) for the Mid-Barataria Sediment Diversion Project, Plaquemines Parish, Louisiana (CEQ Number 20210025). The Draft EIS was reviewed pursuant to the National Environmental Policy Act (NEPA), the Council on Environmental Quality (CEQ) regulations (40 CFR Parts 1500 - 1508), and USEPA's NEPA review authority under Section 309 of the Clean Air Act.**

**USEPA served as a cooperating agency and reviewed and provided technical comments on the Draft EIS during its development. We appreciate participating on issues of importance to the agency including climate change considerations and evaluation of the climate resiliency and adaptation aspects of the proposed Project. In addition, USEPA acknowledges the proactive approach taken to incorporate technical suggestions and factoring a changing climate into the overall modeling for the proposed Project regarding greenhouse gas emissions and climate change. We also acknowledge that this approach was out of recognition that this effort is different from other infrastructure projects in that the proposed action itself is an adaptation/resiliency feature.**

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In addition, we appreciate working with USACE, CPRA, and the other agencies on the key issues of environmental justice and impact mitigation throughout development of the Draft EIS. The Draft EIS acknowledged in Chapter 4 that the proposed Project may have disproportionately high and adverse impacts on the Project affected area for minority and low-income residents and users of the resources in the area. According to the models, this may include periodic flooding of some residences and businesses during the operation of the proposed MBSD Project. It may also include storm hazards and changes in the composition of fishery species. USEPA encourages and supports the ongoing efforts to effectively address the identified environmental justice impacts in the development of the Draft Mitigation and Stewardship Plan provided in Appendix R1. USEPA strongly recommends that the Final Mitigation and Stewardship Plan include measures to specifically address disproportionately high and adverse impacts related to commercial shrimp and oyster fishing, tidal flooding, and storm hazards identified in the proposed Project area. The mitigation and stewardship measures should include elements designed to consider any unique vulnerabilities and help ensure an equitable distribution of benefits to minority and low-income populations that would be impacted by the proposed Project. USEPA commends CPRA for holding outreach meetings with minority and low-income people in the area to discuss impacts of the proposed Project and related mitigation and stewardship measures.

**Response ID: 15886**

Thank you for your comments. If a permit is issued, CPRA would be required to obtain all applicable federal, state, and local permits before starting construction of the proposed MBSD Project.

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## AE10000 – Affected Environment/Existing Conditions

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**Concern ID: 61711**

**Coastal land and wetlands along Louisiana’s coast are very valuable to migratory songbirds because these lands are the first land fall after an exhausting flight across the Gulf of Mexico. As the coastline recedes, migratory birds must fly farther and farther from their southern launch point.**

**Response ID: 16025**

The value of Louisiana’s coastal wetlands to migratory songbirds was considered in the Draft EIS. The importance of Louisiana’s coastal habitats to migratory birds, as well as the threats to these habitats, is discussed in Chapter 3, Section 3.9.3.1 in Terrestrial Wildlife of the EIS.

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**Concern ID: 61727**

**One major cause for the loss of wetlands over the last 50 or 60 years is mining and drilling operations that were not required by**

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<b>Response ID: 16027</b>	<b>regulatory agencies to replace the marsh loss they caused. So money from the oil and gas industries should be allocated for continued restoration efforts.</b>
	The impacts of the oil and gas industry on wetland loss in the Barataria Basin were described in the Draft EIS. This EIS serves as the environmental review required by NEPA to inform USACE's decisions on the Section 10/404 permit and Section 408 permission and the LA TIG's OPA decision regarding funding the construction of the proposed MBSD Project via damages paid by BP following the DWH oil spill (see Section 1.6.1 The OPA and DWH NRDA Decisions of the EIS). USACE requires compensatory mitigation in the form of replacement habitat for its Section 10/404 permits (including those involving oil and gas exploration and production) that will result in wetland losses.
<b>Concern ID: 61716</b>	<b>The ongoing loss of Louisiana's coastal wetlands makes communities increasingly vulnerable to stronger hurricanes and sea-level rise and threatens the health and stability of the entire Barataria Basin upon which a number of communities, wildlife, fish nurseries, sportsman culture, economy, and vital resources depend.</b>
<b>Response ID: 16026</b>	The importance of maintaining wetlands for the protection of coastlines, coastal communities, wildlife resources, and recreation was considered in the Draft EIS in Sections 3.6 Wetland Resources and Waters of the U.S., 3.20 Public Health and Safety, Including Flood and Storm Hazard Risk Reduction, and 3.16 Recreation and Tourism.
<b>Concern ID: 61732</b>	<b>The climate change crisis has had devastating impacts to natural resources around the world.</b>
<b>Response ID: 16158</b>	The impacts of climate change on the Project area were considered in the Draft EIS. Chapter 3, Section 3.1.3 Climate provides a general overview of climate change and associated impacts in the Project area, which include projected changes in weather patterns, along with continued saltwater intrusion due to sea-level rise contributing to loss and conversion of freshwater marshes. The effects of climate change via projected sea-level rise (see Chapter 4, Section 4.1.3 Overview of Delft3D Basinwide Model for Impact Analysis of the EIS) were incorporated into the Delft3D Basinwide Model for projecting the impacts of the Project. In addition, as noted in Section 4.7.4 in Air Quality of the EIS, the Project would result in permanent, indirect, minor, beneficial impacts on carbon sequestration and atmospheric greenhouse gas (GHG) concentrations due to wetland creation and restoration within the Barataria Basin.

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<b>Concern ID: 61733</b>	<b>Barataria Basin land loss plus the BP oil spill has had and continues to have devastating impacts on communities, birds, and wildlife habitat.</b>
<b>Response ID: 16159</b>	The impacts that land loss and the DWH oil spill have had and continue to have on communities, birds, and wildlife habitat in the Barataria Basin were considered in the Draft EIS. These impacts are discussed throughout Chapter 3 Affected Environment. As stated in Chapter 1, Section 1.4 Purpose and Need of the EIS, the purpose of the Project is to restore for injuries caused by the DWH oil spill by implementing a large-scale sediment diversion in the Barataria Basin that would reconnect and reestablish sustainable deltaic processes between the Mississippi River and the Barataria Basin through the delivery of sediment, fresh water, and nutrients to support the long-term viability of existing and planned coastal restoration efforts. This EIS serves as the environmental review required by NEPA to inform the LA TIG's OPA decision regarding funding the construction of the proposed MBSD Project using damages paid by BP following the DWH oil spill (see Section 1.6.1 The OPA and DWH NRDA Decisions of the EIS).
<b>Concern ID: 61735</b>	<b>Louisiana's coast is critical to not only the people who live, work, and recreate here, but to the entire nation. World-class fishing attracts people from all over the world. Our ports are a major player in international trade. The nation's energy needs are largely supported by the oil and natural gas industry located along our coast.</b>
<b>Response ID: 16160</b>	The importance of Louisiana's coast to the people who live, work, and recreate here, as well as to the nation, was considered in the Draft EIS. The details about the importance of the Project area's recreational fishing, commercial navigation, and the oil and gas industry are included in Chapter 3, Sections 3.16 Recreation and Tourism, 3.21 Navigation, and 3.2.3 in Geology and Soils, respectively.
<b>Concern ID: 61737</b>	<b>The construction of levees along the Mississippi River precluded land-building sediments from entering Louisiana estuaries, which has caused a loss of Louisiana's coastal wetlands and other problems, such as making properties more vulnerable to hurricane damage and decreasing property values.</b>
<b>Response ID: 16024</b>	The impacts raised by the commenters were considered in the Draft EIS. Information about historic causes of land loss can be found in Chapter 3, Section 3.1.4 Overview and History of the Project Area and Section 3.6.2 in Wetland Resources and Waters of the U.S. The importance of maintaining wetlands for the protection of coastlines, coastal communities, and wildlife resources is discussed in Sections 3.6 Wetland Resources and Waters of the U.S. and 3.20 Public Health and Safety, Including Flood and Storm Hazard Risk Reduction of the EIS. As stated in Chapter 1, Section 1.4 Purpose and Need of the EIS,

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the purpose of the Applicant's Preferred Alternative is to implement a large-scale sediment diversion in the Barataria Basin that would reconnect and reestablish sustainable deltaic processes between the Mississippi River and the Barataria Basin through the delivery of sediment, fresh water, and nutrients to support the long-term viability of existing and planned coastal restoration efforts.

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**Concern ID: 61740**

**Over time, Louisiana's natural environment is continuing to be destroyed by humans.**

**Response ID: 16161**

The issues raised by the commenters were considered in the Draft EIS. Past and ongoing adverse human impacts on the Project-area ecosystem are discussed throughout Chapter 3 Affected Environment of the EIS. Past, present, ongoing, and reasonably foreseeable actions and trends in the Project area are discussed throughout Chapter 4, Section 4.25 Cumulative Impacts, including how those actions have and may continue to affect Louisiana's natural environment. The proposed Project is a restoration action intended to restore and sustain wetlands in the Barataria Basin and compensate for damages to natural resources that resulted from anthropogenic causes, for example, the DWH oil spill.

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**Concern ID: 61741**

**Louisiana's coast is in crisis, putting birds and coastal communities at risk. More than 400 species of birds call coastal Louisiana home, and 40 percent of all migratory birds in North America spend a part of their life in coastal Louisiana.**

**Response ID: 16162**

The issues raised by the commenters were considered in the Draft EIS. Past and ongoing adverse human impacts on the Project-area ecosystem are discussed throughout Chapter 3 Affected Environment. The use of Louisiana's coastal habitats by a large diversity of birds is discussed in Chapter 3, Section 3.9.3 in Terrestrial Wildlife of the EIS. The benefits that the Project would provide to birds are discussed in Chapter 4, Sections 4.9 Terrestrial Wildlife and Habitat and 4.12 Threatened and Endangered Species of the EIS.

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## AP10000 – EIS App A: Permit Application (Section 10/404) and 408 Permissions Request

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**Concern ID: 61857**

**Commenter asked what the chances of stopping this proposed Project are.**

**Response ID: 15883**

As stated in Chapter 1 Introduction and Purpose and Need of the EIS, CPRA submitted a Joint Permit Application on June 23, 2016 (revised March 16, 2018) and a Section 408 Permission Request Letter on January 13, 2017 to the USACE, New Orleans District (CEMVN) for a

Section 10/404 permit and Section 408 permission for the proposed MBSD Project. The joint permit application and permission request can be found in Appendix A Permit Application (Section 10/404) and Permissions Request (Section 408) of the EIS. Approval of a Section 10/404 permit and a Section 408 permission to construct, operate, and maintain the proposed MBSD Project would be a major federal action and consequently, USACE has prepared this EIS to understand the potential impacts, both beneficial and adverse, associated with the proposed Project and reasonable alternatives to it. The information in the EIS will help USACE to make an informed decision on the Section 10/404 permit and Section 408 permission request. In addition, USACE will take all public comments under consideration in its decision making.

By regulation, the USACE is neither for nor against the proposed Project. USACE has not made any decision regarding the proposed Project and will not make a decision until it issues a Record of Decision after publication and public review of the Final EIS.

In its Strategic Restoration Plan #3 and Environmental Assessment, the LA TIG selected for further evaluation a large-scale sediment diversion to address ecosystem injuries in the Barataria Basin as a result of the DWH oil spill. Following NRDA regulations for restoration planning under OPA (15 CFR, Part 990.30), the LA TIG prepared the Draft Restoration Plan (LA TIG RP 3.2) for the proposed MBSD Project. Based on that LA TIG RP 3.2 and informed by the MBSD EIS (to which the federal agencies of the LA TIG are cooperating agencies) and the public comments received on both documents, the LA TIG will make a decision regarding the implementation of the proposed Project. Following publication of the LA TIG's Final Restoration Plan and the MBSD EIS, conclusion of the NEPA 30-day wait period, and issuance of the LA TIG's NEPA Record of Decision, the LA TIG would finalize its decision (15 CFR § 990.23(c)(2)(ii)(G)) and document such by LA TIG Resolution. Until that time, the LA TIG would not have made a final decision on the proposed Project.

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**Concern ID: 61858**

**CPRA should resubmit their permit application with a plan to address the specific damages caused by the DWH oil spill and with alternative means of achieving the “purpose of restoration” (Purpose) for use of the DWH funds.**

**Response ID: 15884**

CPRA submitted a Section 10/404 permit application and Section 408 permission request to the USACE to construct, operate, and maintain the proposed MBSD Project. Chapter 2 Alternatives, Section 2.2 Steps Taken to Identify and Evaluate Reasonable Alternatives of the EIS provides a detailed explanation for the identification and evaluation of a range of reasonable alternatives based on the purpose and need for the proposed MBSD Project.



Chapter 2 of the LA TIG's Final Restoration Plan describes how the LA TIG screened and selected the alternatives considered in the Restoration Plan. Briefly, as discussed in the PDARP/PEIS, the SRP/EA #3, and the Final Restoration Plan, the LA TIG found that impacts of the injuries from the DWH oil spill were particularly detrimental to the resources of the Barataria Basin, which were already in peril as a result of the separation of sediment-loaded river water by levees, subsidence and a changing climate. In the Barataria Basin, marshes already suffering from significant coastal erosion experienced heavy oiling due to the DWH oil spill and subsequently experienced double or triple the rate of marsh loss. The Final PDARP/PEIS (DWH NRDA Trustees, 2016a) documented the nature, degree, and extent of injuries from the DWH oil spill to both natural resources and the ecological services they provide, and the nexus between those injuries and need for restoration within the Barataria Basin. Evaluating restoration strategies that could restore for injuries in the Barataria Basin, the SRP/EA #3 found that a combination of "marsh creation and ridge restoration plus a large-scale sediment diversion would provide the greatest level of benefits to injured wetlands, coastal, and nearshore habitats and to the large suite of injured resources that depend in their life cycle on productive and sustainable wetland habitats" (LA TIG, 2018) in the basin and in the broader northern Gulf of Mexico. As a result, the LA TIG pursued the development of a large-scale sediment diversion, specifically the proposed Mid-Barataria Sediment Diversion that is evaluated in the EIS and the LA TIG's Final Restoration Plan. The LA TIG's Final Restoration Plan explains that the proposed Project would best restore for injuries caused by the DWH oil spill by reconnecting and reestablishing sustainable deltaic processes between the Mississippi River and the Barataria Basin through the delivery of sediment, freshwater, and nutrients to support the long-term viability of existing and planned coastal restoration efforts. Other restoration projects, including marsh and ridge restoration activities, that would help restore for the injuries caused by the DWH oil spill are being considered and implemented by the LA TIG under their restoration planning efforts.

Deepwater Horizon, Natural Resource Damage Assessment (DWH) Trustees. 2016. Deepwater Horizon Oil Spill: Final Programmatic Damage Assessment and Restoration Plan (PDARP) and Final Programmatic Environmental Impact Statement (PEIS). Available online at: <http://www.gulfspillrestoration.noaa.gov/restoration-planning/gulf-plan>. Accessed May 2017.

Louisiana Trustee Implementation Group (LA TIG). 2018. Final Strategic Restoration Plan and Environmental Assessment #3: Restoration of Wetlands, Coastal, and Nearshore Habitats in the Barataria Basin, Louisiana. Available online at:

[http://www.gulfspillrestoration.noaa.gov/sites/default/files/2018\\_03\\_LA\\_TIG\\_Final\\_SRP\\_EA\\_508-Compliant.pdf](http://www.gulfspillrestoration.noaa.gov/sites/default/files/2018_03_LA_TIG_Final_SRP_EA_508-Compliant.pdf). Accessed: March 15, 2018.

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**Concern ID: 61859**

**Commenter inquired as to what role the USACE would have in the proposed MBSD Project.**

**Response ID: 15885**

USACE is currently conducting NEPA and other evaluations of the proposed Project for its permitting decisions under the CWA Section 404 and Rivers and Harbors Act (RHA) of 1899 Sections 10 and 14 (33 USC Section 408). USACE is neither a proponent nor an opponent of the proposed Project. If USACE permits the Project, the LA TIG funds the Project and CPRA implements the Project, as a regulating agency, USACE would have continuing authority to ensure that CPRA complies with the conditions of its permit, including inspections as necessary. Because portions of the MBSD Project would alter, occupy, and replace portions of USACE flood risk reduction projects, specifically the Mississippi River Levee and the Plaquemines NOV-NFL Levee, for those portions of the proposed Project, USACE would have construction oversight responsibilities and USACE and CPRA would need to enter agreements governing their respective responsibilities.

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## CE10000 – Comment Extension

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**Concern ID: 62487**

**Several commenters requested additional time to submit comments on the LA TIG’s Draft Restoration Plan and Draft EIS.**

**Response ID: 15768**

The public comment period for the LA TIG’s Draft Restoration Plan and Draft EIS was originally 60 days (March 5, 2021 through May 4, 2021). On April 23, 2021, USACE and the LA TIG issued a special public notice, announcing a 30-day extension of the public comment periods. With this addition, the public comment period for both documents was 90 days (March 5, 2021 through June 3, 2021).

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## CH10000 – Intro, Purpose & Need, Proposed Action

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**Concern ID: 61872**

**The purpose and need statement upon which the alternatives analysis was built meets the intentions and goals of the proposed Project and appropriately captures the need to restore injury by reestablishing deltaic processes between the Mississippi River and Barataria Basin.**



**Response ID: 15828** The commenter's support for and approval of the Project's purpose and need is acknowledged.

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**Concern ID: 61873** **The proposed Project's impacts are in contradiction with the Project's stated purpose and need to restore habitat and ecosystems damaged by the DWH oil spill given the permanent adverse impacts on fisheries, marine mammals, and water quality. The proposed Project is incompatible with both a healthy environment and healthy economy.**

**Response ID: 15829** USACE generally focused on CPRA's purpose and need for the proposed Project and considered the public's and other perspectives, including input from the LA TIG and cooperating agencies (identified in Section 1.8 Agency Roles and Responsibilities), and input from representatives of the Council for Environmental Quality (CEQ) and the Federal Permitting Improvement Steering Council (FPISC), in its process to define the Project's purpose and need for the EIS. If implemented, the proposed Project would deliver sediment, fresh water, and nutrients into the Barataria Basin. While there would be short- and long-term, adverse and beneficial impacts to physical, biological, and socioeconomic resources in the Project area due to the proposed Project, the sediment, fresh water, and nutrients are expected to restore habitat and ecosystems services injured in the northern Gulf of Mexico as a result of the DWH oil spill.

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**Concern ID: 61874** **It seems that the change to the purpose and need for the proposed Project was designed to limit alternatives. This change was done 6 months after scoping, when scoping was the opportunity for the public to suggest alternatives and could have affected those comments.**

**Response ID: 15830** CPRA provided a purpose and need statement for the Project in its June 22, 2016 Joint Permit Application for the proposed Project. In that application, CPRA stated that the purpose of the Project is "to reconnect and reestablish the natural or deltaic sediment deposition process between the Mississippi River and the Barataria Basin" and that the proposed Project "is needed as a long-term resilient, sustainable strategy to reduce land-loss rates and sustain DWH injured wetlands through the delivery of sediment, freshwater, and nutrients." CPRA's stated Project purpose and need was shared with the public during scoping meetings held during July 2017. During scoping, USACE indicated that CPRA's purpose and need for the Project would be considered in the development of USACE's purpose and need statement. USACE developed a draft purpose and need after taking into consideration the purpose and need from CPRA's Joint Permit Application, input from the LA TIG and cooperating agencies (identified in Section 1.8 Agency Roles and Responsibilities of the EIS), and input from public scoping.

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USACE's initial formulation of the EIS purpose and need was included in a draft Chapter 1 Introduction and Purpose and Need of the Draft EIS, which was circulated to the LA TIG and cooperating agencies for review and comment from May to October 2017. In October 2017, after the LA TIG finalized its draft Strategic Restoration Plan, the LA TIG requested that USACE re-visit the Draft EIS purpose and need. In January 2018, the LA TIG submitted a proposed revised statement of purpose and need in the form set forth in the Draft EIS. During a joint meeting between USACE, the Applicant (CPRA), the LA TIG, representatives of the Council for Environmental Quality (CEQ), and representatives of the FPISC held on January 25, 2018, the participants discussed proposed changes to the purpose and need. The CEQ and FPISC representatives were supportive of the changes to the proposed Project EIS purpose and need and USACE agreed to the change. Subsequently, CPRA submitted a revised Joint Permit Application to USACE on March 16, 2018 containing a revised purpose and need statement for the proposed Project that tracked the revised purpose and need statement for the EIS. Although the purpose and need changed, the Alternatives Working Group (AWG) (formed to identify alternatives to be evaluated in the EIS and consisting of representatives from USACE, representatives from the LA TIG, including the Applicant (CPRA), and representatives from NOAA, NMFS, USEPA, USFWS, USDOJ, and USDA, and the third-party contractor), continued to consider functional alternatives that are not diversions in the EIS. Chapter 2 Alternatives of the EIS explains how numerous functional alternatives did or did not meet the proposed Project purpose of reconnecting and reestablishing sustainable deltaic processes between the Mississippi River to Barataria Basin through the delivery of sediment, fresh water, and nutrients. The public, commenting agencies, and stakeholders had the the opportunity to comment on the revised purpose and need during the public comment period on the Draft EIS. The USACE is evaluating the projected impacts of the Project in the EIS. As part of its Section 10/404 permitting decision-making process, USACE also conducts a public interest review, which weighs the probable harms of the proposed action against its potential benefits.

In preparing its Restoration Plan, the LA TIG developed the goals and objectives for the proposed Project through an iterative restoration planning process, beginning with the restoration goals in the Final PDARP/PEIS then developing SRP/EA #3 for the restoration of habitat and ecological services in the Barataria Basin, and ending with Project-specific goals. The proposed MBSD Project has been developed to address the specific goals of the wetlands, coastal, and nearshore habitats restoration type; it would restore a variety of interspersed and ecologically connected coastal habitats, restore for injuries to habitats in geographic areas where the injuries occurred while considering

approaches that provide resilience and sustainability, restore habitats in appropriate combinations for any geographic area, and restore the ecological functions provided by those habitats. Tiering off of the PDARP/PEIS, the LA TIG evaluated various restoration alternatives in SRP/EA #3 and found that a combination of “marsh creation and ridge restoration plus a large-scale sediment diversion would provide the greatest level of benefits to injured Wetlands, Coastal, and Nearshore habitats and to the large suite of injured resources that depend in their life cycle on productive and sustainable wetland habitats” (LA TIG, 2018) in the basin and in the broader northern Gulf of Mexico. As a result, the LA TIG pursued the development of a large-scale sediment diversion, specifically the proposed MBSD Project evaluated in the Restoration Plan.

Louisiana Trustee Implementation Group (LA TIG). 2018a. Final Strategic Restoration Plan and Environmental Assessment #3: Restoration of Wetlands, Coastal, and Nearshore Habitats in the Barataria Basin, Louisiana. Available online at: [http://www.gulfspillrestoration.noaa.gov/sites/default/files/2018\\_03\\_LA\\_TIG\\_Final\\_SRP\\_EA\\_508-Compliant.pdf](http://www.gulfspillrestoration.noaa.gov/sites/default/files/2018_03_LA_TIG_Final_SRP_EA_508-Compliant.pdf). Accessed: March 15, 2018.

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**Concern ID: 61875**

**The purpose and need is false and misleading and does not follow NEPA guidelines for a concise, basic, essential, and irreducible purpose. The statement is misleading by making the proposed Project itself part of the purpose. The DWH oil spill, including restoring for injuries caused by the DWH oil spill, has nothing to do with the proposed Project other than justifying its use as a source of funding.**

**Response ID: 15831**

As described in Chapter 1, Section 1.4 Purpose and Need of the EIS, NEPA regulations (40 CFR 1502.13) state that an EIS “shall briefly specify the underlying purpose and need to which the agency is responding in proposing the alternatives including the proposed action.” The purpose and need statement should be clear and concise in order to facilitate development of a reasonable range of alternatives. USACE generally focused on CPRA’s purpose and need for the proposed Project and considered the public’s and other perspectives, including input from the LA TIG and cooperating agencies (identified in Section 1.8 Agency Roles and Responsibilities), and input from representatives of the Council for Environmental Quality (CEQ) and the Federal Permitting Improvement Steering Council (FPISC), in its process to define the Project’s purpose and need for the EIS.

Separate from the USACE process, as discussed in the PDARP/PEIS, the SRP/EA #3, and the Restoration Plan, the LA TIG found that impacts of the injuries from the DWH oil spill were particularly detrimental to the resources of the Barataria Basin, which were already in peril as a result of the separation of sediment-loaded river water by

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levees, subsidence and a changing climate. In the Barataria Basin, marshes already suffering from significant coastal erosion experienced heavy oiling and subsequently experienced double or triple the rate of marsh loss. The Final PDARP/PEIS (DWH NRDA Trustees, 2016a) documented the nature, degree, and extent of injuries from the DWH oil spill to both natural resources and the services they provide, and the nexus between those injuries and need for restoration within the Barataria Basin. Evaluating restoration strategies that could restore for injuries in the Barataria Basin, the SRP/EA #3 found that a combination of “marsh creation and ridge restoration plus a large-scale sediment diversion would provide the greatest level of benefits to injured Wetlands, Coastal, and Nearshore habitats and to the large suite of injured resources that depend in their life cycle on productive and sustainable wetland habitats” (LA TIG, 2018) in the basin and in the broader northern Gulf of Mexico. As a result, the LA TIG pursued the development of a large-scale sediment diversion, specifically the proposed Mid-Barataria Sediment Diversion evaluated in the EIS and Restoration Plan. The LA TIG’s Restoration Plan concludes that the proposed Project would best restore for injuries caused by the DWH oil spill by reconnecting and reestablishing sustainable deltaic processes between the Mississippi River and the Barataria Basin through the delivery of sediment, fresh water, and nutrients to support the long-term viability of existing and planned coastal restoration efforts.

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**Concern ID: 61877**

**The proposed Project would eventually and inevitably be made moot due to nature itself so it is not needed.**

**Response ID: 15833**

The EIS acknowledges that the sediment deposition and land building that would occur as a result of the MBSD would occur against a backdrop of significant land loss in the basin and across the region due to subsidence and sea-level rise, so that even as diversion operations are increasing sediment deposition and land creation in the outfall area, some of this acreage would be lost over time due to these ongoing processes. Chapter 4, Section 4.2.3.2 in Geology and Soils of the EIS describes the land-building acreages projected over time due to the proposed Project. In the Final EIS, a discussion has been added to this section to clarify currently ongoing and future projected land loss and the amount of land that would be created, sustained, or lost due to proposed diversion operations.

As part of its restoration planning efforts, LA TIG considers reestablishing deltaic processes (including deltaic sediment deposition and transport of nutrients and fresh water from the Mississippi River to the basin) a critical component of sustaining and restoring wetlands, coastal, and nearshore habitats to help address ecosystem-level injuries in the Gulf of Mexico and to decrease land loss.

The LA TIG agrees that, with or without the proposed Project, coastal Louisiana and the Barataria Basin would experience tremendous land loss. However, the LA TIG believes this background of large land loss makes the habitat created by the proposed Project even more important. Relative to other types of incremental approaches (for example, marsh creation through the application of dredged sediment), the proposed Project would reconnect and reestablish sustainable deltaic processes and support the long-term viability of existing and planned coastal restoration efforts. The proposed Project would reestablish deltaic processes that deliver sediment, fresh water, and nutrients; improve the function of existing habitats; and successfully develop deltaic habitats that connect nearshore and offshore ecosystems. The LA TIG expects that the Project would result in the creation of a maximum of 17,300 acres of land in the Barataria Basin by year 30 of operations; after 50 years of operation, the Project would result in the loss of 3,000 acres of land in the birdfoot delta but would create approximately 13,400 acres of land in the Barataria Basin, representing about 20 percent of the land remaining in the Barataria Basin at that time (see Section 3.2.1.1 of the LA TIG's Restoration Plan).

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**Concern ID: 62882****The understated cause of coastal land loss is dredging canals and building spoil banks, which diversions do not address.****Response ID: 15834**

The EIS acknowledges the influence of canals and spoil banks on wetland losses in Barataria Basin (see Chapter 3, Section 3.6.2.2.4 in Wetland Resources and Waters of the U.S. of the EIS), and the analysis has been updated in the Final EIS to include additional technical references regarding the influence of canals on the existing environment in the Barataria Basin. The EIS does not describe the proposed Project as a solution to fully reverse ongoing land-loss trends. The EIS recognizes that the proposed Project is projected to create and maintain only a portion of the wetlands that would otherwise be lost in the absence of the proposed Project over the next 50 years. In addition, Chapter 1, Section 1.2.1 in Project Background and Chapter 3, Section 3.1.4 in Introduction describes the historical reasons for coastal land loss within the Barataria Basin and notes that as a result of this coastal land loss, various agencies and non-governmental organizations have implemented coastal protection, restoration, and rehabilitation projects within the basin. CPRA has identified the proposed Project for implementation based on the recommendations in its Coastal Master Plan and identified large-scale sediment diversions as a restoration tool for sustainable ecosystem restoration to counter the basin-wide effects of erosive processes such as sea-level rise and subsidence.

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## CH11000 – Project Background

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<b>Concern ID: 62008</b>	<b>The commenter expressed concern that the DWH oil spill and development are causing the Gulf Coast ecosystem that sustains us to collapse.</b>
<b>Response ID: 16165</b>	The concerns raised by the commenter were considered in the Draft EIS. Chapter 3, Section 3.1.4 Overview and History of the Project area provides an overview of the adverse impacts that the DWH oil spill and development have had on wetland habitat in the Project area.

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## CH12000 – Compliance with Other Laws, Regs & EOs

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<b>Concern ID: 62192</b>	<b>Commenter states that CPRA should coordinate with the local floodplain administrators to obtain any needed local permits.</b>
<b>Response ID: 15741</b>	CPRA would be responsible for coordinating as needed with the appropriate floodplain administrator(s) regarding any necessary permits prior to Project commencement if the Project is approved by USACE and funded by the LA TIG.

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<b>Concern ID: 62193</b>	<b>A commenter asked why permits were granted for construction of residential homes if there was knowledge of a forthcoming diversion, and why these applicants were not made aware of the diversion when applying for permits.</b>
<b>Response ID: 15742</b>	The USACE is evaluating whether to grant the State of Louisiana's (through CPRA) requested DA Section 10/404/408 permits for the proposed Project. Without those permits, the Project cannot proceed. The LA TIG cannot speak on behalf of the local permitting agency and their consideration of potential future projects in granting residential construction permits. The LA TIG has no authority over decisions regarding the construction or permitting of residential homes.

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<b>Concern ID: 62197</b>	<b>Commenter asked what the justification was for the waiver of the Endangered Species Act (ESA).</b>
<b>Response ID: 15744</b>	No waiver of the Endangered Species Act was granted for this proposed Project. USACE initiated formal ESA Section 7 consultation with NMFS on February 24, 2021 and USFWS on July 2, 2021, including submission of a Biological Assessment to each of the Services which analyzes the potential impacts to ESA-listed species. This Biological Assessment, as well as the agencies' response in the form of a Biological Opinion, can be found in Appendix O (Biological Assessment and Biological Opinion) of the Final EIS.

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<b>Concern ID: 62198</b>	<b>Commenter asked if there is a signed waiver of the MMPA.</b>
<b>Response ID: 15745</b>	Yes; the signed waiver can be found in Final EIS Appendix S (Compliance Documentation). Additional information about the MMPA waiver can be found at <a href="https://www.fisheries.noaa.gov/action/marine-mammal-protection-act-waiver-select-louisiana-coastal-master-plan-projects">https://www.fisheries.noaa.gov/action/marine-mammal-protection-act-waiver-select-louisiana-coastal-master-plan-projects</a> .
<b>Concern ID: 62503</b>	<b>In the future, CPRA and the LA TIG must fully analyze how proposed and future oil and gas infrastructure would impact the Project and must take the position that permits that excavate or oil marshes would impact Project success and are, therefore, inconsistent with the Project.</b>
<b>Response ID: 15769</b>	EIS Chapter 4, Section 4.25 Cumulative Impacts provides an analysis of the cumulative impacts of reasonably foreseeable future oil and gas infrastructure, including but not limited to the proposed NOLA Oil Terminal, Gulf Coast Methanol Complex, and Venture Global facility.
<b>Concern ID: 62505</b>	<b>A commenter expressed the view that there is bias when the same industries who stand to benefit from the program also research the impact of the program; it is a conflict of interest.</b>
<b>Response ID: 15985</b>	USACE is neither a proponent nor an opponent of the proposed Project. With respect to the EIS, USACE's third-party contractor, GEC, prepared the EIS based on its own research, expertise and review of scientific literature and based on technical reports and information submitted by the permit applicant, CPRA, LA TIG, and/or cooperating agencies. USACE and GEC reviewed such technical reports and information for technical accuracy and sufficiency and for objectivity. NMFS contributed to the portion of the EIS discussing marine mammals in the Project area in Chapter 3 of the EIS, and prepared the portion of the EIS discussing impacts on Marine Mammals in Chapter 4. The Delft3D modeling was performed by the Water Institute of the Gulf (Water Institute) for CPRA and the Water Institute provided information regarding the modeling used in the EIS. USACE and members of the LA TIG reviewed the model parameters and assumptions and determined that they were sufficient for the EIS. GEC executed an Organizational Conflict of Interest Certification attesting that it does not have any financial or other interest in the outcome of the USACE permit application and permission request process. Table 6-1 in Chapter 6 contains a List of Preparers identifying the primary authors of the EIS, their employers and their credentials. As USACE prepared the Draft EIS, draft chapters and sections and the Draft EIS were circulated to the members of the LA TIG and cooperating agencies for multiple rounds of review and comment. Commenters are not identified in the

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List of Preparers. See EIS Chapter 5, Section 5.2 for further explanation of the EIS preparation process.

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**Concern ID: 62507**

**Whether or not the CPRA feels compelled to affirmatively act to reduce impacts on BBES dolphins, the LA TIG's trust duties require that the LA TIG do so. LA TIG cannot allow one resource seriously impacted by DWH to be driven to functional extinction by a project intended to restore another resource.**

**Response ID: 15969**

The LA TIG recognizes the significant impacts the proposed Project would have on Barataria Basin bottlenose dolphins, as discussed in detail in both the EIS and the LA TIG's Restoration Plan. The DWH oil spill resulted in the oiling of more than 1,100 kilometers of wetlands, nearly all of which were located in coastal Louisiana (DWH NRDA Trustees 2016). The heaviest oiling occurred in the Barataria Basin, resulting in substantial injuries to natural resources in the basin (DWH NRDA Trustees 2016). Recognizing that the resulting loss of marsh productivity affected resources throughout the northern Gulf of Mexico ecosystem, the State of Louisiana and the federal Trustees that negotiated the DWH Natural Resource Damages settlement allocated \$4 billion, almost half of the total settlement amount, to restoring Louisiana's wetland, coastal, and nearshore habitats.

The LA TIG recognizes that any of the large-scale sediment diversion alternatives considered would potentially result in varying degrees of collateral injuries, including some high degree collateral injuries, to natural resources injured by the spill. See the Executive Summary and Section 3.2.1.5 of the Final Restoration Plan. The intended restoration of fresh water flows from the Mississippi River, which historically had characterized and shaped the Barataria Basin ecosystem before levee construction, would result in collateral injury to species that depend on the current higher-salinity conditions that exist without freshwater flows.

However, without the proposed Project, there would also be adverse impacts to some of the same species due to large-scale wetland loss over time, as is anticipated from ongoing sea-level rise, subsidence, and other existing stressors, which is anticipated to reduce the suitability of habitat for many of the species that currently occur in Barataria Basin.

The LA TIG must weigh the potential and extent of collateral injury against the benefits of the proposed Project (see Section 3.2.4 of the Final Restoration Plan for a discussion of how LA TIG weighed the potential collateral injury of the proposed Project against its potential benefits). The LA TIG believes that a sediment diversion is the only way to achieve a self-sustaining ecosystem in the Barataria Basin that more closely resembles historic conditions. As described in Section 3.2.1.6 of the Final Restoration Plan, this sustained ecosystem is expected to benefit many fish and wildlife species in the basin,



including many of those negatively affected by the spill, such as red drum, blue crab, white shrimp, Gulf menhaden, and migratory waterfowl. These benefits to fish and wildlife species also would translate to benefits to recreational users who watch, fish, or hunt those species. In addition, these benefits would not only accrue throughout the Barataria Basin but, through the transport of productivity also in the offshore ecosystems of the northern Gulf of Mexico. By reestablishing deltaic processes, the proposed Project is expected to enhance the ecological productivity of the estuary and improve food web dynamics that would provide benefit to the northern Gulf of Mexico ecosystem.

The LA TIG has selected the proposed Project because they believe it is critical to achieving the overall goals of the Wetlands, Coastal, and Nearshore Habitats Restoration Type in the Final PDARP/PEIS, which include providing benefits across the interconnected northern Gulf of Mexico ecosystem, and placing particular emphasis on coastal and nearshore habitat restoration in the historical Mississippi River Delta plain in Louisiana.

Consistent with the purposes of the proposed Project, the State of Louisiana has the duty, per the Budget Act, to minimize impacts on BBES dolphins. The MAM Plan (Appendix R2 to the Final EIS), the Mitigation and Stewardship Plan (Appendix R1 to the Final EIS), and Marine Mammal Intervention Plan (Appendix R5 to the Final EIS) include additional detail regarding the implementation of monitoring, stewardship, and adaptive management measures that would help mitigate potential impacts to bottlenose dolphins.

The Mitigation and Stewardship Plan and the MAM Plan provided in the Draft EIS Appendix R were submitted by CPRA and represent a range of potential mitigation, stewardship, monitoring and adaptive management measures (collectively, measures). At the time of publication of the Draft EIS for public review, Appendix R contained draft Plans and CPRA had not identified which of the measures contained in those Plans it intended to implement. CPRA expanded and refined the Final Mitigation and Stewardship Plan in response to community and resource agency input. The Final EIS Appendix R contains the final Plans, including the additional Marine Mammal Intervention Plan, and specifies which measures CPRA and the LA TIG intend to implement. Generally, impact determinations discussed in the EIS represent anticipated Project effects without implementation of these measures except in instances where such measures are identified in the discussion. If any mitigation, monitoring, or adaptive management measures are required by USACE as part of its approval of the proposed Project, such measures would be required as special conditions of the Department of the Army (DA) Section 10/404 permit and would be listed in the permit, if one is issued. Implementation of specific measures contained in either Plan, but not included in the

Section 10/404 permit as special conditions, would not be required by USACE. USACE does not know whether any particular measure that is not a DA permit condition would be implemented. Measures that USACE currently contemplates as conditions of a DA Section 10/404 permit, if one is issued, are provided in Chapter 4, Section 4.27 Mitigation Summary of the EIS.

The LA TIG explains in Section 1.5 of the Final Restoration Plan that it anticipates requiring implementation of the Mitigation and Stewardship Plan, MAM Plan, and Marine Mammal Intervention Plan as components of the proposed Project, if the Project is approved by the LA TIG for funding. Decisions regarding which measures would be required as part of the LA TIG's funding decision would be set forth in the LA TIG Record of Decision related to the proposed Project.

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**Concern ID: 62508**

**The CPRA and LA TIG must revise their analysis of impacts on BBES dolphins in light of Marine Mammal Commission Study, and have incorrectly interpreted BBA18 language as exempting them from the need to take affirmative action to reduce impacts to marine mammals.**

**Response ID: 15970**

The Final EIS includes an analysis of the impacts of the proposed Project on marine mammals, including bottlenose dolphins, in Chapter 4, Section 4.11 Marine Mammals. This includes the incorporation of Booth & Thomas (2021); Garrison et al. (2020); Schwacke et al. (2017) and additional analyses that were completed by Thomas et al. (2021) after the Draft EIS was released for public comment. The BBES dolphin impact conclusion in the Draft EIS was based in large part on Garrison et al. (2020), which predicted that only a "remnant population" of dolphins would continue to exist in Barataria Basin after diversion operations commenced. Thomas et al. (2021), a new study that built on this previous research, found more specifically that an "immediate and severe population-level decline" of 23 percent (95 percent CI 3 to 55 percent) would occur in the first year of operations. Their findings are consistent with the EIS determination of major, permanent adverse impacts to bottlenose dolphins. After the planned 50 years of operation, dolphins in three out of the four strata are predicted to be functionally extinct under the Applicant's Preferred Alternative, with the remaining Island stratum being severely reduced relative to the No Action Alternative (median predicted population size of Island stratum is 85 percent lower [95 percent CI 28-99] under the Applicant's Preferred Alternative than under the No Action Alternative). Overall, by the year 2076, the median predicted stock size across all of Barataria Bay under the Applicant's Preferred Alternative is 143 dolphins (95 percent CI 11-706) compared to 3363 (95 percent CI 2831-4289) under the No Action Alternative. In other words, the stock is predicted to be 96 percent

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smaller (95 percent CI 80-100) under the Applicant's Preferred Alternative than the No Action Alternative.

CPRA states that it is aware of its responsibility to minimize impacts on marine mammal species and population stocks, to the extent practicable and consistent with the purposes of the proposed Project per Section 20201(b) of the Bipartisan Budget Act of 2018. In recognition of the potential for collateral injuries from the proposed Project and acknowledging the inability to fully avoid or mitigate collateral injuries, the LA TIG has designed and CPRA would implement a suite of stewardship measures. See Section 3.2.1.1.5 of the LA TIG's Final Restoration Plan and Appendix R to the Final EIS. The LA TIG is also committed to continuing efforts to restore the resources that would be adversely affected by the diversion, many of which were also injured by the DWH oil spill.

The Mitigation and Stewardship Plan and the Monitoring and Adaptive Management (MAM) Plan provided in the Draft EIS Appendix R were submitted by CPRA and represent a range of potential mitigation, stewardship, monitoring and adaptive management measures (collectively, measures). At the time of publication of the Draft EIS for public review, Appendix R contained draft Plans and CPRA had not identified which of the measures contained in those Plans it intended to implement. CPRA expanded and refined the Final Mitigation and Stewardship Plan in response to community and resource agency input. The Final EIS Appendix R contains the final Plans, including the additional Marine Mammal Intervention Plan, and specifies which measures CPRA and the LA TIG intend to implement. Generally, impact determinations discussed in the EIS represent anticipated Project effects without implementation of these measures except in instances where such measures are identified in the discussion. If any mitigation, monitoring, or adaptive management measures are required by USACE as part of its approval of the proposed Project, such measures would be required as special conditions of the Department of the Army (DA) Section 10/404 permit and would be listed in the permit, if one is issued. Implementation of specific measures contained in either Plan, but not included in the Section 10/404 permit as special conditions, would not be required by USACE. USACE does not know whether any particular measure that is not a DA permit condition would be implemented. Measures that USACE currently contemplates as conditions of a DA Section 10/404 permit, if one is issued, are provided in Chapter 4, Section 4.27 Mitigation Summary of the EIS.

The LA TIG explains in Section 1.5 of the Final Restoration Plan that it anticipates requiring implementation of the Mitigation and Stewardship Plan, MAM Plan, and Marine Mammal Intervention Plan as components of the proposed Project, if the Project is approved by the LA TIG for funding. Decisions regarding which measures would be required as

part of the LA TIG's funding decision would be set forth in the LA TIG Record of Decision related to the proposed Project.

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**Concern ID: 62492**

**Commenters suggested that no permit should be issued as this Project would violate federal law.**

**Response ID: 15746**

Table 5.1-1 in Chapter 5, Section 5.1 Compliance with Laws, Regulations, and Executive Orders summarizes the Project's status of compliance with applicable federal statutes, executive orders, and policies. Final EIS Appendix S (Compliance Documentation) provides associated documentation of this compliance.

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**Concern ID: 62502**

**The Marine Mammal Protection Act waiver granted to allow this Project to circumvent compliance with the Marine Mammal Protection Act should be rescinded and the Project should be forced to go through the entire permitting process.**

**Response ID: 15968**

The Bipartisan Budget Act of 2018, Public Law 115-123, included a requirement that the Secretary of Commerce (as delegated to the Assistant Administrator of the NMFS) "shall issue a waiver of (MMPA prohibitions and requirements)" for three projects, including the proposed MBSD Project. In accordance with this Congressional directive, NMFS issued the waiver on March 15, 2018. As directed by Congress, the waiver operates "for the duration of the construction, operation, or maintenance of the . . . projects." Congress would need to act to allow rescission of the waiver. More information on the waiver can be found at <https://www.fisheries.noaa.gov/action/marine-mammal-protection-act-waiver-select-louisiana-coastal-master-plan-projects>. The MMPA waiver does not alter USACE's or the LA TIG's NEPA responsibility to evaluate anticipated impacts of the proposed Project on marine mammals. The EIS analyzes and discloses the environmental and economic impacts of the proposed Project, including anticipated effects on marine mammals (see Chapter 4, Section 4.11 Marine Mammals). The NEPA process was not abbreviated to expedite review. All steps in the NEPA process have been followed to allow for public participation and transparency, including scoping, public review and comment periods.

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**Concern ID: 62504**

**This area should be protected by the Magnuson-Stevens Fisheries Conservation and Management Act of 1976.**

**Response ID: 15747**

Estuarine and marine areas within the Project area are considered Essential Fish Habitat under the Magnuson-Stevens Fishery Conservation and Management Act. As required by that Act, USACE and the LA TIG formally requested essential fish habitat (EFH) consultation with NMFS on February 24, 2021, regarding the proposed Project. As a cooperating agency in the development of the EIS, NMFS provided technical input for the development of an EFH assessment. NMFS reviewed the EFH assessment and concurred with the USACE's

findings of impacts on federally managed fisheries from the construction and operation of the proposed Project. NMFS included two conservation recommendations in its concurrence letter. USACE and the LA TIG provided interim responses to the NMFS concurrence letter, both noting that they would provide a final response prior to the issuance of any Record of Decision for the Project. The EFH assessment, NMFS concurrence, and the USACE and LA TIG responses can be found in the Final EIS Appendix N (Aquatic Resources including Essential Fish Habitat Assessment).

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**Concern ID: 62506**

**Commenters noted that this Project is in direct violation of the Plaquemines Parish ordinance 14 - 52 which prohibits the granting of any permits in Plaquemines Parish regarding the construction and development of additional freshwater sediment diversion projects.**

**Response ID: 15989**

The permit applicant, CPRA, is responsible for compliance with local laws and regulations applicable to the Project.

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**Concern ID: 62194**

**The passage of a MMPA waiver in Congress would allow the Project to move forward without adhering to federal measures to protect dolphins, and puts money and greed above the welfare of citizens and animals.**

**Response ID: 15967**

The USACE had no role in seeking a waiver from Congress, nor did any LA TIG federal agencies. The MMPA waiver does not alter USACE's or the LA TIG's NEPA responsibility to evaluate anticipated impacts of the proposed Project on marine mammals. The EIS analyzes and discloses the environmental and economic impacts of the proposed Project, including anticipated effects on marine mammals (see Chapter. 4, Section 4.11 Marine Mammals).

Congress passed the Bipartisan Budget Act of 2018, Public Law 115-123 (BBA-18), which recognized the consistency of the proposed Project, among other CPRA projects, with the findings and policy declarations in Section 2(6) of the MMPA. The BBA-18 included a requirement that the Secretary of Commerce, as delegated to the Assistant Administrator of the NMFS, issue a waiver of the MMPA moratorium and prohibitions for the proposed Project. As directed by Congress, on March 15, 2018, NMFS issued the waiver pursuant to BBA-18 and Section 101(a)(3)(A) of the MMPA: "National Marine Fisheries Service hereby issues this waiver pursuant to title II, section 20201 of the Bipartisan Budget Act of 2018 and section 101(a)(3)(A) of the MMPA for the three named projects, as selected by the 2017 Louisiana Comprehensive Master Plan for a Sustainable Coast. The requirements of sections 101(a) and 102(a) of the MMPA do not apply to any take of marine mammals caused by and for the duration of the construction, operation, or maintenance of the three named projects."

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BBA-18 also required the State of Louisiana, in consultation with the Secretary of Commerce (delegated to NMFS), to the extent practicable and consistent with the purposes of the proposed Project, to minimize impacts on marine mammal species and population stocks, and monitor and evaluate the impacts of the proposed Project on such species and population stocks.

More information on the waiver can be found at <https://www.fisheries.noaa.gov/action/marine-mammal-protection-act-waiver-select-louisiana-coastal-master-plan-projects>.

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**Concern ID: 62196**

**Commenter asked whether the Federal Government would enforce harder restrictions on harmful nutrients since the Project would remove part of a Federal levee.**

**Response ID: 15743**

USACE regulates the discharge of dredged or fill material into waters of the United States under Section 404 of the Clean Water Act (CWA) and USACE is evaluating whether to grant a CWA Section 404 permit for the proposed Project. As part of its Section 404 permitting process, USACE evaluates whether the proposed discharge meets the USEPA's CWA Section 404(b)(1) Guidelines. Under the Guidelines, no discharge of dredged or fill material may be permitted if (among other things) the nation's waters would be significantly degraded. In its 404(b)(1) analysis, USACE evaluates a proposed discharge's effects on several components of water quality, including physical, chemical and biological characteristics. The CWA Section 404(b)(1) evaluation is not related to the proposed removal of a portion of the Mississippi River Levee and USACE's evaluation will comply with applicable laws and guidance. In addition, the Project is subject to applicable water quality standards through the CWA Section 401 water quality certification, which is administered by the LDEQ.

USACE and the LA TIG are not aware of current laws or regulations that would require harder water quality restrictions or requirements for the proposed Project due to its removal of a section of river levee to divert flow from the river into an adjoining basin. The EIS evaluates the impacts of diversion of Mississippi River water on water quality in the Barataria Basin, (see Chapter 4, Section 4.5.5 in Surface Water and Sediment Quality).

CPRA's Monitoring and Adaptive Management (MAM) Plan for the proposed Project includes water quality monitoring for nutrients and other water quality parameters. This monitoring data would inform future Project management decisions aimed at improving Project effectiveness and/or limiting ecological and/or human impacts when possible. Details regarding the MAM Plan are found in Section 4.27 Mitigation Summary of the Final EIS, and Appendix R2 (Monitoring and Adaptive Management Plan).



The Mitigation and Stewardship Plan and the MAM Plan provided in the Draft EIS Appendix R were submitted by CPRA and represent a range of potential mitigation, stewardship, monitoring and adaptive management measures (collectively, measures). At the time of publication of the Draft EIS for public review, Appendix R contained draft Plans and CPRA had not identified which of the measures contained in those Plans it intended to implement. CPRA expanded and refined the Final Mitigation and Stewardship Plan in response to community and resource agency input. The Final EIS Appendix R contains the final Plans and specifies which measures CPRA and the LA TIG intend to implement. Generally, impact determinations discussed in the EIS represent anticipated Project effects without implementation of these measures except in instances where such measures are identified in the discussion. If any mitigation, monitoring, or adaptive management measures are required by USACE as part of its approval of the Project, such measures would be required as special conditions of the Department of the Army (DA) Section 10/404 permit and would be listed in the permit, if one is issued. Implementation of specific measures contained in either Plan, but not included in the Section 10/404 permit as special conditions, would not be required by USACE. USACE does not know whether any particular measure that is not a DA permit condition would be implemented. Measures that USACE currently contemplates as conditions of a DA Section 10/404 permit, if one is issued, are provided in Chapter 4, Section 4.27 Mitigation Summary of the EIS.

The LA TIG explains in Section 1.5 of the Final Restoration Plan that it anticipates requiring implementation of the Mitigation and Stewardship Plan, MAM Plan, and Marine Mammal Intervention Plan as components of the proposed Project, if the Project is approved by the LA TIG for funding. Decisions regarding which measures would be required as part of the LA TIG's funding decision would be set forth in the LA TIG Record of Decision related to the proposed Project.

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## CH13000 – Restoration and Project Goals and Objectives

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**Concern ID: 62796**

**Commenters questioned whether, based on limited scale of wetlands proposed to be constructed, the Project is worth the economic impacts on the communities, industry, and tourism.**

**Response ID: 16495**

The economic impacts that the commenter highlighted were considered in the Draft EIS in Chapter 4, Section 4.13 Socioeconomics, Section 4.14 Commercial Fisheries, Section 4.15 Environmental Justice, Section 4.16 Recreation and Tourism, and 4.20 Public Health and

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Safety. No related edits were made to these sections in response to the commenter's concern.

As part of its Section 10/404 permitting decision-making process, USACE conducts a public interest review, which weighs the probable harms of a project against its prospective benefits.

CPRA has updated its Mitigation and Stewardship Plan in response to public comments to expand support for job training and alternate business ventures, boat and facility improvements, marketing, and mitigation and stewardship measures (see Appendix R1 to the Final EIS).

These issues were also considered in the LA TIG's Draft Restoration Plan in Sections 3.2.1.5 (Avoids Collateral Injury) and 3.2.1.7 (Public Health and Safety). While these sections were not revised based on this comment, Section 3.2.1.1.5 (Alternative 1 Description - Associated Stewardship Measures) of the Final Restoration Plan has been revised to reflect the updates to the Mitigation and Stewardship Plan noted above.

The Mitigation and Stewardship Plan and the Monitoring and Adaptive Management (MAM) Plan provided in Draft EIS Appendix R were submitted by CPRA and represent a range of potential mitigation, stewardship, monitoring and adaptive management measures (collectively, measures). At the time of publication of the Draft EIS for public review, Appendix R contained draft Plans and CPRA had not identified which of the measures contained in those Plans it intended to implement. The Final EIS Appendix R contains the final Plans and specifies which measures CPRA and the LA TIG intend to implement. Generally, impact determinations discussed in the EIS represent anticipated Project effects without implementation of these measures except in instances where such measures are identified in the discussion. If any mitigation, monitoring or adaptive management measures are required by USACE as part of its approval of the Project, such measures would be required as special conditions of the Department of the Army (DA) Section 10/404 permit and would be listed in the permit, if one is issued. Implementation of specific measures contained in either Plan, but not included in the Section 10/404 permit as special conditions, would not be required by USACE. USACE does not know whether any particular measure that is not a DA permit condition would be implemented. Measures that USACE currently contemplates as conditions of a DA Section 10/404 permit, if one is issued, are provided in Chapter 4, Section 4.27 Mitigation Summary of the EIS.

The LA TIG explains in Section 1.5 of the Final Restoration Plan that it anticipates requiring implementation of the Mitigation and Stewardship Plan, MAM Plan, and Marine Mammal Intervention Plan as components



of the proposed Project, if the Project is approved by the LA TIG for funding. Decisions regarding which measures would be required as part of the LA TIG's funding decision would be set forth in the LA TIG Record of Decision related to the proposed Project.

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**Concern ID: 62797**

**Commenters questioned the goals and objectives for this Project. They noted that, given the potential for environmental and economic impacts on other resources from this Project, whether the MBSD meets the NRDA criteria to restore for damages caused by the DWH oil spill. They also questioned whether the proposed Project would be appropriate, given that the main driver of wetland loss is historical coastal oil and gas development, not the oil spill. They noted that 80 percent of the acreage projected to be reclaimed or built through the MBSD is privately owned by oil and gas companies.**

**Response ID: 16606**

USACE is not evaluating the proposed Project for compliance with the OPA and is not involved in the process to restore the damage caused by the DWH oil spill. As explained in the Restoration Plan, the LA TIG is responsible for deciding the appropriate use of NRDA funds to restore natural resources injured by the DWH spill in the Louisiana Restoration Area. As explained in the Final EIS, Appendix B2 DEIS Public Review and Public Meetings, Section 2.0 Agency Roles in the Responses to Public Comments, response content pertaining to the LA TIG's Draft Restoration Plan, the OPA and/or NRDA processes, or other Trustee Planning was developed by the LA TIG and states only the LA TIG's views.

In the Restoration Plan, the LA TIG explained that the DWH oil spill resulted in the oiling of more than 1,100 kilometers of wetlands, nearly all of which were located in coastal Louisiana (DWH NRDA Trustees, 2016). The heaviest oiling occurred in the Barataria Basin, resulting in substantial injuries to natural resources in the basin (DWH NRDA Trustees, 2016). Recognizing that the resulting loss of marsh productivity affected resources throughout the northern Gulf of Mexico ecosystem, the State of Louisiana and the federal Trustees that negotiated the DWH Natural Resource Damages settlement allocated \$4 billion, almost half of the total settlement amount, to restoring Louisiana's wetland, coastal, and nearshore habitats.

The LA TIG recognizes that any of the large-scale sediment diversion alternatives considered would potentially result in varying degrees of collateral injuries, including some high degree of collateral injuries, to natural resources injured by the spill (see the Executive Summary and Section 3.2.1.5 [Avoids Collateral Injury] of the LA TIG's Restoration Plan). The intended restoration of fresh water flows from the Mississippi River, which historically had characterized and shaped the Barataria Basin ecosystem before levee construction, would result in collateral

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injury to species that depend on the current higher-salinity conditions that exist without freshwater flows. However, as noted in the LA TIG's Restoration Plan without the proposed Project, sea-level rise, subsidence, and other existing stressors would result in additional marsh loss over time reducing the suitability of habitat for many of the same species that occur in Barataria Basin.

The LA TIG must weigh the potential and extent of collateral injury against the benefits of the proposed Project (see Section 3.2.4 [Overall OPA Evaluation Conclusions] of the Restoration Plan for a discussion of how the LA TIG weighed the potential collateral injury of the proposed Project against its potential benefits). The LA TIG believes that a sediment diversion is the only way to achieve a self-sustaining ecosystem in the Barataria Basin that more closely resembles historic conditions. As described in Section 3.2.1.6 (Benefits Multiple Resources) of the LA TIG's Restoration Plan, this sustained ecosystem is expected to benefit many fish and wildlife species in the basin, including many of those negatively affected by the spill, such as red drum, blue crab, white shrimp, Gulf menhaden, and migratory waterfowl. These benefits to fish and wildlife species also would translate to benefits to recreational users who watch, fish, or hunt those species. In addition, these benefits would not only accrue throughout the Barataria Basin but, through the transport of productivity, also in the offshore ecosystems of the northern Gulf of Mexico. By reestablishing deltaic processes, the proposed Project would be expected to enhance the ecological productivity of the estuary and improve food web dynamics that would provide benefit to the northern Gulf of Mexico ecosystem.

The LA TIG has selected the proposed Project as its Preferred Alternative because the LA TIG believes it is critical to achieving the overall goals of the Wetlands, Coastal, and Nearshore Habitats Restoration Type in the Final PDARP/PEIS, which include providing benefits across the interconnected northern Gulf of Mexico ecosystem, and placing particular emphasis on coastal and nearshore habitat restoration in the historical Mississippi River Delta plain in Louisiana.

In its Strategic Restoration Plan for Barataria Basin (2018), the LA TIG evaluated the potential and extent of collateral injury for a range of restoration techniques. Unfortunately, almost all large-scale restoration comes with some potential for collateral injury. The LA TIG evaluated each alternative against a variety of factors, including those outlined in 15 CFR §990.54. In the Restoration Plan, the LA TIG strives to identify an alternative that would provide what it considers the right balance in terms of being cost-appropriate, meeting LA TIG goals, having a high likelihood of success, and avoiding collateral injury. Again, see Section

3.2.4 of the Restoration Plan for a discussion of how the LA TIG came to its decision.

In recognition of the potential for collateral injuries, and acknowledging the inability to fully avoid or mitigate collateral injuries, the LA TIG has designed and CPRA would implement a suite of mitigation and stewardship measures (see Section 3.2.1.1.5 [Associated Stewardship Measures] of the Restoration Plan and Appendix R1 to the EIS). The LA TIG is also committed through these measures to continuing efforts to restore the resources that would be adversely affected by the diversion, many of which were also injured by the DWH oil spill.

The LA TIG acknowledges the concern regarding wetland loss drivers related to oil and gas activity, as well as the concern over the private ownership of the lands upon which wetlands would be created by the proposed Project. Regardless of the historic drivers of wetland loss, as explained in the Strategic Restoration Plan for Barataria Basin, because the Barataria Basin received the heaviest oiling from the DWH oil spill, the LA TIG believes that restoration activities in that basin are imperative.

With regard to the land ownership issue, the LA TIG's Restoration Plan details the reasoning supporting the location of the proposed Project, which is based on optimizing land building within the basin, regardless of ownership of the underlying land (see Section 2.3.3 [Restoration Planning Process – Proposed MBSD Project Location Alternatives] in the Restoration Plan). Private lands in the outfall area would be subject to the regular permitting processes required to conduct activities in the coastal zone. Activities on private lands would need to be in conformity with the Louisiana Coastal Zone Management Program, La. R.S. 49:214.21 and would be required to comply with the permitting requirements under the program. All coastal use permitting under the program must be consistent with the CPRA Master Plan projects. Additionally, private landowners would be required to comply with any other permitting requirements applicable to the area, including Department of the Army (DA) CWA Section 404 permits.

The Mitigation and Stewardship Plan and the Monitoring and Adaptive Management (MAM) Plan provided in Draft EIS Appendix R were submitted by CPRA and represent a range of potential mitigation, stewardship, monitoring and adaptive management measures (collectively, measures). At the time of publication of the Draft EIS for public review, Appendix R contained draft Plans and CPRA had not identified which of the measures contained in those Plans it intended to implement. The Final EIS Appendix R contains the final Plans, and specifies which measures CPRA and the LA TIG intend to implement. Generally, impact determinations discussed in the EIS represent anticipated Project effects without implementation of these measures

except in instances where such measures are identified in the discussion. If any mitigation, monitoring or adaptive management measures are required by USACE as part of its approval of the proposed Project, such measures would be required as special conditions of the DA Section 10/404 permit and would be listed in the permit, if one is issued. Implementation of specific measures contained in either Plan, but not included in the Section 10/404 permit as special conditions, would not be required by USACE. USACE does not know whether any particular measure that is not a DA permit condition would be implemented. Measures that USACE currently contemplates as conditions of a DA Section 10/404 permit, if one is issued, are provided in Chapter 4, Section 4.27 Mitigation Summary of the EIS.

The LA TIG explains in Section 1.5 of the Final Restoration Plan that it anticipates requiring implementation of the Mitigation and Stewardship Plan, MAM Plan, and Marine Mammal Intervention Plan as components of the proposed Project, if the Project is approved by the LA TIG for funding. Decisions regarding which measures would be required as part of the LA TIG's funding decision would be set forth in the LA TIG Record of Decision related to the proposed Project.

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**Concern ID: 62798**

**A commenter questioned the scale of the goals and objectives of comprehensive integrated ecosystem restoration in response to the DWH oil spill, noting it is overly ambitious. They suggested that DWH restoration focus on the impacts from the oil spill and not on comprehensive ecosystem restoration.**

**Response ID: 16496**

USACE is not evaluating the proposed Project for compliance with the OPA and is not involved in the process to restore the damage caused by the DWH oil spill. As explained in the Restoration Plan, the LA TIG is responsible for deciding the appropriate use of NRDA funds to restore natural resources injured by the DWH spill in the Louisiana Restoration Area. As explained in the Final EIS, Appendix B2 DEIS Public Review and Public Meetings, Section 2.0 Agency Roles in the Responses to Public Comments, response content pertaining to the LA TIG's Draft Restoration Plan, the OPA and/or NRDA processes, or other Trustee Planning was developed by the LA TIG and states only the LA TIG's views. With respect to the Restoration Plan, the Record of Decision for the Final PDARP/PEIS, published on March 29, 2016, documented the selection of Alternative A: Comprehensive Integrated Ecosystem Alternative as the preferred restoration alternative that would provide ecosystem-scale restoration to partially offset ecosystem-scale losses. Alternative A in the PDARP/PEIS was not selected for the principal purpose of addressing coastal land loss. Rather, as explained in detail in the PDARP/PEIS, Alternative A was selected because the Trustees determined that the best approach to addressing the ecosystem-wide injuries resulting from the spill was to take an ecosystem approach to restoration. One key reason for this

was that it was not possible to evaluate with certainty injuries to all of the species that were injured by the spill or to ascertain with precision the extent of injury to each species. The restoration strategy in Alternative A addressed those uncertainties by emphasizing restoration of habitat types that are critical to the ecosystem that supports the species injured by the spill (including both known and unknown injuries), as well as restoring critical habitat such as coastal marsh that also was injured by the spill, particularly in Barataria Basin. In light of the basis for Alternative A in the PDARP/PEIS, the Project is a particularly appropriate means of implementing that preferred alternative because the restoration of deltaic processes builds marsh and sustains and enhances other existing marshlands, thus strengthening the key habitats that are the basis for the rich nearshore ecosystem that extends into the northern Gulf of Mexico.

Although the LA TIG recognizes the concern by the commenter that they would have preferred a different alternative for the Final PDARP/PEIS, the selection of Alternative A is not being reconsidered in the LA TIG's Restoration Plan. Given the previous selection of Alternative A in 2016, the LA TIG has the responsibility to identify restoration projects that would further the goals of comprehensive, integrated ecosystem restoration as described in the Final PDARP/PEIS. The LA TIG has done this through a series of plans, including the current plan being evaluated for a Mid-Barataria Sediment Diversion. The evaluation of the nexus between the Project and the injury that resulted from the DWH oil spill is presented in Section 2 of the Restoration Plan.

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## CH17000 – Public Participation Process

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**Concern ID: 61703**

**Locals who live and work in the affected area and would be adversely impacted by the proposed Project are disregarded by decision makers for the Project.**

**Response ID: 15733**

Public input is an integral part of the NEPA process, the OPA process, and the DWH oil spill restoration planning effort. USACE and the LA TIG undertook a coordinated and concurrent public review process for the EIS and the LA TIG's Restoration Plan. Allowing submission of comments on either document to the same locations provided commenters a "one-stop shop" and was done to reduce confusion by commenters about where to direct their comments regarding the MBSD Project. Additionally, this ensured the LA TIG reviewed and considered all relevant comments to both the Restoration Plan and the Draft EIS in its decision-making process. All public comments received have been reviewed by both USACE and the LA TIG and will be considered as

appropriate under relevant regulations by USACE and by the LA TIG, respectively, as each makes its decision on the proposed MBSD Project. For a summary of public outreach efforts related to the Draft EIS refer to Chapter 7 Public Involvement of the Final EIS and for restoration planning see Section 1.8 of the LA TIG's Final Restoration Plan.

CPRA has conducted outreach associated with its Sediment Diversion Program, including Coastal Connections meetings throughout the proposed MBSD Project area over the past several years. In addition, since the release of the Draft EIS, CPRA has engaged the public through numerous meetings with the communities projected to be impacted by the proposed MBSD Project to solicit input on mitigation and stewardship strategies. Refer to the Final Mitigation and Stewardship Plan in Appendix R1 for mitigation and stewardship measures that would be implemented as a result of the public involvement and engagement efforts.

The Mitigation and Stewardship Plan and the Monitoring and Adaptive Management (MAM) Plan provided in the Draft EIS Appendix R were submitted by CPRA and represent a range of potential mitigation, stewardship, monitoring and adaptive management measures (collectively, measures). At the time of publication of the Draft EIS for public review, Appendix R contained draft Plans and CPRA had not identified which of the measures contained in those Plans it intended to implement. The Final EIS Appendix R contains the final Plans and specifies which measures CPRA and the LA TIG intend to implement. Generally, impact determinations discussed in the EIS represent anticipated Project effects without implementation of these measures except in instances where such measures are identified in the discussion. If any mitigation, monitoring, or adaptive management measures are required by USACE as part of its approval of the proposed Project, such measures would be required as special conditions of the Department of the Army (DA) Section 10/404 permit and would be listed in the permit, if one is issued. Implementation of specific measures contained in either Plan, but not included in the Section 10/404 permit as special conditions, would not be required by USACE. USACE does not know whether any particular measure that is not a DA permit condition would be implemented. Measures that USACE currently contemplates as conditions of a DA Section 10/404 permit, if one is issued, are provided in Chapter 4, Section 4.27 Mitigation Summary of the EIS.

The LA TIG explains in Section 1.5 of the Final Restoration Plan that it anticipates requiring implementation of the Mitigation and Stewardship Plan, MAM Plan, and Marine Mammal Intervention Plan as components of the proposed Project, if the Project is approved by the LA TIG for funding. Decisions regarding which measures would be required as



part of the LA TIG's funding decision would be set forth in the LA TIG Record of Decision related to the proposed Project.

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**Concern ID: 61707**

**Commenter is concerned that adverse impacts on coastal communities would be disregarded when operating the proposed MBSD diversion, similar to how coastal communities were disregarded in past operation of the Caernarvon Diversion.**

**Response ID: 15734**

Public input is an integral part of the NEPA process, the OPA process, and the DWH oil spill restoration planning effort. USACE and the LA TIG undertook a coordinated and concurrent public review process for the EIS and the LA TIG's Restoration Plan. Allowing submission of comments on either document to the same locations provided commenters a "one-stop shop" and was done to reduce confusion by commenters about where to direct their comments regarding the MBSD Project. Additionally, this ensured the LA TIG reviewed and considered all relevant comments to both the Restoration Plan and the Draft EIS in its decision-making process. All public comments received have been reviewed by both USACE and the LA TIG and will be considered as appropriate under relevant regulations by USACE and by the LA TIG, respectively, as each makes its decision on the proposed MBSD Project.

CPRA has conducted outreach associated with its Sediment Diversion Program, including Coastal Connections meetings throughout the proposed MBSD Project area over the past several years. In addition, since the release of the Draft EIS, CPRA has engaged the public through numerous meetings with the communities projected to be impacted by the proposed MBSD Project to solicit input on mitigation and stewardship strategies. A summary of these public engagement meetings can be found in Chapter 7 Public Involvement of the Final EIS. Refer to the Final Mitigation and Stewardship Plan in Appendix R1 for mitigation and stewardship measures that would be implemented as a result of the public involvement and engagement efforts. For a summary of public outreach efforts related to restoration planning see Section 1.8 of the LA TIG's Restoration Plan.

CPRA would operate the proposed MBSD Project as described in their Operations Plan. See Appendix F2, Preliminary Operations Plan in the Final EIS. In addition, see Final EIS Appendix R2 for the Monitoring and Adaptive Management (MAM) Plan for details on the proposed Project operational and adaptive management governance. In the context of the proposed Project, governance refers to how CPRA, with input from other stakeholders, would make decisions over the life of the Project. Decisions would include, but not be limited to, continuation of and changes to Project operations, riverside management, monitoring, maintenance, and adaptive management actions. CPRA would provide annual operations plans, annual operations performance reports,

annual monitoring reports, and multi-year monitoring and adaptive management reports (at five-year intervals) on CPRA's CIMS website (<https://cims.coastal.louisiana.gov/default.aspx>), as well as, on NOAA's Data Integration, Visualization, Exploration, and Reporting (DIVER) Explorer tool and Trustee Council websites. These plans would be available to stakeholders and the public. The stakeholders and the public would have an opportunity to participate in public meetings held to solicit comments, perspectives, and insights on the annual operations plans. The Mitigation and Stewardship Plan and the MAM Plan provided in the Draft EIS Appendix R were submitted by CPRA and represent a range of potential mitigation, stewardship, monitoring and adaptive management measures (collectively, measures). At the time of publication of the Draft EIS for public review, Appendix R contained draft Plans and CPRA had not identified which of the measures contained in those Plans it intended to implement. The Final EIS Appendix R contains the final Plans and specifies which measures CPRA and the LA TIG intend to implement. Generally, impact determinations discussed in the EIS represent anticipated Project effects without implementation of these measures, except in instances where such measures are identified in the discussion. If any mitigation, monitoring, or adaptive management measures are required by USACE as part of its approval of the proposed Project, such measures would be required as special conditions of the Department of the Army (DA) Section 10/404 permit and would be listed in the permit, if one is issued. Implementation of specific measures contained in either Plan, but not included in the Section 10/404 permit as special conditions, would not be required by USACE. USACE does not know whether any particular measure that is not a DA permit condition would be implemented. Measures that USACE currently contemplates as conditions of a DA Section 10/404 permit, if one is issued, are provided in Chapter 4, Section 4.27 Mitigation Summary of the EIS.

The LA TIG explains in Section 1.5 of the Final Restoration Plan that it anticipates requiring implementation of the Mitigation and Stewardship Plan, MAM Plan, and Marine Mammal Intervention Plan as components of the proposed Project, if the Project is approved by the LA TIG for funding. Decisions regarding which measures would be required as part of the LA TIG's funding decision would be set forth in the LA TIG Record of Decision related to the proposed Project.

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**Concern ID: 61707a**

**Commenter is concerned that adverse impacts on coastal habitats are being disregarded and that adverse impacts similar to those associated with the Caernarvon Diversion would occur.**

**Response ID: 15734a**

Chapter 4 of the EIS contains a summary of the impacts that the Project is anticipated to have on coastal habitats. The commenter's concern regarding the effects of existing diversions and diversion-like structures is noted. A summary of select natural and man-made

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diversions (and diversion-like structures) in southeastern Louisiana has been developed to compare the purpose and/or characteristics of these diversions to the proposed MBSD Project, and their recorded impacts on the natural environment. This summary, which includes discussions on the Caernarvon Diversion is available in Appendix U Summary of Select Natural and Man-made Diversions in Southeastern Louisiana of the Final EIS.

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**Concern ID: 61753**

**Commenter is concerned that the government would stop spending money in Plaquemines Parish if the parish doesn't support the proposed Project.**

**Response ID: 15889**

USACE is neither a proponent nor an opponent of the proposed MBSD Project. USACE's ongoing and future work in Plaquemines Parish has no connection to this Section 10/404/408 permit review.

CPRA and LA TIG decisions regarding funding for restoration projects, including in Plaquemines Parish, would be handled separately from the decisions related to the proposed MBSD Project. The LA TIG has previously funded restoration projects in Plaquemines Parish through the Natural Resource Damage restoration planning process, and would consider future projects based on the same OPA NRDA criteria that has been used in the past. CPRA's Coastal Master Plan includes both ecosystem restoration and flood protection projects in Plaquemines Parish.

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**Concern ID: 61754**

**Commenter expressed the view that decision makers prioritize the proposed Project benefits for New Orleans and disregard how the Project would impact Plaquemines Parish residents.**

**Response ID: 15890**

As discussed throughout Chapter 4 Environmental Consequences of the EIS, operation of the proposed Project would have various beneficial (and adverse) impacts throughout the Barataria Basin that would not be restricted to those experienced by the greater New Orleans area. The USACE is evaluating the projected impacts of the Project in the EIS. As part of its Section 10/404 permitting decision-making process, USACE also conducts a public interest review, which weighs the probable harms of the proposed action against its potential benefits. Further, based on the evaluation in the EIS and its OPA evaluation, the LA TIG considers the impacts of the proposed Project, both beneficial and negative to both the environment and the community, including Plaquemines Parish.

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**Concern ID: 61756**

**The proposed MBSD Project sponsors should work proactively and collaboratively with potentially impacted communities to develop ideas and proposals for adaptation and mitigation and be as detailed and transparent as possible throughout the mitigation planning process. Use local non-profits to facilitate any mitigation and stewardship measures that are decided upon. CPRA and the LA TIG should continue to encourage, accept, and solicit ideas and specific recommendation for mitigation after the June 4 deadline for these comments. The opportunity for continued input to inform the ultimate spending of those funds should also be made very clear publicly. The commenter also urges early action, as possible, before there is damage to mitigate.**

**Response ID: 15891**

CPRA has sought and continues to seek engagement and participation from the public, agency, and stakeholder groups wishing to be involved in the coastal restoration process. Over the past several years, CPRA has conducted outreach associated with its Sediment Diversion Program, including Coastal Connections meetings throughout the proposed MBSD Project area. In addition, since the release of the Draft EIS, CPRA has engaged the public through meetings with the communities projected to be impacted by the proposed MBSD Project to solicit input on mitigation and stewardship strategies, including reaching out to local non-governmental/non-profit organizations to assist with and facilitate meetings with the impacted communities and groups. These efforts have included deploying several tools and forms of outreach to solicit feedback on mitigation and stewardship measures. Meeting formats included small group briefings, one-on-one individual discussions, open-house style meetings, and virtual webinars. CPRA states that it would provide additional opportunities for public engagement if the proposed Project moves forward including Coastal Connections meetings and use of community non-profit organizations to help ensure that diverse populations are aware of and take advantage of the mitigation and stewardship measures adopted as part of the proposed Project, if implemented. A summary of these public engagement meetings can be found in Chapter 7 Public Involvement of the Final EIS. Refer to the Final Mitigation and Stewardship Plan in Appendix R1 for mitigation and stewardship measures that would be implemented as a result of the public involvement and engagement efforts.

In addition, refer to Final EIS Appendix R2 for the Monitoring and Adaptive Management (MAM) Plan for details on the proposed Project operational and adaptive management governance if the Project is implemented. In the context of the proposed Project, governance refers to how CPRA, with input from other stakeholders, would make decisions over the life of the Project. Decisions would include, but not be limited to, continuation of and changes to proposed Project

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operations, riverside management, monitoring, maintenance, and adaptive management actions. CPRA would provide annual operations plans, annual operations performance reports, annual monitoring reports, and multi-year monitoring and adaptive management reports (at five-year intervals) on CPRA's CIMS website (<https://cims.coastal.louisiana.gov/default.aspx>), as well as, on NOAA's Data Integration, Visualization, Exploration, and Reporting (DIVER) Explorer tool and Trustee Council websites. These plans would be available to stakeholders and the public. The stakeholders and the public would have an opportunity to participate in public meetings held to solicit comments, perspectives, and insights on the annual operations plans.

The Mitigation and Stewardship Plan and the MAM Plan provided in the Draft EIS Appendix R were submitted by CPRA and represent a range of potential mitigation, stewardship, monitoring and adaptive management measures (collectively, measures). At the time of publication of the Draft EIS for public review, Appendix R contained draft Plans and CPRA had not identified which of the measures contained in those Plans it intended to implement. The Final EIS Appendix R contains the final Plans and specifies which measures CPRA and the LA TIG intend to implement. Generally, impact determinations discussed in the EIS represent anticipated Project effects without implementation of these measures except in instances where such measures are identified in the discussion. If any mitigation, monitoring, or adaptive management measures are required by USACE as part of its approval of the proposed Project, such measures would be required as special conditions of the Department of the Army (DA) Section 10/404 permit and would be listed in the permit, if one is issued. Implementation of specific measures contained in either Plan, but not included in the Section 10/404 permit as special conditions, would not be required by USACE. USACE does not know whether any particular measure that is not a DA permit condition would be implemented. Measures that USACE currently contemplates as conditions of a DA Section 10/404 permit, if one is issued, are provided in Chapter 4, Section 4.27 Mitigation Summary of the EIS.

The LA TIG explains in Section 1.5 of the Final Restoration Plan that it anticipates requiring implementation of the Mitigation and Stewardship Plan, MAM Plan, and Marine Mammal Intervention Plan as components of the proposed Project, if the Project is approved by the LA TIG for funding. Decisions regarding which measures would be required as part of the LA TIG's funding decision would be set forth in the LA TIG Record of Decision related to the proposed Project.

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**Concern ID: 61757**

**Commenters recommended educating the public about the proposed Project as well as the impacts of the No Action**

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**Alternative. There would be a benefit of continued education with the affected communities.****Response ID: 15893**

As part of the Draft EIS process, USACE prepared various materials to educate the public regarding the analysis and impacts included in the Draft EIS. This included an Executive Summary summarizing the details of the Draft EIS into a concise, easy to read, document. Additionally, at the beginning of the public comment period, CEMVN posted to the CEMVN's Project website several pre-recorded presentation videos consisting of an explanation of how to comment on the Draft EIS and/or LA TIG's Draft Restoration Plan, an update on the proposed MBSD Project design, information concerning the ongoing restoration planning efforts and the LA TIG's Draft Restoration Plan, and details about how to navigate and review the contents of the Draft EIS. These pre-recorded presentation videos were then consolidated into one presentation and played at the beginning of each of the three public meetings. This consolidated pre-recorded presentation was also translated into Spanish, Vietnamese, and Khmer and available on CEMVN's Project webpage. In addition, dedicated toll-free numbers were provided during the public comment period on the Draft EIS and LA TIG's Draft Restoration Plan through which Spanish, Vietnamese, and Khmer-speaking individuals could listen to the translated pre-recorded presentation.

Examples of public outreach provided by USACE for the EIS include providing special public notices for the permit application, the scoping process, and for the Draft EIS through newspapers, mail outs, and local libraries. USACE and the LA TIG also coordinated with the SELA Voice organizations to understand the needs of the local communities regarding the best ways to reach out to these communities prior to the release of the Draft EIS and the LA TIG's Draft Restoration Plan and during the public comment period. Language interpretation and translation in Spanish, Vietnamese, and Khmer were provided at each of the virtual public meetings on the Draft EIS and the LA TIG's Draft Restoration Plan. The Public Notice to announce the Draft EIS Notice of Availability, the Executive Summary for the Draft EIS, the Executive Summary for the LA TIG's Draft Restoration Plan, and the public meeting presentations were translated into Spanish and Vietnamese. As noted above, the consolidated pre-recorded public meeting presentation was also translated into Spanish, Vietnamese, and Khmer and available on the Project webpage. As stated in Chapter 7 Public Involvement of the EIS, public engagement has been a vital element of developing and evaluating the proposed MBSD Project. Since 2016, CPRA has participated in nearly 200 outreach and engagement activities focused on the proposed MBSD Project, reaching more than 7,000 people. In addition, since the release of the Draft EIS, CPRA has engaged the public through meetings with the communities projected to

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be impacted by the proposed MBSD Project to solicit input on mitigation and stewardship strategies, including reaching out to local non-profits to assist with and facilitate meetings with the impacted communities. These outreach and engagement efforts provided the public with an opportunity to ask questions and obtain information about the proposed MBSD Project. CPRA states that it would provide additional opportunities for public engagement if the proposed Project moves forward. A summary of these public engagement meetings and public outreach conducted by CPRA can be found in Chapter 7 Public Involvement of the Final EIS.

For more information about proposed Project's operational and adaptive management governance, see Final EIS Appendix R2: Monitoring and Adaptive Management (MAM) Plan. In the context of the proposed Project, governance refers to how CPRA, with input from other stakeholders, would make decisions over the life of the Project. Decisions would include, but not be limited to, continuation of and changes to Project operations, riverside management, monitoring, maintenance, and adaptive management actions.

In addition, EIS Chapter 4, Section 4.24.3 Operations Impacts in Cultural Resources and Section 4.9 of the Final Mitigation and Stewardship Plan (in Appendix R1 to the Final EIS) discuss the NHPA process and mitigation for the proposed Project. The NHPA Programmatic Agreement developed for the proposed Project through the NHPA Section 106 consultation sets forth the alternative historic and cultural resources mitigation to be implemented by CPRA as part of implementing the Project. An Alternative Mitigation Plan is appended to the Programmatic Agreement and describes in detail the mitigation proposed to resolve adverse effects within the Operational Impacts APE. A website and public education materials are included in the Alternative Mitigation Plan as products to be developed through the alternative historic and cultural resources mitigation. The Programmatic Agreement is provided in Appendix K Cultural Resources Information of the Final EIS and attached as Appendix A to the Final Mitigation and Stewardship Plan located in Appendix R1 of the Final EIS.

The Mitigation and Stewardship Plan and the MAM Plan provided in the Draft EIS Appendix R were submitted by CPRA and represent a range of potential mitigation, stewardship, monitoring and adaptive management measures (collectively, measures). At the time of publication of the Draft EIS for public review, Appendix R contained draft Plans and CPRA had not identified which of the measures contained in those Plans it intended to implement. The Final EIS Appendix R contains the final Plans and specifies which measures CPRA and the LA TIG intend to implement. Generally, impact determinations discussed in the EIS represent anticipated Project

effects without implementation of these measures except in instances where such measures are identified in the discussion. If any mitigation, monitoring, or adaptive management measures are required by USACE as part of its approval of the proposed Project, such measures would be required as special conditions of the Department of the Army (DA) Section 10/404 permit and would be listed in the permit, if one is issued. Implementation of specific measures contained in either Plan, but not included in the Section 10/404 permit as special conditions, would not be required by USACE. USACE does not know whether any particular measure that is not a DA permit condition would be implemented. Measures that USACE currently contemplates as conditions of a DA Section 10/404 permit, if one is issued, are provided in Chapter 4, Section 4.27 Mitigation Summary of the EIS.

The LA TIG explains in Section 1.5 of the Final Restoration Plan that it anticipates requiring implementation of the Mitigation and Stewardship Plan, MAM Plan, and Marine Mammal Intervention Plan as components of the proposed Project, if the Project is approved by the LA TIG for funding. Decisions regarding which measures would be required as part of the LA TIG's funding decision would be set forth in the LA TIG Record of Decision related to the proposed Project.

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**Concern ID: 61758**

**Commenter recommended communicating with people from diverse backgrounds to bring new solutions to practical issues.**

**Response ID: 15894**

Public input is an integral part of the NEPA process, the OPA process, and the DWH oil spill restoration planning effort. USACE and the LA TIG undertook a coordinated and concurrent public review process for the EIS and the LA TIG's Restoration Plan.

As part of the Draft EIS process, USACE coordinated with the SELA Voice organizations to understand the needs of the local communities regarding the best ways to reach out to these communities prior to the release of the Draft EIS and during the public comment period. Language interpretation and translation in Spanish, Vietnamese, and Khmer were provided at each of the virtual public meetings. The Public Notice to announce the Draft EIS Notice of Availability, the Executive Summary for the Draft EIS, and the Executive Summary for the LA TIG's Draft Restoration Plan were translated into Spanish and Vietnamese. The consolidated pre-recorded public meeting presentation was also translated into Spanish, Vietnamese, and Khmer and available on the Project webpage.

CPRA has sought and continues to seek engagement and participation from the public, agency, and stakeholder groups wishing to be involved in coastal restoration. Over the past several years, CPRA has conducted outreach associated with its Sediment Diversion Program, including Coastal Connections meetings throughout the proposed MBSD Project area, in an effort to reach out to individuals and



communities to gather information and feedback related to the proposed MBSD Project. In addition, since the release of the Draft EIS CPRA has held numerous in public meetings with the communities impacted by the proposed MBSD Project to solicit input on mitigation and stewardship strategies, including reaching out to local non-profits to assist with and facilitate meetings with the impacted communities. CPRA states that it would provide additional opportunities for public engagement if the proposed Project moves forward. A summary of these public engagement meetings can be found in Chapter 7 Public Involvement of the Final EIS.

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**Concern ID: 61760**

**Public meetings for this proposed Project, which would drastically alter our estuary forever, should have been in-person since the State of Louisiana is in a modified stage 3 and public gatherings are allowed. Holding virtual public meetings for a project of this importance is unfair to the hundreds that do not have computer skills or accessibility. Commenter requests that USACE and TIG hold in-person meetings regarding the proposed Project.**

**Response ID: 15895**

USACE and the LA TIG held three joint public meetings for the Draft EIS and the LA TIG's Draft Restoration Plan in April 2021. These meetings were held virtually based on COVID-related restrictions in place at the time. Anyone interested in participating in the NEPA or OPA processes, or who wanted to learn more about the proposed MBSD Project and/or provide comments on the Draft EIS and/or the LA TIG's Draft Restoration Plan was able to participate in the meetings via an internet/web-based conferencing application or via toll-free telephone line. Spanish, Vietnamese, and Khmer translators facilitated participation by non-English speakers; key messages from the meeting presentations were translated during the meetings, and the translators were available to interpret participant comments in any of those languages.

At the beginning of the public comment period, CEMVN posted several pre-recorded presentation videos consisting of an explanation of how to comment on the Draft EIS and/or Draft Restoration Plan, an update on the proposed MBSD Project design, information concerning the ongoing restoration planning efforts and the LA TIG's Draft Restoration Plan, and details about how to navigate and review the contents of the Draft EIS on CEMVN's Project webpage. These pre-recorded presentation videos were then consolidated and played at the beginning of each of the three public meetings. This consolidated pre-recorded presentation was also translated into Spanish, Vietnamese, and Khmer and available on the Project webpage. In addition, dedicated toll-free numbers were provided during the public comment period on the Draft EIS and Draft Restoration Plan through which Spanish, Vietnamese, and Khmer-speaking individuals could listen to

the translated pre-recorded presentation rather than watching the presentation on a computer.

Multiple ways to comment during the public review period were available including verbally during the virtual meetings, verbally by toll-free telephone number, written via the postal service, and electronically via email and on the comment portal website. In addition, CPRA offered opportunities through local non-profit organizations for the public to sit with representatives from local non-profit organizations who assisted the public in preparing comments regarding the Draft EIS and LA TIG's Draft Restoration Plan.

Printed copies of the Executive Summary of the Draft EIS and the LA TIG's Draft Restoration Plan in English, Spanish, and Vietnamese were provided to libraries and community centers/organizations (see list in Chapter 7 Public Involvement of the Final EIS and Chapter 6 of the LA TIG's Restoration Plan) for those able to visit those locations in person.

All public comments received have been reviewed by both USACE and the LA TIG and will be considered as appropriate under relevant regulations by USACE and by the LA TIG, respectively, as each makes its decision on the proposed MBSD Project. Any future public engagement meetings held regarding the proposed MBSD Project would follow applicable agency guidance for the safety of all participants.

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**Concern ID: 61953**

**The public participation process is flawed because the public participation for this proposed Project should extend beyond coastal Louisiana. Expanding certain public participation methods such as media events or environmental NGOs beyond coastal Louisiana would be productive for the proposed MBSD Project. This proposed Project is a great example of one option for restoration after an oil spill and there are likely people beyond Louisiana that have expertise in this field that could be helpful in the public participation process. Ensuring that the proposed Project is able to have the best possible commentary from experts in the field is essential to its success.**

**Response ID: 15897**

The public participation process has been and would continue to be open to all public, agency, and stakeholder input regardless of geographic residence. USACE has provided multiple means for the public to engage in the permit and environmental review processes including providing public notices for the permit application and the scoping process, and for the Draft EIS through Federal Register notices, press releases, newspapers, mail outs to distribution lists, and libraries. Materials and information related to the proposed Project are available on the USACE New Orleans District website, including the Draft EIS at <http://www.mvn.usace.army.mil/Missions/Regulatory/Permits/Mid-Barataria-Sediment-Diversion-EIS/>.



The virtual nature of the public meetings held for the Draft EIS and LA TIG's Draft Restoration Plan in April 2021 allowed participants from any geographic residence to participate in the meetings and provide verbal comments through a internet/web-based conferencing application or by telephone. Approximately 39,303 (out of 40,699) comments on the Draft EIS were received from outside the State of Louisiana.

CPRA and the LA TIG would continue to seek input from the public, agencies, and groups interested in and affected by coastal restoration, including the proposed Project if implemented, and other restoration efforts.

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**Concern ID: 61954**

**A commenter noted that they attended a scoping meeting in 2017 but were not able to comment.**

**Response ID: 15899**

USACE regrets that the commenter was not able to comment during the 2017 scoping meetings. Note that there were multiple opportunities available to comment on the scoping meetings over a 60-day comment period including in-person orally via a court reporter, written on comment cards or letters either in-person or via the postal service, and via electronic mail.

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**Concern ID: 61955**

**Commenters are concerned that all those that are impacted may not be aware of the proposed Project, its impacts, or potential mitigation. There are many people that may not have the knowledge, time, or resources to be deeply involved in these issues, but who also have a stake in what is happening. Consider the needs of these people in making a decision about moving this proposed Project forward. If this proposed MBSD Project and similar projects move forward consider opportunities to better engage people across Louisiana's coast in the value of projects like these and why they are crucial to the future of our region.**

**Response ID: 15900**

Public input is an integral part of the NEPA process, the OPA process, and the DWH oil spill restoration planning effort. USACE and the LA TIG undertook a coordinated and concurrent public review process for the EIS and the LA TIG's Restoration Plan. Allowing submission of comments on either document to the same locations provided commenters a "one-stop shop" and was done to reduce confusion by commenters about where to direct their comments regarding the MBSD Project. Additionally, this ensured the LA TIG reviewed and considered all relevant comments to both the Restoration Plan and the Draft EIS in its decision-making process. All public comments received have been reviewed by both USACE and the LA TIG and will be considered as appropriate under relevant regulations by USACE and by the LA TIG, respectively, as each makes its decision on the proposed MBSD Project.

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USACE and the LA TIG conducted public outreach and provided public comment opportunities throughout the development of the Draft EIS and the LA TIG Draft Restoration Plan. Details on USACE's and the LA TIG's outreach activities and the opportunities provided for public participation can be found in Chapter 7 Public Involvement in the Final EIS.

Examples of public outreach provided by USACE for the EIS include providing special public notices for the permit application, the scoping process, and for the Draft EIS through Federal Register notices, press releases, newspapers, mail outs to distribution lists, and provision of hard copies of the Executive Summary and other materials to local libraries. USACE and the LA TIG also coordinated with the SELA Voice organizations to understand the needs of the local communities regarding the best ways to reach out to these communities prior to the release of the Draft EIS and the LA TIG's Draft Restoration Plan and during the public comment period.

Language interpretation and translation in Spanish, Vietnamese, and Khmer were provided at each of the virtual public meetings on the Draft EIS and the LA TIG's Draft Restoration Plan. Also, the Public Notice to announce the Draft EIS Notice of Availability, the Executive Summary for the Draft EIS, and the Executive Summary for the LA TIG's Draft Restoration Plan, were translated into Spanish and Vietnamese. The consolidated pre-recorded public meeting presentation was also translated into Spanish, Vietnamese, and Khmer and available on the Project webpage.

CPRA has sought and continues to seek engagement and participation from the public, agency, and stakeholder groups wishing to be involved in the coastal restoration process. Over the past several years, CPRA has conducted outreach associated with its Sediment Diversion Program, including Coastal Connections meetings throughout the proposed MBSD Project area, in an effort to reach out to community groups to gather information related to the proposed MBSD Project. Throughout the public comment period and concurrent with the preparation of the Final EIS and LA TIG's Final Restoration Plan, CPRA has engaged the public through meetings with the communities and groups projected to be impacted by the proposed MBSD Project to solicit input on mitigation and stewardship strategies, including reaching out to local non-governmental/non-profit organizations to assist with and facilitate meetings with the impacted communities and groups. This included deploying several tools and forms of outreach to solicit feedback on mitigation and stewardship measures. Meeting formats included small group briefings, one-on-one individual discussions, open-house style meetings, and virtual webinars. A summary of these public engagement meetings can be found in Chapter 7 Public Involvement of the Final EIS. CPRA states that it would provide

additional opportunities for public engagement if the proposed Project moves forward including Coastal Connections meetings and use of community non-profit organizations to help ensure that diverse populations are aware of and take advantage of the mitigation and stewardship measures adopted as part of the proposed Project, if implemented.

Refer to the Final Mitigation and Stewardship Plan in Appendix R1 for mitigation and stewardship measures that would be implemented as a result of the public involvement and engagement efforts. In addition, refer to Final EIS Appendix R2 for the Monitoring and Adaptive Management (MAM) Plan for details on the proposed Project operational and adaptive management governance. In the context of the proposed Project, governance refers to how CPRA, with input from other stakeholders, would make decisions over the life of the Project. Decisions would include, but not be limited to, continuation of and changes to proposed Project operations, riverside management, monitoring, maintenance, and adaptive management actions.

The Mitigation and Stewardship Plan and the MAM Plan provided in the Draft EIS Appendix R were submitted by CPRA and represent a range of potential mitigation, stewardship, monitoring and adaptive management measures (collectively, measures). At the time of publication of the Draft EIS for public review, Appendix R contained draft Plans and CPRA had not identified which of the measures contained in those Plans it intended to implement. The Final EIS Appendix R contains the final Plans and specifies which measures CPRA and the LA TIG intend to implement. Generally, impact determinations discussed in the EIS represent anticipated Project effects without implementation of these measures except in instances where such measures are identified in the discussion. If any mitigation, monitoring, or adaptive management measures are required by USACE as part of its approval of the proposed Project, such measures would be required as special conditions of the Department of the Army (DA) Section 10/404 permit and would be listed in the permit, if one is issued. Implementation of specific measures contained in either Plan, but not included in the Section 10/404 permit as special conditions, would not be required by USACE. USACE does not know whether any particular measure that is not a DA permit condition would be implemented. Measures that USACE currently contemplates as conditions of a DA Section 10/404 permit, if one is issued, are provided in Chapter 4, Section 4.27 Mitigation Summary of the EIS.

The LA TIG explains in Section 1.5 of the Final Restoration Plan that it anticipates requiring implementation of the Mitigation and Stewardship Plan, MAM Plan, and Marine Mammal Intervention Plan as components of the proposed Project, if the Project is approved by the LA TIG for funding. Decisions regarding which measures would be required as

part of the LA TIG's funding decision would be set forth in the LA TIG Record of Decision related to the proposed Project.

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**Concern ID: 61956**

**Commenters suggested [USACE and/or CPRA] carefully listen to those impacted by the diversion and have constructive dialogue between stakeholders and CPRA. They recommended to commit sufficient funding and resources necessary to those impacted to sustain their lives and livelihood throughout the diversion process.**

**Response ID: 15902**

Public input is an integral part of the NEPA process, the OPA process, and the DWH oil spill restoration planning effort. USACE and the LA TIG undertook a coordinated and concurrent public review process for the EIS and the LA TIG's Restoration Plan. Allowing submission of comments on either document to the same locations provided commenters a "one-stop shop" and was done to reduce confusion by commenters about where to direct their comments regarding the MBSD Project. Additionally, this ensured the LA TIG reviewed and considered all relevant comments to both the Restoration Plan and the Draft EIS in its decision-making process. USACE and LA TIG each provided public outreach and comment opportunities throughout the development of the EIS and the LA TIG's Restoration Plan. Details on this outreach can be found in Chapter 7 Public Involvement in the Final EIS.

Since the release of the Draft EIS and the LA TIG's Draft Restoration Plan, CPRA has engaged the public through meetings with the communities projected to be impacted by the proposed MBSD Project to solicit input on mitigation and stewardship strategies, including reaching out to local non-profit organizations to assist with and facilitate meetings with the impacted communities and groups. This included deploying several tools and forms of outreach to solicit feedback on mitigation and stewardship measures. Meeting formats included small group briefings, one-on-one individual discussions, open-house style meetings, and virtual webinars. CPRA states that it would provide additional opportunities for public engagement if the proposed Project moves forward. A summary of these public engagement meetings can be found in Chapter 7 Public Involvement of the Final EIS. Refer to the Final Mitigation and Stewardship Plan in Appendix R1 for mitigation and stewardship measures that would be implemented as a result of the public involvement and engagement efforts.

The Mitigation and Stewardship Plan and the Monitoring and Adaptive Management (MAM) Plan provided in the Draft EIS Appendix R were submitted by CPRA and represent a range of potential mitigation, stewardship, monitoring and adaptive management measures (collectively, measures). At the time of publication of the Draft EIS for public review, Appendix R contained draft Plans and CPRA had not identified which of the measures contained in those Plans it intended to

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implement. The Final EIS Appendix R contains the final Plans and specifies which measures CPRA and the LA TIG intend to implement. Generally, impact determinations discussed in the EIS represent anticipated Project effects without implementation of these measures except in instances where such measures are identified in the discussion. If any mitigation, monitoring, or adaptive management measures are required by USACE as part of its approval of the proposed Project, such measures would be required as special conditions of the Department of the Army (DA) Section 10/404 permit and would be listed in the permit, if one is issued. Implementation of specific measures contained in either Plan, but not included in the Section 10/404 permit as special conditions, would not be required by USACE. USACE does not know whether any particular measure that is not a DA permit condition would be implemented. Measures that USACE currently contemplates as conditions of a DA Section 10/404 permit, if one is issued, are provided in Chapter 4, Section 4.27 Mitigation Summary of the EIS.

The LA TIG explains in Section 1.5 of the Final Restoration Plan that it anticipates requiring implementation of the Mitigation and Stewardship Plan, MAM Plan, and Marine Mammal Intervention Plan as components of the proposed Project, if the Project is approved by the LA TIG for funding. Decisions regarding which measures would be required as part of the LA TIG's funding decision would be set forth in the LA TIG Record of Decision related to the proposed Project.

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**Concern ID: 61957**

**Commenters are concerned with the lack of inclusion by CPRA. The CPRA held meetings, reached out to local communities throughout the process; however, the CPRA ignored most, if not all, of the input they received from the communities, shrimpers, crabbers, oyster fisherman, and others.**

**Response ID: 15903**

Chapter 7 Public Involvement of the Final EIS includes a summary of meetings that CPRA held with the communities and groups projected to be impacted by the proposed MBSD Project to solicit input on mitigation and stewardship strategies, including reaching out to local non-profits to assist with and facilitate meetings with the impacted communities and groups. CPRA states that it would provide additional opportunities for public engagement if the proposed Project moves forward. Refer to the Final Mitigation and Stewardship Plan in Appendix R1, which has been revised since the release of the Draft EIS in response to public input, for mitigation and stewardship measures that would be implemented as a result of the public involvement and engagement efforts.

The Mitigation and Stewardship Plan and the Monitoring and Adaptive Management (MAM) Plan provided in the Draft EIS Appendix R were submitted by CPRA and represent a range of potential mitigation, stewardship, monitoring and adaptive management measures

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(collectively, measures). At the time of publication of the Draft EIS for public review, Appendix R contained draft Plans and CPRA had not identified which of the measures contained in those Plans it intended to implement. The Final EIS Appendix R contains the final Plans and specifies which measures CPRA and the LA TIG intend to implement. Generally, impact determinations discussed in the EIS represent anticipated Project effects without implementation of these measures except in instances where such measures are identified in the discussion. If any mitigation, monitoring, or adaptive management measures are required by USACE as part of its approval of the proposed Project, such measures would be required as special conditions of the Department of the Army (DA) Section 10/404 permit and would be listed in the permit, if one is issued. Implementation of specific measures contained in either Plan, but not included in the Section 10/404 permit as special conditions, would not be required by USACE. USACE does not know whether any particular measure that is not a DA permit condition would be implemented. Measures that USACE currently contemplates as conditions of a DA Section 10/404 permit, if one is issued, are provided in Chapter 4, Section 4.27 Mitigation Summary of the EIS.

The LA TIG explains in Section 1.5 of the Final Restoration Plan that it anticipates requiring implementation of the Mitigation and Stewardship Plan, MAM Plan, and Marine Mammal Intervention Plan as components of the proposed Project, if the Project is approved by the LA TIG for funding. Decisions regarding which measures would be required as part of the LA TIG's funding decision would be set forth in the LA TIG Record of Decision related to the proposed Project.

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**Concern ID: 61958**

**The ability of corporate interests to tilt the agency's decision by flooding it with supportive public comments undermines the fairness, transparency, and ultimate success of this proposed Project. USACE and NPS should be aware of the impacts of corporate-funded advocacy campaigns in support of this diversion.**

**Response ID: 15904**

Comment acknowledged. Public participation is an integral part of the NEPA process, the OPA process, and the DWH oil spill restoration planning effort. USACE and the LA TIG undertook a coordinated and concurrent public review process for the EIS and the LA TIG's Restoration Plan. All public comments received have been reviewed by both USACE and the LA TIG and will be considered as appropriate under relevant regulations by USACE and by the LA TIG, respectively, as each makes its decision on the proposed MBSD Project.

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**Concern ID: 61959**

**State government, elected officials, CPRA and other state agencies, and local jurisdictions must pivot to centering community expertise as they carry out the proposed MBSD**



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**Project. This would open the door to creating a truly equitable restoration landscape; one where those impacted by the proposed MBSD Project and future coastal restoration projects are proactively engaged and consulted as restoration projects are planned, designed, and implemented.**

**Response ID: 15905**

Over the past several years, CPRA has conducted outreach associated with its Sediment Diversion Program, including Coastal Connections meetings throughout the proposed MBSD Project area, in an effort to reach out to community groups to gather information related to their concerns regarding proposed MBSD Project. More recently, CPRA has engaged the public through meetings with the communities impacted by the proposed MBSD Project to solicit input on mitigation and stewardship strategies, including reaching out to local non-profits to assist with and facilitate meetings with the impacted communities including fishers. This included deploying several tools and forms of outreach to solicit feedback on mitigation and stewardship measures. Meeting formats included small group briefings, one-on-one individual discussions, open-house style meetings, and virtual webinars. A summary of these public engagement meetings and additional outreach can be found in Chapter 7 Public Involvement of the Final EIS. CPRA states that it would provide additional opportunities for public engagement if the proposed Project moves forward. Refer to the Final Mitigation and Stewardship Plan in Appendix R1 for mitigation and stewardship measures that CPRA states it would implement as a result of the public involvement and engagement efforts.

The Mitigation and Stewardship Plan and the Monitoring and Adaptive Management (MAM) Plan provided in the Draft EIS Appendix R were submitted by CPRA and represent a range of potential mitigation, stewardship, monitoring and adaptive management measures (collectively, measures). At the time of publication of the Draft EIS for public review, Appendix R contained draft Plans and CPRA had not identified which of the measures contained in those Plans it intended to implement. The Final EIS Appendix R contains the final Plans and specifies which measures CPRA and the LA TIG intend to implement. Generally, impact determinations discussed in the EIS represent anticipated Project effects without implementation of these measures except in instances where such measures are identified in the discussion. If any mitigation, monitoring, or adaptive management measures are required by USACE as part of its approval of the proposed Project, such measures would be required as special conditions of the Department of the Army (DA) Section 10/404 permit and would be listed in the permit, if one is issued. Implementation of specific measures contained in either Plan, but not included in the Section 10/404 permit as special conditions, would not be required by USACE. USACE does not know whether any particular measure that is

not a DA permit condition would be implemented. Measures that USACE currently contemplates as conditions of a DA Section 10/404 permit, if one is issued, are provided in Chapter 4, Section 4.27 Mitigation Summary of the EIS.

The LA TIG explains in Section 1.5 of the Final Restoration Plan that it anticipates requiring implementation of the Mitigation and Stewardship Plan, MAM Plan, and Marine Mammal Intervention Plan as components of the proposed Project, if the Project is approved by the LA TIG for funding. Decisions regarding which measures would be required as part of the LA TIG's funding decision would be set forth in the LA TIG Record of Decision related to the proposed Project.

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**Concern ID: 61961**

**Request that CPRA, USACE, and NOAA/TIG work with Plaquemines Parish Councilmember of District 7, Councilmember LaFrance, Sr. to hold community meetings with District 7 communities, such as Ironton, Myrtle Grove and Wood Park, and engage in a question-and-answer session from community.**

**Response ID: 15906**

Concurrent with issuance of the Draft EIS, CPRA has held several public meetings with the communities projected to be impacted by the proposed MBSD Project, including communities south of the diversion from Myrtle Grove south to Grand Bayou and Happy Jack, to solicit input on mitigation and stewardship strategies. Although the EIS indicates that the proposed MBSD Project would not have more than moderate impacts on Ironton, CPRA also held a public meeting in the community of Ironton.. CPRA states that it would provide additional opportunities for public engagement if the proposed Project moves forward. CPRA will continue to coordinate regarding these meetings with the Plaquemines Parish government. A summary of these public engagement meetings can be found in Chapter 7 Public Involvement of the Final EIS. Refer to the Final Mitigation and Stewardship Plan in Appendix R1 for mitigation and stewardship measures that would be implemented as a result of the public involvement and engagement efforts.

The Mitigation and Stewardship Plan and the Monitoring and Adaptive Management (MAM) Plan provided in the Draft EIS Appendix R were submitted by CPRA and represent a range of potential mitigation, stewardship, monitoring and adaptive management measures (collectively, measures). At the time of publication of the Draft EIS for public review, Appendix R contained draft Plans and CPRA had not identified which of the measures contained in those Plans it intended to implement. The Final EIS Appendix R contains the final Plans and specifies which measures CPRA and the LA TIG intend to implement. Generally, impact determinations discussed in the EIS represent anticipated Project effects without implementation of these measures except in instances where such measures are identified in the



discussion. If any mitigation, monitoring, or adaptive management measures are required by USACE as part of its approval of the proposed Project, such measures would be required as special conditions of the Department of the Army (DA) Section 10/404 permit and would be listed in the permit, if one is issued. Implementation of specific measures contained in either Plan, but not included in the Section 10/404 permit as special conditions, would not be required by USACE. USACE does not know whether any particular measure that is not a DA permit condition would be implemented. Measures that USACE currently contemplates as conditions of a DA Section 10/404 permit, if one is issued, are provided in Chapter 4, Section 4.27 Mitigation Summary of the EIS.

The LA TIG explains in Section 1.5 of the Final Restoration Plan that it anticipates requiring implementation of the Mitigation and Stewardship Plan, MAM Plan, and Marine Mammal Intervention Plan as components of the proposed Project, if the Project is approved by the LA TIG for funding. Decisions regarding which measures would be required as part of the LA TIG's funding decision would be set forth in the LA TIG Record of Decision related to the proposed Project.

<b>Concern ID: new</b>	<b>Commenters commended USACE, the LA TIG, and CPRA on the Restoration Plan, Draft EIS, and stakeholder engagement.</b>
<b>Response ID: new</b>	Acknowledged.
<b>Concern ID: 61962</b>	<b>The commenters commend the USACE and LA TIG for their efforts to ensure robust awareness and input into this process. Such engagement is critical to a successful restoration effort, and the commenters recognize the difficulty of designing an engagement process around a project of this scale and scope. The more than 200 public outreach and engagement events referenced in the Draft EIS and NRDA plan demonstrate a notable effort made by CPRA. It is essential that CPRA continue to maintain strong levels of engagement and transparent communication with affected stakeholders as this process progresses. The Final EIS should include a summary of comments and responses and should uphold and further elaborate upon the commitment stated in the Draft EIS (Appendix R2 Monitoring and Adaptive Management Plan, Section 2) for regular stakeholder engagement through the adaptive management program.</b>
<b>Response ID: 15907</b>	USACE and LA TIG acknowledge the comment. Public input is an integral part of the NEPA process, the OPA process, and the DWH oil spill restoration planning effort. USACE and the LA TIG undertook a coordinated and concurrent public review process for the EIS and the LA TIG's Restoration Plan. Allowing submission of comments on either document to the same locations provided commenters a "one-stop shop" and was done to reduce confusion by commenters about where

to direct their comments regarding the MBSD Project. Additionally, this ensured the LA TIG reviewed and considered all relevant comments to both the Restoration Plan and the Draft EIS in its decision-making process. All public comments received have been reviewed by both USACE and the LA TIG and will be considered as appropriate under relevant regulations by USACE and by the LA TIG, respectively, as each makes its decision on the proposed MBSD Project.

USACE and LA TIG conducted public outreach and provided public comment opportunities throughout the development of the EIS and the LA TIG's Restoration Plan. Details on USACE's and the LA TIG's outreach activities and the opportunities provided for public participation can be found in Chapter 7 Public Involvement in the Final EIS. The Final EIS includes a Public Meeting Report which includes all comments submitted and the responses to those comments.

Examples of public outreach provided by USACE for the EIS include providing special public notices for the permit application, the scoping process, and for the Draft EIS through Federal Register notices, press releases, newspapers, mail outs to distribution lists, and provision of hard copies of the Executive Summary and other materials to local libraries. USACE and the LA TIG also coordinated with the SELA Voice organizations to understand the needs of the local communities regarding the best ways to reach out to these communities prior to the release of the Draft EIS and the LA TIG's Draft Restoration Plan and during the public comment period.

Language interpretation and translation in Spanish, Vietnamese, and Khmer were provided at each of the virtual public meetings on the Draft EIS and the LA TIG's Draft Restoration Plan. Also, the Public Notice to announce the Draft EIS Notice of Availability, the Executive Summary for the Draft EIS, and the Executive Summary for the LA TIG's Draft Restoration Plan, were translated into Spanish and Vietnamese. The consolidated pre-recorded public meeting presentation was also translated into Spanish, Vietnamese, and Khmer and available on the Project webpage.

Throughout the public comment period and concurrent with the preparation of the Final EIS and the LA TIG's Final Restoration Plan, CPRA has engaged the public through meetings with the communities and groups projected to be impacted by the proposed MBSD Project to solicit input on mitigation and stewardship strategies, including reaching out to local non-profits to assist with and facilitate meetings with the impacted communities and groups. A summary of these public engagement meetings can be found in Chapter 7 Public Involvement of the Final EIS. CPRA states that it would provide additional opportunities for public engagement if the proposed Project moves forward.

In addition, the Programmatic Agreement developed for the proposed Project through the NHPA 106 consultation sets forth the alternative mitigation to be implemented by CPRA as part of implementing the Project. A website and public education materials are included as products to be developed through the alternative mitigation. See Section 4.9 of the Final Mitigation and Stewardship Plan for the proposed Project (in Appendix R1 to the Final EIS).

Refer to Appendix R1 for the Final Mitigation and Stewardship Plan which describes mitigation and stewardship measures that would be implemented as a result of the public involvement and engagement efforts. Also refer to the Monitoring and Adaptive Management (MAM) Plan in Appendix R2 for a description of the adaptive management, governance, and monitoring that CPRA has committed to along with stakeholder engagement during the adaptive management process if the proposed MBSD Project is implemented. In the context of the proposed Project, governance refers to how CPRA, with input from other stakeholders, would make decisions over the life of the Project. Decisions would include, but not be limited to, continuation of and changes to proposed Project operations, riverside management, monitoring, maintenance, and adaptive management actions. CPRA would provide annual operations plans, annual operations performance reports, annual monitoring reports, and multi-year monitoring and adaptive management reports (at five-year intervals) on CPRA's CIMS website (<https://cims.coastal.louisiana.gov/default.aspx>), as well as, on NOAA's Data Integration, Visualization, Exploration, and Reporting (DIVER) Explorer tool and Trustee Council websites. These plans would be available to stakeholders and the public. The stakeholders and the public would have an opportunity to participate in public meetings held to solicit comments, perspectives, and insights on the annual operations plans.

The Mitigation and Stewardship Plan and the MAM Plan provided in the Draft EIS Appendix R were submitted by CPRA and represent a range of potential mitigation, stewardship, monitoring and adaptive management measures (collectively, measures). At the time of publication of the Draft EIS for public review, Appendix R contained draft Plans and CPRA had not identified which of the measures contained in those Plans it intended to implement. The Final EIS Appendix R contains the final Plans and specifies which measures CPRA and the LA TIG intend to implement. Generally, impact determinations discussed in the EIS represent anticipated Project effects without implementation of these measures except in instances where such measures are identified in the discussion. If any mitigation, monitoring, or adaptive management measures are required by USACE as part of its approval of the proposed Project, such measures would be required as special conditions of the Department of the Army (DA)

Section 10/404 permit and would be listed in the permit, if one is issued. Implementation of specific measures contained in either Plan, but not included in the Section 10/404 permit as special conditions, would not be required by USACE. USACE does not know whether any particular measure that is not a DA permit condition would be implemented. Measures that USACE currently contemplates as conditions of a DA Section 10/404 permit, if one is issued, are provided in Chapter 4, Section 4.27 Mitigation Summary of the EIS.

The LA TIG explains in Section 1.5 of the Final Restoration Plan that it anticipates requiring implementation of the Mitigation and Stewardship Plan, MAM Plan, and Marine Mammal Intervention Plan as components of the proposed Project, if the Project is approved by the LA TIG for funding. Decisions regarding which measures would be required as part of the LA TIG's funding decision would be set forth in the LA TIG Record of Decision related to the proposed Project.

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**Concern ID: 61963**

**The significant, and growing, local opposition to the proposed MBSD Project should be addressed prior to the diversion project continuing.**

**Response ID: 15908**

Public input is an integral part of the NEPA process, the OPA process, and the DWH oil spill restoration planning effort. USACE and the LA TIG undertook a coordinated and concurrent public review process for the EIS and the LA TIG's Restoration Plan.

All public comments received have been reviewed by both USACE and the LA TIG and will be considered as appropriate under relevant regulations by USACE and by the LA TIG, respectively, as each makes its decision on the proposed MBSD Project.

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**Concern ID: 61965**

**Commenter's recommend that CPRA and the USACE employ a comprehensive suite of communications tools and engagement approaches to share announcements, educate, and engage all interested interstate and regional stakeholders, and solicit broad public input in a coordinated, timely, and transparent manner. These tools could include, but should not be limited to, public meetings and workshops (virtual/in-person as appropriate), webinars, open houses, electronic newsletters, text messages, and social media platforms.**

**Response ID: 15910**

USACE and the LA TIG, including CPRA, acknowledge the suggestions to employ a comprehensive suite of communication tools and engagement approaches to engage all interested stakeholders and would take these suggestions into consideration for future engagement efforts for the proposed MBSD Project. USACE maintains Project materials, including the EIS, on its public website. USACE and LA TIG held virtual public meetings accessible by everyone with access to the internet or a telephone for the Draft EIS and the LA TIG's Draft

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Restoration Plan to comply with COVID-related restrictions in place at the time. These public meetings allowed verbal comments during the public comment portion in addition to providing multiple ways for a participant to comment. Spanish, Vietnamese, and Khmer translators interpreted the meeting and comments in real time. USACE has engaged with community groups to distribute information and materials about the proposed Project. CPRA has also engaged with communities that would be affected. See Final EIS Chapter 7 Public Involvement for a description of these efforts.

In addition, refer to the Monitoring and Adaptive Management (MAM) Plan in Appendix R2 for a description of the adaptive management, governance, and monitoring that CPRA has committed to along with stakeholder engagement during the adaptive management process if the proposed MBSD Project is implemented. In the context of the proposed Project, governance refers to how CPRA, with input from other stakeholders, would make decisions over the life of the Project. Decisions would include, but not be limited to, continuation of and changes to proposed Project operations, riverside management, monitoring, maintenance, and adaptive management actions.

CPRA would provide annual operations plans, annual operations performance reports, annual monitoring reports, and multi-year monitoring and adaptive management reports (at five-year intervals) on CPRA's CIMS website (<https://cims.coastal.louisiana.gov/default.aspx>), as well as, on NOAA's Data Integration, Visualization, Exploration, and Reporting (DIVER) Explorer tool and Trustee Council websites. These plans would be available to stakeholders and the public. The stakeholders and the public would have an opportunity to participate in public meetings held to solicit comments, perspectives, and insights on the annual operations plans.

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**Concern ID: 62883**

**Frontline, and especially Indigenous, communities must have a greater say in restoration processes at all phases, from the very beginning of looking for potential restoration projects, all the way through implementation and monitoring. Traditional ecological knowledge (TEK) must be taken into account and considered with equal, if not greater, gravity as academic studies. CPRA should have meetings that include these Indigenous people, their voices, their understanding of the natural world and their compassion for the other entities of the coast.**

**Response ID: 16404**

USACE and the LA TIG, including CPRA, acknowledge the comments and seek engagement and participation from all communities, the public, agency, and stakeholder groups wishing to be involved in the EIS and Restoration Plan processes. USACE and LA TIG coordinated with the SELA Voice organizations to understand the needs of the local communities, including Indigenous communities, regarding the best

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ways to reach out to these communities prior to the release of the Draft EIS and the LA TIG's Draft Restoration Plan. Recommendations for where to make the Draft EIS and the LA TIG's Draft Restoration Plan available so it would be accessible to disadvantaged individuals and groups, as well as recommendations regarding translation of materials related to the Draft EIS and Restoration Plan, were implemented.

Over the past several years, CPRA has conducted outreach associated with its Sediment Diversion Program, including Coastal Connections meetings throughout the proposed MBSD Project area, in an effort to reach out to community groups to gather information related to the proposed MBSD Project. In addition, CPRA has engaged the public through numerous meetings with the communities projected to be impacted by the proposed MBSD Project, including several Indigenous communities, to solicit input on mitigation and stewardship strategies. This includes reaching out to local non-profits to assist with and facilitate meetings with the impacted communities, including low-income, minority, and Indigenous communities. This input has resulted in substantial revisions to CPRA's Mitigation and Stewardship Plan since the release of the Draft EIS (see Appendix R1 to the Final EIS). A summary of these public engagement meetings can be found in Chapter 7 Public Involvement of the Final EIS. CPRA states that it would provide additional opportunities for public engagement if the proposed Project moves forward. CPRA acknowledges the suggestion to consider traditional ecological knowledge and would take these suggestions into consideration for future engagement efforts. Refer to the Final Mitigation and Stewardship Plan in Appendix R1 to the Final EIS for mitigation and stewardship measures that would be implemented as a result of the public involvement and engagement efforts.

Also, as explained in Chapter 4, Section 4.24 Cultural Resources of the Final EIS, cultural resources consultations have been conducted in accordance with Section 106 of the National Historic Preservation Act. The Section 106 Consulting Parties included USACE (the lead federal agency), the State Historic Preservation Office, the Advisory Council on Historic Preservation, CPRA (the Applicant), LA TIG, and federally recognized Tribal Nations who expressed historic ties to the Barataria Basin. The Programmatic Agreement developed for the proposed Project through the NHPA Section 106 consultation sets forth the alternative mitigation to be implemented by CPRA as part of implementing the Project. This alternative mitigation involves a comprehensive research project regarding the historical cultures of the Indigenous Tribes of Southeastern Louisiana focusing on the Barataria Basin and the larger southeastern Mississippi River delta region to prepare a comprehensive ethnohistoric overview documenting Native American presence and history. A website and public education



materials are included as products to be developed through the alternative mitigation. See Section 4.9 of the Final Mitigation and Stewardship Plan for the proposed Project (in Appendix R1 to the Final EIS).

The Mitigation and Stewardship Plan and the Monitoring and Adaptive Management (MAM) Plan provided in the Draft EIS Appendix R were submitted by CPRA and represent a range of potential mitigation, stewardship, monitoring and adaptive management measures (collectively, measures). At the time of publication of the Draft EIS for public review, Appendix R contained draft Plans and CPRA had not identified which of the measures contained in those Plans it intended to implement. The Final EIS Appendix R contains the final Plans and specifies which measures CPRA and the LA TIG intend to implement. Generally, impact determinations discussed in the EIS represent anticipated Project effects without implementation of these measures except in instances where such measures are identified in the discussion. If any mitigation, monitoring, or adaptive management measures are required by USACE as part of its approval of the proposed Project, such measures would be required as special conditions of the Department of the Army (DA) Section 10/404 permit and would be listed in the permit, if one is issued. Implementation of specific measures contained in either Plan, but not included in the Section 10/404 permit as special conditions, would not be required by USACE. USACE does not know whether any particular measure that is not a DA permit condition would be implemented. Measures that USACE currently contemplates as conditions of a DA Section 10/404 permit, if one is issued, are provided in Chapter 4, Section 4.27 Mitigation Summary of the EIS.

The LA TIG explains in Section 1.5 of the Final Restoration Plan that it anticipates requiring implementation of the Mitigation and Stewardship Plan, MAM Plan, and Marine Mammal Intervention Plan as components of the proposed Project, if the Project is approved by the LA TIG for funding. Decisions regarding which measures would be required as part of the LA TIG's funding decision would be set forth in the LA TIG Record of Decision related to the proposed Project.

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**Concern ID: 63575**

**The public should be fully informed about the level of funding that CPRA is proposing to fully implement its Mitigation Plan so that the public can meaningfully comment on the adequacy of the proposed mitigation.**

**Response ID: 15915**

Details regarding the funding that will be available for mitigation and stewardship measures is set forth in the Final Mitigation and Stewardship Plan, Appendix R1; however, final estimated costs for certain measures continues under development. CPRA has stated that the total estimated cost of all mitigation and stewardship measures set

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forth in the Final Mitigation and Stewardship Plan exceeds \$300 million dollars. Section 3.2.1.2 of the Draft Restoration Plan includes estimates of project costs, including the cost for project design and construction and project monitoring. Updated cost estimates will be provided as part of the Final Restoration Plan, including project monitoring and stewardship measures.

The Mitigation and Stewardship Plan and the Monitoring and Adaptive Management (MAM) Plan provided in the Draft EIS Appendix R were submitted by CPRA and represent a range of potential mitigation, stewardship, monitoring and adaptive management measures (collectively, measures). At the time of publication of the Draft EIS for public review, Appendix R contained draft Plans and CPRA had not identified which of the measures contained in those Plans it intended to implement. The Final EIS Appendix R contains the final Plans and specifies which measures CPRA and the LA TIG intend to implement. Generally, impact determinations discussed in the EIS represent anticipated Project effects without implementation of these measures except in instances where such measures are identified in the discussion. If any mitigation, monitoring, or adaptive management measures are required by USACE as part of its approval of the proposed Project, such measures would be required as special conditions of the Department of the Army (DA) Section 10/404 permit and would be listed in the permit, if one is issued. Implementation of specific measures contained in either Plan, but not included in the Section 10/404 permit as special conditions, would not be required by USACE. USACE does not know whether any particular measure that is not a DA permit condition would be implemented. Measures that USACE currently contemplates as conditions of a DA Section 10/404 permit, if one is issued, are provided in Chapter 4, Section 4.27 Mitigation Summary of the EIS.

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**Concern ID: 63580**

**CPRA should seek alternative outreach tools to reach typically hard to reach audiences including low-income, minority, and non-English speaking communities.**

**Response ID: 15914**

USACE and LA TIG coordinated with the SELA Voice organizations to understand the needs of the local communities regarding the best ways to reach out to these communities prior to the release of the Draft EIS and the LA TIG's Draft Restoration Plan. Recommendations for where

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to make the Draft EIS and the LA TIG's Draft Restoration Plan available as well as translation of material related to the Draft EIS and Restoration Plan were implemented. USACE and LA TIG tailored the public meeting process for the Draft EIS and the LA TIG's Draft Restoration Plan based on COVID-related restrictions in place at the time. Public meetings were virtual and allowed an open exchange during the public comment portion. Meetings could be accessed via internet/web-based conferencing application or via telephone. Spanish, Vietnamese, and Khmer translators facilitated participation by non-English speakers; key messages from the meeting presentations were translated during the meetings and the translators were available to interpret participant comments in any of those languages.

In addition to the public meetings, commenters were able to submit their comments via multiple means. Dedicated toll-free numbers were provided through which English-speaking and non-English speaking individuals could listen to pre-recorded presentation information and provide public comment on the Draft EIS and LA TIG's Draft Restoration Plan in their language of choice. The pre-recorded presentation information consisted of an explanation of how to comment, an update on the proposed MBSD Project design, information concerning the ongoing restoration planning efforts and the LA TIG's Draft Restoration Plan, and details about how to navigate and review the contents of the Draft EIS. The Draft EIS was (and is) available on the USACE website. The LA TIG's Restoration Plan was also made available on the LA TIG's website.

The Executive Summary for the Draft EIS and the LA TIG's Draft Restoration Plan were translated into Spanish and Vietnamese and were available at libraries and community centers/organizations. The complete Draft EIS and Draft Restoration Plan with appendices were also available as either a printed copy and/or electronically (thumb drive) at these locations.

Since the release of the Draft EIS and the LA TIG's Draft Restoration Plan, CPRA conducted public outreach to communities projected to be impacted by the Project to solicit input on mitigation and stewardship strategies, including reaching out to local non-profits to assist with and facilitate meetings with impacted fishers and communities, including Indigenous communities and low-income and minority communities. A summary of these public engagement meetings can be found in Chapter 7 Public Involvement of the Final EIS. CPRA states that it would provide additional opportunities for public engagement if the proposed Project moves forward including through Coastal Connections meetings and use of community non-profit, non-governmental organizations for additional outreach. CPRA has also committed to stakeholder engagement and input during the adaptive management process if the proposed MBSD Project is implemented.

CPRA would provide annual operations plans, annual operations performance reports, annual monitoring reports, and multi-year monitoring and adaptive management reports (at five-year intervals) on CPRA's CIMS website (<https://cims.coastal.louisiana.gov/default.aspx>), as well as, on NOAA's Data Integration, Visualization, Exploration, and Reporting (DIVER) Explorer tool and Trustee Council websites. These plans would be available to stakeholders and the public. The stakeholders and the public would have an opportunity to participate in public meetings held to solicit comments, perspectives, and insights on the annual operations plans.

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**Concern ID: 61964**

**CPRA has failed to hold any meetings about the proposed Project in the State of Mississippi as they have publicly promised they would do.**

**Response ID: 15909**

The joint public meetings for the Draft EIS and the LA TIG's Draft Restoration Plan in April 2021 were held virtually through an internet web-based conferencing application due to COVID-related restrictions in place at the time. Participation and comments were not geographically limited to any particular location. Anyone interested in learning more about the proposed MBSD Project and/or who wanted to participate in the NEPA or OPA processes or who wanted to provide comments on the Draft EIS or the LA TIG's Draft Restoration Plan was able to participate in the meetings via the internet and/or a toll-free telephone line – including anyone located in Mississippi.

During each of these meetings, USACE and the LA TIG played a pre-recorded presentation that included information about how to comment on the Draft EIS and/or the Draft Restoration Plan, an update on the proposed MBSD Project design, information concerning the ongoing restoration planning efforts and the LA TIG's Draft Restoration Plan and details about how to navigate and review the contents of the Draft EIS. This pre-recorded presentation was also available in several languages including Spanish, Vietnamese, and Khmer.

Further, public meetings were not the only forum through which concerns could be shared. Many means to comment during this the public review period were available including verbally during the virtual meetings, verbally by toll-free telephone number, written via the postal service, and electronically via email and on the comment portal website. All public comments received have been reviewed by both USACE and the LA TIG and will be considered as appropriate under relevant regulations by USACE and by the LA TIG, respectively, as each makes its decision on the proposed MBSD Project.

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## CH18000 – Agency Roles, Responsibilities, and Coordination

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<b>Concern ID: 62185</b>	<b>The commenter is concerned with the expedited permitting process and is opposed to cutting corners and changing rules or laws without fully determining the environmental or economic impact.</b>
<b>Response ID: 15738</b>	While the Mid-Barataria Sediment Diversion Project permitting process is being conducted utilizing the Fixing America's Transportation Act (FAST-41) process, the process was not expedited. The intent of FAST-41 is enhanced coordination, transparency, predictability, and accountability in federal environmental reviews and authorizations. It does not modify any underlying statutes, regulations, or mandatory reviews. The environmental review and permitting processes has not cut corners, and through the EIS, USACE has analyzed and disclosed the environmental and economic impacts of the proposed Project. CPRA filed its DA permit application for the proposed Project in 2016 (revised in 2018). USACE expects a decision on CPRA's application in December 2022.
<b>Concern ID: 62186</b>	<b>The commenter would like to know the view point of the National Park Service, Jefferson Parish Council, Lafitte Area Independent Levee District and Town of Lafitte on the proposed Project.</b>
<b>Response ID: 15765</b>	Comments on the Draft EIS submitted by Mayor Kerner of the Town of Lafitte can be found in Appendix B2 (DEIS Public Review and Public Meetings) of the Final EIS. No formal comments on the Draft EIS were submitted by the National Park Service, Jefferson Parish Council or the Lafitte Area Levee District. All comments received have been fully considered and incorporated into this public comment and response appendix and all original comments received are included in the Final EIS.
<b>Concern ID: 62187</b>	<b>The commenter believes that decisions have already been made to approve or fund the proposed Project.</b>
<b>Response ID: 15766</b>	USACE, in its role as the lead federal agency, is responsible for preparing the EIS and ensuring fulfillment of the NEPA process with respect to its decisions on CPRA's Section 10/404 permit application and Section 408 permission request. The Final EIS will inform USACE decision making on the Department of Army Section 10/404 permit and Section 408 permission relative to the proposed Project. By regulation, the USACE is neither for nor against the proposed Project. USACE has not made any decision regarding the proposed Project and will not make a decision until it issues a Record of Decision after publication and public review of the Final EIS.

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The LA TIG federal agencies (NOAA, DOI, USEPA, and USDA) participated in the NEPA process as cooperating agencies for the EIS to support LA TIG decision making on the Restoration Plan. The role of the LA TIG is to prepare a Restoration Plan to evaluate the Project and its alternatives under the requirements of the Oil Pollution Act (OPA). The LA TIG proposed a preferred alternative in the Draft Restoration Plan. Decisions regarding the selected alternative are made in the Final Restoration Plan and decisions regarding funding will not be made until the completion of all required administrative waiting periods.

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**Concern ID: 62188**

**The Draft EIS is not an objective analysis; the document has several errors which show a clear bias toward opposition to the proposed Project by favoring perspectives on controversial scientific issues surrounding Mississippi reintroduction that assert it would do more harm than good.**

**Response ID: 15767**

The USACE and the LA TIG considered the best information and data available to them in their efforts to objectively evaluate the impacts of the proposed Project and its alternatives. Additionally, resource agencies with regulatory authority and subject matter experts for resources potentially impacted by the proposed Project engaged with USACE throughout the EIS development process to ensure an adequate and thorough analysis of Project impacts. Federal agencies that make up the LA TIG (NOAA, DOI, USEPA, and USDA) participated as cooperating agencies in the development of the EIS. The LA TIG intends to use the EIS to inform their decision under NRDA on whether to fund the implementation of the Project.

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**Concern ID: 62880**

**A fully implemented environmental study is critical to the future safety and viability of our most vulnerable communities. The federal permitting process for the diversion projects has not given the commenter the confidence to provide support for their implementation at this time. The commenter has questions surrounding the issuance of the Marine Mammal Protection Act (MMPA) waiver approved by Congress under the 2018 Congressional Budget Act that has led to the fast tracking of the (EIS) timeline by 3 years in the name of coastal restoration.**

**Response ID: 15740**

While the Mid-Barataria Sediment Diversion Project permitting is being conducted utilizing the Fixing America's Transportation Act (FAST-41) process, the process was not expedited. The intent of FAST-41 is enhanced coordination, transparency, predictability, and accountability in federal environmental reviews and authorizations. It does not modify any underlying statutes, regulations, or mandatory reviews. Similarly, the MMPA waiver does not alter USACE's or the LA TIG's NEPA responsibility to evaluate anticipated impacts of the proposed Project on marine mammals. The EIS analyzes and discloses the environmental and economic impacts of the proposed Project, including

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anticipated effects on marine mammals (see Chapter 4, Section 4.11 Marine Mammals). The NEPA process was not abbreviated to expedite review. All steps in the NEPA process have been followed to allow for public participation and transparency, including scoping, public review and comment periods. In recognition of the potential for collateral injuries from the proposed Project, and acknowledging the inability to fully avoid or mitigate collateral injuries, the LA TIG has designed and CPRA would implement a suite of mitigation and stewardship measures. See Section 3.2.1.1.5 of the LA TIG's Final Restoration Plan and Appendix R to the Final EIS. The LA TIG is also committed to continuing efforts to restore the resources that would be adversely affected by the diversion, many of which were also injured by the DWH oil spill. Section 20201(b) of the Bipartisan Budget Act of 2018 also requires the State of Louisiana, in consultation with the Secretary of Commerce (delegated to NMFS), to the extent practicable and consistent with the purposes of the proposed Project, to minimize impacts on marine mammal species and population stocks, and monitor and evaluate the impacts of the proposed Project on such species and population stocks.

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**Concern ID: 62881**

**The Louisiana Department of Wildlife and Fisheries (LDWF) appreciated the opportunity to be included in the collaborative writing process as part of the Louisiana Trustee Implementation Group (LA TIG) during the Draft Environmental Impact Statement preparation to ensure appropriate species of concern were considered and no important recreational or commercial species were omitted from impact determinations. The commenters concur with the recommendations made by the U.S. Fish and Wildlife Service in the Draft Fish and Wildlife Coordination Act Report (Draft EIS, Appendix T and summarized in Chapter 5) and look forward to remaining a collaborative partner as this EIS is finalized. Importantly, the commenters remain committed to participating fully in the continued development of the associated Mitigation Plan and Monitoring and Adaptive Management Plan.**

**Response ID: 15739**

USACE appreciates LDWF's input into the Draft EIS and the Final EIS. CPRA and the LA TIG appreciate the agency's continued participation in the development of the Mitigation and Stewardship Plan and Monitoring and Adaptive Management Plan.

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**Concern ID: 64825**

**One commenter provided a link to NMFS correspondence submitted in response to CPRA's 2013 Solicitation of Views request from the early stages of Project planning.**

**Response ID: 16488**

NMFS submitted a response to CPRA's Solicitation of Views in 2013. NMFS has participated as a cooperating agency in the development of the EIS for the proposed Project, providing information and technical analysis throughout the EIS development. Impact analyses associated



with NMFS' trust resources, which are living marine resources generally including certain marine mammals, sea turtles, marine fish and anadromous fish, shellfish, critical habitat, EFH, and aquatic habitat, can be found in Chapter 4, Section 4.6 Wetland Resources and Waters of the U.S., Section 4.10 Aquatic Resources, Section 4.11 Marine Mammals, Section 4.12 Threatened and Endangered Species, and Section 4.14 Commercial Fisheries of the EIS.

## CH20000 – NRDA Injury

<b>Concern ID: 62677</b>	<b>A commenter identified that after all of the work that went into saving birds in the immediate time following the oil spill, it would be a waste of resources to let those efforts go to waste.</b>
<b>Response ID: 16498</b>	The LA TIG agrees with the commenters that the immediate response efforts of saving birds and wildlife need to be followed by long-term restoration projects that benefit these resources. One of the primary goals of the Project is “to create, restore, and sustain wetlands and other deltaic habitats and associated ecosystem services.” These habitats provide food, shelter, and nursery grounds for numerous ecologically and economically important species, including birds that were the focus of immediate response efforts after the DWH oil spill.
<b>Concern ID: 62678</b>	<b>Commenters recognized the challenges facing Louisiana and the connection between stabilizing the coastline and restoring the overall health of the ecosystem, which is the goal of the Restoration Plan.</b>
<b>Response ID: 16499</b>	The LA TIG agrees with the commenters regarding the ecological challenges faced along Louisiana’s coastline. The impacts of DWH oiling were ecosystem-wide and spanned multiple trophic levels, necessitating an ecosystem-scale restoration effort. One of the goals of the Project is “to create, restore, and sustain wetlands and other deltaic habitats and associated ecosystem services.” That balance is discussed in Section 3.0 (OPA Evaluation of the Alternatives) of the LA TIG’s Restoration Plan, where its OPA evaluation addresses both the Project’s benefits to multiple resources as well as its ability to meet Trustee goals and objectives.
<b>Concern ID: 62683</b>	<b>Commenters from Plaquemines Parish noted that they feel shortchanged; while the impacts of the oil spill are in their parish, they have not had the help from the State or BP.</b>
<b>Response ID: 16501</b>	An overview of the impacts of the oil spill on Plaquemines Parish can be found in Section 2.1 (Parish and Community Descriptions) of the Socioeconomics Technical Report (Appendix H1 to the EIS). Effects



were most evident in ethnically diverse (for example, Black, Native American, Asian, and Cajun and Creole) south Plaquemines Parish, where the economy relies mainly on the oil industry and fisheries. The EIS evaluates the anticipated impacts of the proposed MBSD Project on the human environment (including ecological, economic, cultural, and social resource effects); that analysis includes looking at the existing conditions of various natural and socioeconomic resources that were affected by the DWH oil spill (see EIS Chapter 3 Affected Environment and Appendix H1 Socioeconomics Technical Report). The EIS projects that the diversion would have both adverse and beneficial impacts on Plaquemines Parish resources affected by the oil spill (see EIS Chapter 4 Environmental Consequences and Appendix H1 Socioeconomics Technical Report). The state's or BP's post-spill assistance to the residents of Plaquemines Parish is beyond the scope of the EIS.

The LA TIG acknowledges the commenters' concern that Plaquemines Parish has not received help after the impacts of the DWH oil spill. As described in the LA TIG's Restoration Plan, the LA TIG selected the location of the Project in the Mid-Barataria Basin in Plaquemines Parish because this location is close to oiled shorelines but farther away from additional erosive forces found in the Lower Barataria Basin.

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**Concern ID: 62685**

**Commenters reflected on their own experience with the DWH oil spill and the aftermath in Barataria Bay and expressed support for the diversion as a way to restore the ecosystem impacted by the spill.**

**Response ID: 16502**

The LA TIG acknowledges the support for the Project from commenters who were active in the response to the DWH oil spill and continue to be concerned with the long-term health of the ecosystem. The LA TIG agrees that the Project would provide a critical element for comprehensive, integrated ecosystem restoration to address the injuries from the DWH spill.

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**Concern ID: 62687**

**A commenter suggested that the restoration goal should be clarified, noting the purpose should be to "restore elements injured" rather than "restore injuries" resulting from the DWH oil spill.**

**Response ID: 16503**

The LA TIG acknowledges the commenter's close reading of the LA TIG's Draft Restoration Plan and agrees that the phrase "restore injuries" could be confusing to the reader. In the LA TIG's Final Restoration Plan, the phrase "restore injuries" has been replaced with the more common phrase "restore for injuries," as the goal is to restore what was injured.

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**Concern ID: 62689**

**Commenters noted the breadth of the injury from the fresh water released to help push back oil from the DWH spill on Louisiana's**

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<b>Response ID: 16504</b>	<b>resources, including marsh islands, wetlands, crabs, white and brown shrimp, oysters and oyster reefs, dolphins, finfish and many species of birds.</b>
	<p>The impacts of freshwater releases during the DWH response were considered in the Draft EIS. More specifically, Chapter 3, Section 3.14.3 (Oyster Fishery) and Section 3.10 (Aquatic Resources) of the EIS acknowledge the impact of the oil spill response on aquatic resources, including SAV, shrimp, oyster fisheries, and fish.</p> <p>The LA TIG agrees with the commenters that the impacts of the DWH, including the oil spill and the response actions, were an ecosystem-level injury affecting multiple resources and species. This includes the impacts from the releases of fresh water from Caernarvon and Davis Pond to push oil out of estuaries to reduce oil impacts to these habitats and the species that reside in them. Unlike the proposed Project, however, the release of fresh water in response to approaching oil was not planned in a way that allowed for a functional transition to a restored ecosystem. The LA TIG's Restoration Plan focuses on restoring wetlands, coastal, and nearshore habitats in the Barataria Basin, which would benefit multiple resources. Injured resources not addressed in this Restoration Plan have either been addressed by previous restoration plans or are intended to be the focus of future restoration plans issued by the LA TIG.</p>
<b>Concern ID: 62680</b>	<b>Commenters noted the long-term impacts that have been felt since the oil spill 10 years ago and supported using the natural land-building power of the Mississippi River to maintain and restore the health of the entire ecosystem for the future.</b>
<b>Response ID: 16500</b>	<p>The long-term impacts of the oil spill were considered in the Draft EIS. For example, Chapter 3, Section 3.6.2 Wetland Loss notes the ongoing impact of the DWH oil spill on wetland loss, as well as ongoing saltwater intrusion, sea-level rise, and subsidence. Section 3.10.5.2 Key Fish and Shellfish Species provides an overview of the adverse impact of the oil spill on key aquatic species within the Barataria Basin.</p> <p>The LA TIG believes that reconnecting and reestablishing deltaic processes between the Mississippi River and Barataria Basin is critical for supporting the long-term viability of existing and planned coastal restoration efforts. These deltaic processes include sediment retention and accumulation and new delta formation. As discussed in Section 3.2.1.6 Benefits Multiple Resources of the LA TIG's Restoration Plan, through reconnecting and reestablishing these sustainable deltaic processes, the Project would help restore the habitat and ecosystem services injured in the northern Gulf of Mexico by the DWH oil spill.</p>
<b>Concern ID: 63758</b>	<b>Commenters noted that the Deepwater Horizon (DWH) oil spill is not a primary or contributing factor in Louisiana's coastal land</b>

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**loss and that instead, levees built for flood control purposes, including those built by the U.S. Army Corps of Engineers, have long been a cause of land loss and subsidence. They expressed that because the DWH oil spill is not a cause of wetland loss, there is no basis for the claim that the MBSD will restore impacts caused by the oil spill, and thus NRDA funds would be inappropriately used for the Project.**

**Response ID: 16607**

The many factors contributing to land loss in Louisiana were considered in the Draft EIS. For example, Chapter 3, Section 3.6.2 in Wetland Resources and Waters of the U.S. acknowledges the multiple factors contributing to land loss in the Project area.

USACE's involvement with the proposed Project is limited to its permitting decisions and associated NEPA and other evaluations of the proposed Project under the Clean Water Act Section 404 and River and Harbors Act, Sections 10 and 14 (33 USC Section 408). USACE is not evaluating the proposed Project for compliance with the OPA and is not involved in the process to restore damages caused by the DWH. As explained in the Restoration Plan, the LA TIG is responsible for deciding the appropriate use of NRDA funds to restore natural resources injured by the DWH spill in the Louisiana Restoration Area. Response content pertaining to the LA TIG's Draft Restoration Plan, the OPA and/or NRDA processes or other Trustee Planning was developed by the LA TIG and states only the LA TIG's views, as explained in Section 2.0 Agency Roles in the Appendix B2 DEIS Public Review and Public Meetings.

As discussed in the PDARP/PEIS, the SRP/EA #3, and the LA TIG's Final Restoration Plan, the LA TIG found that impacts of the injuries from the DWH oil spill were particularly detrimental to the resources of the Barataria Basin, which were already in peril as a result of the separation of sediment-loaded river water by levees, subsidence, and a changing climate. In the Barataria Basin, marshes already suffering from significant coastal erosion experienced heavy oiling and subsequently experienced double or triple the rate of marsh loss. The Final PDARP/PEIS (DWH NRDA Trustees, 2016a) documented the nature, degree, and extent of injuries from the DWH oil spill to both natural resources and the services they provide, and the nexus between those injuries and need for restoration within the Barataria Basin. For example:

- The DWH oil spill resulted in over 1,100 kilometers of wetland oiling Gulf-wide. Approximately 95 percent of this marsh oiling occurred in coastal Louisiana, with the heaviest oiling in the Barataria Basin (PDARP/PEIS, Table 4.6-2; Nixon et al., 2015). The heaviest oiling occurred in marshes dominated by *Spartina alterniflora*, a perennial deciduous grass, and *Juncus*

*roemerianus*, a flowering plant species (Visser et al., 1998; Lin and Mendelssohn, 2012; Silliman et al., 2012). These marshes provide critical habitats for estuarine-dependent species throughout the Gulf of Mexico.

- The marsh edge was severely oiled and injured, and the impacts of this oiling were documented in the Barataria Basin. Growth rates of juvenile brown and white shrimp along this oiled marsh edge were reduced by up to 50 percent compared to those collected near shorelines that did not experience oiling (for example, Rozas et al., 2014; van der Ham and de Mutsert, 2014). Growth rates of red drum along heavily oiled marsh shorelines were also reduced by approximately 50 percent in 2010 relative to non-oiled shorelines, and these reduced growth rates persisted through at least 2013 (for example, Powers and Scyphers, 2016).
- Impacts of DWH oiling were ecosystem-wide, spanning multiple trophic levels. The negative effects of oiling on plants and lower trophic levels from the nearshore food web (for example, amphipods, shrimp, snails) caused a cascade of impacts on higher trophic levels.
- Substantial injury to marsh birds likely occurred. Birds that were present in the marsh habitat during the DWH spill were likely exposed to oil via multiple pathways. Heavily oiled marsh areas had extensive oiling on vegetation and soils, and contained oil-contaminated prey.
- Marsh grasses help maintain the habitat in the Barataria Basin by protecting the marsh edge from erosion. Extensive oiling and loss of marsh vegetation in the Barataria Basin created an acceleration of land loss following the oil spill. The accelerated erosion due to the spill resulted in the permanent loss of coastal wetlands over large portions of the Barataria Basin (see Table 2-1; Silliman et al., 2012, 2015, 2016; McClenachan et al., 2013; Zengel et al., 2015; Turner et al., 2016).
- Marsh edge serves as the gateway for the movement of organisms and nutrients between intertidal and subtidal estuarine environments. Injuries to a specific resource in the nearshore marine ecosystem could cause direct and indirect effects on offshore resources. For example, Gulf killifish, a key connector of energy between marsh and open Gulf waters, are among the largest of the Gulf forage fish and are preyed upon by wildlife, birds, and many sport fish. Water column resources injured by the spill include species from all levels in the northern

Gulf of Mexico food web, including estuarine-dependent species (DWH NRDA Trustees, 2016a).

Other examples of impacts on specific species and resources, as described in the PDARP/PEIS, demonstrate that the DWH oil spill created an ecosystem-level injury to the Gulf of Mexico that necessitates an ecosystem-level restoration strategy.

Evaluating restoration strategies that could restore for injuries in the Barataria Basin, SRP/EA #3 found that a combination of “marsh creation and ridge restoration plus a large-scale sediment diversion would provide the greatest level of benefits to injured Wetlands, Coastal, and Nearshore habitats and to the large suite of injured resources that depend in their life cycle on productive and sustainable wetland habitats” in the basin and in the broader northern Gulf of Mexico (LA TIG, 2018, page 3-32). As a result, the LA TIG pursued the development of a large-scale sediment diversion, specifically the proposed Mid-Barataria Sediment Diversion evaluated in the LA TIG’s Restoration Plan. The LA TIG finds that the proposed Project would best restore for injuries caused by the DWH oil spill by reconnecting and reestablishing sustainable deltaic processes between the Mississippi River and the Barataria Basin through the delivery of sediment, fresh water, and nutrients to support the long-term viability of existing and planned coastal restoration efforts.

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**Concern ID: 62675**

**Commenters noted that the impacts of the DWH oil spill on wetlands, wildlife, birds, communities, and land loss are still felt by this region and in particular, Barataria Basin where 95 percent of the oiling occurred. These impacts are exacerbated by decades of saltwater intrusion, sea-level rise, and subsidence.**

**Response ID: 16497**

The impacts of the DWH oil spill were considered in the Draft EIS. For example, Chapter 3, Section 3.6.2 Wetland Loss of the EIS notes the ongoing impact of the DWH oil spill on wetlands, as well as ongoing saltwater intrusion, sea-level rise, and subsidence. Section 3.10.5.2 Key Fish and Shellfish Species of the EIS provides an overview of the adverse impacts of the oil spill on key aquatic species within the Barataria Basin.

The LA TIG agrees with the commenters that the impacts of the DWH oil spill are significant in this region and thus the LA TIG is committed to continuing to plan and implement significant restoration projects like the LA TIG’s Preferred Alternative in the Restoration Plan. The LA TIG’s Restoration Plan focuses on restoring wetlands, coastal, and nearshore habitats in the Barataria Basin. These habitats are critical components of the broader northern Gulf of Mexico ecosystem and suffered the greatest degree of oiling in Louisiana due to the DWH oil spill.

## CH21000 – SRP Outcomes

**Concern ID: 62636**

**Despite concerns expressed about the potential harm that a large-scale sediment diversion could have on bottlenose dolphins in the Barataria Basin, the LA TIG finalized the SRP/EA #3 in March 2018, selecting as its Preferred Alternative a suite of restoration approaches that included the proposed Project.**

**Response ID: 16608**

USACE was not involved in the SRP/EA #3. USACE is not involved in the process to restore damages caused by the DWH oil spill.

As explained in Section 2.0 of this Appendix B2 DEIS Public Review and Public Meetings, response content pertaining to the LA TIG's Draft Restoration Plan, the OPA and/or NRDA processes or other Trustee Planning was developed by the LA TIG and states only the LA TIG's views.

In the SRP/EA #3, the LA TIG evaluated the extent to which the alternatives would prevent future injury as a result of the Deepwater Horizon (DWH) oil spill and avoid collateral injury including furthering impacts to bottlenose dolphins in the Barataria Basin. It found that marsh creation projects in Barataria Basin can help prevent future erosion injuries to marsh vegetation and soils in areas that suffered increased erosion as a result of the DWH oil spill. Restoration of marsh habitat also helps prevent future injury to estuarine-dependent resources, such as fish, crustaceans, and marsh birds that lost supporting habitat through the oil spill and through subsequent increased erosion. The SRP found that the operation of a large-scale sediment diversion would result in reductions in salinity in the Barataria Basin, and that reduction would adversely impact BSE marine mammals, including the stock of bottlenose dolphins in Barataria Bay, possibly resulting in illness and death.

USACE's Draft EIS evaluated impacts to bottlenose dolphins in Chapter 4, Section 4.11 Marine Mammals. As stated in that section, changes in salinity projected to occur as a result of operating the diversion are anticipated to have major, adverse, permanent impacts on the bottlenose dolphin population within the Barataria Basin. No edits based on this comment were made to Chapter 4 of the Final EIS.

These potential impacts to marine mammals were also included and considered by the LA TIG in its Draft Restoration Plan (see Section 3.2.1.5 [Avoids Collateral Injury]). As with the EIS, because these impacts were considered in the Draft Restoration Plan, no related edits were made to the main body of the Final Restoration Plan.

In recognition of the potential collateral injury to bottlenose dolphins and in response to public comments on this issue, CPRA would be



responsible for ensuring the implementation of four key stewardship measures as part of the proposed Project to benefit dolphins in Louisiana; the last of these has been developed since the release of the Draft Restoration Plan in response to public concerns about potential marine mammal impacts. They are:

- A state-wide stranding program for 20 years intended to improve the survival and health outcomes of marine mammal populations injured by the DWH spill, especially coastal and estuarine stocks of bottlenose dolphins. Enabling a more rapid response to a live stranded cetacean would increase that animal's chance of survival by reducing the time spent on the beach, reducing stress on the animal, providing rapid treatment, and, if appropriate, transport to an authorized rehabilitation facility for additional treatment and care. In addition, this program would improve diagnoses of the causes of illness and death in cetaceans to better understand natural and anthropogenic threats, which would inform restoration planning and monitoring and adaptive management (see Section 3.2.1.1.5 [Associated Stewardship Measures – Alternative 1] of the Final Restoration Plan).
- Activities that would reduce stressful interactions between dolphins and humans, such as: reducing dolphin mortalities associated with recreational fishing; reducing illegal fishing of dolphins; and assessing and mitigating the impacts of marine vessels, noise, and other threats on marine mammals in the Barataria Basin. See Section 3.2.1.1.5 (Associated Stewardship Measures – Alternative 1) of the Final Restoration Plan for more details.
- Additional stranding surge capacity in response to unusual marine mammal mortality events (see Section 3.2.1.1.5 [Associated Stewardship Measures – Alternative 1] of the Final Restoration Plan).
- A Marine Mammal Intervention Plan, which outlines a spectrum of response actions for dolphins affected by the operation of the diversion, ranging from recovery/relocation to no intervention to euthanasia. While the more severe actions (that is, euthanasia) may not offset the ultimate outcome of dolphin mortality associated with the proposed Project, it can alleviate animal suffering. Where relocation is possible, the goal would be to release dolphins into more hospitable habitat where any health impacts would be minimized. For more information, see Appendix R5 to the Final EIS.

In considering the operation of the diversion, CPRA developed a detailed MAM Plan to evaluate the proposed MBSD Project's benefits



and impacts on the Barataria Basin and consider how the management of the diversion may be adapted to better meet Project goals (see Appendix R2 [Monitoring and Adaptive Management Plan] to the EIS). In addition to performance monitoring to measure progress toward the proposed MBSD Project's restoration objectives, and to better understand the ecological functions and services provided by the proposed Project, the MAM Plan also includes monitoring to characterize the nature and extent of potential collateral injuries. CPRA's adaptive management strategies to minimize impacts to BBES dolphins from Project operations include a framework for coordinating stranding response activities during operations, and a post-operational commitment to evaluate the ability of diversion operations to be modified to meet Project goals while reducing impacts to marine mammals. Marine mammal related monitoring and adaptive management activities have been updated since the release of the Draft EIS to include more details regarding the process through which operational data would be used to evaluate potential modifications to those strategies and protocols.

The Mitigation and Stewardship Plan and the Monitoring and Adaptive Management (MAM) Plan provided in Draft EIS Appendix R were submitted by CPRA and represent a range of potential mitigation, stewardship, monitoring and adaptive management measures (collectively, measures). At the time of publication of the Draft EIS for public review, Appendix R contained draft Plans and CPRA had not identified which of the measures contained in those Plans it intended to implement. The Final EIS Appendix R contains the final Plans, including the additional Marine Mammal Intervention Plan, and specifies which measures CPRA and the LA TIG intend to implement. Generally, impact determinations discussed in the EIS represent anticipated Project effects without implementation of these measures except in instances where such measures are identified in the discussion. If any mitigation, monitoring or adaptive management measures are required by USACE as part of its approval of the proposed Project, such measures would be required as special conditions of the Department of the Army (DA) Section 10/404 permit and would be listed in the permit, if one is issued. Implementation of specific measures contained in these Plans, but not included in the Section 10/404 permit as special conditions, would not be required by USACE. USACE does not know whether any particular measure that is not a DA permit condition would be implemented. Measures that USACE currently contemplates as conditions of a DA Section 10/404 permit, if one is issued, are provided in Chapter 4, Section 4.27 Mitigation Summary of the EIS.

The LA TIG explains in Section 1.5 of the Final Restoration Plan that it anticipates requiring implementation of the Mitigation and Stewardship

Plan, MAM Plan, and Marine Mammal Intervention Plan as components of the proposed Project, if the Project is approved by the LA TIG for funding. Decisions regarding which measures would be required as part of the LA TIG's funding decision would be set forth in the LA TIG Record of Decision related to the proposed Project.

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**Concern ID: 63327**

**The Draft EIS lacks a reasonable range of alternatives under the National Environmental Policy Act (NEPA) because the LA TIG's Environmental Assessment (EA) conducted through SRP/EA #3 was insufficient. While the public was invited to comment on the TIG SRP/EA#3, it goes without saying that an EA is not as detailed as an EIS. The commenter stated that the decision making conducted in the TIG's SRP/EA #3 should have been conducted by the TIG in an EIS instead of an EA because the purpose of an EIS is to apprise decision makers of the disruptive environmental effects that may result from their decisions during that stage of the planning process when there are a maximum range of options (see Conner, 848 F.2d at 1446). Taking actions in the interim that could limit those options undermines the purpose and effectiveness of the NEPA process.**

**Response ID: 16609**

The range of reasonable alternatives evaluated in the EIS was based on alternatives that would satisfy the purpose and need statement set forth in Chapter 1, Section 1.4 Purpose and Need of the EIS. The LA TIG and CPRA crafted CPRA's statement of purpose and need, which built on the LA TIG's analyses in SRP/EA #3, including its initial screening of strategic restoration approaches including sediment diversions, large-scale marsh creation, ridge restoration, and breakwater construction, and its evaluation of a range of restoration strategies that could restore for injuries in the Barataria Basin. USACE generally focused on CPRA's purpose and need statement and considered the public's and other perspectives, including input from the LA TIG and cooperating agencies and input from representatives of the Council for Environmental Quality (CEQ) and the Federal Permitting Improvement Steering Council (FPISC), in its process to define the purpose and need.

As described in Chapter 2 of the EIS, an alternatives screening process was conducted where screening criteria were identified and a range of alternatives were evaluated, including other available coastal restoration tools and methods. The screening criteria included key concepts from the purpose and need including: reconnecting and reestablishing deltaic processes between the Mississippi River and the Barataria Basin in a sustainable manner; delivering sediment, fresh water, and nutrients in a sustainable manner; and supporting the long-term viability of existing and planned coastal restoration projects; and consistency with the SRP/EA #3 and the Louisiana Coastal Master Plan. Based on a review of the various alternatives against these

criteria developed from the purpose and need, only large-scale sediment diversions with varying capacities were brought forward as alternatives to the Applicant's Preferred Alternative for detailed analysis in the Draft EIS. Details of the screening process including screening criteria are described in Chapter 2 Alternatives, Sections 2.2 through 2.5. The alternatives that did not meet the screening criteria were eliminated from further detailed analyses as described in Chapter 2, Section 2.6 (Summary of Alternatives Considered But Eliminated From Detailed Analysis). Refer to Appendix D2 Eliminated Alternatives Matrix of the EIS for details on why these alternatives were not carried forward for further evaluation in the EIS.

With respect to analyses conducted in the SRP/EA #3, the LA TIG built on the Final PDARP/PEIS and its recommendation that strategic restoration planning could be beneficial to focus on a particular region. The SRP was utilized to transition from the PDARP/PEIS's programmatic, comprehensive scale to a tiered, geographically specific evaluation that assessed restoration strategies that could restore injuries in the Barataria Basin. This resulted in the preparation of SRP/EA #3. The LA TIG found, based on its evaluation in the EA portion of the SRP/EA that: (1) the PDARP/PEIS included a thorough evaluation of the potential range of environmental effects that could result from the various restoration approaches and techniques analyzed in the PDARP/PEIS; (2) the analysis of the environmental consequences of those approaches and techniques in the PDARP/PEIS remains valid; (3) the effects of the restoration approaches and techniques, including the projects selected for further planning and environmental review, evaluated in the SRP/EA were within the range of impacts evaluated in the PDARP/PEIS; and (4) any new information regarding the environmental consequences of the restoration approaches and techniques, including the projects selected for further planning and environmental review, evaluated within SRP/EA #3 were within the range of and consistent with the environmental impacts identified and analyzed within the PDARP/PEIS. The LA TIG's review of the environmental effects of the restoration techniques considered in SRP/EA #3, as well as comments submitted by the public, did not reveal any substantial change in the action evaluated in the PDARP/PEIS; or any new information indicating significant environmental issues or circumstances presented by application of the restoration techniques and approaches specifically in the Barataria Basin. As a result, the LA TIG concluded that the EA completed with the SRP was sufficient and consistent with applicable NEPA requirements.

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## CH22000 – Process of Alternatives Identification, Screening and Analysis

**Concern ID: 61879**

**Commenters questioned why other alternatives are not being considered other than No Action and a sediment diversion with various levels of flow rates. CEQ's regulations require that the EIS rigorously explore and objectively evaluate all reasonable alternatives, which is a requirement that the Draft EIS does not meet. Consider analyzing a range of other alternatives, options, and tools that better preserve and protect the environment and minimize the severe impacts to Louisiana fisheries, the communities, and the entire Gulf Coast ecosystems.**

**Response ID: 15835**

The range of reasonable alternatives evaluated in the EIS was based on the purpose and need statement set forth in Chapter 1, Section 1.4 Purpose and Need of the EIS. As described in Chapter 2 of the Draft EIS (Alternatives), an alternatives screening process was conducted where screening criteria were identified and a range of alternatives were considered, including other available coastal restoration tools and methods. The screening criteria incorporated key concepts from the purpose and need statement (Chapter 1, Section 1.4) including: reconnecting and reestablishing deltaic processes between the Mississippi River and the Barataria Basin in a sustainable manner; delivering sediment, fresh water, and nutrients in a sustainable manner; supporting the long-term viability of existing and planned coastal restoration projects; helping to restore habitat and ecosystem services in the northern Gulf of Mexico injured by the DWH oil spill consistent with the SRP/EA #3; and consistency with the Louisiana Coastal Master Plan. CPRA's purpose and need for the Project was built on analyses in the LA TIG's SRP/EA #3, including screening of strategic restoration approaches including sediment diversions, large-scale marsh creation, ridge restoration, and breakwater construction, and its evaluation of a range of restoration strategies that could restore for injuries in the Barataria Basin. USACE generally focused on CPRA's purpose and need for the proposed Project and considered the public's and other perspectives, including input from the LA TIG and cooperating agencies (identified in Section 1.8 Agency Roles and Responsibilities) and input from representatives of the Council for Environmental Quality (CEQ) and the Federal Permitting Improvement Steering Council (FPISC), in its process to define the Project's purpose and need for the EIS. After examining whether the various alternatives met the screening criteria developed from the purpose and need, only large-scale sediment diversions with varying capacities were brought forward as alternatives to the Applicant's Preferred Alternative for detailed analysis in the Draft EIS. Details of the screening process including screening criteria were described in Chapter 2, Sections 2.2

through 2.5. The alternatives that did not meet the screening criteria were then eliminated from further detailed analyses as described in Section 2.6 Summary of Alternatives Considered But Eliminated From Detailed Analysis. Refer to Appendix D2 Eliminated Alternatives Matrix of the EIS for details on why these alternatives were not carried forward for further evaluation in the EIS.

Additional detail can be found in the LA TIG's Restoration Plan explaining the LA TIG's evaluation of a range of alternatives and its identification of a Preferred Alternative (sediment diversion with variable flow up to 75,000 cfs). The LA TIG believes that the Preferred Alternative provides the right balance in terms of the likely benefits the Project would achieve and the risks related to collateral injury for its NRDA decision. This evaluation was completed by the LA TIG for its restoration planning efforts. USACE did not participate in that process.

Prior to the development of the EIS and Restoration Plan, the LA TIG evaluated various restoration alternatives in its SRP/EA #3 and found that a combination of "marsh creation and ridge restoration plus a large-scale sediment diversion would provide the greatest level of benefits to injured Wetlands, Coastal, and Nearshore habitats and to the large suite of injured resources that depend in their life cycle on productive and sustainable wetland habitats" (LA TIG, 2018) in the basin and in the broader northern Gulf of Mexico. As a result, the LA TIG pursued the development of a large-scale sediment diversion, specifically the proposed Mid-Barataria Sediment Diversion evaluated in its Restoration Plan. The LA TIG has funded other marsh creation restoration efforts that provide ecosystem services lower in the basin (that is, Barataria Basin Ridge and Marsh Creation Project: Spanish Pass Increment and Queen Bess Island Project). These activities complement and reinforce the restoration that would be provided by the proposed MBSD Project. Section 2.3 of the LA TIG's Restoration Plan provides a detailed discussion of process used to identify restoration alternatives.

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**Concern ID: 61883**

**Define a Plan that focuses on building Spartina marsh to help restore for the injuries caused by the DWH oil spill.**

**Response ID: 15838**

USACE is not evaluating the proposed Project for compliance with the OPA and is not involved in the process to restore the damage caused by the DWH oil spill. As explained in the Restoration Plan, the LA TIG is responsible for deciding the appropriate use of NRDA funds to restore natural resources injured by the DWH oil spill in the Louisiana Restoration Area. As explained in the Final EIS, Appendix B2 DEIS Public Review and Public Meetings, Section 2.0 Agency Roles in the Responses to Public Comments, response content pertaining to the LA TIG's Draft Restoration Plan, the OPA and/or NRDA processes or other

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Trustee Planning was developed by the LA TIG and states only the LA TIG's views.

With respect to the Restoration Plan, the commenter is correct in noting the extensive injury to Spartina from the DWH oil spill and the importance of marsh edge and Spartina in wetland productivity. However, the overall injury in Louisiana and the Barataria Basin from the DWH oil spill impacted shorelines as well as many of the species of flora and fauna that rely on those shorelines. To address the scale of ecosystem-level injury and current state of ecosystem decline in the Barataria Basin, in its "Strategic Restoration Plan and Environmental Assessment #3: Restoration of Wetlands, Coastal, and Nearshore Habitats in the Barataria Basin, Louisiana" (LA TIG 2018) the LA TIG selected for further development a large-scale sediment diversion to reconnect and reestablish sustainable deltaic processes between the Mississippi River and the Barataria Basin and contribute to the ecosystem-level restoration necessary in Barataria Basin, beyond restoring for only Spartina marsh. By implementing the proposed Project, the MBSD is expected to make ecosystem-level improvements, including benefits to Spartina marsh wetlands ecosystems broadly.

Louisiana Trustee Implementation Group (LA TIG). 2018. Final Strategic Restoration Plan and Environmental Assessment #3: Restoration of Wetlands, Coastal, and Nearshore Habitats in the Barataria Basin, Louisiana. Available online at: [http://www.gulfspillrestoration.noaa.gov/sites/default/files/2018\\_03\\_LA\\_TIG\\_Final\\_SRP\\_EA\\_508-Compliant.pdf](http://www.gulfspillrestoration.noaa.gov/sites/default/files/2018_03_LA_TIG_Final_SRP_EA_508-Compliant.pdf). Accessed: March 15, 2018.

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**Concern ID: 63601**

**The basis for alternatives development involved various groups including the Applicant which is a conflict of interest and disregards NEPA requirements for reasonable alternatives that are practical or feasible.**

**Response ID: 15839**

As explained in Chapter 2, Section 2.2 Steps Taken to Identify and Evaluate Reasonable Alternatives of the EIS, the alternative development process was conducted by an Alternatives Working Group (AWG) led by USACE in coordination with LA TIG (comprised of federal and state agencies, including the Applicant CPRA), and cooperating federal and state agencies. The USACE is the lead federal agency in preparing the EIS and coordinates with other agencies with jurisdiction by law or special expertise acting as cooperating agencies (see EIS Chapter 1, Section 1.8 Agency Roles and Responsibilities of the EIS). The USACE as the lead federal agency is primarily responsible for implementing the NEPA process for the EIS. The LA TIG will also use the EIS to inform the NRDA decision under OPA regarding funding the construction of the proposed MBSD (see EIS Chapter 1, Section 1.6.1, in Scope of the EIS). A Memorandum of Understanding (MOU) between the USACE and the federal and state cooperating agencies

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established the Project Federal Coordination Team (NOAA, NMFS, USEPA, USDOJ, and USDA) and allowed the integration of the State, including CPRA, significantly into the environmental review and authorization process to the extent authorized by law. NOAA's National Marine Fisheries Service and DOI's United States Fish and Wildlife Service retained independent discretion to make regulatory decisions under their respective statutory authorities. Refer to Appendix D1 Alternatives Working Group Summary of the EIS for additional details on the AWG.

The AWG collaborated to identify a reasonable range of alternatives to be carried forward for detailed analysis in the EIS that met the requirements for the NEPA review process associated with each federal action (Section 10/404 and Section 408 for USACE; NRDA funding for LA TIG). The AWG worked to refine and conduct the alternatives screening process to evaluate a wide range of alternatives, taking into consideration feasibility, practicability, location, design, and operation in an objective and transparent manner. The screening process was a multi-agency review process and considered information available from previous studies, decision-making needs of the lead agency (USACE) and cooperating agencies, NEPA requirements (for example, 40 CFR 1502.14), NRDA restoration planning efforts, information and modeling input provided by CPRA, and public and agency scoping comments.

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**Concern ID: 63615**

**While marsh creation projects are powerful at building land in strategic locations, at the end of the day they fail to sustainably address one of the causes of land loss (lack of continued sediment input), and the scale is severely limited due to restricted amounts of suitable borrow material. In addition, the types of sediment that a sediment diversion will convey highlights a marked difference with marsh creation. Therefore, it is not the case that marsh creation projects provide the same benefits as diversions.**

**Response ID: 15840**

The commenters' support for the Project is acknowledged. Table 2.3-1 in EIS Chapter 2, Section 2.3 Step 1: Evaluation of Functional Alternatives describes whether various alternatives, including a large-scale sediment diversion into Barataria Basin and a large-scale marsh creation project, met the screening criteria for the proposed Project. Additional information related to the marsh creation alternative has been added to Section 2.3.5 Large-Scale Marsh Creation for the Final EIS.

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**Concern ID: 64382**

**A cost-benefit analysis should be taken into consideration for the proposed Project.**

**Response ID: 15841**

NEPA does not require that an EIS contain a cost-benefit analysis unless it is relevant to the agency's decision. USACE generally

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assumes that a permit applicant has undertaken its own economic evaluation of the proposed project and therefore, does not require a financial cost-benefit accounting for its decision. However, as part of its permitting decision, USACE conducts a public interest review, which weighs the probable harms of a proposed project against its prospective benefits.

Consistent with OPA regulations, the LA TIG has evaluated in the Restoration Plan a range of alternatives based on multiple criteria including the cost to carry out each alternative, the likelihood of success, the extent to which future injury will be prevented and avoid collateral injury, the extent of benefits to more than one natural resource, and the effect on public safety. This analysis can be found in Section 3 of the LA TIG's Restoration Plan.

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**Concern ID: 61880**

**Commenter expressed concern regarding societal choices the Project presents such as whether to prioritize the economic well-being of one industry or the economic sustainability of the region at large.**

**Response ID: 15836**

Under NEPA, the EIS was prepared to analyze environmental impacts, both beneficial and adverse, that may result from construction, operation, and maintenance of the proposed MBSD Project and its reasonable alternatives. Proposed measures to avoid, minimize, and mitigate impacts on resources were also suggested by CPRA and have been summarized in Chapter 4, Section 4.27 Mitigation Summary and in CPRA's Final Mitigation and Stewardship Plan in Appendix R1 of the Final EIS. As part of its decision-making process, USACE will conduct a public interest review in which the project's probable harms will be weighed against its prospective benefits.

The Mitigation and Stewardship Plan and the Monitoring and Adaptive Management (MAM) Plan provided in the Draft EIS Appendix R were submitted by CPRA and represent a range of potential mitigation, stewardship, monitoring and adaptive management measures (collectively, measures). At the time of publication of the Draft EIS for public review, Appendix R contained draft Plans and CPRA had not identified which of the measures contained in those Plans it intended to implement. The Final EIS Appendix R contains the final Plans and specifies which measures CPRA and the LA TIG intend to implement. Generally, impact determinations discussed in the EIS represent anticipated Project effects without implementation of these measures except in instances where such measures are identified in the discussion. If any mitigation, monitoring, or adaptive management measures are required by USACE as part of its approval of the proposed Project, such measures would be required as special conditions of the Department of the Army (DA) Section 10/404 permit and would be listed in the permit, if one is issued. Implementation of

specific measures contained in either Plan, but not included in the Section 10/404 permit as special conditions, would not be required by USACE. USACE does not know whether any particular measure that is not a DA permit condition would be implemented. Measures that USACE currently contemplates as conditions of a DA Section 10/404 permit, if one is issued, have been provided in Chapter 4, Section 4.27 Mitigation Summary of the EIS.

The LA TIG explains in Section 1.5 of the Final Restoration Plan that it anticipates requiring implementation of the Mitigation and Stewardship Plan, MAM Plan, and Marine Mammal Intervention Plan as components of the proposed Project, if the Project is approved by the LA TIG for funding. Decisions regarding which measures would be required as part of the LA TIG's funding decision would be set forth in the LA TIG Record of Decision related to the proposed Project.

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**Concern ID: 61881**

**The Mid-Barataria Sediment Diversion has been well researched, the range of alternatives evaluated in the Draft EIS is reasonable and meets the purpose and need, and seems a prudent plan of action versus the choice of doing nothing.**

**Response ID: 15837**

The commenter's support of the proposed Project is acknowledged.

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## CH23000 – Functional Alternatives

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**Concern ID: 61991**

**CPRA has chosen an inland project in an area where there was zero or minimal direct impacts from the DWH oil spill. Consider an appropriate realignment of CPRA priorities to use DWH oil spill settlement funds to directly restore areas directly impacted by the spill, such as Bay Jimmy, the Cat Islands, Elephant Island, Dutch Island, Beauregard Island, and Mendicant Island. To use funds outside the impact zone seems outside of what is urgent and proper.**

**Response ID: 16017**

Chapter 2, Section 2.4.1 in Step 2: Evaluation of Operational Alternatives - Location, Operational Trigger, Capacity, and Base Flow of the Draft EIS described the screening analysis conducted to evaluate the alternatives based on geographic location. In addition, the EIS considered a barrier island alternative as a functional alternative to the proposed Project. While the EIS acknowledges that barrier islands play a critical role in reducing land loss, this alternative was determined not to meet the purpose and need. Refer to Chapter 2, Section 2.3.4 in Step 1: Evaluation of Functional Alternatives for details on why this

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barrier island alternative was eliminated from further analysis in the EIS.

The LA TIG identified the Barataria Basin in the SRP/EA #3 as the location for the proposed Project because within Louisiana, the Barataria Basin suffered the most severe and persistent oiling from the DWH oil spill. It is also an “area of critical need” due to its significant and continuing land loss. As part of the LA TIG’s restoration planning efforts, the Restoration Plan describes their coordination with other Gulf Restoration Programs to maximize the overall ecosystem impact of DWH NRDA restoration efforts through use of DWH oil spill funds (see Section 1.8 in SRP/EA #3).

The LA TIG believes that a sediment diversion is the only way to achieve a self-sustaining marsh ecosystem in the Barataria Basin that more closely resembles historic conditions. This sustained marsh ecosystem is expected to benefit many fish and wildlife species in the basin south of Lafitte, including many of those negatively affected by the spill, such as red drum, largemouth bass, blue crab, white shrimp, Gulf menhaden, and migratory waterfowl. These benefits to fish and wildlife species also would translate to benefits to recreational users who watch, fish, or hunt those species.

In addition, the LA TIG’s Restoration Plan indicates that these benefits would not only accrue throughout the Barataria Basin but, through the transport of marsh productivity, also in the offshore ecosystems of the northern Gulf of Mexico. As stated in the Restoration Plan, by reestablishing deltaic processes, the proposed MBSD Project is expected to enhance the ecological productivity of the estuary and improve food web dynamics that would provide benefit to the northern Gulf of Mexico ecosystem.

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**Concern ID: 61995**

**Commenters suggested that restoration of the Barataria Basin would be nearly impossible if the proposed MBSD Project is not permitted, and Louisiana is at an extremely crucial decision point. The coastal wetlands are starving for sediment input. Dredging alone cannot save the wetlands, the processes that originally built them must be reestablished.**

**Response ID: 16018**

The commenter’s support of the proposed Project is acknowledged. The EIS acknowledges that a large-scale sediment diversion meets the purpose and need of the proposed Project while large-scale marsh creation does not meet the purpose and need. Details on marsh creation alternatives and the reasons for elimination from detailed analysis in the EIS can be found in Chapter 2, Section 2.3 Step 1: Evaluation of Functional Alternatives. Additional information related to the marsh creation alternative has been added to Section 2.3.5 Large-Scale Marsh Creation for the Final EIS.

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<b>Concern ID: 61996</b>	<b>A commenter inquired about what sustainable, efficient options are available to hold onto wetlands and support other coastal restoration and protection investments as sea-level rise increases.</b>
<b>Response ID: 16014</b>	<p>The Draft EIS considered sea-level rise in the assessment of impacts of the proposed Project alternatives. Refer to Chapter 4, Section 4.1.3.2 in Approach to Evaluation of Environmental Consequences for a description of how the Delft3D Basinwide Model factors in sea-level rise projections. Chapter 4, Section 4.6 Wetland Resources and Waters of the U.S. of the Draft EIS found that the proposed MBSD Project would have beneficial impacts on wetlands in the Barataria Basin where wetlands would be sustained and created by the diversion of sediment and fresh water from the Mississippi River.</p> <p>CPRA's Louisiana Coastal Master Plan evaluates other options for coastal restoration taking into account future sea-level rise. The implications of sea-level rise are also a component in the design and development of all LA TIG restoration projects.</p>
<b>Concern ID: 61997</b>	<b>A commenter suggested that USACE consider looking at other options including diversions through more than one watershed.</b>
<b>Response ID: 16013</b>	<p>The geographic scope of this EIS is the Barataria Basin and the Mississippi River birdfoot delta. The purpose and need for the proposed MBSD Project is specific to the Barataria Basin and a diversion outside of the basin would not meet that purpose and need. CPRA and the LA TIG targeted Barataria Basin for restoration because, in addition to the high rates of erosion occurring in the basin, wetlands in the Barataria Basin experienced some of the heaviest and most persistent oiling and associated response activities from the DWH oil spill. CPRA is currently seeking a DA permit for another large-scale sediment diversion in the Breton Sound Basin, the Mid-Breton Sediment Diversion (see Chapter 4, Section 4.25 Cumulative Impacts).</p>
<b>Concern ID: 61999</b>	<b>A commenter provided a specific reference for use in the EIS regarding diversions and coastal wetland restoration/creation. (Turner RE, Boyer ME 1997. Mississippi River diversions, coastal wetland restoration/creation and an economy of scale. Ecological Engineering 8: 117-128)</b>
<b>Response ID: 16331</b>	<p>The reference has been reviewed, included in the list of references, and some additional information has been included in Chapter 2, Section 2.3.7 Multiple Small-Scale Diversions of the Final EIS.</p>
<b>Concern ID: 62000</b>	<b>The proposed MBSD Project design should be enhanced to provide regular water flows and sediment loading (via moveable slurry pipelines, or similar systems) to areas that can benefit most between Lafitte and Grand Isle.</b>

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**Response ID: 16016**

Chapter 2, Section 2.3.6 in Step 1: Evaluation of Functional Alternatives of the Draft EIS evaluated an alternative that includes a sediment diversion with marsh creation. Refer to this section for additional details on why this alternative was eliminated from detailed analysis. It was determined that marsh creation activities have been and are likely to continue to be implemented in the basin and are reasonably foreseeable. Reasonably foreseeable marsh creation activities are considered in the cumulative impact sections of the EIS (see Chapter 4, Section 4.25 Cumulative Impacts).

If this comment is referring to piping sediment directly into the conveyance channel to maximize sediment/water ratio, such an alternative was determined not to be practical or feasible from a technical or economic standpoint. Utilizing the lateral bar adjacent to the diversion in the Mississippi River as a sediment source for the piped sediment would decrease the efficiency of the diversion and availability of sediment. Piping sediment from a more distant source would not be cost efficient due to the distance and maintenance of the pipeline and could result in impact to navigation. Further, piping sediment directly into the conveyance channel could alter the movement of sediment within the channel, increasing maintenance costs. (See EIS Chapter 2, Section 2.4.4 in Step 2: Evaluation of Operational Alternatives - Location, Operational Trigger, Capacity, and Base Flow and Appendix D2 Eliminated Alternatives Matrix.

The LA TIG notes that it has funded other marsh creation restoration efforts that provide ecosystem services lower in the basin (that is, Barataria Basin Ridge and Marsh Creation Project: Spanish Pass Increment and Restoration Plan 3.3: Upper Barataria Large-Scale Marsh Creation Project). These activities would complement and reinforce the restoration that would be provided by the proposed MBSD Project. Section 2.3 of the LA TIG's Restoration Plan provides a detailed discussion of process used to identify restoration alternatives.

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**Concern ID: 61998**

**The true cost of acreage created by diversions is higher than acreage created by dredging because the cost of adverse negative impacts to our seafood industry among other things.**

**Response ID: 16015**

Under relevant NEPA regulations, a cost-benefit analysis is not required for the EIS unless such an analysis is relevant to the agency's decision. USACE generally assumes that a permit applicant has undertaken its own economic evaluation of a proposed project and therefore, does not require a financial cost-benefit accounting for its decision. As part of its permitting decision, USACE conducts a public interest review, which weighs the probable harms of a project against its prospective benefits.

The impacts on the seafood industry were considered in the Draft EIS. The EIS acknowledges in Chapter 3, Section 3.14.7 in Commercial

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Fisheries that the seafood industry represents a major source of jobs and income in Louisiana, which includes commercial harvesters, seafood processors and dealers, seafood wholesalers and distributors, and retail sales. Chapter 4, Section 4.14 Commercial Fisheries discusses regional economic impacts and community impacts on the shrimp, oyster, crab, and finfish fisheries, noting that communities with a high reliance on these landings may be most heavily impacted, and that indirect effects may include impacts to fish license holders, crew, dealers, suppliers, and seafood processors.

The cost effectiveness of the proposed Project was evaluated in the LA TIG's Restoration Plan. While the commenters suggest that marsh creation through dredging would cost less than the proposed Project, the LA TIG does not believe that comparing the costs of a sediment diversion to marsh creation projects using dredged material captures the benefits of the proposed Project. Most importantly, as explained in the LA TIG's Restoration Plan, the goal of the proposed Project is to create a long-term sustainable ecosystem through the reestablishment of deltaic process. Marsh creation through the use of dredged material would not bring fresh water or nutrients to the basin on an ongoing basis, and therefore would not nourish surrounding wetlands on an ongoing basis. Furthermore, assuming an initial dredge placement event with no further maintenance, the benefits of marsh created with dredged material would diminish relatively quickly compared to marsh created by the proposed Project due to subsidence, erosion, and sea-level rise; thus, the temporal nature of proposed Project benefits would also be markedly different. For these reasons, the LA TIG believes that comparing the costs of dredge placement to the costs of the diversion does not capture the full picture of the diversion's ecological benefits. The costs and benefits of the proposed Project were considered and discussed in the LA TIG's Draft Restoration Plan. No related edits have been made to the Final Restoration Plan.

Finally, while the proposed Project involves implementing a large-scale sediment diversion in the Barataria Basin, the Applicant also proposes to place suitable dredged and excavated material in three beneficial use areas, resulting in localized elevation increases that are expected to result in the establishment of wetland vegetation. Therefore, the Project is projected to provide marsh creation benefits using both the diversion of fresh water and sediment, as well as through dredged material placement.

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## CH24000 – Location Alternatives

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<b>Concern ID: 61865</b>	<b>Commenters asked why the location was chosen as the site for the proposed MBSD Project, since it is so close to and impacts the Myrtle Grove Subdivision.</b>
<b>Response ID: 15936</b>	Chapter 2, Section 2.4.1 Evaluation of Location Alternatives under Step 2: Evaluation of Operational Alternatives - Location, Operational Trigger, Capacity, and Base Flow in the Draft EIS, detailed the evaluation of alternatives based on geographic location and the reasoning for selecting the proposed location for the MBSD Project. Consideration for the location of the proposed MBSD Project took into account the proximity of the diversion intake to a point bar in the Mississippi River that could serve as a continuous, long-term sediment source for the diversion in combination with the outfall location and receiving basin being well suited to gain benefits from a sediment diversion, the potential for accretion of sediment in the Barataria Basin, and the creation, maintenance, and sustainability of existing and future wetlands and marshes. In addition, previous studies have considered several general locations for a sediment diversion from the Mississippi River into the Barataria Basin, including the upper, middle and lower parts of the basin and were used in the evaluation in the EIS. The impacts of the proposed MBSD Project and its alternatives, particularly on Myrtle Grove, can be found in Chapter 4 Environmental Consequences under each of the Project's resources.
<b>Concern ID: 63999</b>	<b>Commenters asked to consider the alternative of building a sediment diversion near Edgard to end the need to open the Bonnet Carré Spillway.</b>
<b>Response ID: 15937</b>	Chapter 2, Section 2.4.1 Evaluation of Location Alternatives under Step 2: Evaluation of Operational Alternatives - Location, Operational Trigger, Capacity, and Base Flow in the Draft EIS, detailed the evaluation of alternatives based on geographic location and the reasoning for selecting the proposed location for the MBSD Project. Consideration for the location of the proposed MBSD Project took into account the availability of sediment from the Mississippi River, the potential for accretion of sediment in the basin, and the creation, maintenance, and sustainability of existing and future wetlands and marshes. While Edgard is located within the defined proposed Project area which is the Barataria Basin and the Mississippi River birdfoot delta, it is located within the Upper Barataria Basin. During the EIS alternatives analysis process it was determined that alternatives in the Upper Barataria Basin would not meet the purpose and need. Siting the diversion in the Upper Barataria Basin would promote the long-term sustainability of existing marshes since the marshes are still relatively intact and more protected from the combined influence of erosion,

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relative sea-level rise, and saltwater intrusion relative to the lower reaches of the basin. However, it would not effectively promote the sustainability of newly created marsh or restoration of degraded marsh in the middle or lower basin, which is where the need to restore new and preserve existing marsh is greater than in the upper basin due to sea-level rise and coastal erosion (see Chapter 2, Section 2.4.1.3 Application of Additional Considerations to Potential Alternative Locations in Upper, Middle, or Lower Barataria Basin).

The LA TIG identified the Barataria Basin in their restoration planning as the location for the proposed Project because it suffered the most severe and persistent oiling from the DWH oil spill. In addition, CPRA's Louisiana Coastal Master Plan does consider other diversions for the Pontchartrain Basin including the Maurepas Diversion (River Reintroduction into Maurepas Swamp).

Additionally, the purpose of the proposed MBSD Project is not flood risk reduction. USACE operates the Bonnet Carré Spillway for emergency flood control and the spillway's design capacity is 250,000 cfs, much greater than the proposed MBSD. Building a sediment diversion near Edgard would likely not negate the need for operation of the Bonnet Carré Spillway, although that question has not been analyzed as part of this Project.

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## CH260000 – Outfall Features

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**Concern ID: 61867**

**Commenter requested that the EIS explain whether there is any proof that the marsh terrace outfall features would perform and function as proposed in the Draft EIS.**

**Response ID: 15938**

Chapter 2, Section 2.5 Step 3: Evaluation of Sediment Diversion Outfall Features of the EIS discusses the evaluation of sediment diversion outfall features as part of the screening process for alternatives. Marsh terracing has been widely implemented in the past as part of coastal restoration projects to build and retain marsh areas and the federal agencies represented on the LA TIG and CWPPRA Task Force have utilized or endorsed the use of marsh terraces. Marsh terraces are a design feature engineered to enhance deposition and retention of suspended sediments, reducing turbidity, increasing marsh-edge habitat, increasing overall primary and secondary productivity, and maximizing access for marine and estuarine organisms. To understand how the marsh terrace outfall features would perform as part of the MBSD Project, Delft3D Basinwide Modeling was used, which aided in informing the analysis as presented in Chapter 4 Environmental Consequences of the EIS.

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**Concern ID: 61868****Alternative designs in the outflow area should be considered to minimize the impacts due to the outflow into the Barataria Basin.****Response ID: 15939**

Alternative outfall features that could potentially expedite Project-related benefits were considered in the Draft EIS. As part of the Applicant's Preferred Alternative, CPRA incorporated features into the design of the Project to aid in expediting anticipated Project benefits (see Section 2.8.1.1.2 Basin Outfall Area and Delta Formation Area). These features include beneficial use of material from construction of the diversion channel to create marsh in designated areas within the outfall area, and an outfall transition feature. Due to public scoping comments received, the EIS also considered potential features in the outfall area such as canals, bayous, impoundments, weirs, and chenier-like ridges to manipulate the flow of water and sediment for water quality and sediment retention benefits, to create barriers for storm surge and wind, and to redirect waters away from oyster production and sensitive areas. However, these features were eliminated from consideration because of the potential for such features to impede delta formation. Refer to Chapter 2, Section 2.5 Step 3: Evaluation of Sediment Diversion Outfall Features for evaluation of these alternative outfall features as part of the alternatives screening process.

In consideration of public scoping comments, and because of the possibility of expediting anticipated Project-related benefits, while not interfering with the proposed Project's purpose, two types of outfall features (in addition to construction of the outfall transition feature and beneficial use of material from the diversion channel) were reviewed for further consideration in the Draft EIS. These included ridges and marsh terraces outside of the area where the delta would be expected to initially form. After evaluating these two outfall features, marsh terracing was chosen as a Project feature in the range of alternatives to be analyzed further in the EIS because marsh terraces are often used to reduce wave energy within an area, to protect eroding or recently restored shorelines, or to promote sediment deposition and resultant benefits. See Section 2.5.1 Additional Considerations.

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## CH27000 – Alternatives Considered but Eliminated

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**Concern ID: 61966****The Draft EIS did not provide adequate alternative proposals to a sediment diversion. Dredging was not considered as a viable alternative to diversions in the Draft EIS. It would be much better money spent to dredge material from the Mississippi River or the Gulf of Mexico and create land immediately. These options would create land immediately not 20 or 30 years from now which would be too late. Dredging has numerous and immediate beneficial**

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**results that do not entail generating the negative impacts of adding fresh water.****Response ID: 15971**

As described in Chapter 2 Alternatives of the Draft EIS, an alternatives screening process was conducted where screening criteria were identified and a range of alternatives were considered, including other available coastal restoration tools and methods. The screening criteria incorporated key concepts from the purpose and need statement (Chapter 1, Section 1.4) including: reconnecting and reestablishing deltaic processes between the Mississippi River and the Barataria Basin in a sustainable manner; delivering sediment, fresh water, and nutrients in a sustainable manner; supporting the long-term viability of existing and planned coastal restoration projects; helping to restore habitat and ecosystem services in the northern Gulf of Mexico injured by the DWH oil spill consistent with the SRP/EA #3; and consistency with the Louisiana Coastal Master Plan. CPRA's purpose and need for the Project was built on analyses in the LA TIG's SRP/EA #3, including screening of strategic restoration approaches including sediment diversions, large-scale marsh creation, ridge restoration, and breakwater construction, and evaluation of a range of restoration strategies that could restore for injuries in the Barataria Basin. USACE generally focused on CPRA's purpose and need for the proposed Project and considered the public's and other perspectives, including input from the LA TIG and cooperating agencies (identified in Section 1.8 Agency Roles and Responsibilities) and input from representatives of the Council for Environmental Quality (CEQ) and the Federal Permitting Improvement Steering Council (FPISC), in its process to define the Project's purpose and need for the EIS. After examining whether the various alternatives met the screening criteria developed from the purpose and need, only large-scale sediment diversions with varying capacities were brought forward as alternatives to the Applicant's Preferred Alternative for detailed analysis in the Draft EIS. Details of the screening process including screening criteria are described in Chapter 2, Sections 2.2 through 2.5. The alternatives that did not meet the screening criteria were eliminated from further detailed analyses as described in Section 2.6 Summary of Alternatives Considered But Eliminated From Detailed Analysis. Refer to Appendix D2 Eliminated Alternatives Matrix of the EIS for further details on why these alternatives were not carried forward for further evaluation in the EIS.

Details specific to marsh creation alternatives and the reasons for elimination from detailed analysis in the EIS can be found in Chapter 2, Section 2.3 Step 1: Evaluation of Functional Alternatives. As described in Section 2.3.5 Large-Scale Marsh Creation, a marsh creation (dredge) alternative does not meet the purpose and need for the proposed Project; such an alternative does not deliver enough fresh water,

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nutrients, and fine sediments to sustain adjacent wetlands beyond the marsh creation area and over time would require periodic lifts and maintenance through placement of additional dredged material. Additional information related to the marsh creation alternative and reasons for elimination have been added to Section 2.3.5 for the Final EIS.

Additional detail can be found in the LA TIG's Restoration Plan explaining the LA TIG's evaluation of a range of alternatives and its identification of a Preferred Alternative (sediment diversion with variable flow up to 75,000 cfs). The LA TIG believes that the Preferred Alternative provides the right balance in terms of the likely benefits the Project would achieve and the risks related to collateral injury for its NRDA decision. This evaluation was completed by the LA TIG for its restoration planning efforts. USACE did not participate in that process.

CPRA and the LA TIG are pursuing multiple dredge-based restoration projects in Barataria Basin and throughout coastal Louisiana (for example, the Spanish Pass Ridge and Marsh Creation Project). More details can be found in Louisiana's Coastal Master Plan and on the LA TIG's web page (see <https://la-dwh.com/restoration-plans/>).

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**Concern ID: 61970**

**The only alternatives in the EIS are diversions at different flow rates. The EIS has not listed other possible methods on building land in the Barataria Basin. One alternative is to study the creation of barrier islands and compare the result with the diversion alternative. Also consider fortifying the barrier islands with sheet piles, boulders, and rocks, and dam all pipeline canals and washed-out marsh openings with concrete dams.**

**Response ID: 15972**

The Draft EIS considered barrier islands as a functional alternative to the proposed Project. This alternative was determined not to meet the purpose and need. Refer to Chapter 2, Section 2.3.4 in Step 1: Evaluation of Functional Alternatives of the EIS for details on why this alternative was eliminated from further analysis in the EIS. While barrier islands play a critical role in reducing land loss, they are not intended or designed to transport sediment, fresh water, or nutrients.

Past investments through a multitude of restoration programs have resulted in the restoration of every major barrier island in the Barataria Basin. CPRA's Coastal Master Plan includes programmatic barrier island restoration to support future maintenance of the restored islands. However, CPRA has stated that fortifying barrier islands with hard structures is not feasible.

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**Concern ID: 61971**

**Commenters noted that consideration of multiple smaller and less intrusive diversions would be better suited than one large one that changes everything and destroys a way of life.**

**Response ID: 15973**

The EIS considered multiple small-scale diversions as a functional alternative to the proposed Project. This alternative was determined not to meet the purpose and need. Refer to Chapter 2, Section 2.3.7 in Step 1: Evaluation of Functional Alternatives of the EIS for details on why this alternative was eliminated from further analysis in the EIS, including the lack of appropriate range of sediment sizes and increased cost. Additionally alternatives with a single, smaller (50,000 cfs) diversion have been carried forward for detailed evaluation in the EIS; this includes the 50,000 cfs with terraces feature alternative.

**Concern ID: 61973**

**Consider dredging the passes (south pass and south east pass) to relieve pressure on rising rivers and let the natural process of building the river there, along with rock jetties along the Louisiana coastline, support growth and protect from oncoming storms. Then use dredging to build up specific areas inland.**

**Response ID: 15974**

This alternative as presented, specifically dredging the passes and building rock jetties to create marsh, would not meet the goals and objectives as stated in the purpose and need and described in Chapter 1, Section 1.4 Purpose and Need and Chapter 2, Section 2.2.1 in Steps Taken to Identify and Evaluate Reasonable Alternatives in the EIS. Similar to marsh creation alternatives (as described in Chapter 2, Section 2.3.5 Large-Scale Marsh Creation), it would not deliver enough fresh water, nutrients, and fine sediments to sustain existing and created wetlands beyond the marsh creation area and over the long-term would require repeated lifts and maintenance through placement of additional dredged material. This alternative has been added to the Eliminated Alternatives Matrix in Appendix D2 of the Final EIS as an alternative considered based on public comments, but eliminated/not carried forward for detailed review.

Other similar restoration strategies are being considered for implementation by CPRA in its Coastal Master Plan, which will be updated in 2023, and by the LA TIG through Natural Resource Damage restoration planning.

**Concern ID: 61974**

**Consider the alternative that consists of a combination of diversions and dredging.**

**Response ID: 15975**

The EIS considered a sediment diversion combined with marsh creation alternative as a functional alternative to the proposed Project. See the explanation in Chapter 2, Section 2.3.6 in Step 1: Evaluation of Functional Alternatives of the EIS for details on why combination alternatives were eliminated from further analysis in the EIS.

**Concern ID: 61976**

**Instead of the diversion, consider using berms or living shorelines along the coast line to help reduce coastal flooding. The berms would hold back the soils and help build the land behind them.**

**Response ID: 15976**

The Draft EIS considered a shoreline protection alternative (including berms and living shorelines) as a functional alternative to the proposed Project. This alternative was determined not to meet the purpose and need. Refer to Chapter 2, Section 2.3.3 in Step 1: Evaluation of Functional Alternatives of the EIS for details on why this alternative was eliminated from further analysis in the EIS.

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**Concern ID: 61977**

**While other restoration project types, such as marsh creation, have been suggested in lieu of large-scale diversions, these project types would fail to build and sustain significant amounts of land in the Barataria Basin over the 50-year Project lifespan due to subsidence, sea-level rise, and erosion. Dredging alone cannot save the wetlands, the processes that originally built them must be reestablished. The power of the river allows more land-building potential to be harnessed than could be had with dredges at a fraction of the cost, and the benefits are long-lasting, even in the face of sea-level rise and hurricanes.**

**Response ID: 15977**

The commenter's support of the proposed Project is acknowledged. The EIS concludes that a large-scale sediment diversion meets the purpose and need of the proposed Project while large-scale marsh creation does not meet the purpose and need. Details on marsh creation alternatives including sustainability and the reasons for elimination from further detailed analysis in the EIS can be found in Chapter 2, Section 2.3 Step 1: Evaluation of Functional Alternatives. Additional information related to the marsh creation alternative have been added to Section 2.3.5 Large-Scale Marsh Creation for the Final EIS.

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**Concern ID: 61978**

**Commenter inquired how much more land could be built by dredging as compared to the land that the diversion would build.**

**Response ID: 15978**

Details on marsh creation alternatives including sustainability and the reasons for elimination from further detailed analysis in the EIS can be found in Chapter 2, Section 2.3 Step 1: Evaluation of Functional Alternatives. Additional information related to the marsh creation alternative has been added to Section 2.3.5 Large-Scale Marsh Creation for the Final EIS. Because the marsh creation alternative was screened out, the EIS does not contain such a comparison.

Further, the LA TIG does not believe that comparing a sediment diversion to marsh creation projects using dredged material captures the benefits of the proposed Project. Most importantly, as explained in the LA TIG's Restoration Plan, the goal of the proposed Project is to create a long-term sustainable ecosystem through the reestablishment of deltaic process. Marsh creation through the use of dredged material would not bring fresh water or nutrients to the basin on an ongoing basis, and therefore would not nourish existing and created wetlands on an ongoing basis. Furthermore, assuming an initial dredge



placement event with no further maintenance, the benefits of marsh created with dredged material would diminish relatively quickly compared to marsh created by the proposed Project due to subsidence, erosion, and sea-level rise; thus, the temporal nature of proposed Project benefits would also be markedly different. For these reasons, the LA TIG believes that simply comparing land-building capabilities of dredging and against a sediment diversion does not capture the full picture of the diversion's ecological benefits. The costs and benefits of the proposed Project were already considered and discussed in the LA TIG's Draft Restoration Plan.

Finally, while the proposed Project involves implementing a large-scale sediment diversion in the Barataria Basin, the Applicant also proposes to place suitable dredged and excavated material in three beneficial use areas, resulting in localized elevation increases that are expected to result in the establishment of wetland vegetation. Therefore, the Project is projected to provide marsh creation benefits using both the diversion of fresh water and sediment, as well as through dredged material placement.

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**Concern ID: 61980**

**The permit application does not give adequate consideration to alternative methods of achieving the purpose. The permit application gives consideration only to different sizes of diversions. This forces a decision to implement a diversion of some size. It ignores other alternatives for achieving the purpose that are less expensive, provide immediate storm protection, and promote wildlife-based industries such as the sports-fishing, shrimp, crab, and oyster industries. For example, it gives no consideration to the use of inshore islands.**

**Response ID: 15979**

CPRA's permit application requests USACE authorization of the Applicant's Preferred Alternative (75,000 cfs sediment diversion with 5,000 cfs base flow). The EIS evaluates the Applicant's Preferred Alternative and a range of reasonable alternatives, including No Action, based on the purpose and need statement set forth in Chapter 1, Section 1.4 Purpose and Need of the EIS consistent with CEQ NEPA regulations. As described in Chapter 2 Alternatives of the EIS, an alternatives screening process was conducted where screening criteria were identified and a range of alternatives were considered, including other available coastal restoration tools and methods. The screening criteria incorporated key concepts from the purpose and need statement (Chapter 1, Section 1.4) including: reconnecting and reestablishing deltaic processes between the Mississippi River and the Barataria Basin in a sustainable manner; delivering sediment, fresh water, and nutrients in a sustainable manner; supporting the long-term viability of existing and planned coastal restoration projects; helping to restore habitat and ecosystem services in the northern Gulf of Mexico

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injured by the DWH oil spill consistent with the SRP/EA #3; and consistency with the Louisiana Coastal Master Plan.

Details of the screening process including screening criteria are described in Chapter 2 Alternatives, Sections 2.2 through 2.5. The alternatives that did not meet the screening criteria were eliminated from further detailed analyses as described in Section 2.6 Summary of Alternatives Considered But Eliminated From Detailed Analysis. Refer to Appendix D2 Eliminated Alternatives Matrix of the EIS for further details on why these alternatives were not carried forward for further evaluation in the EIS. Similar to marsh creation alternatives, inshore islands typically involve dredging and movement of sediment to increase the elevation of uplands to create, or improve the abundance and quality of, nesting habitat for birds. Inshore islands would not meet the goals and objectives as stated in the purpose and need in Chapter 1, Section 1.4 Purpose and Need and Chapter 2, Section 2.2.1 in Steps Taken to Identify and Evaluate Reasonable Alternatives of the EIS.

Prior to USACE's preparation of the EIS and the LA TIG's preparation of the Restoration Plan, the LA TIG evaluated restoration strategies that could restore injuries in the Barataria Basin in SRP/EA #3. In that document, the LA TIG found that a combination of "marsh creation and ridge restoration plus a large-scale sediment diversion would provide the greatest level of benefits to injured Wetlands, Coastal, and Nearshore habitats and to the large suite of injured resources that depend in their life cycle on productive and sustainable wetland habitats" (LA TIG, 2018) in the basin and in the broader northern Gulf of Mexico. As a result, the LA TIG pursued the development of a large-scale sediment diversion, specifically the proposed Mid-Barataria Sediment Diversion evaluated in the Restoration Plan. However, it is worth noting that the LA TIG has also funded, and will continue to fund, other types of restoration projects that provide ecosystem services lower in the basin (for example, the Barataria Basin Ridge and Marsh Creation Project: Spanish Pass Increment and Queen Bess Island Project). These activities complement and reinforce the restoration that would be provided by the proposed MBSD Project. Chapter 2, Section 2.3 of the LA TIG's Restoration Plan provides a detailed discussion of the process the LA TIG used to identify alternatives for its SRP/EA#3. See Chapter 4, Section 4.25 Cumulative Impacts of the EIS for a discussion of marsh creation projects in the Barataria Basin that are anticipated to provide complementary ecosystem services with the proposed Project.

Louisiana Trustee Implementation Group (LA TIG). 2018. Final Strategic Restoration Plan and Environmental Assessment #3: Restoration of Wetlands, Coastal, and Nearshore Habitats in the Barataria Basin, Louisiana. Available online at:

[http://www.gulfspillrestoration.noaa.gov/sites/default/files/2018\\_03\\_LA\\_TIG\\_Final\\_SRP\\_EA\\_508-Compliant.pdf](http://www.gulfspillrestoration.noaa.gov/sites/default/files/2018_03_LA_TIG_Final_SRP_EA_508-Compliant.pdf). Accessed: March 15, 2018.

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**Concern ID: 61982**

**Consider using suction dredge of Mississippi River beneficial material in South Pass, Pass A Loutre, Tiger Pass and other tributaries to pump the river sand material through pipelines. This material can be delivered up to 25 - 30 miles upriver and could be used to build a series of ridges that can be planted with sustainable foliage.**

**Response ID: 15980**

This alternative as presented, specifically dredging the passes and other tributaries and creating marsh, would not meet the goals and objectives as stated in the purpose and need in Chapter 1, Section 1.4 Purpose and Need and Chapter 2, Section 2.2.1 in Steps Taken to Identify and Evaluate Reasonable Alternatives of the EIS. Similar to marsh creation alternatives (as described in Chapter 2, Section 2.3.5 Large-Scale Marsh Creation), it would not deliver enough fresh water, nutrients, and fine sediments to sustain existing and created wetlands beyond the marsh creation area and over the long term would require repeated lifts and maintenance through placement of additional dredged material to maintain a marsh elevation despite subsidence and sea-level rise. This alternative has been added to the Eliminated Alternatives Matrix in Appendix D2 of the Final EIS as an alternative considered based on public comments, but eliminated/not carried forward for detailed review.

Other similar restoration strategies are being considered for implementation by CPRA in its Coastal Master Plan, which will be updated in 2023, and by the LA TIG through Natural Resource Damage restoration planning.

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## CH28000 – New Project Ideas Suggested but not Previously Evaluated

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**Concern ID: 61885**

**Consider the alternative of reducing the size of Bay Long Pass and 4 Bayou Pass to slow the tide water and save land instead of implementing the proposed MBSD Project.**

**Response ID: 15981**

This alternative as presented, specifically reducing or narrowing the passes, would not meet the goals and objectives as stated in the purpose and need as described in Chapter 1, Section 1.4 Purpose and Need and Chapter 2, Section 2.2.1 in Steps Taken to Identify and Evaluate Reasonable Alternatives. This alternative has been added to the Eliminated Alternatives Matrix in Appendix D2 of the Final EIS as an alternative considered based on public comments, but eliminated/not carried forward for detailed review.

Other similar restoration strategies are being considered for implementation by CPRA in its Coastal Master Plan, which will be updated in 2023, and by the LA TIG through Natural Resource Damage restoration planning.

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**Concern ID: 61886**

**Consider changing the operating plan for Davis Pond and coordinate both diversions to maximize environmental benefits.**

**Response ID: 15982**

There are no plans at this time to change the operating plan for the Davis Pond Freshwater Diversion Project. As discussed in Chapter 5, Section 5.3 Fish and Wildlife Coordination Act Report Recommendations of the Draft EIS, as part of the Fish & Wildlife Coordination Act consultation, USFWS has recommended, and CPRA has agreed to develop a basin-wide operations and basin monitoring data repository to help in the general coordination among diversion operators, within their authorizations.

As part of the evaluation of the proposed Project and potential alternatives, the Delft3D Basinwide model runs and the EIS assumed operations of other diversions consistent with their current or anticipated operational protocols, including the Davis Pond Freshwater Diversion for the hydrodynamic and water quality simulations. The Davis Pond Freshwater Diversion was not included in the Delft 3D morphological modeling simulations.

Based on Delft3D Basinwide Modeling results, proposed MBSD Project operations are expected to reduce the frequency with which the Davis Pond Freshwater Diversion would be operated during certain months of the year to meet its current operational guidelines. Refer to Chapter 4, Section 4.5.7 in Surface Water and Sediment Quality of the EIS for further details on the projected number of days for the Davis Pond Freshwater Diversion opening. Potential impacts to the Davis Pond Freshwater Diversion will be further considered as part of the 408 process for the proposed MBSD Project.

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**Concern ID: 61888**

**Consider the alternative of allowing the levees to sink, erode, and collapse down to a normal height with annual widespread overflow distribution of the sediments in the historic and gentle way that would not have the sudden, disruptive impacts as seen with existing and planned diversions. Restoration of natural processes is the best way to replenish and preserve our renewable natural resources.**

**Response ID: 15983**

This alternative of removing levees and restoring natural processes is not feasible and was not considered further because levees are necessary for flood risk reduction for the communities and industries that line the Mississippi River in Barataria Basin. This alternative has been added to the Eliminated Alternatives Matrix in Appendix D2 of the

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Final EIS as an alternative considered based on public comments, but eliminated/not carried forward for detailed review.

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**Concern ID: 61890**

**Consider suggestions such as barging in wood chips and placing in shallow waters, and using old sunken ships and barges to build land.**

**Response ID: 15984**

Suggestions such as barging in wood chips and other organic material to the sediment deposited by the diversion or building upon old sunken ships and barges would not meet the scope and the scale of the proposed Project or its purpose and need, and therefore, would not be practicable. While alternative materials such as these may fill in small-scale areas, fill material such as these would not address the proposed Project's purpose of restoring deltaic processes to the Barataria Basin. Therefore, they were eliminated from further consideration. This alternative has been added to the Eliminated Alternatives Matrix in Appendix D2 of the Final EIS as an alternative considered based on public comments, but eliminated/not carried forward for detailed review.

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**Concern ID: 61892**

**Consider including in the design of the diversion the planting of black, red, and white mangroves to create and sustain land in the Barataria Basin, as well as planting bald or related species cypress trees to aid in the retention of land. Even dead trees would stabilize the soils.**

**Response ID: 15986**

The Draft EIS acknowledged impacts on wetland vegetation and terrestrial vegetation due to the proposed MBSD Project in Chapter 4, Section 4.6 Wetland Resources and Waters of the U.S. and Section 4.9 Terrestrial Wildlife and Habitat, respectively. While mangroves can provide areas of soil retention, their relative lack of cold tolerance does not currently allow growth throughout the entire coast of Louisiana. Red or white mangroves are not currently found in Louisiana because they are not as cold tolerant as black mangrove, although as the climate changes, CPRA recognizes that dedicated plantings of black mangrove and exploratory plantings of other mangrove species are a potential option in areas that are not currently suitable. Cypress trees are a viable option today and have been used (along with willows) to stabilize newly deposited sediments at the outfalls of existing diversions. CPRA would consider these options in the outfall area as part of future adaptive management efforts, especially to the extent base flows would provide suitable freshwater habitat, as well as to increase sediment stabilization and retention.

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**Concern ID: 61894**

**Consider the alternative of tearing down spoil banks and backfilling abandoned canals before, in addition to, or instead of implementing the proposed MBSD Project.**

**Response ID: 15987**

This suggested alternative would not meet the goals and objectives as stated in the purpose and need and described in Chapter 1, Section 1.4

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Purpose and Need and Chapter 2, Section 2.2.1 in Steps Taken to Identify and Evaluate Reasonable Alternatives. It would not re-establish deltaic processes between the Mississippi River and Barataria Basin through the delivery of sediment, fresh water, and nutrients. However, the EIS acknowledges the influence of canals and spoil banks on wetland losses in Barataria Basin (see Chapter 3, Section 3.6.2.2 in Wetland Resources and Waters of the U.S. of the Final EIS), and has updated the analysis to include additional technical references regarding the influence of canals on the existing environment in the Barataria Basin. The EIS does not describe the proposed Project as a solution to fully reverse ongoing land-loss trends. The EIS recognizes that the proposed Project is projected to create and maintain only a portion of the wetlands that would otherwise be lost in the absence of the proposed Project over the next 50 years.

This alternative has been added to the Eliminated Alternatives Matrix in Appendix D2 of the Final EIS as an alternative considered based on public comments, but eliminated/not carried forward for detailed review.

Other similar restoration strategies are being considered for implementation by CPRA in its Coastal Master Plan and the LA TIG through Natural Resources Damage restoration planning.

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**Concern ID: 61895**

**Commenters suggest using a sediment diversion to selectively build land by directing sediment to a contained area, such as a colmates system or large-scale marsh creation containment area. A controlled system of dredging to create dry land coupled with a system to contain sediment-infused river water in specific areas outside of the levee protection system would be most beneficial to create more land exactly where it's needed.**

**Response ID: 15988**

This method of sediment transport and/or sediment containment and land building would not meet the proposed Project's purpose and need of reconnecting and reestablishing sustainable deltaic process between the Mississippi River and the Barataria Basin. A colmate or other means of large-scale marsh creation using dewatered sediment would allow for sediment to be transported from the Mississippi River to the Barataria Basin and deposited into a location confined by containment berms, which would create an impoundment where the suspended sediment would settle out of the water column over time to create a marsh platform. Once the area dewateres and the platform stabilizes at an appropriate marsh elevation, the berms would be degraded or gapped to allow fish passage and hydrologic exchange. While this type of system would create marsh, it would not be a passive system and would require active management and maintenance, including potentially pumps to ensure sediment transport, mechanical gapping/degrading of the retention berms and periodic lifts to combat the effects of subsidence. It would not reestablish natural deltaic

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processes. This alternative has been added to the Eliminated Alternatives Matrix in Appendix D2 of the Final EIS as an alternative considered based on public comments, but eliminated/not carried forward for detailed review.

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**Concern ID: 61896**

**Add salt injection points directly downstream of the river sediment flow before it gets into the basin so that the volume of fresh water is reduced.**

**Response ID: 15990**

This outfall feature alternative was considered in the Draft EIS but was not fully evaluated because it does not meet purpose and need for the Project because it does not restore the natural deltaic process between the Mississippi River and Barataria Basin through the introduction of fresh water, sediment, and nutrients from the Mississippi River into the Basin. Refer to the Eliminated Alternatives Matrix in Appendix D2 of the EIS. Additionally, the basin will experience periodic introduction of more saline water naturally through tidal processes and storm events. Potential impacts associated with changes in salinity are addressed in Chapter 4, Section 4.5 Surface Water and Sediment Quality.

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**Concern ID: 61897**

**Consider alternatives that transport more sediment and sand and less water, such as a conveyor belt or barge and utilizing a processing plant that removes the sediment from the Mississippi River to filter and neutralize the sediment before transport.**

**Response ID: 15991**

This suggested alternative would not meet the goals and objectives as stated in the purpose and need as described in Chapter 2, Section 2.2.1 in Steps Taken to Identify and Evaluate Reasonable Alternatives. CPRA's intent is to reestablish sustainable deltaic processes between the Mississippi River and Barataria Basin through the introduction of fresh water, sediment, and nutrients from the Mississippi River into the Basin. Additionally, in light of the volume and nature of the material that would need to be transported, a conveyor belt is not feasible. In addition, as described in Chapter 2, Section 2.4 Step 2: Evaluation of Operational Alternatives - Location, Operational Trigger, Capacity, and Base Flow the proposed Project is designed to maximize sediment bed load transport. Previous studies of the Mississippi River have documented the positive correlation between river discharge and sediment load, demonstrating that higher river discharge levels are generally correlated with higher sediment loads. This alternative has been added to the Eliminated Alternatives Matrix in Appendix D2 of the Final EIS as an alternative considered based on public comments, but eliminated/not carried forward for detailed review.

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**Concern ID: 61898**

**Consider using the funds to move people out of the area instead of implementing the proposed MBSD Project.**

**Response ID: 15992**

This suggested alternative would not meet the goals and objectives as stated in the purpose and need as described in Chapter 1, Section 1.4

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Purpose and Need and Chapter 2, Section 2.2.1 in Steps Taken to Identify and Evaluate Reasonable Alternatives. It would not reestablish sustainable deltaic processes and help restore habitat and ecosystem services injured by the DWH oil spill. This alternative has been added to the Eliminated Alternatives Matrix in Appendix D2 of the Final EIS as an alternative considered based on public comments, but eliminated/not carried forward for detailed review.

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**Concern ID: 61899****Consider building a man-made river instead of implementing the proposed MBSD Project.****Response ID: 15993**

This suggestion is not inherently different than the proposed Project which consists of a man-made conveyance structure. The proposed MBSD Project would provide a controlled riverine connection to the Barataria Basin. No edits have been made to the Final EIS.

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**Concern ID: 61902****Consider opening the Morganza Spillway instead of implementing the proposed MBSD Project.****Response ID: 15995**

The Morganza Spillway, operated by USACE for emergency flood control, discharges into the Atchafalaya Basin. The scope of this EIS is the Barataria Basin and the Mississippi River birdfoot delta, which is the defined proposed Project area. This suggested alternative would not meet the purpose and need to reestablish sustainable deltaic processes between the Mississippi River and the Barataria Basin. The LA TIG identified the Barataria Basin in the SRP/EA #3 as the location for the proposed Project because within Louisiana, the Barataria Basin suffered the most severe and persistent oiling from the DWH oil spill. This suggestion would not provide any land-building benefits in the Barataria Basin because it is located outside of the basin. This alternative has been added to the Eliminated Alternatives Matrix in Appendix D2 of the Final EIS as an alternative considered based on public comments, but eliminated/not carried forward for detailed review.

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**Concern ID: 61903****Divert some of the Mississippi River water off to other states and areas.****Response ID: 15996**

The proposed MBSD Project purpose and need is to reestablish sustainable deltaic processes between the Mississippi River and the Barataria Basin. The LA TIG identified the Barataria Basin in the SRP/EA #3 as the location for the proposed Project because within Louisiana, the Barataria Basin suffered the most severe and persistent oiling from the DWH oil spill. This suggestion would not meet the purpose and need because it would not connect the Mississippi River to the Barataria Basin. This alternative has been added to the Eliminated Alternatives Matrix in Appendix D2 of the Final EIS as an alternative considered based on public comments, but eliminated/not carried forward for detailed review.



**Concern ID: 64005**

**Consider an alternative that creates a split system to capture and concentrate sediment in one stage, followed by a transfer of the captured sediment to a separate second stage which delivers that sediment with a reduced volume of water having a chosen composition in terms of salinity and nutrients. This can be accomplished by capturing sediment in basins within the channel bottom, while curving the main channel back to the Mississippi River to return the majority of river water to the Mississippi, and delivering a more sediment-focused slurry to Barataria Bay via a separate outfall channel. A dredge operating in the basins, powered by river current, would move the captured sediment, under well-controlled conditions, the short distance from the basins to the outfall channel.**

**Response ID: 15997**

This suggested alternative would not meet the goals and objectives as stated in the purpose and need as described in Chapter 1, Section 1.4 Purpose and Need and Chapter 2, Section 2.2.1 in Steps Taken to Identify and Evaluate Reasonable Alternatives. The purpose of the project is to reestablish sustainable deltaic processes between the Mississippi River and Barataria Basin through the delivery of sediment, fresh water, and nutrients from the Mississippi River into the Basin. Details as submitted by the commenter regarding this alternative are lacking making it difficult to evaluate. Based on the description provided by the commenter, it seems that this alternative would transport primarily coarse-grained sediments (for example, larger sediments and sand) collected in the Mississippi River and conveyance channel into the Basin, but, due to the collection method, would not convey substantial finer grained sediments (for example, clay and silt) that are necessary to sustain existing wetlands in the Basin. Also, with the significant reduction in fresh water transported into the Basin, this alternative would not transport sufficient fresh water or nutrients to meet the purpose and need. Further, it is unclear whether or how the proposed alternative would mobilize the collected coarser-grained sediments. As explained in Section 2.4.3.2 Application of Additional Considerations to Capacity Alternatives of the Final EIS, a sufficient volume of water is needed to mobilize and entrain coarser-grained sediments and transport them into the Basin. The commenter's description of the alternative suggests a significant reduction in the volume of water that would pass through the diversion channel. Absent diversion flows, the commenter did not explain how this alternative would transport these coarser sediments to the Basin other than to mention a "dredge operating in the basin." Marsh creation through dredging was evaluated in the Draft EIS and eliminated from detailed consideration. See Section 2.3.5 Large Scale Marsh Creation of the Final EIS. This alternative has been added to the Eliminated Alternatives Matrix in Appendix D2 of the Final EIS as an alternative

considered based on public comments, but eliminated/not carried forward for detailed review.

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## CH30000 – Applicant’s Preferred Alternative/Alternative 1 – 75K cfs

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**Concern ID: 61911**

**Commenter inquired about design and operational features of the proposed MBSD Project including pump station(s) and elevation and design grade of the guide levees.**

**Response ID: 15998**

Chapter 2, Section 2.8.1.1 in Action Alternatives Carried Forward for Detailed Analysis of the Final EIS includes a description of the proposed MBSD Project including Project design features, which has been updated based on 60 percent designs since the Draft EIS. Also refer to the Design Documentation Report in Appendix F1 Design Documentation Report (60% Design) of the Final EIS for additional information regarding the proposed Project design.

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**Concern ID: 61912**

**CPRA should consider alternative flow triggers, designs, and features in the operations plan and design of the proposed MBSD Project in order to minimize impacts. CPRA should also consider adjusting diversion design elements such as triggers, peak flows, volumes, and nutrient loads over the first years of operation to minimize impacts. These adjustments could minimize impacts to dolphins, oysters, brown shrimp, and other aquatic organisms. Some commenters suggested limits be imposed by USACE, others suggested an operating plan that is tied to specifics, while others emphasized flexibility tied to real-world experiences. CPRA should also consider alternative methods of operating the proposed MBSD Project, such as operating the diversion during winter when water levels in the basin are lower and can accept high volumes of water from the diversion.**

**Response ID: 15999**

The proposed MBSD Operations Plan can be found in Appendix F2 Preliminary Operations Plan of the Final EIS. As stated in the Chapter 4, Section 4.4.4.2.4 Sediment Transport in Chapter 4 Surface Water and Coastal Processes, sediment transported by the Mississippi River is primarily comprised of fine sediments, with higher river flows (typically occurring in the spring) suspending more coarse-grained sediment that are important in delta building (see Chapter 3, Section 3.4 Surface Water and Coastal Processes). Fine-sediment transport through the diversion would be generally proportional to water flow in the river. The intake channel was modeled and designed to divert a high sediment-to-water ratio while minimizing energy loss (to maintain flow and sediment transport through the diversion complex) and impacts on the river. The amount of sediment carried through the

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diversion would vary by year, depending on flow rates in the river and the corresponding variation of diversion operations. As explained in Chapter 2, Section 2.8.1.3 Project Operations in Action Alternatives Carried Forward for Detailed Analysis, the Mississippi River discharge of 450,000 cfs would be the standard operations “trigger to open the diversion for flow (above the base flow)”. Operations (with the exception of a base flow up to 5,000 cfs) would cease when the river discharge falls below 450,000 cfs or when certain emergency triggers are met (such as in advance of hurricanes or when a spill of hazardous substances occur in the river). When the Mississippi River flows exceed 450,000 cfs, the gates would be fully opened (above base flow). At river flows of 450,000 cfs, the diversion flow would be approximately 25,000 cfs, and flows would increase proportionally as the river flow increases. This ramp would continue up to maximum diversion capacity flow of 75,000 cfs when the river reaches a flow of 1,000,000 cfs.

An alternative related to operational triggers specific to sediment concentration was considered but determined not to be technically feasible or reasonable because data and technology do not currently exist to support this operational regime (refer to the Eliminated Alternatives Matrix in Appendix D2 of the EIS). According to the Monitoring and Adaptive Management (MAM) Plan in Appendix R2 of the Final EIS, as part of the adaptive management and monitoring process, CPRA would consider potential ways to optimize diversion operations based on Project performance and success and would assess potential operational changes that may minimize impacts to basin resources where practicable after sufficient operational data become available for analysis.

The Mitigation and Stewardship Plan and the MAM Plan provided in the Draft EIS Appendix R were submitted by CPRA and represent a range of potential mitigation, stewardship, monitoring and adaptive management measures (collectively, measures). At the time of publication of the Draft EIS for public review, Appendix R contained draft Plans and CPRA had not identified which of the measures contained in those Plans it intended to implement. The Final EIS Appendix R contains the final Plans and specifies which measures CPRA and the LA TIG intend to implement. Generally, impact determinations discussed in the EIS represent anticipated Project effects without implementation of these measures except in instances where such measures are identified in the discussion. If any mitigation, monitoring, or adaptive management measures are required by USACE as part of its approval of the proposed Project, such measures would be required as special conditions of the Department of the Army (DA) Section 10/404 permit and would be listed in the permit, if one is issued. Implementation of specific measures contained in either Plan,

but not included in the Section 10/404 permit as special conditions, would not be required by USACE. USACE does not know whether any particular measure that is not a DA permit condition would be implemented. Measures that USACE currently contemplates as conditions of a DA Section 10/404 permit, if one is issued, are provided in Chapter 4, Section 4.27 Mitigation Summary of the EIS.

The LA TIG explains in Section 1.5 of the Final Restoration Plan that it anticipates requiring implementation of the Mitigation and Stewardship Plan, MAM Plan, and Marine Mammal Intervention Plan as components of the proposed Project, if the Project is approved by the LA TIG for funding. Decisions regarding which measures would be required as part of the LA TIG's funding decision would be set forth in the LA TIG Record of Decision related to the proposed Project.

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**Concern ID: 61913**

**While a commenter acknowledges temporary habitat degradation with the Applicant's Preferred Alternative, the commenter supports the Applicant's Preferred Alternative.**

**Response ID: 16000**

The commenter's support of the proposed Project is acknowledged. Refer to Chapter 4, Section 4.9 Terrestrial Wildlife and Habitat of the EIS for terrestrial wildlife and habitat impacts.

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**Concern ID: 61914**

**The information provided in Chapter 2 Alternatives of the EIS regarding diversion flows at given Mississippi River flows is confusing.**

**Response ID: 16001**

As described in the EIS, when the Mississippi River flows exceed 450,000 cfs, and the gates are fully opened, the diversion flow would increase to approximately 25,000 cfs, and thereafter flows would increase proportionally as the river flow increases up to maximum diversion capacity flow of 75,000 cfs when the river reaches a flow of 1,000,000 cfs. Chapter 2, Section 2.8.1.3 Project Operations in Action Alternatives Carried Forward for Detailed Analysis of the Final EIS has been revised to clarify the description of proposed Project operations.

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**Concern ID: 61915**

**Standard operating plans should include diverting as much water as possible from the Mississippi River when a category 4 or 5 storm approaches to reduce loss of life and damage to property.**

**Response ID: 16002**

As stated in Draft EIS Chapter 2, Section 2.8.1.4 in Action Alternatives Carried Forward for Detailed Analysis, the Operations Plan for the proposed MBSD Project calls for the diversion structure to be closed when the relationship between the water levels in the Mississippi River and the Barataria Basin would create a reverse flow or when other stop triggers or "Emergency Operations" are met, including spills and other hazardous discharges, navigation impediments, climatic conditions such as tropical depressions or named storms, diversion structure damage or emergency, and public safety as described in the Applicant's Operations Plan. Regarding climatic conditions, the

Operations Plan states that CPRA will close the diversion gates and suspend all flows through the diversion when tropical activity (depression or named storm) is forecasted to impact the Barataria and Mississippi River Basins. The structure would be closed in advance of storm impact to avoid affecting water levels in the Mississippi River or the Barataria Basin. After passage of an event and without unnecessary, unexpected impacts, operations would resume per the Operations Plan. Refer to Appendix F2 Preliminary Operations Plan of the Final EIS for further details on the Operations Plan.

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**Concern ID: 61916****The proposed Project should have a design life beyond 50 years.****Response ID: 16003**

The proposed Project design life would extend beyond 50 years. This is not to be confused with the 50-year analysis period used in the EIS. The 50-year analysis period corresponds with the Delft3D Basinwide Model simulations, which were run over 5 decades (beginning in 2020 and run through 2070). USACE typically uses a 50-year period of analysis for its water resources projects. The EIS analyzes operational impacts resulting from operation and maintenance of the alternatives during the 50-year analysis period. Analysis of potential impacts past 50 years was determined to be too speculative to assist in understanding or decision making regarding the proposed Project.

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**Concern ID: 61917****Commenters expressed concerns over CPRA's potential for mishandling of the operation and long-term maintenance of the proposed MBSD Project, particularly pointing to CPRA's past inadequate operations and maintenance of other diversions.****Response ID: 16004**

CPRA would operate the proposed MBSD Project as detailed in the Operations Plan, which is found in Appendix F2 Preliminary Operations Plan in the Final EIS. In addition, refer to Final EIS Appendix R2 for the Monitoring and Adaptive Management (MAM) Plan for details on the proposed Project operational and adaptive management governance. In the context of the proposed Project, governance refers to how CPRA, with input from other stakeholders, would make decisions over the life of the Project. Decisions would include, but not be limited to, continuation of and changes to Project operations, riverside management, monitoring, maintenance, and adaptive management actions. CPRA would provide annual operations plans, annual operations performance reports, annual monitoring reports, and multi-year monitoring and adaptive management reports (at five-year intervals) on CPRA's CIMS website (<https://cims.coastal.louisiana.gov/default.aspx>), as well as, on NOAA's Data Integration, Visualization, Exploration, and Reporting (DIVER) Explorer tool and Trustee Council websites. These plans would be available to stakeholders and the public. The stakeholders and the public would have an opportunity to participate in public meetings held

to solicit comments, perspectives, and insights on the annual operations plans.

The Mitigation and Stewardship Plan and the MAM Plan provided in the Draft EIS Appendix R were submitted by CPRA and represent a range of potential mitigation, stewardship, monitoring and adaptive management measures (collectively, measures). At the time of publication of the Draft EIS for public review, Appendix R contained draft Plans and CPRA had not identified which of the measures contained in those Plans it intended to implement. The Final EIS Appendix R contains the final Plans and specifies which measures CPRA and the LA TIG intend to implement. Generally, impact determinations discussed in the EIS represent anticipated proposed Project effects without implementation of these measures except in instances where such measures are identified in the discussion. If any mitigation, monitoring, or adaptive management measures are required by USACE as part of its approval of the proposed Project, such measures would be required as special conditions of the Department of the Army (DA) Section 10/404 permit and would be listed in the permit, if one is issued. Implementation of specific measures contained in either Plan, but not included in the Section 10/404 permit as special conditions, would not be required by USACE. USACE does not know whether any particular measure that is not a DA permit condition would be implemented. Measures that USACE currently contemplates as conditions of a DA Section 10/404 permit, if one is issued, are provided in Chapter 4, Section 4.27 Mitigation Summary of the EIS.

The LA TIG explains in Section 1.5 of the Final Restoration Plan that it anticipates requiring implementation of the Mitigation and Stewardship Plan, MAM Plan, and Marine Mammal Intervention Plan as components of the proposed Project, if the Project is approved by the LA TIG for funding. Decisions regarding which measures would be required as part of the LA TIG's funding decision would be set forth in the LA TIG Record of Decision related to the proposed Project.

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**Concern ID: 61918**

**Prior to and during the implementation of the proposed MBSD Project, consider ways to slow down the flow of the water in the basin for the sediment to work and to stop tidal surge, including dredging and filling, building islands, and planting vegetation to prevent erosion.**

**Response ID: 16005**

CPRA considered ways to slow down the flow in the basin during design and alternatives development of the proposed MBSD Project. Chapter 2 Alternatives of the EIS describes the various alternatives that were considered including several diversion outfall features (see Section 2.5, Step 3: Evaluation of Sediment Diversion Outfall Features). Marsh terracing is an outfall feature that was included in the reasonable range of alternatives evaluated in the EIS because these features are

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often used to reduce wave energy, protect eroding or recently restored shorelines, or to promote sediment deposition. However, results of the impact analysis showed mainly negligible to minor differences in impacts when terrace alternatives were compared to alternatives without terraces. If the proposed Project is implemented, CPRA would consider potential ways to optimize diversion operations including outfall management based on Project performance and success as part of the adaptive management and monitoring process.

Refer to the Monitoring and Adaptive Management (MAM) Plan in Appendix R2 of the Final EIS.

The Mitigation and Stewardship Plan and the MAM Plan provided in the Draft EIS Appendix R were submitted by CPRA and represent a range of potential mitigation, stewardship, monitoring and adaptive management measures (collectively, measures). At the time of publication of the Draft EIS for public review, Appendix R contained draft Plans and CPRA had not identified which of the measures contained in those Plans it intended to implement. The Final EIS Appendix R contains the final Plans and specifies which measures CPRA and the LA TIG intend to implement. Generally, impact determinations discussed in the EIS represent anticipated Project effects without implementation of these measures except in instances where such measures are identified in the discussion. If any mitigation, monitoring, or adaptive management measures are required by USACE as part of its approval of the proposed Project, such measures would be required as special conditions of the Department of the Army (DA) Section 10/404 permit and would be listed in the permit, if one is issued. Implementation of specific measures contained in either Plan, but not included in the Section 10/404 permit as special conditions, would not be required by USACE. USACE does not know whether any particular measure that is not a DA permit condition would be implemented. Measures that USACE currently contemplates as conditions of a DA Section 10/404 permit, if one is issued, are provided in Chapter 4, Section 4.27 Mitigation Summary of the EIS.

The LA TIG explains in Section 1.5 of the Final Restoration Plan that it anticipates requiring implementation of the Mitigation and Stewardship Plan, MAM Plan, and Marine Mammal Intervention Plan as components of the proposed Project, if the Project is approved by the LA TIG for funding. Decisions regarding which measures would be required as part of the LA TIG's funding decision would be set forth in the LA TIG Record of Decision related to the proposed Project.

In addition, other restoration strategies in coastal Louisiana similar to what is being proposed are being currently implemented or considered by CPRA in their Coastal Master Plan and the LA TIG through separate NRDA restoration planning.



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<b>Concern ID: 61919</b>	<b>Commenter requested information on the proposed annual operation and maintenance budgets for the proposed MBSD Project and how would they be funded.</b>
<b>Response ID: 16006</b>	If the proposed Project is permitted and funded, CPRA states that information on the proposed annual operation and maintenance budgets for MBSD Project will be provided to the public through CPRA's Annual Plan. Details on the state funding cycle, CPRA's request for operations funding, and inclusion in CPRA's Annual Plan can be found in the CPRA's Monitoring and Adaptive Management (MAM) Plan in Appendix R2 of the Final EIS.
<b>Concern ID: 61922</b>	<b>The design features of the proposed Mid-Barataria Sediment Diversion Project are lacking in innovation and creativity. Commenters suggests inclusion of innovative design, such as converting hydraulic energy to electricity and potential solutions for combating climate change, as part of the proposed Project.</b>
<b>Response ID: 16009</b>	CPRA states that the proposed Project would be the first of its kind and size that would create a sustained deltaic connection between the Mississippi River and the Barataria Basin.
<b>Concern ID: 63957</b>	<b>Commenters expressed concern that walls from the diversion structure could fail and flood out the local communities.</b>
<b>Response ID: 16011</b>	As described in Chapter 2, Section 2.8, Action Alternatives Carried Forward for Detailed Analysis of the Draft EIS, the proposed Project design includes earthen guide levees that would be constructed along both sides of the diversion conveyance channel. The portion of the guide levees on the protected side of the New Orleans to Venice Levee system (NOV-NF-W-05a.1) would be designed and built as hurricane and storm damage risk reduction against storm surges that may enter the diversion channel. A gated control structure would also be built on the Mississippi River side of the conveyance channel, and the gate would be closed prior to and during storm events. In addition, because the proposed MBSD Project would use, occupy, and/or alter the Mississippi River Levee, the New Orleans to Venice Levee, and the Mississippi River Navigation Channel, which are USACE projects, CPRA has requested permission under 33 U.S.C. Section 408 to construct and operate the proposed MBSD Project. The USACE Section 408 Review process includes a review of the technical adequacy of the proposed MBSD Project design to alter the Mississippi River and NOV-NFL levees and to deliver appropriate flood risk reduction in place of those levees, including all appropriate technical analyses, including geotechnical, structural, hydraulic and hydrologic, construction, safety and operations and maintenance requirements. A Section 408 permission would not be granted unless the proposed modifications to the USACE projects would not limit the ability of the

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USACE project to function as authorized and would not compromise any authorized USACE project purposes.

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**Concern ID: 64020**

**A comprehensive plan for operating the diversion is lacking. Diversion operations should not be based solely on when flows in the Mississippi River exceed 450,000 cfs or only operate at maximum capacity when Mississippi River flows reach 1,000,000 cfs, but instead should rely on multiple factors for determining when to operate the diversion. The comprehensive plan should also include some flexibility in operations including triggers for water releases and for closing the diversion. The design should be modified to allow continued use after significant sea-level rise.**

**Response ID: 16012**

CPRA would operate the proposed MBSD Project in accordance with the Operations Plan which can be found in Appendix F2 Preliminary Operations Plan of the Final EIS. Chapter 2, Section 2.4.2 in Step 2: Evaluation of Operational Alternatives – Location, Operational Trigger, Capacity, and Base Flow of the Draft EIS described the evaluation of various operational triggers during the alternatives analysis. It was determined that the 450,000 cfs operational trigger would best meet the purpose and need and would be the standard operations trigger (see Chapter 2, Section 2.4.2.1 Application of Additional Considerations to On/Off Trigger Scenarios). Additionally as stated in Chapter 2, Section 2.4.3.2 Application of Additional Considerations to Capacity Alternatives, flow in a sediment diversion is variable. When the diversion is operating, the flow rate through a diversion is controlled by the difference in water surface elevation between the Mississippi River and the Barataria Basin (the head differential). When the Mississippi River flow and stage are high, this high head differential would push a higher volume of water and sediment through the diversion into the Barataria Basin. When the Mississippi River flow and stage are low, there would be less energy to push water and sediment through the diversion. Thus, depending upon the flow rate in the Mississippi River and the head differential, flow in the diversion would be variable, up to a defined maximum capacity.

The diversion is designed for passive operation rather than active operation. Once opened, the head differential determines the flow rather than pumps or another active feature.

Full operations (with the exception of a base flow up to 5,000 cfs) would cease when the river discharge falls below 450,000 cfs or when certain emergency triggers are met (such as in advance of hurricanes or when a spill of hazardous substances occurs in the river).

Triggers for closing the structure when river discharge is above 450,000 cfs include spills and other hazardous discharges, navigation

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impediments, climatic conditions such as tropical depressions or named storms, diversion structure damage or emergency, and public safety.

As stated in the Chapter 4, Section 4.4.4.2.4 Sediment Transport in Section 4.4 in Surface Water and Coastal Processes, sediment transported by the Mississippi River is primarily comprised of fine sediments, with higher river flows (typically occurring in the spring) suspending more coarse-grained sediment that are important in delta building (see Chapter 3, Section 3.4 Surface Water and Coastal Processes). Fine-sediment transport through the diversion would be generally proportional to water flow in the river. The intake channel was modeled and designed to divert a high sediment-to-water ratio while minimizing energy loss (to maintain flow and sediment transport through the diversion complex) and impacts on the river. The amount of sediment carried through the diversion would vary by year, depending on flow rates in the river and the corresponding variation of diversion operations. The operation plan allows for diversion operations that capture the high sediment loads associated with rapidly rising river discharges and effectively addresses relative sea-level rise.

If the proposed Project is implemented and once operational, CPRA would consider potential ways to optimize diversion operations based on Project performance and success as part of the adaptive management and monitoring process. Refer to the Monitoring and Adaptive Management (MAM) Plan in Appendix R2 of the Final EIS.

The Project MAM Plan in the Final EIS Appendix R2 provides examples of possible outfall management actions, such as spoil bank gapping or construction of water-directing features, that CPRA may consider in the future as potential adaptive management actions aimed at improving Project effectiveness and limiting ecological and/or human impacts when possible. This will be based on assessment of Project performance and monitoring data and recommendations of the CPRA's Project Adaptive Management Team to CPRA's Project Operations Management Team.

The Mitigation and Stewardship Plan and the MAM Plan provided in the Draft EIS Appendix R were submitted by CPRA and represent a range of potential mitigation, stewardship, monitoring and adaptive management measures (collectively, measures). At the time of publication of the Draft EIS for public review, Appendix R contained draft Plans and CPRA had not identified which of the measures contained in those Plans it intended to implement. The Final EIS Appendix R contains the final Plans and specifies which measures CPRA and the LA TIG intend to implement. Generally, impact determinations discussed in the EIS represent anticipated Project effects without implementation of these measures except in instances where such measures are identified in the discussion. If any mitigation,

monitoring, or adaptive management measures are required by USACE as part of its approval of the proposed Project, such measures would be required as special conditions of the Department of the Army (DA) Section 10/404 permit and would be listed in the permit, if one is issued. Implementation of specific measures contained in either Plan, but not included in the Section 10/404 permit as special conditions, would not be required by USACE. USACE does not know whether any particular measure that is not a DA permit condition would be implemented. Measures that USACE currently contemplates as conditions of a DA Section 10/404 permit, if one is issued, are provided in Chapter 4, Section 4.27 Mitigation Summary of the EIS.

The LA TIG explains in Section 1.5 of the Final Restoration Plan that it anticipates requiring implementation of the Mitigation and Stewardship Plan, MAM Plan, and Marine Mammal Intervention Plan as components of the proposed Project, if the Project is approved by the LA TIG for funding. Decisions regarding which measures would be required as part of the LA TIG's funding decision would be set forth in the LA TIG Record of Decision related to the proposed Project.

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**Concern ID: 65187**

**Commenter inquired as to what year the proposed MBSD Project is planned to be operational.**

**Response ID: 16695**

Construction would not commence until after the USACE decision on the Section 10/404 permit and Section 408 permissions request. As described in EIS Chapter 2, Section 2.8.1.4 Project Construction Activities in Action Alternatives Carried Forward for Detailed Analysis, once begun, the proposed Project would require 3 to 5 years of construction which would occur in several phases.

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**Concern ID: 61920**

**Commenters recommended that there must be a flood gate on the marsh side of the diversion structure to protect the residents of Plaquemines Parish from being inundated.**

**Response ID: 16007**

As described in Chapter 2, Section 2.8, Action Alternatives Carried Forward for Detailed Analysis of the Draft EIS, the proposed Project design includes earthen guide levees that would be constructed along both sides of the diversion conveyance channel. The portion of the guide levees on the protected side of the New Orleans to Venice Levee system (NOV-NF-W-05a.1) would be designed and built as hurricane and storm damage risk reduction against storm surges that may enter the diversion channel. A gated control structure would also be built on the Mississippi River side of the conveyance channel, and the gate would be closed prior to and during storm events.

CPRA considered a diversion structure with a back gate structure on the basin side (which is the marsh side). After detailed design and cost consideration, however, CPRA proposed eliminating the back gate design and proceeded with a diversion structure with hurricane/guide

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levees and no back gate structure. CPRA determined that the proposed Project without a gate structure is generally lower risk due to its passive operation relative to the active operation of a gate structure. In addition, the guide levees are proposed to be constructed to an elevation equivalent to a 2 percent Annual Exceedance Probability (AEP) (50-year storm) and will connect to the NOV-NF-W-05a.1 levee. CPRA worked with USACE to complete a USACE Risk Assessment of this proposed design through the Section 408 process.

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**Concern ID: 61921**

**Commenter supports the use of adaptive management, but notes that it has been poorly used in the past. Suggests building adaptive management requirements into the current design to allow for future releases above 75,000 cfs.**

**Response ID: 16008**

The proposed MBSD Project as designed would have a maximum diversion flow capacity of 75,000 cfs when the Mississippi River flow reaches approximately 1,000,000 cfs or higher. Therefore, the proposed MBSD Project would not have the capacity to transport more than 75,000 cfs, which precludes the suggested adaptive management of flows higher than 75,000 cfs. Refer to EIS Chapter 2, Section 2.8.1.3 Project Operations in Action Alternatives Carried Forward for Detailed Analysis for additional details regarding proposed Project operations. However, CPRA does intend to adaptively manage the proposed Project. CPRA's Monitoring and Adaptive Management (MAM) Plan can be found in Appendix R2 of the Final EIS. CPRA's MAM Plan describes how CPRA, with input from other stakeholders, would make decisions over the life of the Project. Decisions would include, but not be limited to, continuation of and changes to Project operations, riverside management, monitoring, maintenance, and adaptive management actions.

In the Restoration Plan, the LA TIG evaluated each alternative against a variety of factors, including those outlined in 15 CFR §990.54 and strove to identify an alternative that would provide the right balance in terms of being cost-appropriate, meeting Trustee goals, having a high likelihood of success, and avoiding collateral injury. While a 150k cfs diversion would be expected to deliver more ecological benefits to land creation and marsh building than the LA TIG's Preferred Alternative, it would also incur more collateral injuries and pose a greater risk to human health and safety; thus, it was not selected as preferred. See Chapter 3, Section 3.2.4 of the Final Restoration Plan for a discussion of how the LA TIG came to its decision.

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**Concern ID: 61923**

**The proposed MBSD Project should be redesigned to achieve two objectives: build storm surge protection as well as create the environmental conditions for the expansion of the oyster industry.**

**Response ID: 16010**

Storm surge protection is not a purpose of the proposed Project but it is a projected benefit for some areas, while it will increase storm surge

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and flooding risk for other areas (see EIS Chapter 4, Section 4.20.4.2, Operational Impacts, Storm Hazards in Public Health and Safety, including Flood and Storm Hazard Risk Reduction). Restoring for oysters does not meet the intent of the proposed Project, which is to reestablish sustainable deltaic processes and help restore habitat and ecosystem services injured by the DWH oil spill. The Project is projected to help positively impact habitat for numerous species impacted by the spill and to negatively impact habitat for other species impacted by the spill.

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**Concern ID: new**

**Consider adding improvements, such as using the proposed railroad bridge crossing and channel guide levees as hurricane evacuation routes to the Project, to get more value out of the Project.**

**Response ID: new**

1. Emergency Evacuations for Plaquemines Parish are coordinated with USACE-New Orleans District, LADOTD, Plaquemines Parish Sheriff's Department, GOHSEP, and other entities as needed. Evacuations through the Eastern Tie-In of the Hurricane and Storm Damage Risk Reduction System (HSDRRS) in Oakville, Louisiana are routed north via Louisiana Hwy 23. The proposed railroad bridge would have dual access for authorized personnel to cross the project from the Mississippi River Levee for railroad and project operations, maintenance, and flood fighting purposes.
2. The upstream or northern guide levee would serve as a guide levee for diversion flows from the Mississippi River to Barataria Basin. Additionally, the guide levee would serve as a flood risk reduction levee replacing a portion of and as part of the New Orleans to Venice (NOV) flood risk reduction levee. The proposed guide levees would allow access for authorized personnel to access the Project for operations, maintenance, and flood fighting purposes.

The proposed Project would relocate Louisiana Hwy 23 in kind (or equivalent to the existing roadway) maintaining the current evacuation route. An alternate evacuation route for Louisiana Hwy 23 is not part of the MBSD Project and would not advance the stated purpose and need as stated in EIS Chapter 1, Section 1.4 Purpose and Need.

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## CH31000 – Other Alternatives Evaluated

**Concern ID: 61871**

**Alternative 5, Variable Flow up to 150,000 cfs, should be chosen for implementation because it provides substantially greater benefits at the higher flow, with only marginally increased adverse effects, most of which could be mitigated by the same measures being proposed for the 75,000 cfs Applicant's Preferred Alternative.**

**Response ID: 15944**

CPRA submitted a joint Section 10/404 permit application and Section 408 permission request to USACE for the construction, operation, and maintenance of a 75,000 cfs sediment diversion (Applicant's Preferred Alternative). The EIS evaluates the Applicant's Preferred Alternative and five additional action alternatives as well as the No Action Alternative in order to inform USACE's permit and permission decisions and the LA TIG's NRDA decision in compliance with the statutes, orders, and policies outlined in EIS Chapter 5 Consultation and Coordination.

In the Restoration Plan, the LA TIG evaluated each alternative against a variety of factors, including those outlined in 15 CFR §990.54, and made every effort to identify an alternative that would provide the right balance in terms of being cost-appropriate, meeting LA TIG goals, having a high likelihood of success, and avoiding collateral injury. As noted in the LA TIG's Restoration Plan, while the 150,000 cfs Alternative was projected to provide greater ecological benefits than the LA TIG's Preferred Alternative, it was also expected to cause greater collateral injury and greater risks to public health and safety. See Chapter 3, Section 3.2.4 of the Final Restoration Plan for a discussion of how the LA TIG came to its decision. Additional detail can be found in the LA TIG's Restoration Plan explaining the LA TIG's evaluation of a range of alternatives and its identification of a Preferred Alternative (sediment diversion with variable flow up to 75,000 cfs). The LA TIG believes that the Preferred Alternative provides the right balance in terms of the likely benefits the Project would achieve and the risks related to collateral injury for its NRDA decision. This evaluation was completed by the LA TIG for its restoration planning efforts. USACE did not participate in that process.

The Mitigation and Stewardship Plan (Appendix R1 to the EIS) has been designed by CPRA to mitigate the projected impacts of the 75,000 cfs sediment diversion (Applicant's Preferred Alternative). Different or additional mitigation could be needed to address the projected impacts of the proposed Project if a large capacity diversion (150,000 cfs) were to be selected.



The Mitigation and Stewardship Plan and the Monitoring and Adaptive Management (MAM) Plan provided in the Draft EIS Appendix R were submitted by CPRA and represent a range of potential mitigation, stewardship, monitoring and adaptive management measures (collectively, measures). At the time of publication of the Draft EIS for public review, Appendix R contained draft Plans and CPRA had not identified which of the measures contained in those Plans it intended to implement. The Final EIS Appendix R contains the final Plans and specifies which measures CPRA and the LA TIG intend to implement. Generally, impact determinations discussed in the EIS represent anticipated Project effects without implementation of these measures except in instances where such measures are identified in the discussion. If any mitigation, monitoring, or adaptive management measures are required by USACE as part of its approval of the proposed Project, such measures would be required as special conditions of the Department of the Army (DA) Section 10/404 permit and would be listed in the permit, if one is issued. Implementation of specific measures contained in either Plan, but not included in the Section 10/404 permit as special conditions, would not be required by USACE. USACE does not know whether any particular measure that is not a DA permit condition would be implemented. Measures that USACE currently contemplates as conditions of a DA Section 10/404 permit, if one is issued, are provided in Chapter 4, Section 4.27 Mitigation Summary of the EIS.

The LA TIG explains in Section 1.5 of the Final Restoration Plan that it anticipates requiring implementation of the Mitigation and Stewardship Plan, MAM Plan, and Marine Mammal Intervention Plan as components of the proposed Project, if the Project is approved by the LA TIG for funding. Decisions regarding which measures would be required as part of the LA TIG's funding decision would be set forth in the LA TIG Record of Decision related to the proposed Project.

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## CH32000 – No Action Alternative

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### Concern ID: 61870

**If no action is taken, the resources may suffer even greater impacts in the future, along with the local ecology, economy, communities, and culture.**

### Response ID: 15941

The concerns raised by the commenters were considered in the Draft EIS. The EIS evaluates anticipated conditions in the Barataria Basin if no action is taken. Within the EIS, the No Action Alternative enables a comparison of anticipated future conditions without the proposed Project to anticipated future conditions with the proposed Project and the alternatives. Refer to Chapter 4 Environmental Consequences of

the EIS, for a description of anticipated conditions under the No Action Alternative for each of the resource areas evaluated. The Delft3D Basinwide Model was used to forecast conditions that would occur under the No Action Alternative which helped to inform the analysis in Chapter 4.

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**Concern ID: 64151**

**Commenter is concerned with the CPRA's apparent desire, in both the Draft EIS and Mitigation Plan, to condition its obligation to mitigate impacts to properties and communities, through its continuing reference to the current vulnerability of those communities or the fact that those communities would become more vulnerable in the future even under the No Action Alternative. Although many areas outside levee protection are in fact vulnerable and may become more vulnerable as sea-level rises and wetlands loss continues, many of those communities would not feel the full impacts for a decade or more absent the proposed diversion. Moreover, the causes of coastal wetlands loss can, at least in part, be attributable to the State's historic, and continuing, permitting of the destruction of coastal wetlands for pipeline and navigation canals, and the like.**

**Response ID: 15942**

In the EIS, the No Action Alternative is evaluated to understand the anticipated changes in the environment that would occur irrespective of the proposed Project.

In addition, the Delft3D Basinwide Model was used to assess impacts of the No Action Alternative. For each resource in Chapter 4 Environmental Consequences, Sections 4.1 through 4.24, the analysis of the impacts for each Project action alternative is compared to the impacts under the No Action Alternative. The EIS acknowledges both the deteriorating conditions that are projected to occur under the No Action Alternative, as well as the degree to which the Applicant's Preferred Alternative and other action alternatives would alter those projected impacts, including in some cases by accelerating potential adverse impacts.

Additionally, the EIS acknowledges the influence of canals and spoil banks on wetland losses in Barataria Basin (see EIS Chapter 3, Section 3.6.2.2.4 in Wetland Resources and Waters of the U.S.), and the analysis in the Final EIS has been updated to include additional technical references regarding the influence of canals on the existing environment in the Barataria Basin. In addition, Chapter 1, Section 1.2.1 History of the Barataria Basin in Project Background and Chapter 3, Section 3.1.4 Overview and History of the Project Area in Introduction describes the historical reasons for coastal land loss within the Barataria Basin and notes that as a result of this coastal land loss, various agencies and non-governmental organizations have implemented coastal protection, restoration, and rehabilitation projects

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within the basin. These existing conditions have been factored into the analysis in the EIS.

The mitigation and stewardship measures proposed by CPRA for proposed MBSD Project impacts described in Chapter 4, Section 4.27 Mitigation Summary of the Final EIS and in the Final Mitigation and Stewardship Plan (Appendix R1) are based on the understanding of anticipated impacts described in Chapter 4 Environmental Consequences, Sections 4.1 through 4.24. CPRA's Final Mitigation and Stewardship Plan provides details on the mitigation and stewardship measures CPRA would implement prior to the proposed Project beginning operations to ensure that the measure's benefits are in place in advance of the Project impacts.

The Mitigation and Stewardship Plan and the Monitoring and Adaptive Management (MAM) Plan provided in the Draft EIS Appendix R were submitted by CPRA and represent a range of potential mitigation, stewardship, monitoring and adaptive management measures (collectively, measures). At the time of publication of the Draft EIS for public review, Appendix R contained draft Plans and CPRA had not identified which of the measures contained in those Plans it intended to implement. The Final EIS Appendix R contains the final Plans and specifies which measures CPRA and the LA TIG intend to implement. Generally, impact determinations discussed in the EIS represent anticipated Project effects without implementation of these measures except in instances where such measures are identified in the discussion. If any mitigation, monitoring, or adaptive management measures are required by USACE as part of its approval of the proposed Project, such measures would be required as special conditions of the Department of the Army (DA) Section 10/404 permit and would be listed in the permit, if one is issued. Implementation of specific measures contained in either Plan, but not included in the Section 10/404 permit as special conditions, would not be required by USACE. USACE does not know whether any particular measure that is not a DA permit condition would be implemented. Measures that USACE currently contemplates as conditions of a DA Section 10/404 permit, if one is issued, are provided in Chapter 4, Section 4.27 Mitigation Summary of the EIS.

The LA TIG explains in Section 1.5 of the Final Restoration Plan that it anticipates requiring implementation of the Mitigation and Stewardship Plan, MAM Plan, and Marine Mammal Intervention Plan as components of the proposed Project, if the Project is approved by the LA TIG for funding. Decisions regarding which measures would be required as part of the LA TIG's funding decision would be set forth in the LA TIG Record of Decision related to the proposed Project.

## EC10000 – Eval Standard – Cost to Carry Out Alternative

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<b>Concern ID: 66342</b>	<b>The cost of the diversion is not justified and the project is questionable.</b>
<b>Response ID: 16772</b>	<p>The NEPA regulations do not require a cost-benefit analysis for the EIS unless such an analysis is relevant to an agency's decision. USACE generally assumes that a permit applicant has made its own economic evaluation regarding the costs of a proposed project. However, as part of its public interest review, USACE will weigh the harms that would be caused by the Project against its potential benefits.</p> <p>In the LA TIG's Restoration Plan, the LA TIG considers the cost to carry out the Project consistent with the Restoration Plan alternatives evaluation criteria, 15 CFR §990.54.</p>
<b>Concern ID: 61852</b>	<b>The cost per acre of marsh creation by the diversion is far higher than a corresponding alternative of marsh creation through the use of dredged material. Marsh creation through a diversion takes 50 years unlike marsh creation through dredging. In addition, brackish/salt marshes (which would be created by dredging) are more resilient than freshwater marshes, and thus marsh created through dredging would be a more sound investment of restoration funding than a sediment diversion.</b>
<b>Response ID: 16617</b>	<p>The timing of marsh benefits created by the proposed diversion was considered in the Draft EIS in Chapter 4, Section 4.6.5 Wetland Resources, Operational Impacts. In response to these comments, additional detail has been added regarding the resiliency of fresh marsh compared to brackish marsh in the Final EIS, Sections 4.6.5.1.2.3 Soil Shear Strength and 4.6.5.1.2.4 Land Accretion. Under relevant NEPA regulations, a cost-benefit analysis is not required for the EIS unless such an analysis is relevant to the agency's decision. USACE generally assumes that a permit applicant has undertaken its own economic evaluation of a proposed project and therefore, does not require a financial cost-benefit accounting for its decision. As part of its permitting decision, USACE conducts a public interest review, which weighs the probable harms of a project against its prospective benefits.</p> <p>While the commenters suggest that marsh creation through dredging would cost less than the proposed Project, the LA TIG does not believe that comparing the costs of a sediment diversion to marsh creation projects using dredged material is relevant for several reasons. Most importantly, as explained in the LA TIG's Restoration Plan, the goal of the Project is to create a long-term sustainable ecosystem through the reestablishment of deltaic process. Marsh creation through the use of dredged material would not bring fresh water or nutrients to the basin on an ongoing basis. The benefits of marsh created with dredged material</p>

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would diminish over time without maintenance in the form of additional pumping events due to subsidence and sea-level rise; thus, the temporal nature of Project benefits in the absence of periodic maintenance would also be very different. The costs and benefits of the Project were fully considered by the LA TIG and are discussed in the Draft Restoration Plan in Section 3.2.1.2 Cost to Carry Out the Alternative.

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**Concern ID: 61853**

**The amount of acres of habitat that would be restored through the preferred alternative would not justify its high cost. Given Louisiana's annual coastal habitat loss rate, investing in a nearly \$2 billion Project that would provide relatively little benefit compared to this annual loss is not justifiable.**

**Response ID: 16618**

Under relevant NEPA regulations, a cost-benefit analysis is not required for the EIS unless it is relevant to the agency's decision. USACE generally assumes that a permit applicant has conducted its own economic evaluation of the costs of a proposed Project. USACE will conduct a public interest review as part of its permit decision-making process, which weighs the anticipated harms of a project against its anticipated benefits.

As part of the OPA analysis, LA TIG considered the cost to carry out the Project consistent with the Restoration Plan alternatives evaluation criteria, 15 CFR §990.54. The cost to carry out the Project was evaluated in Section 3.2.1.2 Cost to Carry Out the Alternative of the LA TIG's Draft Restoration Plan. The Project would reestablish deltaic processes that deliver sediment, fresh water, and nutrients; improve the function of existing habitats; and successfully develop deltaic habitats that connect nearshore and offshore ecosystems. Wetlands are one component of a restored ecosystem to be achieved. The LA TIG expects that the Project would result in the creation of a maximum of 17,300 acres of land in the Barataria Basin by year 30 of operations; after 50 years of operation, the Project would result in the loss of 3,000 acres of land in the birdfoot delta but would create approximately 13,400 acres of land in the Barataria Basin, representing about 20 percent of the land remaining in the Barataria Basin at that time (see Section 3.2.1.1 [Alternative 1 Description] of the Restoration Plan). The creation of marsh habitat would provide substantial benefits to nearshore marine ecosystems, water column resources (including fish and invertebrates), birds, terrestrial wildlife, and offshore marine ecosystems (see Section 3.2.1.6 [Benefits Multiple Resources] of the Restoration Plan). Given the high rates of erosion and land loss, the land created by the Project would become even more important to the coastal ecosystem over time.

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**Concern ID: 62983**

**There will be ongoing and continuing costs to maintain the structure. Will there be sufficient funds to maintain the Project into the future? Commenters questioned who would have**

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<b>Response ID: 16621</b>	<p><b>responsibility for the Project's maintenance throughout its operation.</b></p> <p>As the Project Implementing Trustee, CPRA would ensure that there is sufficient funding to operate and maintain the Project into the future. Roles and responsibilities regarding the Project are set forth in the EIS in Sections 2 and 3 of Appendix R2 Monitoring and Adaptive Management Plan. CPRA has primary responsibility for the operations, maintenance, and monitoring of the Project.</p>
<b>Concern ID: 61854</b>	<p><b>The cost of the proposed Project is a sound investment. More specifically, \$2 billion seems a reasonable price for decades of extension of habitat and use. Even though the cost of the Project is high, the price of inaction would be far greater.</b></p>
<b>Response ID: 16619</b>	<p>Under relevant NEPA regulations, a cost-benefit analysis is not required for the EIS unless such an analysis is relevant to the agency's decision. USACE generally assumes that a permit applicant has undertaken its own economic evaluation of a proposed project and therefore, does not require a financial cost-benefit accounting for its decision. As part of its permitting decision, USACE conducts a public interest review, which weighs the probable harms of a project against its prospective benefits.</p> <p>The LA TIG acknowledges commenters' belief that the Project would be a sound investment. As part of the OPA analysis, the LA TIG considered the cost to carry out the Project consistent with the Restoration Plan alternatives evaluation criteria, 15 CFR §990.54. The cost to carry out the Project was evaluated in Section 3.2.1.2 Cost to Carry Out the Alternative of the LA TIG's Draft Restoration Plan. The LA TIG has found that the Project costs are commensurate with achieving the goals of comprehensive integrated ecosystem restoration intended to persist for decades even in the face of rising sea levels and continued coastal erosion.</p>
<b>Concern ID: 62982</b>	<p><b>Anticipated increases in the cost of maintenance dredging induced by diversion operations and anticipated effects on the navigation community must be accounted for in the early stages of diversion planning so that accurate cost-benefit ratios can be considered.</b></p>
<b>Response ID: 16620</b>	<p>Under relevant NEPA regulations, a cost-benefit analysis is not required for the EIS unless such an analysis is relevant to the agency's decision. USACE generally assumes that a permit applicant has undertaken its own economic evaluation of a proposed project and therefore, does not require a financial cost-benefit accounting for its decision. As part of its permitting decision, USACE conducts a public interest review, which weighs the probable harms of a project against its prospective benefits.</p>

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The impacts of the Project on maintenance dredging requirements and on the navigation community were addressed and considered in the Draft EIS, in Chapter 4, in the Mississippi River and Barataria Basin “Maintenance Dredging” subsections of Section 4.21 Navigation. USACE has engaged the navigation industry to get its input on the proposed Project’s anticipated effects on navigation, including increased sedimentation in the Mississippi River, as part of the EIS process.

In the LA TIG’s Restoration Plan, the LA TIG considers the cost to carry out the Project consistent with the Restoration Plan alternatives evaluation criteria, 15 CFR §990.54. The Project budget in the Draft Restoration Plan (see Section 3.2.1.2 Cost to Carry Out the Alternative) included the cost of additional maintenance dredging that would be induced by the Project. Also, monitoring to identify the need for additional maintenance dredging induced by the Project is addressed in the Restoration Plan Appendix R2: Monitoring and Adaptive Management Plan for the proposed MBSD Project.

The Mitigation and Stewardship Plan and the Monitoring and Adaptive Management (MAM) Plan provided in the Draft EIS Appendix R were submitted by CPRA and represent a range of potential mitigation, stewardship, monitoring and adaptive management measures (collectively, measures). At the time of publication of the Draft EIS for public review, Appendix R contained draft Plans and CPRA had not identified which of the measures contained in those Plans it intended to implement. The Final EIS Appendix R contains the final Plans and specifies which measures CPRA and the LA TIG intend to implement. Generally, impact determinations discussed in the EIS represent anticipated Project effects without implementation of these measures except in instances where such measures are identified in the discussion. If any mitigation, monitoring or adaptive management measures are required by USACE as part of its approval of the Project, such measures would be required as special conditions of the Department of the Army (DA) Section 10/404 permit and would be listed in the permit, if one is issued. Implementation of specific measures contained in either Plan, but not included in the Section 10/404 permit as special conditions, would not be required by USACE. USACE does not know whether any particular measure that is not a DA permit condition would be implemented. Measures that USACE currently contemplates as conditions of a DA Section 10/404 permit, if one is issued, are provided in Chapter 4, Section 4.27 Mitigation Summary of the EIS.

The LA TIG explains in Section 1.5 of the Final Restoration Plan that it anticipates requiring implementation of the Mitigation and Stewardship Plan, MAM Plan, and Marine Mammal Intervention Plan as components of the proposed Project, if the Project is approved by the LA TIG for



funding. Decisions regarding which measures would be required as part of the LA TIG's funding decision would be set forth in the LA TIG Record of Decision related to the proposed Project.

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## EC20000 – Eval Standard – Meets Trustee Restoration Goals and Objectives

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**Concern ID: 62663**

**Decades of study demonstrate the MBSD is the optimal way to restore the sustainable functionality to the ecosystem injured by the DWH oil spill, including providing benefits to the northern Gulf of Mexico ecosystem injured by the spill. The Project would rebuild and restore coastal wetland habitat, which is vital to the health of the Gulf of Mexico ecosystem and the species that reside within it. It would address a multitude of concerns on an ecosystem-wide and economic scale, would work synergistically with ecosystem restoration projects in the basin, and would create jobs. The Draft Restoration Plan demonstrates the likely benefits of the Project, and the Project would likely help mitigate consequences of future natural disasters and climate change. Not implementing the Project would not only prevent the area from recovering, but would accelerate its degradation over time.**

**Response ID: 16622**

The LA TIG acknowledges the comment and agrees that the Project would deliver fresh water, sediment, and nutrients to the Barataria Basin; reconnect and reestablish sustainable deltaic processes between the Mississippi River and the Barataria Basin (for example, sediment retention and accumulation, new delta formation); and create, restore, and sustain wetlands and other deltaic habitats and associated ecosystem services.

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**Concern ID: 62664**

**The Project, instead of restoring coastal Louisiana, would accelerate its degradation. The Upper Barataria Basin, which was not affected by the DWH oil spill, would be negatively affected by the proposed Project in terms of cultural, topographic, and ecological impacts. Because the Oil Pollution Act is designed to restore areas affected by an oil spill to their pre-spill conditions, the proposed Project should not be funded because it does not achieve this goal.**

**Response ID: 16623**

The potential impacts of the proposed Project on affected ecosystems and communities were considered in the Draft EIS. For example, Chapter 3 Affected Environment of the EIS describes existing conditions within the Project area and Section 3.1 Introduction provides an overview and history of the Project area. These existing conditions are factored into the impact analysis in Chapter 4 Environmental

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Consequences of the EIS. Further, Chapter 3, Section 3.6.2.2 in Wetland Resources and Waters of the U.S. notes the ongoing impact of the DWH oil spill on wetland loss, as well as ongoing saltwater intrusion, sea-level rise, and subsidence. Section 3.10.5.2 in Aquatic Resources provides an overview of the adverse impact of the oil spill on key aquatic species within the Barataria Basin.

The impacts raised by the commenters were also considered in the LA TIG's Draft Restoration Plan. As described in the Restoration Plan in Section 1.3 (Authorities and Regulations), the goal of the Oil Pollution Act of 1990, 33 USC 2701 et seq., is to make the environment and public whole for injuries to natural resources and services resulting from an incident involving a discharge or substantial threat of a discharge of oil. This goal is achieved through the return of the injured resources and services to baseline, and compensation for interim losses from the date of the incident until recovery. According to 15 CFR, Part 990.30, restoration is defined as "any action...to restore, rehabilitate, replace, or acquire the equivalent of injured natural resources and services", and 15 CFR, Part 990.53 (c) (2) specifies that compensatory restoration actions can include actions that provide natural resources and services of the same or comparable type and quality as the injured resources.

Considering the scale of impacts from the oil spill, the LA TIG also understands the importance of increasing the resiliency and sustainability of this highly productive Gulf ecosystem through restoration. As noted in the PDARP/PEIS, diversions of Mississippi River water into adjacent wetlands have a high probability of providing these types of large-scale benefits for the long-term sustainability of deltaic wetlands. As described in Section 2.3.3 (Proposed MBSD Project Location Alternatives) of the Restoration Plan, while a project in Lower Barataria Basin would provide restoration closest to where the heaviest oiling and associated injuries occurred, such a project would also require more time and more sediment to build land given the relatively deep open water in that area, and newly created marshes would be more quickly eroded by waves, tidal action, and storm surge. A project in the Mid-Barataria Basin is close to oiled shorelines but farther away from additional erosive forces found in the Lower Barataria Basin. The LA TIG selected the proposed Project location in the Mid-Barataria Basin because a project in this location would have the capacity to accept and disperse sediments and nutrients and would promote the long-term sustainability of existing and newly created marshes.

The LA TIG recognizes that the proposed Project would result in some adverse impacts to natural resources as described in Section 3.2.1.5 (Avoids Collateral Injury) of the Restoration Plan. However, these injuries occur primarily in the middle and Lower Barataria Basin, and the proposed Project would also restore natural resources that were

injured by the DWH spill as described in Section 3.2.1.6 (Benefits Multiple Resources) of the Restoration Plan. The increase in wetland area under the Project is also expected to benefit communities on the West Bank, north of the diversion, by providing increased protection from storm surge (see Section 3.2.1.7).

Because the proposed Project would contribute to restoring natural resources injured by the DWH oil spill to their baseline conditions, the Project is consistent with OPA, the OPA NRDA regulations, the PDARP/PEIS, and the SRP. See Section 3 (OPA Evaluation of the Alternatives) of the Restoration Plan for more details about the LA TIG's evaluation of the proposed Project and its alternatives.

The LA TIG has also funded other marsh creation restoration efforts that provide ecosystem services lower in the basin (that is, Barataria Basin Ridge and Marsh Creation Project: Spanish Pass Increment and Queen Bess Island Project). These activities complement and reinforce the restoration that would be provided by the proposed MBSD Project. Section 2.3 (Screening for a Reasonable Range of Alternatives) of the Restoration Plan provides a detailed discussion of the selection of the location for the LA TIG's Preferred Alternative in the Restoration Plan.

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**Concern ID: 62665**

**Commenters suggested that the proposed Project would achieve some benefits relative to the No Action Alternative, but that even if the modeling is correct (which it probably is not), the projected benefits provided by the Project would be very small compared to amount of habitat that is expected to be lost in the Barataria Basin over 50 years. If the models used for the EIS turn out to be accurate, more than 43 percent of the land in the Barataria Basin will have disappeared even with the Project in 30 years. During that time, 105,000 acres of land will be lost, with the Project sustaining only 17,300 more acres than the No Action Alternative (5 percent of the basin's current land area). Because of this background of large land loss, the proposed Project could only be considered a stop-gap measure. Further, commenters cited sources indicating ongoing debate about the effectiveness of large-scale sediment diversions as a land-building strategy and recommended those uncertainties be addressed in the Draft EIS (Blaskey, 2020; Blum and Roberts, 2009; Chamberlain et al., 2018; DeLaune et al., 2013; Suir et al., 2014; Turner et al., 2019).**

**Blaskey, D. 2020. Modeling of distributary channels formed by a large sediment diversion in broken marshland. Dissertation, University of New Orleans, Louisiana. 112 pages.**

**Blum, M.D., and H.H. Roberts. 2009. Drowning of the Mississippi Delta due to insufficient sediment supply and global sea-level rise. Nature Geoscience Letters 2:488-491.**

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**Chamberlain, E.L., T.E. Törnqvist, Z. Shen, B. Mauz, and J. Wallinga. 2018. Anatomy of Mississippi Delta growth and its implications for coastal restoration. Science Advances 4:eaar4740.**

**DeLaune, R.D., M. Kongchum, J.R. White, and A. Jugsujinda. 2013. Freshwater diversions as an ecosystem management tool for maintaining soil organic matter accretion in coastal marshes. Catena 107:139-144.**

**Suir, G.M., W.R. Jones, A.L. Garber, and J.A. Barras. 2014. Pictorial account and landscape evolution of the crevasses near Fort St. Philip, Louisiana. U.S. Army Corps of Engineers Mississippi River Geomorphology & Potamology Program, Report No. 2. 37 pages.**

**Turner R.E., M. Layne, Y. Mo, and E.M. Swenson. 2019. Net land gain or loss for two Mississippi River diversions: Caernarvon and Davis Pond. Restoration Ecology 27(6):1231-1240.**

**Response ID: 16624**

The issues raised by the commenters were considered in the Draft EIS. For example, the proposed Project's long-term influence on land building and wetland creation has been modeled extensively through engineering and design and the impacts (beneficial and adverse) are described in Sections 4.2 (Geology and Soils), 4.4 (Surface Water and Coastal Processes) and 4.6 (Wetland Resources and Waters of the U.S.) of the EIS. With regard to modeling conducted to determine impacts of the proposed Project, the Delft3D Basinwide Model projections of Project impacts include uncertainties. Uncertainties are briefly summarized in the Draft EIS in Chapter 4, Section 4.1.3.3 (Model Limitations and Uncertainty), and in detail in Appendix E (Delft3D Modeling, Section 8.0 Model Limitations and Uncertainties). Uncertainty in model results is recognized in Table 4.2-4 found in Section 4.2.3.2.2.1 Geology, which indicates that land areas are considered accurate within +/- 200 acres and that the error in land gains is +/-300 acres.

As part of developing the EIS, the USACE, together with members of the LA TIG (including cooperating agencies and CPRA), reviewed the Delft3D Basinwide Model, including its parameters, methods of validation and calibration, inputs for the alternative production runs used in the EIS, and outputs, and concluded that the Delft3D Basinwide production runs and outputs were adequate and sufficient to inform the MBSD EIS impacts analysis of the alternatives. The cited studies were reviewed and included in relevant analyses in the Draft EIS.

The LA TIG acknowledges the commenters' concerns. As described in the LA TIG's Draft Restoration Plan, the Project would reestablish deltaic processes that deliver sediment, fresh water, and nutrients;

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improve the function of existing habitats; and develop deltaic habitats that connect nearshore and offshore ecosystems. The LA TIG expects that the Project would result in the creation of a maximum of 17,300 acres of land in the Barataria Basin by year 30 of operations; after 50 years of operation, the Project would result in the loss of 3,000 acres of land in the birdfoot delta but would create approximately 13,400 acres of land in the Barataria Basin, representing about 20 percent of the land remaining in the Barataria Basin at that time (see Section 3.2.1.1 [Alternative 1 Description] of the Restoration Plan). The LA TIG agrees that, with or without the Project, coastal Louisiana and the Barataria Basin would experience tremendous land loss. However, the LA TIG believes this background of large land loss makes the habitat created by the proposed Project even more important. Relative to other types of incremental approaches (for example, marsh creation through the application of dredged sediment), the Project would reconnect and reestablish sustainable deltaic processes and support the long-term viability of existing and planned coastal restoration efforts. All citations referenced by the commenters were included in the Final EIS and thus were considered by the LA TIG in the Final Restoration Plan.

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**Concern ID: 62666**

**It would be inappropriate, and contrary to the stated purpose of restoring injured resources, to use DWH settlement funds to implement a project that would harm the same wildlife (for example, shrimp, oysters, bottlenose dolphins, *Spartina alterniflora*) and ecological services that were negatively affected by the oil spill.**

**Response ID: 16625**

USACE is not evaluating the proposed Project for compliance with the OPA and is not involved in the process to restore the damage caused by the DWH oil spill. USACE's involvement with the proposed Project is limited to its permitting decisions and associated NEPA and other evaluations of the proposed Project under the CWA Section 404 and RHA Sections 10 and 14 (33 USC Section 408). USACE is not executing any DWH restoration actions under the OPA. As explained in the Restoration Plan, the LA TIG is responsible for deciding the appropriate use of NRDA funds to restore natural resources injured by the DWH spill in the Louisiana Restoration Area. As explained in the Final EIS, Appendix B2 DEIS Public Review and Public Meetings, Section 2.0 Agency Roles in the Responses to Public Comments, response content pertaining to the LA TIG's Draft Restoration Plan, the OPA and/or NRDA processes or other Trustee Planning was developed by the LA TIG and states only the LA TIG's views.

In the Restoration Plan, the LA TIG explained that the DWH oil spill resulted in the oiling of more than 1,100 kilometers of wetlands, nearly all of which were located in coastal Louisiana (DWH NRDA Trustees, 2016). The heaviest oiling occurred in the Barataria Basin, resulting in substantial injuries to natural resources in the basin (DWH NRDA

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Trustees, 2016). Recognizing that the resulting loss of marsh productivity affected resources throughout the northern Gulf of Mexico ecosystem, the State of Louisiana and the federal Trustees that negotiated the DWH Natural Resource Damages settlement allocated \$4 billion, almost half of the total settlement amount, to restoring Louisiana's wetland, coastal, and nearshore habitats.

The LA TIG recognizes that any of the large-scale sediment diversion alternatives considered would potentially result in varying degrees of collateral injuries, including some high degree of collateral injuries, to natural resources injured by the spill (see the Executive Summary and Section 3.2.1.5 [Avoids Collateral Injury] of the LA TIG's Restoration Plan). The intended restoration of freshwater flows from the Mississippi River, which historically had characterized and shaped the Barataria Basin ecosystem before levee construction, would result in collateral injury to species that depend on the current higher-salinity conditions that exist without freshwater flows. However, as noted in the LA TIG's Restoration Plan, without the proposed Project, sea-level rise, subsidence, and other existing stressors would result in additional marsh loss over time reducing the suitability of habitat for many of the same species.

The LA TIG must weigh the potential and extent of collateral injury against the benefits of the proposed Project (see Section 3.2.4 [Overall OPA Evaluation Conclusions] of the Restoration Plan for a discussion of how the LA TIG weighed the potential collateral injury of the proposed Project against its potential benefits). The LA TIG believes that a sediment diversion is the only way to achieve a self-sustaining ecosystem in the Barataria Basin that more closely resembles historic conditions. As described in Section 3.2.1.6 (Benefits Multiple Resources) of the Restoration Plan, this sustained ecosystem is expected to benefit many fish and wildlife species in the basin, including many of those negatively affected by the spill, such as red drum, blue crab, white shrimp, Gulf menhaden, and migratory waterfowl. These benefits to fish and wildlife species also would translate to benefits to recreational users who watch, fish, or hunt those species. In addition, these benefits would not only accrue throughout the Barataria Basin but, through the transport of productivity, also in the offshore ecosystems of the northern Gulf of Mexico. By reestablishing a deltaic process, the proposed Project would be expected to enhance the ecological productivity of the estuary and improve food web dynamics that would provide benefit to the northern Gulf of Mexico ecosystem.

The LA TIG has selected the proposed Project as its Preferred Alternative in the Final Restoration Plan because the LA TIG believes it is critical to achieving the overall goals of the Wetlands, Coastal, and Nearshore Habitats Restoration Type in the NRDA Trustee's Final



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PDARP/PEIS, which include providing benefits across the interconnected northern Gulf of Mexico ecosystem, and placing particular emphasis on coastal and nearshore habitat restoration in the historical Mississippi River Delta plain in Louisiana.

In its Strategic Restoration Plan for Barataria Basin (2018), the LA TIG evaluated the potential and extent of collateral injury for a range of restoration techniques. Unfortunately, almost all large-scale restoration comes with some potential for collateral injury. The LA TIG evaluated each alternative against a variety of factors, including those outlined in 15 CFR §990.54. In the Restoration Plan, the LA TIG strives to identify an alternative that would provide what it considers the right balance in terms of being cost-appropriate, meeting LA TIG goals, having a high likelihood of success, and avoiding collateral injury. Again, see Section 3.2.4 of the Restoration Plan for a discussion of how the LA TIG came to its decision.

In recognition of the potential for collateral injuries, and acknowledging the inability to fully avoid or mitigate collateral injuries, the LA TIG has designed and CPRA will implement a suite of stewardship measures (see Section 3.2.1.1.5 [Associated Stewardship Measures] of the Restoration Plan and Appendix R1 to the EIS). The LA TIG is also committed through these measures to continuing efforts to restore the resources that would be adversely affected by the diversion, many of which were also injured by the DWH oil spill.

The Mitigation and Stewardship Plan and the Monitoring and Adaptive Management (MAM) Plan provided in Draft EIS Appendix R were submitted by CPRA and represent a range of potential mitigation, stewardship, monitoring and adaptive management measures (collectively, measures). At the time of publication of the Draft EIS for public review, Appendix R contained draft Plans and CPRA had not identified which of the measures contained in those Plans it intended to implement. The Final EIS Appendix R contains the final Plans and specifies which measures CPRA and the LA TIG intend to implement. Generally, impact determinations discussed in the EIS represent anticipated Project effects without implementation of these measures except in instances where such measures are identified in the discussion. If any mitigation, monitoring or adaptive management measures are required by USACE as part of its approval of the proposed Project, such measures would be required as special conditions of the Department of the Army (DA) Section 10/404 permit and would be listed in the permit, if one is issued. Implementation of specific measures contained in either Plan, but not included in the Section 10/404 permit as special conditions, would not be required by USACE. USACE does not know whether any particular measure that is not a DA permit condition would be implemented. Measures that USACE currently contemplates as conditions of a DA Section 10/404



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permit, if one is issued, are provided in Chapter 4, Section 4.27 Mitigation Summary of the EIS.

The LA TIG explains in Section 1.5 of the Final Restoration Plan that it anticipates requiring implementation of the Mitigation and Stewardship Plan, MAM Plan, and Marine Mammal Intervention Plan as components of the proposed Project, if the Project is approved by the LA TIG for funding. Decisions regarding which measures would be required as part of the LA TIG's funding decision would be set forth in the LA TIG Record of Decision related to the proposed Project.

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**Concern ID: 62667**

**One commenter inquired about whether climate scientists had been involved in assessing the potential impacts of the proposed Project.**

**Response ID: 16626**

Multi-disciplinary teams of scientists and professionals contributed to the preparation of the EIS and the LA TIG's Restoration Plan. See Chapter 6 List of Preparers in the Final EIS for the qualifications of the contributors to the EIS. In addition, climate modeling was incorporated into the EIS analysis. The Delft3D Basinwide Model incorporates two different Gulf of Mexico regional sea-level rise scenarios: 2.6 and 4.9 feet (0.79 and 1.5 meters) by year 2100 in addition to local subsidence rates. For additional information on Delft3D Basinwide Modeling, refer to Appendix E Delft3D Modeling of the EIS.

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**Concern ID: 62668**

**The Project fails to meet the five objectives that Trustees articulated in the PDARP/PEIS. By diverting Mississippi River water into the coastal zone, the proposed Project would damage water quality and destroy habitat essential to living coastal and marine resources.**

**Response ID: 16627**

USACE is not evaluating the proposed Project for compliance with the OPA and is not involved in the process to restore the damage caused by the DWH oil spill. As explained in the Restoration Plan, the LA TIG is responsible for deciding the appropriate use of NRDA funds to restore natural resources injured by the DWH oil spill in the Louisiana Restoration Area. As explained in the Final EIS, Appendix B2 DEIS Public Review and Public Meetings, Section 2.0 Agency Roles in the Responses to Public Comments, response content pertaining to the LA TIG's Draft Restoration Plan, the OPA and/or NRDA processes or other Trustee Planning was developed by the LA TIG and states only the LA TIG's views. The ability of the Project to meet LA TIG objectives was considered in the LA TIG's Draft Restoration Plan. In preparing the LA TIG's Restoration Plan, the LA TIG developed the goals and objectives for the proposed Project through an iterative restoration planning process, beginning with the restoration goals in the Final PDARP/PEIS, then developing SRP/EA #3 for the restoration of habitat and services in the Barataria Basin, and ending with Project-specific goals. The LA TIG notes that while the commenter asserts that the proposed Project

would fail to meet the goals of the PDARP/PEIS, the PDARP/PEIS in fact included a large-scale sediment diversion as a key restoration technique (see Section 5.5.2.2 [Strategy to Achieve Goals] of the PDARP/PEIS).

The proposed MBSD Project has been developed to address the specific goals of the Wetlands, Coastal, and Nearshore Habitats Restoration Type. More specifically, the proposed Project has been designed to (1) restore a variety of interspersed and ecologically connected coastal habitats, (2) restore for injuries to habitats in geographic areas where the injuries occurred, while considering approaches that provide resilience and sustainability, and (3) restore habitats and their ecological functions in appropriate combinations.

In developing restoration alternatives, the LA TIG evaluated the proposed Project according to the OPA evaluation criteria, including the extent to which alternatives would prevent future injury as a result of the oil spill and avoid collateral injury, which could include a threat of compromised water quality from the introduction of Mississippi River water into the receiving Barataria Basin (see Section 3.2 [OPA Evaluation of the Alternatives] in the Restoration Plan). That OPA evaluation, as well as related evaluation of impacts to surface water quality evaluated in the EIS, finds that species with a wide range of salinity tolerance (for example, flounder) are not likely to be affected by the water quality changes resulting from operations of the diversion, but could experience minor collateral injuries due to temporary shifts in prey composition and distribution or suboptimal salinity affecting early life stages (see Section 3.2.1.5 [Avoids Collateral Injury] of the Restoration Plan and Chapter 4, Section 4.10.4.5 in Aquatic Resources of the EIS). Indirect impacts on bottlenose dolphins in the Barataria Basin could occur as water quality (for example, HABs, contaminants) habitat and food web dynamics shift over time. Overall, the operation of the diversion would be expected to have permanent minor to moderate changes in salinity, water temperatures, seasonal trends in total nitrogen and total phosphorus, dissolved oxygen trends, sulfate concentrations, and fecal coliform concentrations in the Barataria Basin (see Section 3.2.1.1 [Alternative 1 Description] of the Restoration Plan and Chapter 4, Section 4.5 Surface Water and Sediment Quality, Table 4.5-4 of the EIS).

Collateral injury and impacts to essential fish habitat are also included as part of the OPA and NEPA evaluation. The proposed Project would be expected to increase the overall coverage and biomass of SAV in the basin once salinity regimes stabilize and new freshwater or intermediate communities become established (see Section 3.2.1.6 [Benefits Multiple Resources – Alternative 1] of the Restoration Plan and Chapter 4, Section 4.10.4.1 in Aquatic Resources of the EIS). SAV is managed as essential fish habitat in the Barataria Basin, providing

structured habitat that is of greater value for fish and crustaceans than unstructured habitats, such as soft bottoms (see Section 4.10.4.4 of the EIS). From the proposed Project, the Barataria Basin is projected to retain a diversity of marsh habitat types by 2050, with a projected acreage of approximately 207,000 acres of freshwater/intermediate marsh, 16,600 acres of brackish marsh, and 10,400 acres of saline marsh (see Section 3.2.1.6 [Benefits Multiple Resources] of the Restoration Plan and Chapter 4, Section 4.6 Wetland Resources and Waters of the U.S., Table 4.6-3 in the EIS). These wetlands provide ecosystem services, including essential fish habitat for fish and crustaceans and other aquatic species as described in Section 3.2.1.6 (Benefits Multiple Resources) of the Restoration Plan.

By reestablishing deltaic processes, the proposed Project would be expected to enhance the ecological productivity of the estuary and improve food web dynamics that would provide benefit to the northern Gulf of Mexico ecosystem. The proposed MBSD Project is critical to achieving the overall goals of the Wetlands, Coastal, and Nearshore Habitats Restoration Type in the Final PDARP/PEIS, which include providing benefits across the interconnected northern Gulf of Mexico ecosystem, and placing particular emphasis on coastal and nearshore habitat restoration in the historical Mississippi River Delta plain in Louisiana.

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**Concern ID: 62669**

**While the proposed Project would harm the aquatic wildlife (for example, shellfish, finfish and dolphins) that currently reside in the Mid-Barataria Basin, that wildlife only resides in the area due to human interventions that cut the basin off from the Mississippi River. The EIS and Restoration Plan should place the impacts in historical context and thereby demonstrate that the Project is truly restorative because it is returning the basin to the conditions that were typical prior to the extensive flood control efforts of the 20th century.**

**Response ID: 16628**

The historic conditions of the Barataria Basin, and how this relates to potentially impacted resources, was considered in the Draft EIS. For example, Chapter 3 (Affected Environment) of the EIS describes existing conditions within the Project area and Section 3.1.4 (Overview and History of the Project Area) in the Introduction provides an overview and history of the Project area. See for example, Figure 3.2-1, Land Area Change in Project Area (1932 to 2016); Section 3.6.2 Wetland Loss; Section 3.6.2.2. Causes of Wetland Loss; Figure 3.6-2 Marsh Type Change in the Project Area, 1968 through 2013. These existing conditions were factored into the impact analysis in Chapter 4 (Environmental Consequences) of the EIS.

Shellfish and finfish historically resided in the Barataria Basin prior the 1930s. Due to land loss over the 20<sup>th</sup> century, as noted in Section 3.6.2

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Wetland Loss of the EIS and Section 3.10.1 Historical Context of the Final EIS, Barataria Bay and surrounding waterbodies have expanded as marsh has given way to open water and more saline conditions have shifted slightly north, creating more suitable habitat for oysters and other species benefiting from brackish or saline waters, such as dolphins, in the mid to lower basin.

The proposed Project is not anticipated to restore the basin to its historic conditions. As noted in Section 3.4.1.2 (Barataria Basin), land loss in the Barataria Basin from 1932 to 2016 resulted in a net loss of 276,036 acres, accounting for 29.1 percent of the land area in the basin (Couvillion et al. 2017). The proposed Project is anticipated to create and/or maintain 12,700 acres of wetlands in the basin by the year 2070 when compared with the No Action Alternative.

The historical context of the Project has also been considered in the LA TIG's Draft Restoration Plan. More specifically, Section 3.2.1.5.3 (Resources with a High Level of Expected Collateral Injury from Alternative 1) of the Restoration Plan notes that the area that would be affected by the proposed Project has been severed from its historical hydrological connection to the Mississippi River, resulting in higher salinity in an area that historically experienced regular freshwater and sediment inputs. The intended restoration of this area would result in collateral injury to species that depend on the current higher-salinity conditions in the basin.

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**Concern ID: 62671****The Project benefits may last only a few decades.****Response ID: 16629**

The potential duration of Project benefits was considered in the Draft EIS. For example, the Project's long-term influence on land building and wetland creation are modeled extensively and the impacts (beneficial and adverse) are described in Sections 4.2 (Geology and Soils), 4.4 (Surface Water and Coastal Processes) and 4.6 (Wetland Resources and Waters of the U.S.) of the EIS.

The potential duration of Project benefits has also been considered in the LA TIG's Draft Restoration Plan. For example, as described in 2.3 (Screening for a Reasonable Range of Alternatives) of the Restoration Plan, the LA TIG determined that a sediment diversion is the best way to achieve a self-sustaining marsh ecosystem in the Barataria Basin. Compared to other restoration methods (for example, marsh creation through the placement of dredged material), sediment diversions offer the greatest long-term sustainability. The Project would reconnect and reestablish sustainable deltaic processes and support the long-term viability of existing and planned coastal restoration efforts.

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**Concern ID: 63770****A large-scale river diversion is not needed to restore damages from the Deepwater Horizon oil spill and is unrelated to the spill.**

**Response ID: 16630**

Chapter 2, Section 2.2.1 Define Project Objectives of the EIS describes the goals and objectives of the Project, which are based on the Project's purpose and need. As described in Chapter 1, Section 1.4 Purpose and Need of the EIS, the purpose and need for this Project was developed taking into consideration the Applicant's stated purpose and need, the public's and other perspectives, input from the LA TIG and cooperating agencies (identified in Section 1.8 Agency Roles and Responsibilities), and input from representatives of the Council for Environmental Quality (CEQ) and the Federal Permitting Improvement Steering Council (FPISC). Chapter 3 (Affected Environment) of the EIS describes existing conditions within the Project area and Section 3.1 (Introduction) provides an overview and history of the Project area, including the DWH oil spill. These existing conditions are factored into the impact analysis in Chapter 4 (Environmental Consequences) of the EIS.

The appropriate means to restore the injuries caused by the DWH oil spill was considered by the LA TIG. As discussed in the PDARP/PEIS, the SRP/EA #3, and the LA TIG's Restoration Plan, the LA TIG agencies found that impacts of the injuries from the DWH oil spill were particularly detrimental to the resources of the Barataria Basin, which were already in peril as a result of the coastal wetland losses (caused by multiple factors including river levees that prevent deposition of sediments through regular flood events, subsidence and a changing climate). In the Barataria Basin, marshes already suffering from significant coastal erosion experienced heavy oiling and subsequently experienced double or triple the rate of marsh loss. In identifying the nexus to injury, the Final PDARP/PEIS (DWH NRDA Trustees, 2016a) documented the nature, degree, and extent of injuries from the DWH oil spill to both natural resources and the services they provide within the Barataria Basin, and the need for restoration to restore for the injuries incurred.

Evaluating restoration strategies that could restore injuries in the Barataria Basin, the SRP/EA #3 found that a combination of "marsh creation and ridge restoration plus a large-scale sediment diversion would provide the greatest level of benefits to injured Wetlands, Coastal, and Nearshore habitats and to the large suite of injured resources that depend in their life cycle on productive and sustainable wetland habitats" (LA TIG, 2018, page 3-32) in the basin and in the broader northern Gulf of Mexico. As a result, the LA TIG pursued the development of a large-scale sediment diversion, specifically the proposed MBSD Project evaluated in this Restoration Plan, and finds that it would best restore for injuries caused by the DWH oil spill by reconnecting and reestablishing sustainable deltaic processes between the Mississippi River and the Barataria Basin through the delivery of

sediment, fresh water, and nutrients to support the long-term viability of existing and planned coastal restoration efforts.

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## EC30000 – Eval Standard – Likelihood of Success

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**Concern ID: 62639**

The proposed Project is unlikely to succeed because similar types of projects have failed to build land, and have caused a range of other issues, like destroying habitat, exacerbating flooding, and reducing water quality. Specific examples of similar, problematic projects include the Mississippi River Gulf Outlet, Bonnet Carré Spillway, Caernarvon Freshwater Diversion, Davis Pond, West Bay, Baptiste Collette, Fort St. Philip, and Cubits Gap. In fact, data show that the Caernarvon Diversion in particular was unable to show sustained land gains in the face of Hurricane Katrina-driven losses in wetland habitat (Underwood 1994, Kearney et al. 2011). Davis Pond has seen increased land loss inside the diversion compared to a reference area (Couvillion et al. 2017). Fort St. Philip has lost large areas of wetlands (Suir et al. 2014). While the Atchafalaya River is building land in the Atchafalaya and Wax Lake Deltas, the Atchafalaya River carries more sediment than the Mississippi River does currently (Blum and Roberts 2009), and more of the Atchafalaya River is diverted to each of these deltas and marshes farther south. Additionally, one study identified poor performance of diversions due to many periods of inoperation due to socioeconomic uncertainties (Caffey et al. 2014).

Blum, M.D., Roberts, H.H. 2009. Drowning of the Mississippi delta due to insufficient sediment supply and global sea-level rise. *Nature Geoscience* 2, 488-491.

Caffey, Rex & Petrolia, Daniel. 2014. Trajectory economics: Assessing the flow of ecosystem services from coastal restoration. *Ecological Economics*. 100. 74-84. [10.1016/j.ecolecon.2014.01.011](https://doi.org/10.1016/j.ecolecon.2014.01.011).

Couvillion BR, Beck H, Schoolmaster D, Fischer M. 2017. Land area change in coastal Louisiana (1932 to 2016). Pamphlet to accompany U.S. Geological Survey Scientific Investigations Map 3381.

Kearney MS, Riter CA, Turner RE. 2011. Freshwater diversions for marsh restoration in Louisiana: twenty-six years of changing vegetative cover and marsh area. *Geophys Res Lett* 38: L16405, doi:10.1029/2011GL047847.



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**Underwood AJ. 1994. On beyond BACI: sampling designs that might readily detect environmental disturbances. Ecological Appl 4: 3-15.**

**Suir GM, Jones WR, Garber AL, Barras JA 2014. Pictorial account and landscape evolution of the crevasses near Fort St. Philip, Louisiana. Mississippi River Valley Div., Engineer. Res. Development Center, Mississippi River Geomorphology and Potamology Program. MRG&P Report No. 2. Vicksburg, MS**

**Response ID: 16631**

The issues raised by the commenters were considered in the Draft EIS. The EIS states in Chapter 2, Section 2.1.1 Overview of Sediment Diversions, that CPRA considered information from other diversions in its assessment of the Project alternatives, but because the projects mentioned by the commenters had been designed to discharge primarily water, not sediment, they are not fully comparable to the proposed Project. As explained in the EIS Chapter 4, Section 4.1.3 (Environmental Consequences, Overview of Delft3D Basinwide Model for Impact Analysis), Delft3D Basinwide Modeling software was used to assess impacts of the Project on hydrology, land gains and losses, water quality, and vegetation in the Barataria Basin and birdfoot delta. Using standard professional practice, this physics-based model was validated to the West Bay Sediment Diversion. The West Bay Sediment Diversion is useful for validating the physical processes of erosion and deposition of sediment because it, like the proposed MBSD Project, is a sediment diversion that extracts relatively more sediment in the river. The other diversions cited were designed to primarily deliver water, not sediment, and are less useful comparisons.

The West Bay Sediment Diversion has successfully deposited large amounts of sediment in the system and, in concert with beneficial uses of dredged material, built land. Kolker et al. (2012) reported, “A majority of the sediment transported through the West Bay Diversion apparently was deposited in the bay, and contributed to sub-aerial land formation, which contrasts with the view presented by Kearney et al. (2011) and Turner et al. (2007) that diversions do not lead to appreciable sediment accumulation” (Kolker, A. S., Miner, M. D. and Weathers, H. D. 2012. Depositional dynamics in a river diversion receiving basin: The case of the West Bay Mississippi River Diversion, Estuarine, Coastal and Shelf Science, 2012, <http://dx.doi.org/10.1016/j.ecss.2012.04.005>).

Comparing diversions outside of physics-based numerical modeling has limited value because diversions and receiving environments often exhibit unique behaviors that correlations do not account for. For that reason, the physics-based Delft modeling, even with its limitations and uncertainties, is a better predictor than anecdotal comparisons to Fort St. Phillip or other sites. Uncertainties associated with the validation

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and application of the Delft3D Basinwide Modeling conducted for the proposed Project were assessed by the West Bay application, sensitivity tests, and by the use of a Base-to-Plan (No Action Alternative compared to Action Alternatives) comparison method as described in EIS Appendix E Delft3D Modeling and incorporated into the EIS conclusions throughout Chapter 4 Environmental Consequences. While most citations mentioned by commenters were already included in the Draft EIS, the Final EIS has been edited to include Caffey and Petrola (2014) to Chapter 4, Section 4.6.5.1.2.4 Land Accretion.

The likelihood of success of the Project and information from other freshwater diversions was also considered in the LA TIG's Draft Restoration Plan, Sections 3.2.1.4 Likelihood of Success - Alternative 1 and 3.2.2.4 Likelihood of Success - Alternatives 2-6 of the Restoration Plan address the likelihood of success of the Project and other Action Alternatives. The proposed MBSD Project's goal is ecosystem restoration through the reestablishment of sustainable deltaic processes, only one of which is land building. The computer and physical models used to analyze Project benefits consider the geomorphological features of the Lower Mississippi River as of 2012, including data from the referenced projects. All citations referenced by the commenters were included in the Final EIS and were considered by the LA TIG in the Final Restoration Plan.

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**Concern ID: 62660**

**Commenters stated that the proposed Project will not provide the benefits described in the Draft Restoration Plan and EIS. The proposed Project will not stop the problems of sea-level rise and marsh erosion.**

**Response ID: 16633**

How sea-level rise and marsh erosion would affect the proposed diversion's land-building capability has been considered in the Draft EIS in Chapter 4, Section 4.2.3.2 Operational Impacts in Geology and Soils. In addition, sea-level rise and subsidence are explicitly accounted for in the Delft3D Basinwide Model projection of Project impacts, as described in Sections 3.2.4 and 3.2.3, respectively, of EIS Appendix E Delft3D Modeling.

The potential benefits of the Project and how those benefits relate to sea-level rise and marsh erosion have also been considered in the LA TIG's Draft Restoration Plan. The LA TIG agrees that the Project would not stop sea-level rise, subsidence or other erosive forces that result in marsh erosion. However, the Project is designed to counteract these forces by transporting sediment from the Mississippi River to create thousands of acres of marsh that would be sustained over decades, even in the face of erosion and rising sea levels (see Section 3.2.1.6 [Benefits Multiple Resources] in the Restoration Plan).

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**Concern ID: 62661**

**The Mississippi River is currently not capable of building land as it used to, in part because it does not carry as much sediment as it used to, and thus the proposed Project will fail. If it were capable of building land, there would be a large land mass at its current outlet.**

**Response ID: 16634**

The capability of the Mississippi River to support land building has been considered in the Draft EIS. For example, Chapter 3, Section 3.4.2.5 Sediment Transport discusses the available sediment in the Mississippi River, noting that studies had shown downward trends in sediment supply in the river through the 1990s, but that since then the volume of sediment (coarse and fine) in the water column has remained fairly constant. The river still carries a massive sediment load, but not as massive as before. The possible causes of the diminished sediment load include trapping by dams, hardening of banklines, improved farming practices, and other processes as described in the EIS in Chapter 3, Section 3.4.2.5 Sediment Transport. The EIS takes this diminished sediment load into account when computing the sediment load that would be delivered to the Barataria Basin via the proposed diversion. This is described in detail in Section 5.2.2 (River Discharge and Sediment Rating Curve) of Appendix E (Delft3D Modeling) to the EIS.

The LA TIG acknowledges the comment and understands the commenters' concern, and this was considered in the LA TIG's Draft Restoration Plan. The Mississippi River does carry a large plume of sediment into the Gulf of Mexico each year. A large delta exists at the mouth of the river, often requiring dredging to maintain navigation. Crevasses have been used to supplement land building in the birdfoot delta, confirming the ability of the river to build and maintain land. The size of the delta is limited by a number of factors, including the depth of the water at the mouth of the Mississippi River and the constant erosive forces affecting the Gulf of Mexico. By comparison, the Project is proposed to be constructed at RM 60.7 of the Mississippi River because this location is capable of capturing and retaining the sediments transported into the Barataria Basin by the Project (see EIS Chapter 2, Section 2.4.1.3 Application of Additional considerations to Potential Alternative Locations in Upper, Middle, or Lower Barataria Basin). As noted above, these issues and analyses are included in the EIS, and are also considered by the LA TIG in its identification of its Preferred Alternative in the Restoration Plan.

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**Concern ID: 62662**

**The proposed Project is likely to succeed because other diversions have also built land and restored ecosystems. Specific examples of land-building projects include the Caernarvon Freshwater Diversion, Davis Pond, West Bay, Fort St. Phillip, the Jaws, Wax Lake, and Mardi Gras Pass. Many of the benefits of the Project, in terms of soil creation and microbial processes, are not**

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**captured in the engineering of the modeling. Many of the fine sediments transported by the diversion cannot be dredged but are critical soil components.**

**Response ID: 16635**

The benefits to land building of fine sediments transported by the diversion were addressed in the Draft EIS in Chapter 4, Section 4.2.3.2 Operational Impacts in 4.2.3 Geology, Topography, and Geomorphology. The Delft3D modeling conducted for the EIS distinguishes the types of sediment (sands and fine sediments) that would be deposited in the basin. Table 5.2-1 in EIS Appendix E Delft3D Modeling lists the sediment classes included in the model. As described in EIS Chapter 4, Section 4.4.4 Hydrology and Hydrodynamics, sand and fine sediments would contribute to land building in the basin in two ways - by being resuspended and transported elsewhere for deposition and by forming a base layer upon which future pulses of sediment could form marsh or land. The model's physics-based computations showed that the coarser sands would settle out before the finer sediment. As the sediment builds up, discharge velocities would increase over the previously deposited sediment and resuspend it, pushing it farther into the basin. Thus, the model reproduces the natural process of delta building in which successive waves of sediment push farther out, either forming land/marsh or creating a base upon which land/marsh can be formed without moving it by dredging and placement. In addition, Chapter 4, Section 4.2.3 Geology, Topography, and Geomorphology of the EIS discusses the geomorphic impacts of diversion operations, including the Wax Lake Outlet, the Caernarvon Freshwater Diversion, the Davis Pond Freshwater Diversion, the Bohemia Spillway, and Bonnet Carré Spillway, and Mardi Gras Pass.

The likelihood of the Project's success and its potential benefits were considered in the LA TIG's Draft Restoration Plan. As part of evaluating the Project and alternatives, the LA TIG considered the likelihood that the Project would succeed and achieve the LA TIG's goals. Sections 3.2.1.4 Likelihood of Success - Alternative 1 and 3.2.2.4 Likelihood of Success - Alternatives 2-6 of the LA TIG's Restoration Plan address the likelihood of success of the Project and other Action Alternatives. In addition, these sections note that the knowledge gained through the projects noted by the commenters has been applied in designing the Project and evaluating whether and how the Project would restore and sustain critical marshlands. A full description of the range of benefits that would be provided by the Project is also included in Section 3.2.1.6 Benefits Multiple Resources of the Restoration Plan.

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**Concern ID: 62659**

**The proposed Project is an experiment, and it is not possible to guarantee its alleged benefits.**

**Response ID: 16632**

The uncertainties associated with the Project's success were considered in the Draft EIS. While the benefits of the Project cannot be guaranteed, the EIS uses state-of-the-art modeling, including but not limited to the Delft3D Basinwide Model, to project the Project's beneficial and adverse impacts. These modeling projections of Project impacts include uncertainties. Following standard professional practice, model uncertainties are clearly stated in the EIS with respect to the model's quantitative results. Uncertainties are incorporated into the EIS impact conclusions and are briefly summarized in EIS Chapter 4, Section 4.1.3.3 Model Limitations and Uncertainty, and in detail in Section 8.0 Model Limitations and Uncertainties of EIS Appendix E Delft3D Modeling.

The likelihood of success of the Project was also considered in the LA TIG's Draft Restoration Plan. While recognizing the innovative nature of the proposed Project, the Restoration Plan discusses in detail the factors that would contribute to the Project's success. More specifically, Sections 3.2.1.4 (Likelihood of Success - Alternative 1) and 3.2.2.4 (Likelihood of Success - Alternatives 2-6) of the Restoration Plan address the likelihood of success of the Project and other Action Alternatives. In addition, such a sediment diversion has been extensively studied over several decades with the objective of designing and operating the proposed Project to provide a combination of land building and ecosystem benefits (see Section 3.2.1.4 [Likelihood of Success - Alternative 1] of the Restoration Plan). The Project would be monitored and adaptatively managed to meet its objectives (see the Monitoring and Adaptive Management Plan, Appendix R2 of the EIS).

The Mitigation and Stewardship Plan and the Monitoring and Adaptive Management (MAM) Plan provided in Draft EIS Appendix R were submitted by CPRA and represent a range of potential mitigation, stewardship, monitoring and adaptive management measures (collectively, measures). At the time of publication of the Draft EIS for public review, Appendix R contained draft Plans and CPRA had not identified which of the measures contained in those Plans it intended to implement. The Final EIS Appendix R contains the final Plans and specifies which measures CPRA and the LA TIG intend to implement. Generally, impact determinations discussed in the EIS represent anticipated Project effects without implementation of these measures except in instances where such measures are identified in the discussion. If any mitigation, monitoring or adaptive management measures are required by USACE as part of its approval of the Project, such measures would be required as special conditions of the Department of the Army (DA) Section 10/404 permit and would be listed in the permit, if one is issued. Implementation of specific measures contained in either Plan, but not included in the Section 10/404 permit as special conditions, would not be required by USACE.

USACE does not know whether any particular measure that is not a DA permit condition would be implemented. Measures that USACE currently contemplates as conditions of a DA Section 10/404 permit, if one is issued, are provided in Chapter 4, Section 4.27 Mitigation Summary of the EIS.

The LA TIG explains in Section 1.5 of the Final Restoration Plan that it anticipates requiring implementation of the Mitigation and Stewardship Plan, MAM Plan, and Marine Mammal Intervention Plan as components of the proposed Project, if the Project is approved by the LA TIG for funding. Decisions regarding which measures would be required as part of the LA TIG's funding decision would be set forth in the LA TIG Record of Decision related to the proposed Project.

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## EC40000 - Eval Standard- Benefits More Than One Resource

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**Concern ID: 62637**

**The proposed Project will benefit habitat, fish and wildlife, levee protection, flood control and navigation. These benefits will help protect coastal resources and communities in Louisiana.**

**Response ID: 16647**

The potential benefits of the Project were considered in the Draft EIS. As described in Chapter 4 (Environmental Consequences), the proposed Project would result in both beneficial and adverse effects on habitat, fish and wildlife, levee protection, flood control, and navigation, depending on the specific characteristics of the species or location involved (for example, a species' life history or salinity preferences, or a levee's height).

The potential benefits of the Project were also considered in the LA TIG's Draft Restoration Plan. As described in Section 3.2.1.6 (Benefits Multiple Resources) of the Restoration Plan, the proposed Project is expected to benefit multiple resources in the Barataria Basin and the northern Gulf of Mexico, including nearshore marine ecosystems, water column resources (including fish and invertebrates), birds, and terrestrial wildlife. The LA TIG also anticipates that the Project would provide public health and safety benefits to the populated areas north of the diversion through increased wetland acreage that would decrease storm surge and wave height.

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**Concern ID: 62638**

**The Restoration Plan should be clear that, as stated in the Progress Report on Coordination for Non-point Source Measures in Hypoxia Task Force states, the leading causes of increased amounts of nutrients delivered to the Gulf are upstream sources of nitrogen and phosphorus (that is, agriculture, atmospheric**

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<b>Response ID: 16649</b>	<p><b>deposition, urban runoff, and point sources like wastewater treatment plants).</b></p> <p>Chapter 3, Section 3.10.5.1.4 Nutrient Loading of the Final EIS has been revised to reference the Hypoxia Task Force report and further identify the types of anthropogenic sources that have resulted in increased nutrient loading in the Gulf.</p> <p>The LA TIG acknowledges the comment about the leading causes of increased amounts of nutrients being delivered to the Gulf and has revised Section 3.2.1.6.5 (Alternative 1 - Benefits to Offshore Ecosystems) of the LA TIG’s Final Restoration Plan accordingly.</p>
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## EC60000 – Eval Standard – Avoids Collateral Injury

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<b>Concern ID: 62634</b>	<p><b>The proposed Project would cause excessive harm to fisheries (for example, oysters and brown shrimp), dolphins, communities and recreational uses, which is unacceptable and would make its implementation a clear violation of OPA. OPA regulations states that proposed restoration actions should be evaluated by “the extent to which each alternative will prevent future injury as a result of the incident, and avoids collateral injury as a result of implementing the alternative”. Because the Project would injure species that were harmed by the Deepwater Horizon oil spill, it should not be implemented, even if it does benefit some habitats and species. Some commenters argued it was also inconsistent or in violation of the 2013 U.S. Court Consent Decree and the BP plea agreement relevant to the National Fish &amp; Wildlife Foundation (NFWF) funds.</b></p>
<b>Response ID: 16650</b>	<p>As explained in Section 2.0 of this Appendix B2 DEIS Public Review and Public Meetings, USACE is not evaluating the proposed Project for compliance with OPA and not involved in the process to restore damages caused by the DWH oil spill. Response content pertaining to the LA TIG’s Draft Restoration Plan, OPA, or NRDA processes represent solely the views of the LA TIG, not USACE.</p> <p>The potential collateral injuries of the proposed Project were considered in the LA TIG’s Draft Restoration Plan.</p> <p>OPA requires that Trustees develop and implement a plan for restoration, rehabilitation, replacement, or acquisition of the equivalent, of the injured natural resources under their trusteeship. See 33 U.S.C. § 2706(c). OPA further requires federal agencies to propose regulations for the “assessment of natural resource damages.” See § 2706(e). Under 2707(e)(2), any assessment of natural resource</p>

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damages made in accordance with these regulations creates a rebuttable presumption on behalf of a Trustee in any administrative or judicial proceeding under the Act.

As required by OPA 2706(e), NOAA developed regulations outlining a process for the assessment of natural resource damages. These regulations (hereinafter “NRDA regulations” at 15 CFR Part 990) also include a process for restoration planning, including the development and evaluation of restoration alternatives.

The 2016 U.S. Consent Decree with BP provides that monies received under the settlement for natural resource damages will be spent as outlined in restoration plans adopted by the Trustees consistent with 15 CFR 990. See Paragraph 19, and Appendix 2. The LA TIG’s Restoration Plan is consistent with 15 CFR 990.

Title 15 CFR §990.54 of the regulations outlines a number of areas in which a reasonable range of alternatives should be evaluated to select the preferred alternative. Recognizing that almost all restoration comes with some potential for collateral injury, one factor for evaluation is the extent to which each alternative will prevent future injury and avoid collateral injury. The potential for collateral injury does not preclude an alternative from selection, rather the Trustees must evaluate each alternative under multiple factors, and select a preferred alternative to meet the outlined restoration objectives.

The LA TIG, in selecting the Preferred Alternative in the Restoration Plan, evaluated a reasonable range of alternatives under the factors outlined in 15 CFR §990.54. The LA TIG strove to identify an alternative that would provide the right balance in terms of being cost-appropriate, meeting LA TIG goals, having a high likelihood of success, avoiding collateral injury, benefiting multiple resources, and protecting public health and safety. See Sections 3.2.4.7 (Identification of a Preferred Alternative), 3.2.1.5 (Alternative 1 – Avoids Collateral Injury), and 3.2.2.5 (Alternatives 2–6 – Avoids Collateral Injury) of the Restoration Plan. A project can harm species also harmed by the spill and still be an appropriate project. This is especially true for projects like sediment diversions that seek to reestablish deltaic processes that shaped the historic delta ecosystems and necessarily entails reverting the current ecosystem to a more natural state that was altered when Mississippi River flows were cut off by construction of levees. However, without the proposed Project, there would also be adverse impacts to some of the same species due to large-scale wetland loss over time, as is anticipated from ongoing sea-level rise, subsidence, and other existing stressors, which is anticipated to reduce the suitability of habitat for many of the species that currently occur in Barataria Basin.



The LA TIG recognizes that there are clear tradeoffs among the alternatives in terms of the likely benefits achieved and risks related to collateral injury and public health and safety. Given these tradeoffs, the LA TIG selected Alternative 1 as the Preferred Alternative in the Restoration Plan.

The LA TIG believes that a sediment diversion is the only way to achieve a self-sustaining ecosystem in the Barataria Basin that more closely resembles historic conditions. As described in Section 3.2.1.6 (Alternative 1 – Benefits Multiple Resources) of the Restoration Plan, this sustained ecosystem is expected to benefit many fish and wildlife species in the basin, including many of those negatively affected by the spill, such as red drum, blue crab, white shrimp, Gulf menhaden, and migratory waterfowl. These benefits to fish and wildlife species also would translate to benefits to recreational users who watch, fish, or hunt those species. In addition, these benefits would not only accrue throughout the Barataria Basin but, through the transport of productivity, also in the offshore ecosystems of the northern Gulf of Mexico. By reestablishing deltaic processes, the proposed Project is expected to enhance the ecological productivity of the estuary and improve food web dynamics that would provide benefit to the northern Gulf of Mexico ecosystem.

The LA TIG has selected the proposed Project as the Preferred Alternative in the Restoration Plan because it believes it is critical to achieving the overall goals of the Wetlands, Coastal, and Nearshore Habitats Restoration Type in the Final PDARP/PEIS, which include providing benefits across the interconnected northern Gulf of Mexico ecosystem, and placing particular emphasis on coastal and nearshore habitat restoration in the historical Mississippi River Delta plain in Louisiana. While recognizing the risks for collateral injury, the LA TIG believes the net benefits of the proposed Project would meet OPA's requirement of restoration, rehabilitation, replacement, or acquisition of the equivalent, of the natural resources injured by the spill.

The BP Plea Agreement as it applies to NFWF funds is not relevant here as the LA TIG is not authorizing the use of those funds for this Project. Even if it were applicable, the criminal plea agreement expressly contemplates the use of criminal penalties for sediment diversion in Louisiana.

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**Concern ID: 62635**

**The proposed Project would cause harm to some species and fisheries, and would increase flooding in some communities, and the EIS does not show that the proposed Project's benefits outweigh these harms. Other less harmful alternatives to the proposed Project should be considered to minimize impacts.**

**Response ID: 16651**

The range of alternatives evaluated in the EIS was based on the purpose and need statement set forth in Chapter 1, Section 1.4

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Purpose and Need of the EIS. USACE generally focused on the Applicant's purpose and need and considered the public's and other perspectives, including input from the LA TIG and cooperating agencies (identified in Section 1.8 Agency Roles and Responsibilities), and input from representatives of the Council for Environmental Quality (CEQ) and the Federal Permitting Improvement Steering Council (FPISC), in its process to define the Project purpose and need.

As described in Chapter 2 Alternatives of the Draft EIS, an alternatives screening process was conducted where screening criteria were identified and a range of alternatives were considered, including other available coastal restoration tools and methods. The screening criteria incorporated key concepts from the purpose and need statement (Chapter 1, Section 1.4) including: reconnecting and reestablishing deltaic processes between the Mississippi River and the Barataria Basin in a sustainable manner; delivering sediment, fresh water, and nutrients in a sustainable manner; supporting the long-term viability of existing and planned coastal restoration projects; helping to restore habitat and ecosystem services in the northern Gulf of Mexico injured by the DWH oil spill consistent with the SRP/EA #3; and consistency with the Louisiana Coastal Master Plan. Based on a review of the various alternatives against these criteria developed from the purpose and need, only large-scale sediment diversions with varying capacities were brought forward as alternatives to the Applicant's Preferred Alternative for detailed analysis in the Draft EIS. Details of the screening process including screening criteria are described in Chapter 2 Alternatives, Sections 2.2 through 2.5. The alternatives that did not meet the screening criteria were then eliminated from further detailed analyses as described in Section 2.6 Summary of Alternatives Considered But Eliminated From Detailed Analysis. Refer to Appendix D2 Eliminated Alternatives Matrix of the EIS for details on why these alternatives were not carried forward for further evaluation in the EIS.

Under relevant NEPA regulations, a cost-benefit analysis is not required for the EIS unless such a cost-benefit analysis is relevant to the agency's permit decision. USACE generally assumes that a permit applicant has made its own economic evaluation regarding the costs of a proposed project and therefore a cost-benefit analysis is not relevant to its decision. However, as part of its Section 10/404 permitting decision-making process, USACE also conducts a public interest review, which weighs the probable harms of the proposed action against its potential benefits.

The LA TIG is the group responsible for restoring natural resources and services within Louisiana that were injured by the DWH oil spill. In the LA TIG's Restoration Plan, the LA TIG also evaluates a range of alternatives and identifies its Preferred Alternative (sediment diversion with variable flow up to 75,000 cfs) as providing the right balance in

terms of likely benefits the Project would achieve and risks related to collateral injury for its NRDA decision. Title 15 CFR §990.54 of the NRDA regulations outlines the criteria that are used to evaluate a reasonable range of alternatives and select the preferred alternative. Recognizing that almost all restoration comes with some potential for collateral injury, one factor for evaluation is the extent to which each alternative will prevent future injury and avoid collateral injury. The potential for collateral injury does not preclude an alternative from selection, rather the Trustees must evaluate each alternative under multiple factors and select a preferred alternative to meet the outlined restoration objectives.

The LA TIG, in selecting the Preferred Alternative in the Restoration Plan, evaluates a reasonable range of alternatives under the factors outlined in 15 CFR §990.54. The LA TIG strove to identify an alternative that would provide the right balance in terms of being cost-appropriate, meeting LA TIG goals, having a high likelihood of success, avoiding collateral injury, benefiting multiple resources, and protecting public health and safety. See Sections 3.2.4.7 (Identification of a Preferred Alternative), 3.2.1.5 (Avoids Collateral Injury – Alternative 1), and 3.2.2.5 (Avoids Collateral Injury – Alternatives 2-6) of the Restoration Plan. A project can harm species also harmed by the spill and still be an appropriate project. This is especially true for projects like sediment diversions that seek to reestablish deltaic processes that shaped the historic delta ecosystems, and necessarily entails reverting the current ecosystem to a more natural state that was altered when Mississippi River flows were cut off by construction of levees. However, without the proposed Project, there would also be adverse impacts to some of the same species due to large-scale wetland loss over time, as is anticipated from ongoing sea-level rise, subsidence, and other existing stressors, which is anticipated to reduce the suitability of habitat for many of the species that currently occur in Barataria Basin.

The LA TIG recognizes that there are clear tradeoffs among the alternatives in terms of the likely benefits achieved and risks related to collateral injury and public health and safety. Given these tradeoffs, the LA TIG selected Alternative 1 as its Preferred Alternative in the Restoration Plan.

The LA TIG believes that a sediment diversion is the only way to achieve a self-sustaining ecosystem in the Barataria Basin that more closely resembles historic conditions. As described in Section 3.2.1.6 (Benefits Multiple Resources – Alternative 1) of the Restoration Plan, this sustained ecosystem is expected to benefit many fish and wildlife species in the basin, including many of those negatively affected by the spill, such as red drum, blue crab, white shrimp, Gulf menhaden, and migratory waterfowl. These benefits to fish and wildlife species also

would translate to benefits to recreational users who watch, fish, or hunt those species. In addition, these benefits would not only accrue throughout the Barataria Basin but, through the transport of productivity, also in the offshore ecosystems of the northern Gulf of Mexico. By reestablishing a deltaic process, the proposed Project is expected to enhance the ecological productivity of the estuary and improve food web dynamics that would provide benefit to the northern Gulf of Mexico ecosystem.

The LA TIG has selected the proposed Project as its Preferred Alternative in the Restoration Plan because it believes it is critical to achieving the overall goals of the Wetlands, Coastal, and Nearshore Habitats Restoration Type in the Final PDARP/PEIS, which include providing benefits across the interconnected northern Gulf of Mexico ecosystem, and placing particular emphasis on coastal and nearshore habitat restoration in the historical Mississippi River Delta plain in Louisiana. While recognizing the risks for collateral injury, the LA TIG believes the net benefits of the proposed Project would meet OPA's requirement of restoration, rehabilitation, replacement, or acquisition of the equivalent, of the natural resources injured by the spill.

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**Concern ID: 63752**

**Commenters questioned the slow pace of LA TIG restoration planning for marine mammals and noted several restoration actions that have already been submitted to the NRDA restoration project idea portal. They suggested that the LA TIG identify priorities for marine mammal restoration in Louisiana and prepare a Restoration Plan to implement those priorities without delay.**

**Response ID: 16652**

USACE is not evaluating the proposed Project for compliance with the OPA and is not involved in the process to restore the damage caused by the DWH oil spill. As explained in the Restoration Plan, the LA TIG is responsible for deciding the appropriate use of NRDA funds to restore natural resources injured by the DWH oil spill in the Louisiana Restoration Area. As explained in the Final EIS, Appendix B2 DEIS Public Review and Public Meetings, Section 2.0 Agency Roles in the Responses to Public Comments, response content pertaining to the LA TIG's Draft Restoration Plan, the OPA and/or NRDA processes or other Trustee Planning was developed by the LA TIG and states only the LA TIG's views. The LA TIG acknowledges the comments and notes that because the discussion of specific marine mammal restoration project ideas is beyond the scope of this particular restoration planning effort, no related edits have been made to the LA TIG's Restoration Plan.

The LA TIG recognizes the importance of expediency in restoration of all resources injured by the DWH oil spill, including marine mammals. In the 2016 NRDA settlement with BP, \$50M was allocated to the restoration of Marine Mammals in the Louisiana Restoration Area. Settlement payments from BP began in 2017 and will occur every year

for 15 years. Therefore, considerations must be made regarding the priority for expenditures of restoration dollars. There are additional implementation considerations that help to set the pace for restoration for all resources across the Gulf. Since the settlement, the LA TIG has approved two projects from the Marine Mammal allocation: the Assessment of Marine Mammal Physiological Responses to Low Salinity Exposure and the Louisiana Enhanced Marine Mammal Stranding Network. The LA TIG has also funded the Louisiana Marine Mammal Abundance, Distribution, and Density project from the Monitoring and Adaptive Management allocation.

It is imperative that the LA TIG maximize the effectiveness of restoration efforts for all resources, including marine mammals. Thoughtful, intentional restoration planning is the first step in that process. Considerable data needs exist in regard to the identification and prioritization of marine mammal stressors in Louisiana. In the LA TIG Monitoring and Adaptive Management Strategy (LA TIG 2021), the LA TIG identified fundamental objectives for marine mammals in Louisiana and data needs to support the development of SMART (smart, measurable, achievable, realistic, and time-bound) objectives. These objectives will guide the expenditure of monitoring and adaptive management funding to support better understanding of marine mammal needs in Louisiana and, in turn, support the prioritization of restoration actions for that resource.

The LA TIG will consider the Project suggestions submitted to the DWH project portal when planning for future restoration efforts. The LA TIG appreciates the submission of thoughtful ideas based on the experience and knowledge of our partners and citizens.

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**Concern ID: 63810**

**Commenters raised concerns about the consequences if the Project fails and who will pay to compensate those harmed by a failed project, including the tourism and seafood industries.**

**Response ID: 16653**

Each of the Alternatives analyzed in the EIS, except for the No Action Alternative, are expected to meet the purpose and need of the Project, and uncertainties in the quantum of impacts of the Project, both beneficial and adverse, are incorporated into the analyses included in Chapter 4, Environmental Consequences of the EIS. More specifically, salinity impacts of the Project are assessed using the Delft3D Basinwide Model, and this model's projections of future conditions include uncertainties. Uncertainties are incorporated into the EIS impact conclusions and are briefly summarized in the EIS in Chapter 4, Section 4.1.3.3 Model Limitations and Uncertainty, and in detail in Appendix E Delft3D Modeling, Section 8.0 Model Limitations and Uncertainties. Uncertainties related to the Marine Mammals impact analysis are summarized in detail in Chapter 4, Section 4.11.3.1 Marine Mammals, General Caveats to Impact Analysis Approach.

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The LA TIG expects the proposed Project to succeed for several reasons, which are discussed in Chapter 3, Section 3.2.1.4 (Likelihood of Success – Alternative 1) of the Restoration Plan.

With regard to fisheries impacts, the LA TIG notes that major, adverse impacts to shrimp and oyster fisheries are anticipated with or without the proposed Project. While the timing of those impacts may be somewhat accelerated with the proposed Project, major adverse impacts to shrimpers and oyster harvesters are likely regardless of whether the Project is constructed.

CPRA, as a member of the LA TIG, has chosen to focus its mitigation strategies and expenditures on establishing sustainable fisheries for oysters and shrimp rather than on compensating individual shrimpers or oyster harvesters for their particularized economic losses. The LA TIG believes that the provisions of its fishery mitigation plan, valued at approximately \$54 million, along with other restoration actions being funded by the LA TIG, as well as other programs funded by the State through LDWF, would help to achieve that goal and address the impacts of the proposed Project.

CPRA's fishery mitigation plan can be found in the Mitigation and Stewardship Plan included as Appendix R1 to the EIS. Although not being implemented to mitigate the effects of the MBSD, examples of separately funded restoration/fishery improvement actions include: the LA TIG's funding of \$10 million in public and private oyster reef enhancement through the Living Coastal and Marine Resources funding allocation, the LA TIG's funding of \$9.7 million in oyster broodstock reef enhancement through the Living Coastal and Marine Resources funding allocation, CPRA's allocation of \$2 million in adaptive management funding to support off-bottom oyster culture, the LA TIG's allocation of \$5.8 million in Living Coastal and Marine Resources funds to support the operations of the Voisin Hatchery, and the LA TIG's allocation of \$38 million in recreational use funds to support subsistence and recreational fisheries.

Expected Project impacts on recreation and tourism are summarized in Table 4.16-5 (Summary of Potential Impacts on Recreation and Tourism from Each Alternative) of the EIS. The Mitigation and Stewardship Plan (Appendix R1 to the EIS) includes funding to increase access to recreational fishing sites.

The Mitigation and Stewardship Plan and the Monitoring and Adaptive Management (MAM) Plan provided in Draft EIS Appendix R were submitted by CPRA and represent a range of potential mitigation, stewardship, monitoring and adaptive management measures (collectively, measures). At the time of publication of the Draft EIS for public review, Appendix R contained draft Plans and CPRA had not identified which of the measures contained in those Plans it intended to



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implement. CPRA expanded and refined the Final Mitigation and Stewardship Plan in response to community and resource agency input. The Final EIS Appendix R contains the final Plans and specifies which measures CPRA and the LA TIG intend to implement. Generally, impact determinations discussed in the EIS represent anticipated Project effects without implementation of these measures except in instances where such measures are identified in the discussion. If any mitigation, monitoring or adaptive management measures are required by USACE as part of its approval of the proposed Project, such measures would be required as special conditions of the Department of the Army (DA) Section 10/404 permit and would be listed in the permit, if one is issued. Implementation of specific measures contained in either Plan, but not included in the Section 10/404 permit as special conditions, would not be required by USACE. USACE does not know whether any particular measure that is not a DA permit condition would be implemented. Measures that USACE currently contemplates as conditions of a DA Section 10/404 permit, if one is issued, are provided in Chapter 4, Section 4.27 Mitigation Summary of the EIS.

The LA TIG explains in Section 1.5 of the Final Restoration Plan that it anticipates requiring implementation of the Mitigation and Stewardship Plan, MAM Plan, and Marine Mammal Intervention Plan as components of the proposed Project, if the Project is approved by the LA TIG for funding. Decisions regarding which measures would be required as part of the LA TIG's funding decision would be set forth in the LA TIG Record of Decision related to the proposed Project.

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## EC60100 – Geology/Soils

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### Concern ID: 61720

**The commenter requested that the EIS be revised to properly re-frame impact determinations within the context of the Delta Cycle. While a normally functioning delta includes one or more active delta lobes, it also includes several other older, abandoned, degrading delta lobes. These latter delta lobes have higher-salinity water, low sediment loads, and flora and fauna that are characteristic of higher-salinity waters, including estuarine aquatic species of very high commercial and recreational value. The proposed diversion's impact on these high-value species should not be considered adverse. Such conclusions are fundamentally erroneous because functional deltas require some active deltas, and some abandoned, degrading ones, at all times. One commenter explained that this idea has been best communicated by van Beek and Gagliano (1984) and Roberts (1997).**



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**Van Beek, J.L., and S.M. Gagliano. 1984. Renewal and Use of the Mississippi River Deltaic Plain. Water Science & Technology. 16 (3-4), 699-705.**

**Roberts, H. 1997. Dynamic Changes of the Holocene Mississippi River Delta Plain: The Delta cycle. Journal of Coastal Research, 13 (3), 605-627.**

**Response ID: 16169**

The commenter's suggestion to include a contextual description of the delta cycle was considered in the Draft EIS. Further, the commenter's concerns regarding the criteria used to evaluate the beneficial or adverse nature of impacts is acknowledged. To help address these concerns, additional discussions of the delta cycle, and the role that the diversion may play in this cycle, have been added to the Final EIS in Chapter 3, Sections 3.1.4.2 Barataria Basin and 3.2.1.1 Historical Context in Geology and Soils, and the literature mentioned in public comments has also been incorporated into this section. Additional discussion related to the Project's impacts on geomorphology and historic deltaic landforms has been added to the Final EIS in Chapter 4, Section 4.2.3.2.2.3 Geomorphology. It is important to note that, as identified in Chapter 2, Section 2.9 Summary of Environmental Consequences Under Each Alternative, the No Action Alternative is compared to existing conditions to understand the anticipated changes in the environment that would occur irrespective of the proposed Project. Thereafter, the anticipated environmental consequences of the Project action alternatives are compared to the results of the No Action Alternative analysis. Section ES.1 Introduction and Authority of the Executive Summary in the Final EIS has been revised to include this clarification.

The EIS includes extensive resource-specific explanations of why impacts are considered either beneficial or adverse in Chapter 4, Section 4.2 Geology and Soils. Section 4.2.2 Guidelines for Geology and Soils Impact Determinations specifically explains resource-specific definitions for minor, moderate, and major impacts. To further address concerns related to the classification of impacts, the USACE has added text to the Final EIS in the Executive Summary, Section ES.4.1 Geology and Soils to provide a more thorough overview of both adverse and beneficial impacts. The USACE is evaluating the projected impacts of the Project in the EIS. As part of its Section 10/404 permitting decision-making process, USACE also conducts a public interest review, which weighs the probable harms of the Project against its prospective benefits.

In making its NRDA decision for the proposed Project, the LA TIG would evaluate Project alternatives considering the OPA evaluation criteria in 15 CFR §990.54; public input; and proposed Project

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mitigation, stewardship, and monitoring and adaptive management measures.

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**Concern ID: 61768**

**The commenter stated that the Geology and Soils section of the Executive Summary is not detailed enough. For example, clarify what the 6 to 8 million cubic yards of dredging during construction is for and why it is described as a permanent, moderate, adverse impact; explain whether this dredging would impact artificial levees or the natural environment; and explain whether the dredged material placed in beneficial use sites would create as well as retain existing marsh. What this should also say is that the diversion is expected to actually decrease the rate of loss of existing marsh, in addition to creating new marsh.**

**Response ID: 16170**

The commenter's concerns regarding dredging that would be undertaken for the proposed Project and the clarity of description of the proposed MBSD Project's impacts on land loss rates were considered in the Draft EIS. To help address the concerns related to dredging, additional details about the proposed Project's impacts on geology and soils during construction have been added to the Executive Summary, Section ES.4.1 Geology and Soils of the Final EIS. Chapter 4, Section 4.2.3.1 in Geology and Soils also includes details about why dredging during construction is required and an explanation of the intensity and adverse or beneficial nature of these impacts.

To address concerns related to descriptions of land-change impacts of the proposed Project, a discussion to clarify currently ongoing and future projected land loss and the amount of land that would be created, sustained, or lost due to proposed diversion operations has also been added. This discussion has been added to the Executive Summary, Section ES.4.1 Geology and Soils and to Chapter 4, Section 4.2.3.2.2.1 Geology of the Final EIS.

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**Concern ID: 61770**

**The commenter requested that the Geology and Soils section of the Executive Summary clarify what restoration projects the following sentence alludes to and whether those birdfoot delta restoration projects have been successful in the past: "These [landloss] impacts in the birdfoot delta may be partially abated by improving the capture of sediment that is lost to the Gulf through other targeted restoration projects."**

**Response ID: 16171**

The issue raised by the commenter regarding the impact of other planned restoration projects that may abate projected land loss in the birdfoot delta due to diversion operations was addressed in the Draft EIS. Examples of reasonably foreseeable restoration projects aimed to retain sediment in the birdfoot delta are provided in Chapter 4, Section 4.25.2 (Geology and Soils section of Cumulative Impacts). The name of one of these restoration projects—the NRDA/CPRA-sponsored project Pass a Loutre Wildlife Management Area Crevasse Access

Project approved in the LA TIG Final Restoration Plan and Environmental Assessment #4—has been added to the Geology and Soils section ES.4.1 of the Executive Summary and to Chapter 4, Section 4.2.3.2.1 in Geology and Soils, Operational Impacts in the Final EIS. The successes of completed birdfoot delta crevasse restoration projects, such as the CWPPRA Delta Wide Crevasse Program, can be found on the CWPPRA website (<https://lacoast.gov/new/Default.aspx>).

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**Concern ID: 61771**

**The commenter expressed concern that the Geology and Soils section of the Executive Summary overstates the negative impact of the proposed diversion on wetlands in the Mississippi River birdfoot delta. Chapter 2 seems to suggest that between 6 and 10 percent of the flow in the river would be diverted from the birdfoot delta during operations. The commenter requested a more detailed explanation of how a diversion of between 6 and 10 percent of the flow of the river would decrease wetlands in the birdfoot delta by 45 percent. The commenter requested that this be explained in more detail.**

**Response ID: 16172**

The commenter's concern regarding the percentage of Project-induced land loss in the birdfoot delta relative to the No Action Alternative was considered in the Draft EIS. To help clarify, a discussion to further explain currently ongoing and future projected land loss and the amount of land that would be created, sustained, or lost due to proposed diversion operations has been added to the Final EIS in the Executive Summary, Section ES.4.1 Geology and Soils and to Chapter 4, Section 4.2.3.2.2.1 Geology.

As pointed out by the commenter, the Applicant's Preferred Alternative would divert about 6 percent of the flow and about 6 percent of the sediment load of the river (as analyzed by the Water Institute of the Gulf). As shown in the EIS, Chapter 4, Section 4.2.3.2.2.1 Geology, Table 4.2-4, the Applicant's Preferred Alternative would result in increased land loss in the birdfoot delta by about 3 to 6 percent during the first 4 decades of diversion operations and by 45 percent after 50 years of diversion operations.

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**Concern ID: 61772**

**The commenter pointed out that Figure 4.2-6 in Chapter 4, Section 4.2 Geology and Soils indicates that by 2070, total acres created by the Project in the basin would be about 10,000 acres. The commenter expressed concern that this contradicts the amount of land created by the Project as stated in the December 18, 2019 presentation by CPRA to the Myrtle Grove Homeowners Association.**

**Response ID: 16173**

The total acres projected to be created by the proposed Project were considered in the Draft EIS. The EIS contains projections derived from the most recent modeling efforts available by the Water Institute of the Gulf, and these projections may differ from those of earlier modeling

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efforts. A detailed overview of the modeling conducted to project land creation and land-loss impacts of the proposed MBSD Project is provided in Appendix E Delft3D Modeling of the EIS. To help further address these concerns, a discussion to clarify currently ongoing and future projected land loss and the amount of land that would be created, sustained, or lost due to proposed diversion operations has been added to the Executive Summary, Section ES.4.1 Geology and Soils and to Chapter 4, Section 4.2.3.2.2.1 Geology of the Final EIS.

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**Concern ID: 61774**

**The commenter referred to the recommendations made in McLindon et al. (2017), which stated that data collection is necessary to evaluate the potential for fault slip in the vicinity of the proposed MBSD Project. The commenter stated that in the absence of collecting data necessary to fully develop a probabilistic model for future fault slip events, the values provided in McLindon et al. (2017) can be used to make some framework estimates.**

**Response ID: 16175**

The commenters' concerns regarding the potential for fault slip of the Ironton fault in the vicinity of the proposed Project were considered in the Draft EIS. Further, the commenters' suggestions for acquisition and analysis of additional seismic, sediment core profile, and subsidence data in service of the development of predictive subsurface geological models as discussed in McLindon et al. (2017) is acknowledged. To address these concerns, additional language has been added to the Final EIS to make clear the potential, but unquantified, probability for slip events along the Ironton fault during operations of the proposed Project based upon the framework estimates in the McLindon et al. (2017) provided by the commenters. This additional discussion and a citation for McLindon et al. (2017) has been added to the Geology and Soils section of Chapter 4, Section 4.2.3.2.2.4 Faulting of the Final EIS.

McLindon, C.D., Dawers, N.A., Culpepper, D., Kulp, M.A., and McDade, E. 2017. Comments to the U.S. Army Corps of Engineers, New Orleans District in reference to the Environmental Impact Statement for the Mid-Barataria Sediment Diversion. 11 pg.

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**Concern ID: 61776**

**The commenter expressed concern that over recent decades, Louisiana has averaged losing a football field of land every 100 minutes. The proposed Project would take 8 years to construct and 20 years to build 17,400 acres of land. Meanwhile, the state would have lost 147,168 football fields (about 195,000 acres) of coastline waiting on this proposed Project.**

**Response ID: 16176**

The commenter's concerns regarding the pace of land loss occurring in the region and the acres projected to be created by the proposed Project over the 50-year analysis period were considered in the Draft EIS. To provide further insight into these tradeoffs, a discussion has been added to clarify currently ongoing and future projected land loss

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and the amount of land that would be created, sustained, or lost due to proposed diversion operations. This discussion has been added to the Executive Summary, Section ES.4.1 Geology and Soils and to Chapter 4, Section 4.2.3.2.2.1 Geology of the Final EIS. Additionally, as stated in Chapter 2, Section 2.8.1.3 Project Construction Activities, the proposed Project is expected to require 5 years to construct.

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**Concern ID: 61780**

**The commenter expressed concern that the proposed Project would cause detrimental land loss in the birdfoot delta that would cause the birdfoot delta and lower Plaquemines Parish to disappear. All that would be left would be upper Plaquemines Parish, which would be so small that decision makers would merge the parish with Orleans Parish.**

**Response ID: 16177**

The commenter's concerns regarding projected land change in the birdfoot delta and the Barataria Basin (both located in lower Plaquemines Parish) due to diversion operations were considered in the Draft EIS. As explained in Chapter 4, Section 4.2.3.2 Geology and Soils, Operational Impacts, the Project would increase the amount of land in the Barataria Basin, but land in the birdfoot delta would decrease. Under the No Action Alternative, land area in the birdfoot delta would be reduced from 62,800 acres in 2020 to 6,640 acres in 2070 due to sea-level rise and subsidence (see the Final EIS, Chapter 4, Section 4.2.3.2.1 No Action Alternative, Table 4.2-3 Model-projected Total Land Area under the No Action Alternative). By diverting sediment and water upriver, the proposed Project would result in an increased rate of loss in the birdfoot delta, as illustrated in Figure 4.2-7 (Model-projected Change in Land Area). The Project specifically is projected to result in a loss of 3,000 acres in the birdfoot delta by 2070 as compared to the No Action Alternative. Examples of reasonably foreseeable restoration projects aimed to retain sediment in the birdfoot delta are provided in Chapter 4, Section 4.25.2 (Geology and Soils section of Cumulative Impacts). To address concerns related to descriptions of land-change impacts of the proposed Project, a discussion has been added to clarify currently ongoing and future projected land loss and the amount of land that would be created, sustained, or lost due to proposed diversion operations. This discussion has been added to the Executive Summary, Section ES.4.1 Geology and Soils and to Chapter 4, Section 4.2.3.2.2.1 Geology of the Final EIS.

In the Draft Restoration Plan, the LA TIG recognized the potential collateral injuries associated with the Project, including potential land loss in the birdfoot delta. In selecting the preferred alternative, the LA TIG evaluated a reasonable range of alternatives under the factors outlined in the OPA evaluation criteria in 15 CFR §990.54. Additional detail can be found in the LA TIG's Restoration Plan explaining the LA TIG's evaluation of a range of alternatives and its identification of a

Preferred Alternative (sediment diversion with variable flow up to 75,000 cfs). The LA TIG believes that the Preferred Alternative provides the right balance in terms of the likely benefits the Project would achieve and the risks related to collateral injury for its NRDA decision. This evaluation was completed by the LA TIG for its restoration planning efforts. USACE did not participate in that process. See Sections 3.2.4.7, 3.2.1.5, and 3.2.2.5 of the LA TIG's Final Restoration Plan for more information about the LA TIG's selection of the Preferred Alternative.

Other restoration efforts in the Barataria Basin that are not part of the proposed MBSD Project may benefit land creation in the Barataria Basin. These are discussed in the EIS, Chapter 4, Section 4.25 Cumulative Impacts.

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**Concern ID: 62150**

**The land-building results of the Project presented in Chapter 4, Section 4.2 Geology and Soils should include consideration of potential reductions in land building due to hurricanes, which can have a significant impact on any build-up of land.**

**Response ID: 16178**

The commenter's concerns related to the effects of hurricanes and tropical storms on projected future land loss were considered in the Draft EIS; therefore, no related updates have been made to the Final EIS. The EIS includes extensive ADCIRC/SWAN modeling of storm surge and wave height elevation simulations based on historical hurricanes and tropical storms over the Project area for the 50-year analysis period. The details of these modeling efforts and the assumptions involved are provided in Chapter 4, Section 4.20 Public Health and Safety, including Flood and Storm Hazard Risk Reduction and in Appendix P (Flood and Storm Hazards Evaluation). Additional analysis regarding the potential impact of hurricanes on the extent of wetlands in the proposed Project area during operations is included in Chapter 4, Section 4.6.5.1 in Wetland Resources and Waters of the U.S. of the EIS.

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**Concern ID: 62152**

**The commenter questioned whether the basin would lose more land than what the proposed MBSD Project diversion would create on a day-to-day basis.**

**Response ID: 16179**

The commenter's concern regarding the rates of land loss and land projected to be built during diversion operations was considered in the Draft EIS. To further clarify, further discussion has been added of currently ongoing and future projected land loss and the amount of land that would be created, sustained, or lost due to proposed diversion operations. This discussion has been added to the Executive Summary, Section ES.4.1 Geology and Soils and to Chapter 4, Section 4.2.3.2.2.1 Geology of the Final EIS.

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**Concern ID: 62157****Since the 1930s, the Barataria Basin has lost more than 276,000 acres of land; if nothing is done, that number will nearly double in just 50 years.****Response ID: 16180**

The commenter's concerns regarding the rates of land loss in the region were considered in the Draft EIS in Chapter 3, Section 3.1.4 Overview and History of the Project Area and in Section 3.2.1 Geology, Topography, and Geomorphology. To clarify, a discussion has been added to further explain currently ongoing and future projected land loss and the amount of land that would be created, sustained, or lost due to proposed diversion operations. This discussion has been added to the Executive Summary, Section ES.4.1 Geology and Soils and to Chapter 4, Section 4.2.3.2.2.1 Geology of the Final EIS.

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**Concern ID: 62159****The land-building capabilities of this Project are highly exaggerated, and the EIS supports previous findings that the Project may actually accelerate land loss, increasing flood risks. The depletion of historic sediment loads of the Mississippi River is well documented. Given the projected 2000 to 3000-acre land loss in the birdfoot delta cited in the EIS, the projected land-building capabilities of the proposed Project is obviously exaggerated.****Response ID: 16181**

The Draft EIS has considered the commenter's concerns regarding the rates of land loss and land projected to be built during diversion operations. To help address these concerns, a discussion has been added to clarify currently ongoing and future projected land loss and the amount of land that would be created, sustained, or lost due to proposed diversion operations. This discussion has been added to the Executive Summary, Section ES.4.1 Geology and Soils and to Chapter 4, Section 4.2.3.2.2.1 Geology of the Final EIS.

Although the Mississippi River is carrying much less sediment than it did in the past, it still carries a massive sediment load. As explained in Chapter 3, Section 3.4.2.5 in Surface Water and Coastal Processes, the river formerly carried over 400 million tons of sediment annually, but a more than 50 percent reduction in annual sediment load has occurred since the early 1900s. Studies show that from 1968 through 2007 the overall annual sediment reduction has been more gradual, with the rate estimated as a loss of 1.1 million metric tons per year.. The possible causes of the diminished sediment load include trapping by dams, hardening of banklines, improved farming practices, and other processes. The Draft EIS Appendix E Delft3D Modeling Section 5.2.2 took this diminished sediment load into account when computing the sediment load that would be delivered to the Barataria Basin.

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**Concern ID: 62161****The commenter asked what is meant by "sustain 20 percent of the land" and further questioned whether this means the diversion**



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<b>Response ID: 16182</b>	<p><b>would retain 20 percent of the land that exists now in 2021 or 20 percent of the projected future amount of land in the basin.</b></p> <p>The commenter’s question regarding the meaning of the word “sustain” in describing the land building projected to take place during operation of the diversion has been considered. To help clarify, a discussion has been added to further explain currently ongoing and future projected land loss and the amount of land that would be created, sustained, or lost due to Executive Summary, Section ES.4.1 Geology and Soils and to Chapter 4, Section 4.2.3.2.2.1 Geology of the Final EIS.</p> <p>In the LA TIG’s Restoration Plan in Section 3.2.1.1 OPA Evaluation of the Alternatives - Alternative 1 Description, the LA TIG highlights that by 2070 (the end of the analysis period), the Project is projected to be responsible for creating or maintaining approximately 20 percent of the land that remains in the Barataria Basin at that time. To be clear, this represents the amount of land that would be created or maintained by the Project in 2070 divided by the total amount of land that would remain in the Barataria Basin without the Project in 2070.</p>
<b>Concern ID: 62162</b>	<p><b>The commenter stated that every day Louisiana loses an estimated 725 acres of wetlands, and the commenter is concerned about how this number, within the same time frame, compares to the amount of land proposed to be built by the Mid-Barataria Sediment Diversion Project. The commenter asked what the projected amount of land loss is estimated to be before balance is achieved once the Mid-Barataria Diversion operations begin.</b></p>
<b>Response ID: 16183</b>	<p>The commenter’s questions regarding the rates of land loss and land projected to be built during diversion operation were considered in the Draft EIS. The rate of land loss in Louisiana is discussed in the Draft EIS Chapter 3, Section 3.1.4. To clarify, a discussion has been added to further explain currently ongoing and future projected land loss without the proposed Project and the amount of land that would be created, sustained, or lost due to proposed Project diversion operations. This discussion has been added to the Executive Summary, Section ES.4.1 Geology and Soils and to Chapter 4, Section 4.2.3.2.2.1 Geology of the Final EIS.</p>
<b>Concern ID: 62163</b>	<p><b>The commenter noted that in addition to Project impacts on wetland creation, the Project would also capture fine-grained sediments and that would maintain existing wetlands, but that discussion lacks clarity. The EIS should more clearly explain that the Project would distribute silts and clays that would provide support for wetlands perhaps as distant as Bayou Lafourche.</b></p>
<b>Response ID: 16167</b>	<p>The impacts raised by the commenter were considered in the Draft EIS. As described in Chapter 4, Section 4.2.3 Geology, Topography, and Geomorphology of the EIS, sand and coarser-grained sediments would</p>

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be deposited in the outfall area within 0.5-mile of the diversion, while finer-grained sediment would be deposited farther gulfward in the basin. Land gains associated with the Project would primarily occur within 5.0 to 10.0 miles from the mouth of the diversion structure (see Chapter 4, Figures 4.2-2 through 4.2-4). To clarify, Chapter 4, Sections 4.2.3 Geology, Topography, and Geomorphology and 4.6.5.1 in Wetland Resources and Waters of the U.S. have been revised in the Final EIS to further address the importance of fine-grained sediments for marsh building and sustenance.

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**Concern ID: 62172**

**The commenter questioned what pipelines would traverse the sediment diversion between the back levee tie-ins and Bayou Dupont, which is located in the Barataria Basin, and what companies own these pipelines.**

**Response ID: 16406**

The commenter's concern regarding existing pipelines that would be impacted by the diversion were considered in the Draft EIS. The EIS describes pipelines currently known to be present in the Project area based on publicly available pipeline data sources in Chapter 3, Section 3.2.3 Mineral Resources, including ownership of those pipelines. The EIS describes potential impacts to existing pipelines in Chapter 4, Section 4.2.3 Mineral Resources.

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**Concern ID: 64682**

**The Delft3D Basinwide Modeling conducted to assess impacts of the proposed Project in the Draft EIS includes incomplete physical components, including a lack of consideration of geological faults, which McLindon et al. (2017) described as incompletely assessed.**

**Response ID: 16410**

The impacts raised by the commenter were considered in the Draft EIS. To clarify, additional language has been added to the Final EIS to make clear the potential, but unquantified, probability for slip events along the Ironton fault during operations of the proposed Project based upon the framework estimates in the McLindon et al. (2017) provided by the commenters. This additional discussion and a citation for McLindon et al. (2017) has been added to Chapter 4, Section 4.2.3.2.2.4 Faulting of the Final EIS.

The USACE agrees that the Delft3D Basinwide Model results include uncertainties. As discussed in Chapter 4, Section 4.1.3.3 in Approach to Evaluation of Environmental Consequences, and in detail in Appendix E (Delft3D Modeling, Section 8.0 Model Limitations and Uncertainties), those uncertainties were examined through sensitivity tests and by comparing the No Action Alternative to the Action Alternatives. The results of this comparison are provided in the EIS conclusions throughout Chapter 4 (Environmental Consequences).

As part of developing the EIS, the USACE, together with the members of the LA TIG, reviewed the Delft3D Basinwide Model, including its parameters, methods of validation and calibration, inputs for the

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alternative production runs used in the EIS, and outputs, and concluded that the Delft3D Basinwide Model production runs and outputs were adequate and sufficient to inform the proposed MBSD Project EIS impacts analysis of the alternatives.

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**Concern ID: 62173**

**This Project touts its ability to build a new river delta where one has never existed. That is not coastal “restoration.”**

**Response ID: 16407**

The issues raised by the commenter were considered in the Draft EIS. As shown in Figure 3.2-1 in Chapter 3, Section 3.2 Geology and Soils, much of the Barataria Basin was wetland and terrestrial habitat in the past. Historically, Mississippi River overbank flooding deposited sediment, fresh water, and nutrients into the Barataria Basin during annual flooding cycles, nourishing and sustaining wetland habitats. The EIS Chapter 1, Section 1.2.1 History of the Barataria Basin describes this historic process. To clarify this, discussions of the delta cycle in the Project area have been added to the Final EIS in Chapter 3, Sections 3.1.4.2 Barataria Basin and 3.2.1.1 Historical Context. Additional discussion related to the Project’s impacts on geomorphology and historic deltaic landforms has been added to Chapter 4, Section 4.2.3.2.2.3 Geomorphology of the Final EIS.

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**Concern ID: 61719**

**It would take 20 years for the Project to create land.**

**Response ID: 16168**

The commenter’s concern regarding the timeline required for land building was considered in the Draft EIS in Chapter 4, Section 4.2 Geology and Soils. A discussion has been added to clarify currently ongoing and future projected land loss and the amount of land that would be created, sustained, or lost due to proposed diversion operations. This discussion has been added to the Executive Summary, Section ES.4.1 Geology and Soils and to Chapter 4, Section 4.2.3.2.2.1 Geology of the Final EIS. In short, the diversion is projected to create 6,260 acres of land in Barataria Basin in its first 10 years of operation and 12,800 acres by 20 years of operation.

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**Concern ID: 62166**

**New developments, oil/gas explorations, housing construction, sewage treatment, and water usage are playing a huge role in subsidence in south Louisiana.**

**Response ID: 16184**

The commenter’s concerns related to ongoing regional subsidence and factors that have played a role in subsidence were considered in the Draft EIS. To further recognize these concerns, an additional background description of regional subsidence has been added to Chapter 3, Section 3.4.1.1 Relative Sea-level and Subsidence of the Final EIS.

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**Concern ID: 62168**

**The commenter questioned how the new sediment would sustain itself from sinking when more freshwater is added from the proposed diversion given that land subsidence is well documented with impacts ranging from changing drainage**

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**patterns and increasing flooding, to the destruction of critical infrastructure.****Response ID: 16185**

The commenter's concerns related to ongoing land subsidence were considered in the Draft EIS. Sea-level rise and subsidence were explicitly accounted for in the Delft3D Basinwide Model over a 50-year analysis period, as described in the Draft EIS Appendix E Delft3D Modeling, Sections 3.2.4 and 3.2.3, respectively. Chapter 4, Section 4.2 Geology and Soils explains how long land-building benefits of the proposed Project would endure during that 50-year period against the background of ongoing subsidence. Section 4.6 Wetland Resources and Waters of the U.S. discusses how sediment transported by the proposed diversion to the basin would not only create new wetlands, but also sustain existing and newly created wetlands. To further recognize concerns related to land subsidence, additional background description of regional subsidence has been added to Chapter 3, Section 3.4.1.1 Relative Sea-level and Subsidence of the Final EIS. To further clarify, a discussion has also been added to explain in more detail currently ongoing and future projected land loss and the amount of land that would be created, sustained, or lost due to proposed diversion operations. This discussion has been added to the Executive Summary, Section ES.4.1 Geology and Soils and to Chapter 4, Section 4.2.3.2.2.1 Geology of the Final EIS.

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**Concern ID: 62169**

**The EIS should discuss how much sediment (not sand sediment, but hard core clay and other core river bottom rocky soil) would be brought to the basin through the proposed MBSD Project diversion. The discussion should include a comparison of that with the amount of sediment needed to rebuild or replace 28 square miles of marsh islands and wetlands.**

**Response ID: 16186**

The commenter's concerns related to the composition and size distribution of sediments projected to be transported by the diversion were considered in the Draft EIS; therefore, no related edits have been made to the Final EIS. Creating and sustaining marshes requires the full range of sediment sizes from sand to fine sediment, and the proposed Project would transfer both sand and fine sediment into the basin from the river via the diversion channel. The EIS describes the anticipated size distribution of sediments projected to be transported into and retained in the Project outfall area in the Barataria Basin under the Applicant's Preferred Alternative in Chapter 4, Section 4.2.3.2 Operational Impacts in Geology and Soils. Chapter 3, Section 3.2 Geology and Soils describes existing sediment size distributions in the Barataria Basin, including both sand and fine-sediment components.

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**Concern ID: 62171**

**The commenter questioned whether water bottoms in the Barataria Basin would be damaged or submerged due to the river water entering the basin from the diversion. The commenter**

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**further questioned whether CPRA conducted very hardcore samples of the state water bottoms (in lieu of requiring examination of the bottoms with sonar).**

**Response ID: 16405**

The issues raised by the commenter were considered in the Draft EIS. Geotechnical borings were undertaken for the proposed Project throughout the Mid-Barataria Basin in 2015. Results of the geotechnical surveys were used by the Water Institute to develop the Delft3D Basinwide Model, which was used to assess proposed Project impacts on water bottoms in the Barataria Basin. The geotechnical survey reports were reviewed to characterize the geology and soils in the Project area in Chapter 3, Section 3.2 Geology and Soils. As described in the Bed Elevations section in Chapter 4, Section 4.4.4.2 in Surface Water and Coastal Processes, Operational Impacts, scour potential exists in the immediate outfall area as the diverted flow enters the marsh. However, as this section describes, CPRA engineered an outfall transition feature that would reduce the depth of the potential scour hole in the outfall area to no more than approximately 10 feet below the existing marsh bottom. Also described in Section 4.4.4.2, the proposed Project would have permanent, major (measurable and widespread) beneficial impacts on land building through raised bed (water bottom) elevations in the Barataria Basin, with the largest increases occurring within 10 miles of the diversion structure outlet (see Figure 4.4-3 and Table 4.4-3). No related edits have been made to the Final EIS.

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**Concern ID: 62544**

**The commenter expressed concern that adding more volume of fresh water from the Mississippi River into the Barataria Basin would not stop south Louisiana from sinking. Marsh islands, sand dunes, and estuaries provide protection of the shoreline from erosion, but even they would not stop south Louisiana from sinking. The commenter questioned how to solve this problem of subsidence as sea levels continue to rise in the Gulf.**

**Response ID: 16408**

The commenter's concerns related to ongoing regional subsidence were considered in the Draft EIS in Chapter 3, Section 3.2 Geology and Soils. To clarify, an additional background description of regional subsidence has been added to Chapter 3, Section 3.4.1.1 Relative Sea-level and Subsidence of the Final EIS. While subsidence would continue during Project operations, the Project would help offset some of its impacts. Sea-level rise and subsidence were explicitly accounted for in the Delft3D Basinwide Model over a 50-year analysis period, as described in the Draft EIS Appendix E Delft3D Modeling, Sections 3.2.4 and 3.2.3, respectively. Chapter 4, Section 4.2 Geology and Soils explains and illustrates in detail how long land-building benefits of the proposed Project would endure during that 50-year period against a background of ongoing sea-level rise and subsidence.

## EC60300 – Surface Water/Coastal Processes

**Concern ID: 61781**

**The commenter questioned whether modeling was conducted for the Draft EIS to determine where sand would settle in the basin, whether it would settle out near the diversion channel, and whether dredging would be required to remove the sand. Another commenter questioned whether water from the bottom of the river, where sediments are coarser, would be diverted to the basin.**

**Response ID: 16411**

The issues raised by the commenter were considered in the Draft EIS. The Delft3D Basinwide Modeling conducted by the Water Institute of the Gulf for CPRA for the EIS distinguishes the types of sediment that would be deposited in the basin. Yes, sands were included in the modeling. Table 5.2-1 in Appendix E Delft3D Modeling of the EIS lists the sediment classes included in the model. The model's physics-based computations showed that the coarser sands would settle out before the finer classes, as the commenter suggests. The model reproduces the natural process of delta building in which successive waves of sediment push farther out, either forming land/marsh or creating a base upon which land/marsh can be formed (without a need to move it by dredging and placement). CPRA plans to dredge specific areas within the proposed Project limits and within Barataria Basin as needed to operate and maintain the proposed Project, as described in Section 3.2 of EIS Appendix F Preliminary Operations Plan and in EIS Appendix R2 Monitoring and Adaptive Management (MAM) Plan. Likewise, dredging of navigation channels would be assessed and managed through CPRA's MAM Plan (Appendix R2 to the EIS). Dredging in the Barataria Basin is expected to maintain certain dredged navigation channels but not the emerging deltaic front. However, the MAM Plan (Appendix R2) does include consideration of additional measures should they be necessary.

The Mitigation and Stewardship Plan and the MAM Plan provided in the Draft EIS Appendix R were submitted by CPRA and represent a range of potential mitigation, stewardship, monitoring and adaptive management measures (collectively, measures). At the time of publication of the Draft EIS for public review, Appendix R contained draft Plans and CPRA had not identified which of the measures contained in those Plans it intended to implement. CPRA expanded and refined the Final Mitigation and Stewardship Plan in response to community and resource agency input. The Final EIS Appendix R contains the Final Mitigation and Stewardship Plan and specifies which measures CPRA intends to implement. Generally, impact determinations discussed in the EIS represent anticipated Project



effects without implementation of these measures except in instances where such measures are identified in the discussion. If any mitigation, monitoring, or adaptive management measures are required by USACE as part of its approval of the Project, such measures would be required as special conditions of the Department of the Army (DA) Section 10/404 permit and would be listed in the permit, if one is issued. Implementation of specific measures contained in either Plan, but not included in the Section 10/404 permit as special conditions, would not be required by USACE. USACE does not know whether any particular measure that is not a DA permit condition would be implemented. Measures that USACE currently contemplates as conditions of a DA Section 10/404 permit, if one is issued, are provided in Chapter 4, Section 4.27 Mitigation Summary of the EIS.

The LA TIG explains in Section 1.5 of the Final Restoration Plan that it anticipates requiring implementation of the Mitigation and Stewardship Plan, MAM Plan, and Marine Mammal Intervention Plan as components of the proposed Project, if the Project is approved by the LA TIG for funding. Decisions regarding which measures would be required as part of the LA TIG's funding decision would be set forth in the LA TIG Record of Decision related to the proposed Project.

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**Concern ID: 61782**

**Commenters expressed concern that there's not enough sediment in the river to achieve wetland and land creation goals of the proposed Project.**

**Response ID: 16412**

The commenter's concerns regarding the sediment load of the river and whether the river carries sufficient sediment to achieve the land projected to be built during diversion operation were considered in the Draft EIS. The Mississippi River carries much less sediment than it did in the past. It still carries a massive sediment load, but not as massive as before. As explained in Chapter 3, Section 3.4.2.5 Sediment Transport, the river formerly carried over 400 million tons of sediment annually, but a more than 50 percent reduction in annual sediment load has occurred since the early 1900s. Studies show that from 1968 through 2007 the overall annual sediment reduction has been more gradual, with the rate estimated as a loss of 1.1 million metric tons per year. The possible causes of the diminished sediment load include trapping by dams, hardening of banklines, improved farming practices, and other processes. Quantifying the relative contributions of multiple factors to the diminished sediment load is beyond the scope of the Draft EIS. The Draft EIS (Appendix E Delft3D Modeling, Delft3D Modeling Section 5.2.2) takes this diminished sediment load into account when computing the sediment that would be delivered to the Barataria Basin. To help clarify currently ongoing and future projected land loss and the amount of land that would be created, sustained, or lost due to proposed diversion operations, discussion has been added to the

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Executive Summary, Section ES.4.1 Geology and Soils and to Chapter 4, Section 4.2.3.2.2.1 Geology of the Final EIS.

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**Concern ID: 61783**

**The force of the water coming out of the proposed MBSD diversion into the basin would be greater than the proposed MBSD diversion's capability to build land.**

**Response ID: 16413**

The issue raised by the commenter was addressed in the Draft EIS. The Delft3D Basinwide Model used physics-based computations of the diversion flow's momentum (see Appendix E Delft3D Modeling, Section 5.1) to calculate the forces on sediment and resulting sediment movement (see Appendix E Delft3D Modeling Section 5.2). Those computations showed that the largest, heaviest sediment particles would settle out first and the smaller, lighter particles would be carried farther and deposited as the flow spreads out and slows down. These behaviors are consistent with the known physics of delta-building processes and demonstrate that the diversion would build land in the Barataria Basin.

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**Concern ID: 61784**

**The commenter expressed concern that proposed Project operations would divert Mississippi River waters toward the Mississippi Gulf Coast. The results would be far worse than the impact of opening the Louisiana spillways and would be permanent. The Mississippi Gulf Coast would see rising water levels that would intensify the effect of hurricanes. The commenter noted that other studies indicate this, but the Draft EIS does not mention impacts on the Mississippi Gulf Coast.**

**Response ID: 16414**

The geographic area of flooding and other impacts of the proposed Project were considered in the Draft EIS in Chapter 4, Section 4.4.4 Hydrology and Hydrodynamics and Section 4.20 Public Health and Safety, Including Flood and Storm Hazard Risk Reduction. As discussed and illustrated in these sections, the proposed Project would not have more than negligible impacts on the Mississippi Gulf Coast. The proposed Project would divert water into the Barataria Basin, on the west side of the Mississippi River, away from the Mississippi Gulf Coast, not toward it. No related edits have been made to the Final EIS.

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**Concern ID: 61785**

**The commenter stated that the USGS has conducted modeling that shows that sea-level rise, subsidence, and the frequency of hurricanes would not allow for benefits of diversions to last multiple decades. The commenter questioned whether these factors were taken into account in the modeling for the EIS.**

**Response ID: 16415**

Modeling conducted by the USGS (for example, Barras et al. 2003. Historical and projected coastal Louisiana land changes: 1978-2050: USGS Open File Report 03-334) was considered in the preparation of the Draft EIS. That work is based on extrapolation of past Barataria Basin behavior and is not directly comparable to the physics-based

Delft3D Basinwide Model used to assess the MBSD Project alternatives in the Draft EIS.

Sea-level rise and subsidence were explicitly accounted for in the Delft3D Basinwide Model, as described in the Draft EIS, Appendix E Delft3D Modeling, Sections 3.2.4 and 3.2.3, respectively. Potential land-change effects from hurricanes were not modeled as part of the Delft3D Basinwide Model. The rationale for that omission and explanation of how it was accounted for are provided in Appendix E Delft3D Modeling, Section 8.1. Storm modeling, described in Appendix P Flood and Storm Hazards Evaluation, included the effects of land building on storm surge and waves but did not simulate either erosion or deposition for reasons given in Appendix E, Section 8.1. No related edits have been made to the Final EIS.

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**Concern ID: 61786**

**The commenter stated that something that this Project does not consider is the number of sediments that are trapped upstream by dams farther north on the Mississippi River, calling into question whether there would be enough sediment in the river to build coastal wetlands in the basin. The commenter requested that a study be conducted to determine whether changes like the removal of dams would need to be made upstream of the diversion for the Project to achieve land and wetland creation goals.**

**National Academies Press. 2011. Sediment Management Alternatives and Opportunities. Missouri River Planning: Recognizing and Incorporating Sediment Management, 88-102.**

**Response ID: 16416**

The commenter's concerns regarding the sediment load of the river were considered in the Draft EIS. The USACE agrees that the Mississippi River is carrying much less sediment than it did in the past. It still carries a massive sediment load, but not as massive as before. As explained in Chapter 3, Section 3.4.2.5 Sediment Transport, the river formerly carried over 400 million tons of sediment annually, but a more than 50 percent reduction in annual sediment load has occurred since the early 1900s. Studies show that from 1968 through 2007 the overall annual sediment reduction has been more gradual, with the rate estimated as a loss of 1.1 million metric tons per year. As stated in the National Academies report cited by the commenter, the possible causes of the diminished sediment load include both trapping by dams and hardening of banklines. Other possible contributing factors include improved farming practices across the river basin, as explained in Chapter 3, Section 3.4 Surface Water and Coastal Processes. Quantifying the relative contributions of multiple factors to the diminished sediment load is a worthy research project, but beyond the scope of the Draft EIS. Appendix E Delft3D Modeling, Section 5.2.2 of the EIS takes the diminished sediment load into account when

computing the sediment load that would be delivered to the Barataria Basin. The National Academies Press (2011) citation has been added to the discussion in Chapter 3, Section 3.4.2.5.1 Historical Context in Surface Water and Coastal Processes in the Final EIS.

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**Concern ID: 61787**

**The EIS used river hydrology information from as early as 1964 and no later than 2011. Current information was not used. The EIS should contain a hydrology report and the report should be based upon recent data.**

**Response ID: 16417**

The issue raised by the commenter was considered in the Draft EIS. The Mississippi River hydrologic boundary conditions used in the Delft3D Basinwide Model included continuous 50-year historical Tarbert Landing records from 1964 to 2013. For the Delft3D Basinwide Model hydrodynamic simulations, representative hydrographs were selected to represent each decade. The selection was the product of a statistical analysis performed by the Water Institute of the Gulf, as described in Draft EIS Appendix E Delft3D Modeling, Section 5.1.1. In addition, four additional Mississippi River annual hydrographs were selected to represent specific statistical characteristics including the 2011 hydrograph, as the commenter mentioned. It was selected because it represented a particular type of hydrograph - a high discharge, late spring flood. Later years, including those available when the modeling was performed, were considered but did not meet the selection criteria. No related edits have been made to the Final EIS.

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**Concern ID: 61788**

**The commenter stated that the Surface Water and Coastal Processes section of the Draft EIS Executive Summary is not detailed enough and impacts summarized should be explained in more detail.**

**Response ID: 16418**

The resource sections throughout Chapter 4 Environmental Consequences of the Draft EIS provide extensive detail for the impacts that are only summarized in the Executive Summary. The commenter should refer to Chapter 4 of the EIS for further explanations of the impact determinations and summaries presented in the Executive Summary. The requested level of detail is beyond the scope for the Executive Summary.

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**Concern ID: 62202**

**A contributing factor to rising water levels in the basin is the wind that blows from the south that increases tides all the way up to the northern end of the basin. The loss of the barrier islands and subsidence contribute to the south winds' increasing tides.**

**Response ID: 16419**

The commenter's concern about wind was considered in the Draft EIS. The USACE agrees that wind is an important factor in the estuary. The Delft3D Basinwide Model simulations conducted for the EIS included wind as described in EIS Appendix E Delft3D Modeling, Section 3.2.2.

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Likewise, subsidence was explicitly included in the model simulations as described in Appendix E Delft3D Modeling, Section 3.2.3.

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**Concern ID: 62209**

**There is little discussion in the Draft EIS about the amount of sediment that would be deposited beneath the water's surface by the diversion, changing bathymetry and making sediment available for resuspension and deposition on marsh surfaces far from the diversion.**

**Response ID: 16421**

The Draft EIS includes consideration and discussion of the benefits of the sediment that would be deposited below the Barataria Basin's water surface. Sediment deposited below the water surface can contribute in one of two ways - by being resuspended and transported elsewhere for deposition, as the commenter suggests, and by forming a base layer upon which future pulses of sediment can form marsh or land. These benefits are discussed in Chapter 4, Section 4.2.3.2 in Geology in Soils, Section 4.4.4 Hydrology and Hydrodynamics, and in Section 4.6 Wetland Resources and Waters of the U.S. They are part of the model computations described in Appendix E Delft3D Modeling and are fully incorporated in the results and conclusions of the Draft EIS. No related edits have been made to the Final EIS.

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**Concern ID: 62210**

**An important benefit of the Project is that it would introduce sediment that would not only build wetlands but also increase elevations across a hundred square miles in the basin, which would benefit some fish and wildlife. This would also reduce storm surge threats to nearby communities.**

**Response ID: 16422**

The beneficial impacts of sediment deposited below the Barataria Basin water surface were considered and incorporated in the Draft EIS in Chapter 4, Section 4.2.3 Geology, Topography, and Geomorphology; Section 4.4.4 Hydrology and Hydrodynamics; and in Section 4.6 Wetland Resources and Waters of the U.S. These processes are part of the model computations described in Appendix E Delft3D Modeling and are fully incorporated in the results and conclusions of the Draft EIS. Deposition of sediment by the proposed Project below the water surface would be beneficial to wetlands, fish, and wildlife by being resuspended and transported elsewhere for deposition, as the commenter suggests, and by forming a base layer upon which future pulses of sediment can form marsh or land.

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**Concern ID: 62211**

**The Project would provide prolonged sediment input so critical to this ecosystem and region.**

**Response ID: 16423**

The Draft EIS considered the benefits of sediment that the proposed Project would deposit into the Barataria Basin. It can contribute in numerous ways, including by being resuspended and transported elsewhere for deposition and by forming a base layer upon which future pulses of sediment can form marsh or land. These benefits are

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discussed in Chapter 4, Section 4.2.3 Geology, Topography, and Geomorphology, Section 4.4.4 Hydrology and Hydrodynamics, and in Section 4.6 Wetland Resources and Waters of the U.S. These processes are part of the model computations described in Appendix E Delft3D Modeling and are fully incorporated in the results and conclusions of the Draft EIS. No related edits have been made to the Final EIS.

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**Concern ID: 64702**

**The commenter questioned whether proposed Project operations would change as sea-level rises in the future. The commenter also questioned at what level of sea-level rise would the proposed Project become useless.**

**Response ID: 16424**

The issue raised by the commenter was considered in the Draft EIS. Sea-level rise and subsidence were explicitly accounted for in the Delft3D Basinwide Model over a 50-year analysis period, as described in the Draft EIS Appendix E Delft3D Modeling, Sections 3.2.4 and 3.2.3, respectively. Chapter 4, Section 4.2.3 Geology, Topography, and Geomorphology and Section 4.6 Wetland Resources and Waters of the U.S. show in detail how long wetland and land-building benefits of the proposed Project would endure during the 50-year analysis period. Section 4.4.4 Hydrology and Hydrodynamics discusses in detail how long bathymetric (water bottom) benefits would endure during the 50-year period of analysis. As explained in the Draft EIS Appendix F2 Preliminary Operations Plan and summarized in Chapter 2, Section 2.8.1.4 Project Operations, operations would follow the standard operational procedures and emergency operations put forth in Appendix F2 Preliminary Operations Plan until the water levels in the Barataria Basin exceed those in the Mississippi River, at which time the structure would be closed.

For the diversion to become useless (defined for this discussion as no longer diverting sediment), sea level would have to rise by about 9 feet. At that level there would be insufficient water level difference between the Mississippi River and the Barataria Basin to push water, sediment, and nutrients through the structure. The USACE currently projected "High" rate of sea-level rise at Grand Isle, Louisiana, ([https://cwbi-app.sec.usace.army.mil/rccslc/slcc\\_calc.html](https://cwbi-app.sec.usace.army.mil/rccslc/slcc_calc.html); [https://cwbi-app.sec.usace.army.mil/rccslc/slcc\\_calc.html](https://cwbi-app.sec.usace.army.mil/rccslc/slcc_calc.html)) would produce a rise of 6.75 feet in 2100 (the last allowable year in the prediction tool). An unofficial extrapolation of the USACE's High and Low curves suggests that 9 feet of relative sea-level rise would occur at Grand Isle some time between 2120 and 2300.

As explained in the Draft EIS in Chapter 4, Section 4.2.3 Geology, Topography, and Geomorphology and Section 4.6 Wetland Resources and Waters of the U.S., although the amount of wetlands and land that the Project would build and sustain after the first 30 years of operation

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would diminish, the wetlands and land created or sustained by the Project would become a larger percentage of the total wetlands and land remaining in the basin, as the basin is overwhelmed by sea-level rise and subsidence. Further, throughout the 50-year analysis period of the EIS, the Project would continue to provide a suite of ecosystem service benefits including but not limited to nutrient input and increased freshwater habitat (for freshwater species and SAV) as discussed in the EIS Chapter 4, Section 4.10 Aquatic Resources and in the Restoration Plan, Section 3.2.1.6 Benefits Multiple Resources.

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## EC60400 – Surface Water/Sediment Quality

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**Concern ID: 61812**

**Commenters expressed concern that the proposed Project would have adverse water quality impacts in the Barataria Basin due to the introduction of nitrate and phosphate from the Mississippi River. Several commenters questioned whether the proposed Project would create harmful algal blooms and hypoxia in the Barataria Basin similar to the hypoxic “dead zone” in the Gulf of Mexico that exists due to nutrients in Mississippi River waters. One commenter expressed concern that the EIS does not adequately assess the potential for the proposed Project to create algal blooms and hypoxia in the basin, other than acknowledging it.**

**Response ID: 16425**

The impacts raised by the commenters were considered in the Draft EIS. As discussed in the EIS, Chapter 4, Section 4.5 Surface Water and Sediment Quality, while increases in both nitrogen and phosphorus concentrations in the Barataria Basin are projected by the Delft3D Basinwide Model to occur as a result of proposed Project operations, monthly dissolved oxygen concentrations are not projected to fall below the water quality criterion of 5 mg/L at the six stations evaluated in the basin over the 50-year analysis period.

According to USEPA’s Mississippi River/Gulf of Mexico Hypoxia Task Force “Hypoxia 101” webpage, hypoxic waters have dissolved oxygen concentrations of less than 2 to 3 mg/L. Hypoxia can be caused by a variety of factors, including excess nutrients and waterbody stratification (layering) due to saline or temperature gradients. The hypoxic zone in the Gulf of Mexico is a result of excess nutrients from the Mississippi/Atchafalaya River and seasonal stratification (layering) of waters in the Gulf. As nutrient-laden water from the Mississippi flows into the Gulf, this fresh water is less dense and remains above the denser saline seawater. In addition to the saline gradient caused where the fresh water and saline water meet, the fresh water is warmer than the deeper ocean water, further contributing to the stratification.

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This stratification prevents the mixing of oxygen-rich surface water with oxygen-poor water on the bottom of the Gulf. Without mixing, oxygen in the bottom water is limited and the hypoxic condition remains. In the Gulf hypoxic zone “water near the bottom of the Gulf contains less than two parts per million of dissolved oxygen” (<https://www.epa.gov/ms-hhf/northern-gulf-mexico-hypoxic-zone#:~:text=The%20hypoxic%20zone%20in%20the.condition%20referred%20to%20as%20hypoxia.>)

Dissolved oxygen concentrations associated with the Applicant’s Preferred Alternative are projected to generally increase in the Barataria Basin during the modeled period as compared to the No Action Alternative, which would decrease the potential for hypoxia to occur. Further, vegetative growth projected by the Delft3D Basinwide Model to occur due to Project operations is expected to utilize the nutrients diverted from the Mississippi River, resulting in lower concentrations of nutrients occurring in the Barataria Basin and reaching the Gulf through Barataria Bay than would reach the Gulf through the Mississippi River. As mentioned in Section 4.5.5.1 in Surface Water and Sediment Quality of the EIS, the majority of the Barataria Basin is shallow and not typically prone to stratification that promotes hypoxic conditions. The shallow nature of the Barataria Basin allows for full water column mixing by wind and tidal action, reducing the opportunity for algae to establish to the extent that would cause hypoxia. The Delft3D Basinwide Model’s dissolved oxygen results do not suggest that Project implementation would result in oxygen concentrations below the 5 mg/L water quality criterion in Barataria Basin. To make this clearer in the Final EIS, language indicating that the Delft 3D Basinwide Model results do not suggest that a significant hypoxic zone will form in Barataria Basin due to project implementation has been added to Section 4.5.5.2 Applicant’s Preferred Alternative in Surface Water and Sediment Quality of the Final EIS. Furthermore, as explained in Section 4.25.5.2 of the Cumulative Impacts section of the EIS, if the Mid-Breton Sediment Diversion is permitted, the combined impact of Mississippi River diversions operating simultaneously may reduce nutrient flow from the river to the Gulf, having a beneficial impact on the Gulf of Mexico hypoxic zone.

Aquatic resource impacts associated with algal blooms (caused by excess nutrients such as nitrate and phosphate) are addressed in Chapter 4, Section 4.10.4.4 in Aquatic Resources of the EIS. A reference to this section is included in Section 4.5.5.3 in Surface Water and Sediment Quality and has been added to Section 4.5.5.4.2 Applicant’s Preferred Alternative of the Final EIS. Finally, the EIS acknowledges the potential for major adverse Project impacts from harmful algal blooms to occur, and that the formation of these blooms is



not well understood by the scientific community (see Section 4.26.4 in Additional Considerations in Planning).

Appendix R2 Monitoring and Adaptive Management (MAM) Plan of the EIS includes monitoring of nutrients, as well as phytoplankton species composition (including harmful cyanobacterial/algal bloom species) if warranted, in the Barataria Basin during Project operations to guide CPRA's management actions.

The Mitigation and Stewardship Plan and the MAM Plan provided in the Draft EIS Appendix R were submitted by CPRA and represent a range of potential mitigation, stewardship, monitoring and adaptive management measures (collectively, measures). At the time of publication of the Draft EIS for public review, Appendix R contained draft Plans and CPRA had not identified which of the measures contained in those Plans it intended to implement. The Final EIS Appendix R contains the final Plans and specifies which measures CPRA and the LA TIG intend to implement. Generally, impact determinations discussed in the EIS represent anticipated Project effects without implementation of these measures except in instances where such measures are identified in the discussion. If any mitigation, monitoring, or adaptive management measures are required by USACE as part of its approval of the proposed Project, such measures would be required as special conditions of the Department of the Army (DA) Section 10/404 permit and would be listed in the permit, if one is issued. Implementation of specific measures contained in either Plan, but not included in the Section 10/404 permit as special conditions, would not be required by USACE. USACE does not know whether any particular measure that is not a DA permit condition would be implemented. Measures that USACE currently contemplates as conditions of a DA Section 10/404 permit, if one is issued, are provided in Chapter 4, Section 4.27 Mitigation Summary of the EIS.

The LA TIG explains in Section 1.5 of the Final Restoration Plan that it anticipates requiring implementation of the Mitigation and Stewardship Plan, MAM Plan, and Marine Mammal Intervention Plan as components of the proposed Project, if the Project is approved by the LA TIG for funding. Decisions regarding which measures would be required as part of the LA TIG's funding decision would be set forth in the LA TIG Record of Decision related to the proposed Project.

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**Concern ID: 61815**

**The discussion in Chapter 3 of excessive nutrient (N and P) loads that create hypoxic conditions treats the problem as a global issue without mentioning the large annual hypoxic zone that forms each year in the proposed Project area.**

**Response ID: 16426**

The Gulf of Mexico hypoxic zone was considered in the Draft EIS in Chapter 3, Section 3.5 Surface Water and Sediment Quality. The proposed Project would not have more than negligible impacts on the

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Gulf of Mexico hypoxic zone because it is located outside of the Project's area of potential impacts (defined in Chapter 3, Section 3.1.1 [Project Area] of the Draft EIS). Although the Gulf hypoxic zone is not expected to be impacted by proposed diversion operations, because it is near the proposed Project area, the USACE did include a description and map of the Gulf hypoxic zone in Section 3.5.2.6 in Surface Water and Sediment Quality (see Figure 3.5-6). In response to this comment, the USACE has revised the title of Section 3.5.2.6 (Dissolved Oxygen) to 3.5.2.6 (Dissolved Oxygen and Hypoxia) in the Final EIS so that information about hypoxia in and near the proposed Project area can be more readily found by EIS readers. As explained in the EIS, Chapter 4, Section 4.25.5.2 in Cumulative Impacts, the combined impact of several Mississippi River diversions operating simultaneously may reduce nutrient flow from the river to the Gulf, having a beneficial impact on the Gulf of Mexico hypoxic zone. Chapter 4, Section 4.25.5.4.4 Nitrogen and Section 4.25.5.4.5 Phosphorus in Cumulative Impacts of the Final EIS have been updated to include a summary of the Gulf Hypoxia Action Plan.

**Concern ID: 62264**

**The commenter expressed concern that the Draft EIS understates the proposed Project's potential impacts on nitrogen and phosphorus in the Barataria Basin and requested that the Final EIS explain how nitrogen (N) to Phosphorus (P) ratios (N:P) indicate the health of waters. While a portion of LDEQ's narrative nutrient criteria calls for the maintenance of natural N:P ratios, this does not account for the fact that while ratios might remain relatively constant, the loading of N and P would certainly increase, likely resulting in increased algal growth (and potentially toxic algae blooms and hypoxic areas). The Draft EIS only refers to half of LDEQ's narrative nutrient criteria, leaving out the half stating that nutrient concentrations that produce aquatic growth that it creates a public nuisance or interferes with designated water uses shall not be added to any surface waters. (L.A.C 33:IX.1113.B.8). The commenter further explained that this portion of the criteria is arguably the most important, as it refers to actual impacts of nitrogen and phosphorus pollution. The commenter stated that the Draft EIS also fails to consider USEPA or other proposed numeric criteria. It is difficult to understand how the authors can make impact determinations when no consideration was given to half of the narrative nutrient criteria and no numeric nitrogen and phosphorus goals are given.**

**Response ID: 16438**

In response to this comment, the USACE has added the full narrative nutrient criteria statement to Chapter 3, Section 3.5.2.4 in Surface Water and Sediment Quality and to Chapter 4, Sections 4.5.5.3 and 4.5.5.4 in the Surface Water and Sediment Quality. As explained in Section 3.5.2.4, "the EPA generated sub-ecoregion reference condition

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metrics for total nitrogen (0.71 milligrams/liter[mg/L]) and total phosphorus (0.125 mg/L) for the Mississippi River and Barataria Basin concentrations (USEPA 2001). It is important to note that the reference metrics provide a numerical value to compare the Mississippi River and the Barataria Basin nutrient concentrations and are not intended to be used to evaluate waterbody status relative to the current narrative nutrient criterion.” The USEPA reference metrics, however, are not enforceable criteria.

Proposed Project impacts associated with nutrient loading and algal blooms are addressed in Section 4.10.4.4 in Aquatic Resources of the Final EIS. A reference to Section 4.10 is included in Section 4.5.5.3 in Surface Water and Sediment Quality of the Draft EIS. A reference to Section 4.10 Aquatic Resources has been added to Section 4.5.5.4 (Phosphorus) of the Final EIS. Clarifying language has been added to Sections 4.5.5.3, 4.5.5.4, and 4.25.5.4 in Cumulative Impacts. Appendix R2 Monitoring and Adaptive Management (MAM) Plan includes proposed monitoring of nutrients, as well as phytoplankton species composition (including harmful cyanobacterial/algal bloom species), in the Barataria Basin during proposed Project operations to guide CPRA’s management actions.

The Mitigation and Stewardship Plan and the MAM Plan provided in the Draft EIS Appendix R were submitted by CPRA and represent a range of potential mitigation, stewardship, monitoring and adaptive management measures (collectively, measures). At the time of publication of the Draft EIS for public review, Appendix R contained draft Plans and CPRA had not identified which of the measures contained in those Plans it intended to implement. The Final EIS Appendix R contains the final Plans and specifies which measures CPRA and the LA TIG intend to implement. Generally, impact determinations discussed in the EIS represent anticipated Project effects without implementation of these measures except in instances where such measures are identified in the discussion. If any mitigation, monitoring, or adaptive management measures are required by USACE as part of its approval of the Project, such measures would be required as special conditions of the Department of the Army (DA) Section 10/404 permit and would be listed in the permit, if one is issued. Implementation of specific measures contained in either Plan, but not included in the Section 10/404 permit as special conditions, would not be required by USACE. USACE does not know whether any particular measure that is not a DA permit condition would be implemented. Measures that USACE currently contemplates as conditions of a DA Section 10/404 permit, if one is issued, are provided in Chapter 4, Section 4.27 Mitigation Summary of the EIS.

The LA TIG explains in Section 1.5 of the Final Restoration Plan that it anticipates requiring implementation of the Mitigation and Stewardship

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Plan, MAM Plan, and Marine Mammal Intervention Plan as components of the proposed Project, if the Project is approved by the LA TIG for funding. Decisions regarding which measures would be required as part of the LA TIG's funding decision would be set forth in the LA TIG Record of Decision related to the proposed Project.

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**Concern ID: 62255**

**Commenters expressed concern that during proposed MBSD diversion operations, contaminated sediments from the Mississippi River may be routed to the Barataria Basin, where they would cause adverse impacts. One commenter stated concern that because the dilution capacity of the basin is less than that of the Mississippi River, contaminants routed to the basin via the diversion would reach toxic levels because basin waters would not sufficiently dilute the sediment.**

**Response ID: 16434**

Impacts related to contaminated sediment raised by the commenters were considered in the Draft EIS. As noted in Chapter 4, Section 4.5.5.10 in Surface Water and Sediment Quality, recent evaluations of Mississippi River sediments in the vicinity of the proposed Project intake structure indicate that they are free from contaminants at concentrations that would result in detrimental impacts. The dilution referenced in Chapter 3, Section 3.5.3.1 in Surface Water and Sediment Quality refers to movement along the entire length of the river from Minnesota to Louisiana and is not meant to imply that dilution is occurring or needed to dilute elevated concentrations in the proposed Project area. In response to these comments, the USACE has edited Section 3.5.3.1 in Surface Water and Sediment Quality to make this clear in the Final EIS.

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**Concern ID: 61826**

**Commenters expressed concern that proposed Project operations would disturb existing oil sediment (from the DWH oil spill) in Barataria Bay.**

**Response ID: 16431**

As explained in Chapter 4, Section 4.4.4 in Surface Water and Coastal Processes, significant scour potential exists in the immediate outfall area of the diversion structure in the basin, which could disturb oiled sediments on water bottoms. However, based on surveys conducted during remediation efforts in the Barataria Basin in response to the DWH oil spill, oiling exposure did not occur in this area, as illustrated in Chapter 3, Section 3.10 Aquatic Resources, Figure 3.10-1 of the Draft EIS. With regard to DWH oiling exposure identified in remediation surveys throughout the rest of the Barataria Basin, proposed Project operations would deposit sediments on water bottoms, which would bury any oiled sediments. Where oiled sediment exists in the birdfoot delta, bed elevations are projected to decrease by 0.2 foot by 2070 as compared to the No Action Alternative (see Figure 4.4-3 in Section 4.4.4 in Surface Water and Coastal Processes) due to reduced sediment load reaching the delta in areas observed to be impacted by

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oil. Bed elevations in the birdfoot delta are projected to decrease under the No Action Alternative as well. Therefore, proposed Project operations are expected to negligibly disturb existing oil sediment from the DWH oil spill. Clarification has been added to Chapter 4, Section 4.5.5.10.2 Applicant's Preferred Alternative in Surface Water and Sediment Quality of the Final EIS.

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**Concern ID: 62261**

**The commenter expressed concern that excessive nutrients in fresh water diverted to the basin during proposed diversion operations could runoff into the Gulf during flooding events and storms. The commenter reported that this occurred in Texas during Hurricane Harvey, when storm-induced flooding inland caused polluted fresh water to travel to coral reefs more than 100 miles offshore in the Gulf. The commenter expressed concern that excess nutrients brought into the Barataria Basin from the Mississippi River via the diversion could add to the already ongoing problems of the hypoxic zone in the Gulf due to runoff events during flooding and storm events, which are becoming more frequent and intense because of climate change.**

**Response ID: 16437**

The issues raised by the commenters were considered in the Draft EIS. As discussed in Chapter 4, Section 4.5.5.5 in Surface Water and Sediment Quality, the proposed Project is not projected to cause monthly dissolved oxygen concentrations to fall below the water quality criterion of 5 mg/L during the 50-year analysis period throughout the Barataria Basin. In fact, dissolved oxygen concentrations associated with the Applicant's Preferred Alternative are projected to generally increase during the analysis period compared to projections for the No Action Alternative modeled by the Delft3D Basinwide Model. The Delft3D Basinwide Model accounts for the influence of algal growth on nutrient and dissolved oxygen concentrations. The Delft3D Basinwide Model results do not suggest that a significant hypoxic zone would form in the Barataria Basin due to proposed Project implementation. Language to this effect has been added to Section 4.5.5.5.2 Applicant's Preferred Alternative in Surface Water and Sediment Quality of the Final EIS.

As explained in Section 4.25.5.2 in Cumulative Impacts, Surface Water and Sediment Quality, the combined impact of several Mississippi River diversions operating simultaneously may reduce nutrient flow from the river to the Gulf, having a beneficial impact on the Gulf of Mexico hypoxic zone.

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**Concern ID: 61827**

**The Executive Summary, Section ES.4 (Surface Water and Sediment Quality) is not detailed enough. For example, clarify what criteria were used to classify proposed Project impacts on salinity, fecal coliform, and nutrients as minor, moderate, or major**

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<b>Response ID: 16432</b>	<b>impacts. Also, compare potential water quality impacts with LDEQ water quality standards.</b>  The water quality information requested by the commenter was included in the Draft EIS. Chapter 4, Section 4.5 Surface Water and Sediment Quality provides detailed information regarding the guidelines for impact intensity determinations, the data reviewed to evaluate impacts, how proposed Project impacts on water quality compare to LDEQ water quality standards, and a detailed discussion of the evaluation of proposed Project impacts on surface water and sediment quality. These details are beyond the scope of the Executive Summary.
<b>Concern ID: 61816</b>	<b>Commenters expressed concern that the proposed Project operations would increase the hypoxic “dead” zone in the Gulf.</b>
<b>Response ID: 16427</b>	The Gulf of Mexico hypoxic zone was discussed in the Draft EIS in Chapter 3, Section 3.5.2.6 in Surface Water and Sediment Quality. The proposed Project would not have more than negligible impacts on the Gulf of Mexico hypoxic zone because it is located outside of the Project’s area of potential impacts (defined in Chapter 3, Section 3.1.1 [Project Area] of the Draft EIS). Vegetative growth expected to occur in the Barataria Basin due to Project operations is expected to utilize the nutrients diverted from the Mississippi River, resulting in lower concentrations of nutrients occurring in the Barataria Basin and reaching the Gulf through Barataria Basin than would reach the Gulf through the Mississippi River. Although the Gulf hypoxic zone is not expected to be impacted by proposed diversion operations, because it is near the proposed Project area, the USACE did include a description and map of the Gulf hypoxic zone in Section 3.5.2.6 in Surface Water and Sediment Quality (see Figure 3.5-6). In response to public comments, the USACE has revised the title of Section 3.5.2.6 (Dissolved Oxygen) to 3.5.2.6 (Dissolved Oxygen and Hypoxia) in the Final EIS so that information about hypoxia in and near the proposed Project area can be more readily found by EIS readers. As explained in the EIS, Chapter 4, Section 4.25.5.2 in Cumulative Impacts, the combined impact of several Mississippi River diversions operating simultaneously may reduce nutrient flow from the river to the Gulf, having a beneficial impact on the Gulf of Mexico hypoxic zone.
<b>Concern ID: 61817</b>	<b>Commenters stated that information about the Gulf Hypoxia Action Plan (Louisiana Hypoxia Working Group), which calls for a 20 percent reduction in nitrogen and phosphorus loading to the Gulf by 2025, is pertinent to the Draft EIS but is not mentioned. Commenters requested that the plan should be included in the Final EIS.</b>
	<b>Mississippi River/Gulf of Mexico Watershed Nutrient Task Force. 2008. Gulf Hypoxia Action Plan 2008 for Reducing, Mitigating, and</b>

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**Controlling Hypoxia in the Northern Gulf of Mexico and Improving Water Quality in the Mississippi River Basin. Washington, DC.****Mississippi River/Gulf of Mexico Watershed Nutrient Task Force. 2013. Looking Forward, The Strategy of the Federal Members of the Hypoxia Task Force. Washington, DC.****Mississippi River/Gulf of Mexico Watershed Nutrient Task Force. 2016. December 2016 Update, Looking Forward, The Strategy of the Federal Members of the Hypoxia Task Force. Washington, DC.****Response ID: 16428**

The USACE and the LA TIG agree that the Gulf Hypoxia Action Plan is relevant to the proposed Project area. Therefore, in response to these comments, a discussion about the Gulf Hypoxia Action Plan has been added to Section 4.25.5.4.4 Nitrogen and 4.25.5.4.5 Phosphorus in Cumulative Impacts of the Final EIS. The Hypoxia Action Plan has highlighted the important role that river diversions could play in reducing nutrient loads. In addition, substantial nutrient load reduction could be achieved through the measures being implemented by the other states and entities involved with the Mississippi River/Gulf of Mexico Watershed Nutrient Task Force. These combined efforts could lessen the potential impacts of excess nutrient loads to Barataria Basin and the northern Gulf of Mexico.

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**Concern ID: 61819****Commenters expressed concern that the proposed Project would have adverse impacts on Barataria Basin's water quality, wetlands, fisheries, recreational uses, and eroding coastlines due to chemicals, oil and hazardous waste, and/or pollutants in the Mississippi River that would be routed to the Barataria Basin via the proposed diversion.****Response ID: 16429**

The impacts raised by the commenters were considered in the Draft EIS. As discussed in Chapter 3, Section 3.5.1.1 in Surface Water and Sediment Quality of the Draft EIS, the segment of the Mississippi River where the proposed diversion river intake structure would be located (subsegment LA070301\_00) fully supports its designated uses. Designated uses for this subsegment include swimming, boating, fishing, and drinking water supply. LDEQ's water quality assessment indicates that regulated substances are not present in concentrations that would cause a water quality impairment at the location of the intake structure. In response to this concern expressed by commenters, a new subsection has been added to Chapter 4, Section 4.5 Surface Water and Sediment Quality clarifying the potential impacts of nearby industrial facilities on river water routed to the basin during proposed Project operations. The new section is called 4.5.5.11 Hazardous Spills from Industrial Sites.

As described in the EIS, Chapter 2, Section 2.8.1.4 in Action Alternatives Carried Forward for Detailed Analysis and in Appendix F



MBSD Design and Operations Information, in the event of oil spills and other hazardous discharges into the Mississippi River upstream of the proposed MBSD intake structure, the diversion structure would be closed.

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**Concern ID: 61825**      **Diversion operations would occur during months with a high flow rate, which coincides with northern regional snow melt. The commenter expressed concern that the cold river water would have adverse impacts in the basin.**

**Response ID: 16430**      The impacts of water temperature from the river into the basin during proposed diversion operations were considered in the Draft EIS. As explained in Section 4.5.5.2 in Surface Water and Sediment Quality of the Draft EIS, the proposed Project would cause minor, intermittent decreases in water temperature during Project operations. As explained in Section 4.10.4.4 in Aquatic Resources, the proposed Project's overall direct and indirect impacts of decreased average temperatures and acute temperature changes on faunal populations at discrete locations and time periods in the Barataria Basin would likely be direct or indirect, minor to moderate, and adverse, and annually recurring and therefore permanent throughout the analysis period.

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**Concern ID: 62254**      **Commenters expressed concerns that hazardous substances spilled by industrial facilities upstream from the proposed diversion's intake structure in the Mississippi River could be routed to the Barataria Basin via the diversion during proposed Project operations. One commenter requested that because the Alliance Refinery is described in Chapter 3, Section 3.23 Hazardous, Toxic, and Radioactive Waste Assessment of the Draft EIS as having had past releases of petroleum and hazardous substances, hazardous waste violations under the Resource Conservation and Recovery Act (RCRA), and as having an active industrial landfill site, the Final EIS should assess the potential for the facility to discharge contaminated substances into the Barataria Basin via diversion flows.**

**Response ID: 16433**      The commenters' concerns regarding hazardous spills were considered in the Draft EIS. As discussed in Chapter 3, Section 3.5.1.1 in Surface Water and Sediment Quality, the receiving waterbody for industrial facilities along the Mississippi River upstream from the proposed Project's intake structure (LDEQ Mississippi River subsegment LA070301\_00), is not listed as impaired by LDEQ. Designated uses for this subsegment include swimming, boating, fishing, and drinking water supply. LDEQ's water quality assessment for subsegment LA070301\_00 indicates that regulated substances are not present at concentrations that would cause a water quality impairment. Industrial facilities, for example the Alliance Refinery, are regulated by LDEQ through permits that include monitoring and reporting requirements.

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Facilities are required to report any releases of oil or hazardous substances to water to LDEQ.

LDEQ's assessment of this subsegment of the river includes contributions from industrial facilities' regulated discharges to the Mississippi River. In the event of accidental spills of hazardous substances into the river, these facilities would follow their required Spill Prevention, Control, and Countermeasure (SPCC) and Stormwater Pollution Prevention (SWPP) plans to minimize impacts of accidental releases.

As described in Chapter 2, Section 2.8.1.4 in Action Alternatives Carried Forward for Detailed Analysis and in Appendix F MBSD Design and Operations Information, in the event of oil spills and other hazardous discharges into the Mississippi River upstream of the proposed MBSD intake structure, the diversion structure would be closed. In response to this concern, the USACE has added a new subsection to Chapter 4, Section 4.5 Surface Water and Sediment Quality clarifying the potential impacts of accidental spills of hazardous substances in the river during proposed Project operations. The new section is called 4.5.5.11 Hazardous Spills in the Mississippi River.

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**Concern ID: 62263**

**Commenters expressed concern that plastics and microplastics (including but not limited to PFAS) in the Mississippi River would be introduced into the basin through the proposed MBSD diversion, causing adverse impacts on wildlife and humans. Commenters stated that plastics never fully disintegrate, are poorly regulated, and have made their way into every part of the food chain. One commenter witnessed a major spill in the river of plastic pellets called “nurdles” that was never fully cleaned up.**

**Response ID: 16435**

The USACE acknowledges that microplastics and PFAS in surface water are currently not regulated. There are currently no data to determine whether PFAS concentrations in the Mississippi River are significantly different from concentrations in the Barataria Basin. There are no standards to evaluate whether PFAS concentrations are unacceptably elevated in the river or the basin.

The Draft EIS acknowledges that accidents and spills can occur unexpectedly in the river or in the basin. Public and private emergency response teams are available to minimize damage from such accidental releases. As described in Chapter 2, Section 2.8.1.4 in Action Alternatives Carried Forward for Detailed Analysis and in Appendix F MBSD Design and Operations Information, in the event of oil spills and other hazardous discharges into the Mississippi River upstream of the proposed MBSD intake structure, the diversion structure would be closed. Also in response to this concern, the USACE has added a new subsection to Chapter 4, Section 4.5 Surface Water and Sediment Quality clarifying the potential impacts of accidental spills of hazardous

substances in the river during proposed Project operations. The new section is called 4.5.5.11 Hazardous Spills in the Mississippi River.

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**Concern ID: 62260**

**The commenter stated support for the Applicant's Preferred Alternative and expressed concern that the Draft EIS overstates adverse impacts of the proposed Project associated with the input of freshwater into the Barataria Basin. The commenter explained that in the last 50 years, the basin has experienced numerous 100-year rainfall events that caused prolonged freshening events.**

**Response ID: 16436**

The commenter's support for the proposed MBSD Project is acknowledged. The commenter's concerns about Project impacts on the salinity of the Barataria Basin waters were considered in the Draft EIS. As projected by Delft3D Basinwide Modeling conducted to assess potential impacts of the proposed Project on resources such as water quality and salinity, the Project area is projected to experience increasing salinity due to sea-level rise and subsidence, in spite of prolonged rainfall events (see Chapter 4, Section 4.5.5.1 in Surface Water and Sediment Quality). As compared to the No Action Alternative, the Applicant's Preferred Alternative would cause permanent, minor (detectable over a small area) to moderate (observable over a large area, readily detectable in local areas) reductions in salinity in the Barataria Basin and permanent, minor increases in salinity in the birdfoot delta during proposed Project operations. These Project impacts on salinity would be beneficial for some wetland types and aquatic species and adverse for others (see Section 4.6 Wetland Resources and Waters of the U.S. and Section 4.10 Aquatic Resources for further details about the proposed Project's salinity impacts on wetlands and aquatic resources, respectively). No related edits have been made to the Final EIS.

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## EC60500 - Wetland Resources/Waters of the US

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**Concern ID: 63015**

**There are misrepresentations in the EIS about how nutrients in the river would spread out far from the sand deposition area to lower plant biomass belowground. Increasing nutrient loads from diversions would weaken soils, not strengthen soils.**

**The modern Mississippi River has nutrient concentrations that are much higher than when the mostly organic soils were created centuries ago (Turner et al. 2007) and may weaken soils by 30 percent, resulting in less belowground biomass, and change vegetation from being comprised of perennials to annuals (Turner et al. 2011). Increased flooding inundation, which is a consequence of river diversions, also weakens the belowground biomass of wetland plants (Morris et al. 2017) that may erode during high water events or from hurricanes (Kearney et al. 2011, Howes et al. 2010). Individual roots become weaker when exposed to ambient levels of nutrients found in the river (Hollis and Turner 2019a, b; Hollis and Turner 2021). The soil becomes**

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degraded, accumulates less biomass, and decomposes and erodes faster (Swarzenski et al. 2008, Hebert et al. 2020). The diversion of river water into the nearby marshes would almost certainly weaken soils, making them less resistant to wave energy and hurricanes. A striking example is the net loss of wetlands in the Davis Pond Diversion where increased land loss occurred beginning the year after the diversion opened (Turner et al. 2019). This is an area that has no significant sediment input.

Turner RE, Rabalais NN, Alexander RB, McIsaac G, Howarth RW 2007. Characterization of nutrient and organic carbon and sediment loads and concentrations from the Mississippi River into the northern Gulf of Mexico. *Estuaries Coasts* 30: 773-790.

Turner RE 2011. Beneath the wetland canopy: loss of soil marsh strength with increasing nutrient load. *Estuaries Coasts* 33 1084-1093.

Morris JT, Barber DC, Callaway JC, Chambers R, Hagen SC, Hopkinson CS, Johnson BJ, Megonigal P, Newbauer SC, Toxler T, Wigand C 2016. Contributions of organic and inorganic matter to sediment volume and accretion in tidal wetlands at steady state. *Earth's Future* 4, doi:10.1002/2015EF000334.

Kearney MS, Riter CA, Turner RE 2011. Freshwater diversions for marsh restoration in Louisiana: twenty-six years of changing vegetative cover and marsh area. *Geophys Res Lett* 38: L16405, doi:10.1029/2011GL047847

Hollis LO, Turner RE 2019a. The tensile root strength of *Spartina patens* varies with soil texture and atrazine concentration. *Estuaries and Coasts* 42: 1430-1439. doi: 10.1007/s12237-019-00591-5

Hollis LO, Turner RE 2019b. The tensile root strength of *Spartina patens*: response to atrazine exposure and nutrient addition. *Wetlands* 39(4): 759-775. Doi:10.1007/s13157-019-01126-1

Hollis LO, Turner RE 2021. The tensile root strength of *Spartina patens* declines with exposure to multiple stressors. *Wetlands Ecology and Management* 29: 143-153. Doi: 10.1007/s11273-020-09774-5

Howes NC, FitzGerald DM, Hughes ZJ, Georgiou IY, Kulp MA, Miner MD, Smith JM, Barras JA 2010. Hurricane-induced failure of low-salinity wetlands. *Proc Natl Acad Sci USA*; 107: 14014-14019.

Swarzenski CM, Doyle TW, Fry B, Hargis TG 2008. Biogeochemical response of organic-rich freshwater marshes in the Louisiana delta plain to chronic river water influx. *Biogeochem* 90:49-63.

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	<p><b>Hebert ER, Schubauer, JP-Berigan, C 2020. Effects of 10 yr of nitrogen and phosphorus fertilization on carbon and nutrient cycling in a tidal freshwater marsh. Limnology and Oceanography 65: 1669-1687</b></p> <p><b>Turner RE, Layne M, Mo Y, Swenson EM 2019. Net land gain or loss for two Mississippi River diversions: Caernarvon and Davis Pond. Restoration Ecology 27: 1231-1240. <a href="https://doi.org/10.1111/rec.13024">https://doi.org/10.1111/rec.13024</a></b></p> <p><b>Mo Y., Kearney M, Turner RE 2020. Excess nutrient impairs the resilience of coastal ecosystems to hurricanes: a long-term satellite and ground-based study for Louisiana coastal marshes. Environment International 138: 105409. <a href="https://doi.org/10.1016/j.envint.2019.105409">https://doi.org/10.1016/j.envint.2019.105409</a></b></p>
<b>Response ID: 16028</b>	<p>The literature cited by the commenters has been reviewed, including Turner et al. 2007, Turner et al. 2011, Morris et al. 2017, Kearney et al. 2011, Howes et al. 2010, Hollis and Turner 2019, Swarzenski et al. 2008, Hebert et al. 2020, Turner et al. 2019, and Mo et al. 2020, and Chapter 4, Section 4.6.5.1.2 Applicant's Preferred Alternative of the Final EIS has been revised to include additional analysis regarding the impact of nutrient input from the proposed Project on vegetation communities and soil shear strength.</p>
<b>Concern ID: 63016</b>	<p><b>The Carnarvon Diversion (and other diversions, such as the Naomi Siphon) did not build marsh but rather caused damage to the existing marsh, such as through the introduction of freshwater invasive plant species that clog available waterways, suffocating natural marsh grass, restricting water flow.</b></p>
<b>Response ID: 16029</b>	<p>A summary of select natural and man-made diversions in southeastern Louisiana, including the Caernarvon Diversion and Naomi Siphon, has been developed to compare the purpose and/or characteristics of these diversions to the proposed MBSD Project, and discuss their recorded impacts on the natural environment. This summary, which includes a discussion on changes to marsh extent and the presence of invasive plants, is available in Appendix U Summary of Select Natural and Man-made Diversions in Southeastern Louisiana of the Final EIS.</p>
<b>Concern ID: 63018</b>	<p><b>The proposed Project would cause land loss further out from the diversion structure and also destroy the brackish/saline marsh grasses, which provide storm surge protection, and replace them with less surge-resistant freshwater plants.</b></p>
<b>Response ID: 16030</b>	<p>Chapter 4, Section 4.6.5.1 in Wetland Resources and Waters of the U.S. of the Draft EIS acknowledged that the fresh water transported by the diversion may result in the loss of some wetlands in the immediate outfall area due to inundation during the initial period following commencement of operations. Further, the Delft3D Basinwide Model</p>

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projects inundation depths in the critical vegetation parameters to simulate vegetation losses and gains as a result of the diversion, as well as other sources of inundation (such as subsidence and sea-level rise).

However, salt- and brackish marsh vegetation would not be subjected to direct mortality due to the lower salinity of transported water. While saline and brackish species are associated with salinity ranges of greater than 18 ppt and between 18 and 5 ppt, respectively (see Chapter 3, Section 3.6.1.2 in Estuarine Wetlands of the Draft EIS), brackish marsh can fluctuate from fresh to saline conditions depending on tidal movement, and species such as *Spartina alterniflora* are common in both salt and brackish marsh (Conner and Day 1987). Salt is a stressor affecting osmosis and cell structure. Plants occurring in saline and brackish marshes have developed adaptations to either exclude uptake or excrete salt; however even salt marsh species grow better at lower salinities (Mitsch and Gosselink 2000; Teal et al. 2012). However, as described in Chapter 4, Section 4.6.5.1.2.1 Salinity of the Final EIS, in some areas of the Barataria Basin, the seasonal change in salinity due to operation of the diversion above base flow (primarily during spring and early summer) and lower-flow conditions during fall and winter months would be large enough to temporarily change the wetland hydrology from a brackish to fresh or from a saline to brackish system. In the southern basin, where salt marsh predominates, peak salinities would be within the range for salt marsh vegetation under the No Action and Applicant's Preferred Alternatives. Additional analysis regarding the potential impact of hurricanes and saltwater inundation on the extent of wetlands in the Project area during operations has been added to Chapter 4, Section 4.6.5.1.2 Applicant's Preferred Alternative of the Final EIS.

The MAM Plan includes monitoring for inundation related effects on marsh vegetation in the Project area. The MAM Plan provided in the Draft EIS Appendix R was submitted by CPRA and represents a range of potential mitigation, stewardship, monitoring and adaptive management measures (collectively, measures). At the time of publication of the Draft EIS for public review, Appendix R contained draft Plans and CPRA had not identified which of the measures contained in those Plans it intended to implement. The Final EIS Appendix R contains the final Plans and specifies which measures CPRA and the LA TIG intend to implement. Generally, impact determinations discussed in the EIS represent anticipated Project effects without implementation of these measures except in instances where such measures are identified in the discussion. If any mitigation, monitoring, or adaptive management measures are required by USACE as part of its approval of the proposed Project, such measures would be required as special conditions of the Department of the Army (DA)



Section 10/404 permit and would be listed in the permit, if one is issued. Implementation of specific measures contained in either Plan, but not included in the Section 10/404 permit as special conditions, would not be required by USACE. USACE does not know whether any particular measure that is not a DA permit condition would be implemented. Measures that USACE currently contemplates as conditions of a DA Section 10/404 permit, if one is issued, are provided in Chapter 4, Section 4.27 Mitigation Summary of the EIS.

The LA TIG explains in Section 1.5 of the Final Restoration Plan that it anticipates requiring implementation of the Mitigation and Stewardship Plan, MAM Plan, and Marine Mammal Intervention Plan as components of the proposed Project, if the Project is approved by the LA TIG for funding. Decisions regarding which measures would be required as part of the LA TIG's funding decision would be set forth in the LA TIG Record of Decision related to the proposed Project.

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**Concern ID: 63019**

**The Draft EIS likely underestimated the benefits of far field effects on marsh soil bulk density and marshes sustained against climate change and rising seas. Related to the total sediment phenomenon, existing models underestimate capture of fines carried in suspension by diverted waters far from the diversion, and modeling underestimates the effect of this capture on renewed marsh vigor and organic soil formation, largely because while the effect is obvious, the specifics are difficult to capture numerically.**

**Response ID: 16031**

As described in Appendix E Delft3D Modeling of the EIS, to account for the complexity of fine-sediment transport patterns, a hysteresis curve has been developed and incorporated into the sediment transport module of the Delft3D Basinwide Model. Therefore, while the model results must be interpreted in light of the uncertainties involved, hysteresis sediment rating curves have been used to project fine-sediment transport in a way that simulates observed transport to the extent practicable in the modeling analysis. Where feasible, uncertainties have been examined through sensitivity tests and model-to-model comparisons and incorporated in the conclusions (see Chapter Section 4.1.3.3 in Approach to Evaluation of Environmental Consequences and Appendix E Delft3D Modeling, Section 8). Because this issue was considered in the Draft EIS, no related edits have been made to the Final EIS.

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**Concern ID: 63020**

**The Draft EIS highly exaggerated the land-building capabilities of the proposed Project, given that the depletion of historic sediment loads of the Mississippi River is well documented (including by the Expert Panel on Diversion Planning and Implementation [convened by the Water Institute of the Gulf] and USACE's ERDC) and that increased periods of inundation have been found to**



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**adversely impact existing vegetation and contribute to land loss. Further, significant uncertainty exists with respect to the response of the existing wetland vegetation to diversion-induced inundation (Brown et al., 2019, p. iii).**

**Response ID: 16032**

The Draft EIS considered the commenter's concerns regarding the rates of land loss and land projected to be built during diversion operations. The Mississippi River is carrying much less sediment than it did in the past. As explained in Chapter 3, Section 3.4.2.5 in Surface Water and Coastal Processes, the river formerly carried over 400 million tons of sediment annually, but a more than 50 percent reduction in annual sediment load has occurred since the early 1900s. Studies show that from 1968 through 2007 the overall annual sediment reduction has been more gradual, with the rate estimated as a loss of 1.1 million metric tons per year. The Delft3D Basinwide Modeling accounts for those sediment supply changes as described in Appendix E Delft3D Modeling of the EIS, Sections 5.2.2 and 8.

Further, the Delft3D Basinwide Model incorporates inundation depths in the critical vegetation parameters to simulate vegetation losses and gains as a result of the diversion, as well as other sources of inundation (such as subsidence and sea-level rise). The model results should be interpreted in light of the uncertainties involved. The USACE-ERDC report cited by the comment (Brown et al. 2019), which documents the development and validation of the Adaptive Hydraulics (AdH) model to simulate hydrodynamic, salinity, sedimentation, and morphodynamic processes in the Mississippi River and Delta, was reviewed and used in preparing the navigation analyses in the EIS (see Appendix Q1 Dredging Analysis). The USACE-ERDC report also describes the SEDLIB-VEG model, which is less complex than the vegetation model (LaVegMod) used to project impacts from the proposed Project. While the AdH model was not used in preparing the land-building analyses in the EIS and the SEDLIB-VEG model was not used for the assessment of vegetation impacts from the Project, uncertainties identified in the report for numerical modeling (including uncertainty in the sediment rating curve, subsidence rates, and inundation effects on vegetation) were considered. As discussed in Chapter 4, Section 4.1.3.3 in Approach to Evaluation of Environmental Consequences and Section 8 of Appendix E Delft3D Modeling, those uncertainties include the parameters used to simulate vegetation growth and mortality. Vegetation ranges were determined by the probability of establishment and mortality of each species used in modeling simulations, based on salinity and inundation depth tolerances. Where feasible, uncertainties have been examined through sensitivity tests and model-to-model comparisons and incorporated in the conclusions. However, to further address the concern of exaggerated land building, Chapter 4, Section 4.1.3.3 in Model Limitations and Uncertainty, has been revised in the

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Final EIS to clarify uncertainty related to currently ongoing and future projected land loss and the amount of land that would be created, sustained, or lost due to proposed diversion operations.

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**Concern ID: 63024**

**The Draft EIS failed to properly capture the state of the science on the effects of nutrient inputs on wetlands. While the views indicating the detrimental effects of nutrient input are included, few opposing views are described, and the science is not settled on this issue.**

**Response ID: 16034**

Chapter 4, Section 4.6.5.1 in Wetland Resources and Waters of the U.S. of the EIS acknowledges uncertainty regarding the effects of nutrient inputs on wetlands. Additional analysis regarding the impact of nutrients that would be transported by the proposed Project on vegetation communities and soil shear strength has been incorporated into Chapter 4, Section 4.6.5.1.2 Applicant's Preferred Alternative of the Final EIS.

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**Concern ID: 63027**

**Saltwater grasses and marsh would die when exposed to (or inundated by) fresh water, and would cease protecting the public.**

**Response ID: 16035**

Chapter 4, Section 4.6.5.1 in Wetland Resources and Waters of the U.S. of the EIS acknowledges that the fresh water transported by the diversion may result in the loss of some wetlands in the immediate outfall area due to inundation during the initial period following commencement of operations; those impacts would be offset by later marsh building in the area. While saline and brackish species are associated with salinity ranges of greater than 18 ppt and between 18 and 5 ppt, respectively (see Chapter 3, Section 3.6.1.2 in Estuarine Wetlands of the EIS), brackish marsh can fluctuate from fresh to saline conditions depending on tidal movement, and species such as *Spartina alterniflora* are common in both salt and brackish marsh (Connor and Day 1987). Salt is a stressor affecting osmosis and cell structure. Plants occurring in saline and brackish marshes have developed adaptations to either exclude uptake or excrete salt; however even salt marsh species grow better at lower salinities (Mitsch and Gosselink 2000; Teal et al. 2012). Therefore, salt and brackish marsh vegetation would not be subjected to direct mortality due to the lower salinity of transported water. Chapter 3, Section 3.6.2.1 of the EIS was revised to include additional information regarding the salinity tolerance of brackish and salt marsh vegetation.

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**Concern ID: 63028**

**All around the basin there are ghost cypress trees left over from a time when that area was much more fresh, as it naturally should be.**

**Response ID: 16036**

Chapter 3, Section 3.6.2.2 in Wetland Resources and Waters of the U.S. of the EIS describes historic wetland losses in the Barataria Basin, as those losses relate to changes in salinity. Further, Chapter 3,

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Sections 3.1.4.1 Mississippi River and 3.1.4.2 Barataria Basin of the EIS address the deltaic processes that formed the Barataria Basin and birdfoot delta; however, Sections 3.1.4.2 and 3.2.1.1 Historical Context, have been supplemented in the Final EIS to further discuss historic conditions.

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**Concern ID: 63029**

**The commenter states that, upon operation of the proposed MBSD Project, the force of the water would wash out the existing marsh and questions how much marsh would be washed out before the results of land building are seen.**

**Response ID: 16037**

The high water velocities from the diversion structure into the Barataria Basin would contribute to localized wetland losses at the immediate outfall area; those impacts would be offset by later marsh building in the outfall area by 2030 (see Chapter 4, Section 4.6.5.1 in Wetland Resources and Waters of the U.S. of the EIS). The Final EIS has been updated to provide a discussion of that change in Chapter 4, Section 4.6.5.1.2.4 Land Accretion.

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**Concern ID: 63037**

**Two recent (2021) studies should be reviewed and incorporated into the EIS, both of which appear in the journal *Water*, Volume 13. In the February 27, 2021 issue, the article entitled “A Review of 50 Years of Study of Hydrology, Wetland Dynamics, Aquatic Metabolism, Water Quality and Trophic Status, and Nutrient Biogeochemistry in the Barataria Basin, Mississippi Delta-System Functioning, Human Impacts and Restoration Approaches” by Day et al. In the March 16, 2021 issue, the article (also by Day et al.) entitled “The ‘Problem’ of New Orleans and Diminishing Sustainability of Mississippi River Management - Future Options.”**

**Response ID: 16044**

The EIS discloses the value of wetlands in the Barataria Basin, including as flood control and protection from storm surge, as well as the history of wetland losses in Barataria Basin described in the provided references (see Chapter 3, Section 3.6 Wetland Resources and Waters of the U.S. of the EIS). The Final EIS has been revised to include the recent studies provided by the commenter.

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**Concern ID: 63038**

**It would be at least 10 to 50 years before any appreciable amount of marsh may be built.**

**Response ID: 16045**

The commenter correctly notes that the projected benefits of the proposed Project would not be immediate, but would occur over time beginning in the first decade of operations. The wetland acreages presented in Chapter 4, Section 4.6 Wetland Resources and Waters of the U.S., Table 4.6-3 of the Draft EIS represented the total acreage projected to be present in the Barataria Basin under each action alternative assessed.

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**Concern ID: 63040**

**The diversion flow would only capture the top 20 feet of sediment from the river, which does not contain the material necessary to**

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**establish land and maintain a sustainable root system. That material lies beneath the top 20 feet and the river depth is too great for the flow to move the land-building material. The first hurricane would destroy this fragile “swamp.”**

**Response ID: 16047**

The issues raised by the commenter were considered in the Draft EIS. The commenter’s description of diversions designed to extract water from the top of the river pertains to existing freshwater diversions (Davis Pond and Caernarvon Diversions). The proposed MBSD Project differs from these because it is not a freshwater diversion; it is a sediment diversion designed to capture larger-sized sediments from a lower portion of the river. As described in Chapter 2, Section 2.1.1 in Introduction of the EIS, the proposed MBSD Project intake structure is designed, and located at a sufficient depth, to capture a higher concentration of coarse-grained sediment transported along the riverbed to allow for a more rapid vertical accumulation of organic material, resulting in quicker emergence of wetlands in the outfall area that are then able to support vegetation that traps available sediment across a range of particle sizes. Although capture of these larger sediments is critical, the proposed MBSD Project would also convey organic material and finer-grained sediments (less than 32 microns) intended to disperse farther into the basin to sustain and nourish existing wetlands. Table 5.2-1 in Appendix E Delft3D Modeling of the EIS lists the sediment classes that the Delft3D Basinwide Model projects would be transported to the basin via the diversion. Additional analysis regarding the potential impact of hurricanes on the extent of wetlands in the proposed Project area during the period of diversion operations, and additional detail regarding the resiliency of marsh created by the proposed Project has been included in Chapter 4, Section 4.6.5.1.2 Applicant’s Preferred Alternative of the Final EIS.

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**Concern ID: 63041**

**The Draft EIS statement that “The Barataria Basin lost approximately 25 percent of its total land area between 1932 and 2016 (Couvillion et al., 2017)” is based on flawed data analysis by the USGS and represents a large and biased overestimate of the land area lost in the Barataria Basin, at least since Hurricane Katrina in 2005. As documented and published in the studies by Potter et al. (2020 and 2021) in the Journal of Coastal Research, it must be concluded that the USGS coastal land area change product (cited as Couvillion et al., 2017) has not reported widespread wetland area gains in southern Louisiana and has instead overestimated net marshland losses on most sections of the Gulf Coast since at least 2005. Therefore, the Draft EIS and the LA TIG’s Draft Restoration Plan are based on erroneous land-loss rates and locations within the proposed Mid-Barataria Sediment Diversion impact area.**

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<b>Response ID: 16048</b>	<p><b>Potter, C. and Amer, R., 2020. Mapping 30 years of change in the marshlands of Breton Sound Basin (southeastern Louisiana, U.S.A.): Coastal land area and vegetation green cover. Journal of Coastal Research, 36(3):437-450.</b></p> <p><b>Potter, C. 2021. Remote sensing of wetland area loss and gain in the western Barataria Basin (Louisiana, U.S.A.) since Hurricane Katrina. Journal of Coastal Research (in press).</b></p> <p>The analysis in the EIS is not based on past land-loss rates. The projected changes in wetland extent over the analysis period are based on current baseline conditions (including bathymetry, topography, and hydrologic conditions) and the Delft 3D Modeling analysis (see Appendix E Delft3D Modeling of the EIS) regarding future conditions for the No Action Alternative and the action alternatives (including the Applicant's Preferred Alternative). The Delft 3D model used a variety of inputs to project future conditions and was not based on historical land-loss trends. The difference between USGS data and the land loss cited in the literature would not invalidate the Delft 3D model projections. However, Chapter 3, Section 3.6.2 Wetland Loss of the Final EIS has been revised to include additional detail regarding the historic rate and extent of land loss in the Barataria Basin based on review of the literature cited by the commenter (Potter and Amer 2020 and Potter 2021).</p>
<b>Concern ID: 63042</b>	<p><b>River sediment is currently wasted offshore when the Barataria Basin needs it to restore and preserve marsh, and the life the marsh supports.</b></p>
<b>Response ID: 16049</b>	<p>Comment noted. The benefits of diverting river sediments to the Barataria Basin through the proposed Project were discussed throughout Chapter 4 Environmental Consequences of the Draft EIS.</p>
<b>Concern ID: 63043</b>	<p><b>Sea-level rise, subsidence, and the frequency of hurricanes would not allow for a multiple decade-long positive effect from operation of the proposed Project.</b></p>
<b>Response ID: 16050</b>	<p>Chapter 4, Sections 4.1.3 in Approach to Evaluation of Environmental Consequences and 4.6.5.1 in Wetland Resources and Waters of the U.S. of the EIS acknowledge that sea-level rise and subsidence would affect the extent of wetland creation that would occur if the proposed Project were implemented. The projected land gains in the Barataria Basin developed via the Delft3D Basinwide Model take into account estimates of sea-level rise and subsidence. Additional analysis regarding the potential impact of hurricanes on the extent of wetlands in the proposed Project area during the period of diversion operations is included in Chapter 4, Section 4.6.5.1.2 Applicant's Preferred Alternative of the Final EIS.</p>

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<b>Concern ID: 63045</b>	<b>The ongoing loss of Louisiana’s coastal wetlands makes local communities increasingly vulnerable to stronger hurricanes and sea-level rise, threatening the health and stability of the entire Barataria Basin.</b>
<b>Response ID: 16051</b>	The Draft EIS discussed the value of wetlands in the Barataria Basin, including as flood control and protection from storm surge (see Chapter 3, Section 3.6 Wetland Resources and Waters of the U.S. of the EIS).
<b>Concern ID: 63046</b>	<b>Coastal land loss is caused by dredged canals through wetlands and associated spoil banks, rather than by Mississippi River levees, resulting in greater than 90 percent of all land loss on this coast (Turner and McClenachan 2018). These features become a significant factor influencing wetland health, resulting in longer individual flooding and drying intervals, pond formation, and sulfide buildup. Large-scale dredging fundamentally changes the movement of water in and out of the wetland, leading to wetland loss; as a result, about 4.6 times more land is lost for every one canal formed. The spatial and temporal distribution of canal permitting is not only coincidental with land loss, but data analysis implies a dominant causal relationship. The result is that the land loss on the coast has stabilized (until sea-level rise reaches a tipping point for wetland survival). There has been a slight gain in land since 2010 (Figure 7 of the attachment).</b> <b>Turner R.E. and G. McClenachan G. 2018. Reversing wetland death from 35,000 cuts: opportunities to restore Louisiana’s dredged canals. PLOS ONE 13(12): e0207717.</b> <b><a href="https://doi.org/10.1371/journal.pone.0207717">https://doi.org/10.1371/journal.pone.0207717</a></b>
<b>Response ID: 16052</b>	The influence of canals and spoil banks on wetland losses in Barataria Basin are discussed in Chapter 3, Section 3.6.2.2 Causes of Wetland Loss of the EIS. The literature cited by the commenters (Turner and McClenachan 2018) has been reviewed and additional detail has been added to Chapter 3, Section 3.6.2.2.4 Canals and Spoil Banks of the Final EIS. However, as described in the EIS, risk reduction levees have been shown to reduce the sediment load that enters the Barataria Basin. As the deficit of sediment, combined with increased rates of sea-level rise, contributes to wetland losses, the Mississippi River levees do contribute to coastal land loss.
<b>Concern ID: 63047</b>	<b>The proposed MBSD Project would cause increased loss of wetlands in the birdfoot delta when compared to the No Action Alternative.</b>
<b>Response ID: 16053</b>	As indicated by the comment, the Chapter 4, Section 4.6 Wetland Resources and Waters of the U.S. of the Draft EIS disclosed the increased wetland losses in the birdfoot delta when compared with the No Action Alternative.

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**Concern ID: 63048**

**Models are useful tools but are not as reliable as real-world observations. Given the fact that the Atchafalaya and Wax Lake Deltas in Atchafalaya Bay are the healthiest land-building areas in the state, I think it is fair to compare the observed land building to model projections for the Mid-Barataria Diversion. The Atchafalaya River has been filling in the bay since the 1950s. Its flow is kept at 30 percent of total latitude flow, with the other 70 percent going to the Mississippi, such that the Atchafalaya flow is equal to 43 percent of the Mississippi River flow. The proposed operation of the Mid-Barataria Diversion varies from 5.6 to 7.5 percent of the Mississippi flow only when the river is between 450,000 and 1,000,000 cfs, and is lower otherwise. The proposed Project is expected to discharge more than 5,000 cfs for only 194 days per year (Table 4.1-1). Let us generously assume that the discharge averages 6 percent of river flow for discussion's sake. Thus, the diversion discharge would average about 1/7 of the flow of the Atchafalaya River. The EIS states that the proposed Project would result in 17,300 acres more than the No Action Alternative in 30 years, comparable to the amount of land built in Atchafalaya Bay since the 1950s (Pre-storm acreage was 17,500 [Pers. Comm. Barras 2009]). Several factors complicate the comparison: the Wax Lake Outlet, which receives approximately 1/3 of the Atchafalaya River's flow and delivers it to the Wax Lake Delta, skims from the top of the water column, and the Atchafalaya Delta is compromised by the dredging of the ship channel. Also, some of the Atchafalaya River flow is lost to the marshes south of the Intracoastal. These factors would tend to reduce land building in the bay.**

**Conversely, the Mississippi River is less sediment-rich than the Atchafalaya River (Blum and Roberts 2009). In addition, sea-level rise is accelerating (Figure 4.1-3), and as a result, future land building would be much slower than when the deltas were forming. The Mid-Barataria Diversion maximum discharge of 75,000 cfs would be reached at 1,000,000 cfs, and would not increase with greater flows, when sediment loads are greater. These factors would tend to limit the rate of land creation/maintenance by the proposed Project compared to the deltas in Atchafalaya Bay. In summary, the EIS states that the Mid-Barataria Diversion would create/maintain about the same amount of land as was built in Atchafalaya Bay with roughly 1/7 the water flow, in about 1/2 the time, and with less sediment-rich water in an environment of accelerating sea-level rise. Even considering the factors that limited land building in Atchafalaya Bay, the proposed Project is unlikely to create/maintain land at**



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**roughly 14 times the rate observed in Atchafalaya Bay.  
[References provided]**

**Blum, M.D., Roberts, H.H., 2009. Drowning of the Mississippi delta due to insufficient sediment supply and global sea-level rise. Nature Geoscience 2, 488-491.**

**Response ID: 16054**

While commenters have described real-world examples that by comparison suggest the proposed Project would not produce the land gains projected by the model, observed examples from other basins are not necessarily more reliable than numerical models. Multiple lines of evidence were used in development of the EIS, including professional field experience in coastal Louisiana, reviews of available scientific literature and the results of the Delft3D Basinwide Model, which are based on the site-specific conditions and design parameters of the proposed Project. These approaches have respective strengths and weaknesses such that they can be used in a complementary fashion to develop more reliable results than any one method alone. That complementary use was employed in preparing the EIS. The literature cited by the commenters has been reviewed (specifically, Blum and Roberts 2009) and that reference was considered in development of the EIS. The Delft3D Basinwide Modeling accounts for Mississippi River sediment supply as described in Appendix E Delft3D Modeling of the EIS, Sections 5.2.2 and 8.

Further, the Delft3D Basinwide Model incorporates inundation depths in the critical vegetation parameters to simulate vegetation losses and gains as a result of the diversion, as well as other sources of inundation (such as subsidence and sea-level rise). A summary of select natural and man-made diversions in southeastern Louisiana, including those in Atchafalaya Bay, has been developed to compare the purpose and/or characteristics of these diversions to the proposed MBSD Project, and their recorded impacts on the natural environment. This summary, which includes the cited reference, is available in Appendix U Summary of Select Natural and Man-made Diversions in Southeastern Louisiana of the Final EIS.

The likelihood of success of the proposed Project and information from other freshwater diversions was considered in the LA TIG's Draft Restoration Plan; therefore, no related edits have been made to the Final Restoration Plan. Chapter 3, Sections 3.2.1.4 (Likelihood of Success - Alternative 1) and 3.2.2.4 (Likelihood of Success - Alternatives 2-6) of the LA TIG's Restoration Plan address the likelihood of success of the proposed Project and other action alternatives. The proposed MBSD Project's goal is ecosystem restoration through the reestablishment of sustainable deltaic processes, only one of which is land building. The computer models used to analyze Project benefits fully consider the geomorphological

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features of the Lower Mississippi River, including data and knowledge gained from the referenced project.

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**Concern ID: 63049**

**Models are useful tools but are not as reliable as real-world observations. The West Bay Sediment Diversion project was constructed in 2003, originally designed to divert an average discharge of 20,000 cfs. By 2008, the flow had increased substantially, and in 2009 to 2011, measured flows were equal to 8.4 to 9.5 percent of Mississippi River flows (Sharp et al. 2013). Discharges into West Bay at moderate river flows of 551,000 cfs peaked in 2009 at about 42,000 cfs, and declined in the 2009 to 2014 period to about 24,700 cfs (Allison et al. 2017). The operational plan for the proposed Project, as described in the EIS, would result in a flow of about 34,000 cfs at the same moderate Mississippi River flow of 551,000 cfs, or about midway between the high and low West Bay discharges of 2009 to 2014. A report produced by the State of Louisiana CPRA stated that while the West Bay project area gained a total of 557 acres from 2002 to 2014, much of that gain can be attributed to beneficially placed material. Approximately 665 acres of material had been placed within the land/water analysis boundary at the time of the 2014 survey, versus the 557 acres determined via land/water analysis (Plitsch 2017). This lack of land building by the diversion of river water into West Bay for 10 years took place even though Grand Pass is another important source of sediment to the bay (Kolker 2012). Yet the Mid-Barataria EIS projects a land gain of 6,260 acres in the Barataria Basin relative to the No Action Alternative in the first 10 years (Table 4.2-4), with rates of discharge comparable to the West Bay project. [References provided]**

**Allison, M.A., Yuill, B.T., Meselhe, E.A., Marsh, J.K., Kolker, A.S., Ameen, A.D. 2017. Observational and numerical particle tracking to examine sediment dynamics in a Mississippi River delta diversion. Estuarine, Coastal and Shelf Science 194 (2017) 97-108.**

**Kolker, A.S., Miner, M.D., Weathers, H.D., 2012. Depositional dynamics in a river diversion receiving basin: the case of the West Bay Mississippi River Diversion. Estuar. Coast. Sci. 106, 1-12.**

**Plitsch, E., 2017. 2016 Operations, Maintenance, and Monitoring Report for West Bay Sediment Diversion (MR-03), Coastal Protection and Restoration Authority of Louisiana, New Orleans, Louisiana.**

**Sharp, J., Little, C., Brown, G., Pratt, T., Heath, R., Hubbard, L., Pinkard, F., Martin, K., Clifton, N., Perky, D., and Ganesh, N. (2013). West Bay Sediment Diversion Effects, ERDC/CHL Technical**

**Report 13-15, Vicksburg, Mississippi.****[http://acwc.sdp.sirsi.net/client/en\\_US/search/asset/1032362](http://acwc.sdp.sirsi.net/client/en_US/search/asset/1032362)****Response ID: 16055**

USACE notes that commenters have described real-world examples that by comparison suggest the proposed Project would not produce the land gains predicted by the model. USACE disagrees with the assertion that examples from other basins are more reliable than numerical models. Multiple lines of evidence were used in development of the EIS, including professional field experience in coastal Louisiana, reviews of available scientific literature and the results of the Delft3D Basinwide Model. However, the model is based on the site-specific conditions and design parameters of the proposed Project. These approaches have strengths and weaknesses such they can be used in a complementary fashion to develop more reliable results than any one method alone. That complementary use was employed in preparing the EIS. The USACE and the LA TIG have reviewed the literature cited by the commenters, including Allison et al. 2017, Kolker et al. 2012, Plitsch 2017, and Sharp et al. 2013 and those references have been added as applicable. A summary of select natural and man-made diversions in southeastern Louisiana, including the West Bay Sediment Diversion, has been developed to compare the purpose and/or characteristics of these diversions to the proposed MBSD Project, and their recorded impacts on the natural environment. This summary, which includes the cited references, is available in Appendix U Summary of Select Natural and Man-made Diversions in Southeastern Louisiana of the Final EIS.

The West Bay Sediment Diversion has successfully deposited large amounts of sediment in the system and, in concert with beneficial uses of dredged material, built land. Kolker et al. (2012) reported, "A majority of the sediment transported through the West Bay Diversion apparently was deposited in the bay, and contributed to sub-aerial land formation, which contrasts with the view presented by Kearney et al. (2011) and Turner et al. (2007) that diversions do not lead to appreciable sediment accumulation." (Depositional dynamics in a river diversion receiving basin: The case of the West Bay Mississippi River Diversion, Estuarine, Coastal and Shelf Science, 2012, <http://dx.doi.org/10.1016/j.ecss.2012.04.005>).

The likelihood of success of the proposed Project and information from other freshwater diversions was considered in the LA TIG's Draft Restoration Plan. More specifically, Chapter 3, Sections 3.2.1.4 (Likelihood of Success - Alternative 1) and 3.2.2.4 (Likelihood of Success - Alternatives 2-6) of the LA TIG's Restoration Plan address the likelihood of success of the proposed Project and other action alternatives. The proposed MBSD Project's goal is ecosystem restoration through the reestablishment of sustainable deltaic processes, only one of which is land building. The computer models

used to analyze Project benefits fully consider the current geomorphological features of the Lower Mississippi River, including data and knowledge gained from the referenced project.

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**Concern ID: 63050**

**The temperature shock from the discharge of colder river waters would be harmful and likely would damage existing vegetation.**

**Response ID: 16056**

As described in Appendix E Delft3D Modeling, Section 5.4.1 of the EIS, temperature coefficients for growth and for senescence mortality have been incorporated into the vegetation parameters for the Delf3D Basinwide Model. Water temperature is simulated within the model; based on the results of the modeling analysis, and as described in Chapter 4, Section 4.5.5.2 in Surface Water and Sediment Quality of the EIS, temperature trends projected for the proposed Project would follow the same seasonal patterns as the No Action Alternative, though there would be a minor temperature decrease (up to 5°F or 3°C) at assessed locations following operation of the diversion structure above base flow. Because this issue was considered in the Draft EIS, no related edits have been made to the Final EIS.

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**Concern ID: 63051**

**The Draft EIS underestimated the following beneficial impacts of the proposed Project:**

- **pioneer species like black willow (which is exploding in the Davis Pond, Caernarvon and Mardi Gras Pass outfall areas);**
- **bald cypress retention and recruitment in areas formerly too saline or submerged; and**
- **survival and recruitment of live oaks and other maritime forest vegetation on natural levees and cheniers where saline soils have inhibited their growth, recruitment, and survival for decades.**

**Response ID: 16057**

While forested wetlands (including cypress swamps) are present in the northern portions of the Barataria Basin, as depicted in Chapter 3, Section 3.6 Wetland Resources and Waters of the U.S., Figure 3.6-1 of the EIS, land gains associated with the proposed Project would primarily be in the outfall area where marsh vegetation predominates (see Chapter 4, Section 4.2 Geology and Soils, Figures 4.2-2 through 4.2-4 of the EIS). Therefore, the establishment or spread of forest species as a result of the proposed Project is not anticipated. However, a summary of select natural and man-made diversions in southeastern Louisiana has been developed to compare the purpose and/or characteristics of these diversions to the proposed MBSD Project, and their recorded impacts on the natural environment. This summary, which includes observed changes in vegetation growth from other

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diversions, is available in Appendix U Summary of Select Natural and Man-made Diversions in Southeastern Louisiana of the Final EIS.

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**Concern ID: 63052**

**Combined with other proposed restoration projects, the proposed MBSD Project would build and preserve more than 17,000 acres of wetlands over the next 30 years to restore critical wetland habitat injured by the DWH oil spill.**

**Response ID: 16058**

The Draft EIS disclosed the projected maximum wetland gains of 17,100 acres associated with the proposed Project at year 2060 before dropping to 12,700 acres at year 2070 in the Barataria Basin; these wetland gains over time are quantified in Chapter 4, Section 4.6.5.1 in Wetland Resources and Waters of the U.S. and are consistent with the commenter's statement. When considered with other reasonably foreseeable future projects, cumulative wetland gains in the Barataria Basin could be greater, as presented in Section 4.25 Cumulative Impacts, Wetland Resources and Waters of the U.S. of the Draft EIS.

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**Concern ID: 63053**

**Newly built land is evident from the air on the east bank of the Mississippi River, where there are enough natural breaks in the river levees to allow the natural process of delta building.**

**Response ID: 16059**

The commenter's support for the proposed Project is noted. Chapter 2, Section 2.2.1 in Steps Taken to Identify and Evaluate Reasonable Alternatives of the Draft EIS explained how the proposed Project is designed to reconnect and reestablish sustainable deltaic processes between the Mississippi River and the Barataria Basin. This is also discussed in Chapter 3, Section 3.2.1.1 in Geology and Soils of the LA TIG's Restoration Plan.

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**Concern ID: 63054**

**Clarify whether "sustaining 20 percent of the marsh" means that the proposed Project would sustain 20 percent of the land that is present today or that the proposed Project would add 20 percent to the land's total. Further clarify if those numbers are based on the land that is present today or what would be present in 2050.**

**Response ID: 16060**

The wetland acreages presented in Chapter 4, Section 4.6 Wetland Resources and Waters of the U.S., Table 4.6-3 of the EIS represent the total acreage projected to be present in the Barataria Basin under each action alternative assessed. The percentage of wetland gains and losses presented in Section 4.6, Table 4.6-4 therefore represents the total change in wetland area (including newly created wetlands as well as wetlands that would be lost to subsidence and sea-level rise but for the proposed Project). No edits to the Final EIS are warranted. The comparisons use projected wetland area by decade for all alternatives assessed (that is, the numbers are based on the projected future conditions, and not current wetland area).

The LA TIG's Restoration Plan highlights that, by the end of the analysis period, the proposed Project is projected to be responsible for creating or maintaining approximately 20 percent of the land that would remain in Barataria Basin at that time (that is, 2070). Specifically, this represents the amount of created or maintained land that remains in 2070 divided by the total amount of land that remains in the Barataria Basin in 2070. See the EIS for more information about projected Project-driven changes in land area over time (Chapter 4, Section 4.2.3.2 Geology and Soils and Section 4.6.5.1 in Wetland Resources and Waters of the U.S.).

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**Concern ID: 63055**

**Clarify how the 150,000 cfs Alternative is projected to produce only 9.7 percent more fresh and intermediate marsh and less brackish and saline marsh than the 50,000 cfs Alternative.**

**Response ID: 16061**

The same Project area was used for all alternatives assessed in the EIS, which is the extent of the Barataria Basin and birdfoot delta. Under each action alternative, the proposed Project would create and sustain existing wetlands. The magnitude of impacts would be greater under the 150,000 cfs Alternative when compared with the 50,000 cfs Alternative; however, because the 150,000 cfs Alternative would discharge more fresh water into the Barataria Basin, it would result in greater inundation of the marsh surface in the immediate outfall area, increasing plant stress and mortality. Therefore, the 150,000 cfs Alternative would result in the conversion of a larger area of existing, brackish marsh to freshwater and intermediate marsh in the delta formation area when compared with the other action alternatives. This difference is illustrated in Chapter 4, Section 4.6 Wetland Resources and Waters in the U.S., Figure 4.6-15. Because this issue was considered in the Draft EIS, no related edits have been made to the Final EIS.

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**Concern ID: 63056**

**Louisiana loses an estimated 25 acres of wetlands each day; compare this daily loss to the daily wetland creation projected by the proposed Project.**

**Response ID: 16062**

Reference to the loss of 25 acres of wetlands per day is assumed to be based on the estimate by Couvillon et al. (2017) that, between 1985 and 2010, an estimated 16.6 square miles of wetlands was lost across the state of Louisiana annually. While wetland losses cannot be assessed on a daily basis, this estimate equates to about 29 acres of wetland loss per day.

By comparison, in 2060 (when wetland gains under the Applicant's Preferred Alternative are greatest when compared with the No Action Alternative), the proposed Project would result in a 17,100-acre wetland increase over the No Action Alternative in the Barataria Basin (see Chapter 4, Section 4.6 Wetland Resources and Waters of the U.S., Table 4.6-4). This area equates to about 428 acres (0.7 square mile) if



it is averaged annually over the 40-year period between 2020 and 2060.

By 2070, the proposed Project is anticipated to create 12,700 acres in the Barataria Basin (approximately 19.8 square miles, see Chapter 4, Section 4.6 Wetland Resources and Waters of the U.S., Table 4.6-4). While wetland gains cannot be assessed on a daily basis, this projection would equate to about 254 acres per year or 0.7 acre per day.

Because the projected wetland increase over time was represented in the Draft EIS, no edits to the Final EIS have been made.

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**Concern ID: 63060**

**The proposed diversions would build land in the immediate outfall; however, the areas farther away would experience a higher land loss due to changes caused by the lower salinity. The losses in salt marsh flora causes increased erosion and land subsidence in old marshland and would result in a net land loss. The natural land that took nature thousands of years to build cannot be replicated by diversions.**

**Response ID: 16066**

The EIS acknowledges that the fresh water transported by the diversion may result in the loss of some wetlands in the immediate outfall area due to inundation during the initial period following commencement of operations (see Chapter 4, Section 4.6.5.1 in Wetland Resources and Waters of the U.S. of the EIS).

However, salt- and brackish marsh vegetation would not be subjected to direct mortality due to the lower salinity of transported water. While saline and brackish species are associated with salinity ranges of greater than 18 ppt and between 18 and 5 ppt, respectively (see Chapter 3, Section 3.6.1.2 in Estuarine Wetlands of the EIS), brackish marsh can fluctuate from fresh to saline conditions depending on tidal movement, and species such as *Spartina alterniflora* are common in both salt and brackish marsh (Connor and Day 1987). Salt is a stressor affecting osmosis and cell structure. Plants occurring in saline and brackish marshes have developed adaptations to either exclude uptake or excrete salt; however even salt marsh species grow better at lower salinities (Mitsch and Gosselink 2000; Teal et al. 2012). However, as described in Chapter 4, Section 4.6.5.1.2.1 Salinity of the Final EIS, in some areas of the Barataria Basin, the seasonal change in salinity due to operation of the diversion above base flow (primarily during spring and early summer) and lower-flow conditions during fall and winter months would be large enough to temporarily change the wetland hydrology from a brackish to fresh or saline to brackish system. In the southern basin, where salt marsh predominates, peak salinities would be within the range for salt marsh vegetation under the No Action and Applicant's Preferred Alternatives. While the action alternatives would not counteract all wetland losses across the Barataria Basin over the



analysis period, as shown in Section 4.6 in Wetland Resources and Waters of the U.S., Table 4.6-4, the proposed Project would reduce wetland losses when compared with the No Action Alternative. Because this issue was considered in the Draft EIS, no related edits have been made to the Final EIS.

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**Concern ID: 63064**

**Marsh flora and fauna would die once the proposed Project operation begins and river water fills the estuary. Clarify how long it would take for other species to inhabit the area and how much land would wash away once the saltwater marsh that is currently present dies.**

**Response ID: 16070**

Chapter 4, Section 4.6.5.1 in Wetland Resources and Waters of the U.S. indicated that the fresh water transported by the diversion may result in the loss of some wetlands in the immediate outfall area due to inundation during the initial period following commencement of operations; however, those impacts would be offset by marsh building in the delta formation area. However, salt- and brackish marsh vegetation would not be adversely affected by the lower salinity of transported water. Chapter 4, Section 4.6.5.1.2.4 Land Accretion of the Final EIS has been revised to include additional analysis regarding the extent and timing of wetland changes in the immediate outfall area.

As summarized in Chapter 4, Section 4.10.5 in Aquatic Resources of the EIS, the proposed Project would have both adverse and beneficial impacts on the flora and fauna of the Barataria Basin, based on the specific life history and habitat preferences of a given species.

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**Concern ID: 64195**

**Vegetation is fragile but is resilient. Seedlings could be introduced in the sediment flow as topsoil crusting occurs, or could be introduced years later at additional cost.**

**Response ID: 16071**

Comment noted. The Project, as proposed, does not include planting of wetland vegetation; rather, the diversion of fresh water and sediments would alter the abiotic conditions in the Barataria Basin to allow for establishment of marsh species via natural recruitment and spread. No related edits to the Final EIS have been made.

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**Concern ID: 64196**

**With respect to the Davis Pond and Caernarvon Diversions that overwhelmingly convey finer-grained silts and clays, the critical importance of those sized sediments is graphically apparent. Since those classes of sediments make up at least two-thirds of the sediments that the proposed MBSD Project is expected to transport into the basin (Draft EIS Chapter 2, Section 2.4 Step 2: Evaluation of Operational Alternatives - Location, Operational Trigger, Capacity, and Base Flow, Table 2.4-2), these experiences serve as a telling example of what the proposed MBSD Project would do in terms of strengthening and building up wetlands that can filter and capture the finer-grained sediments that it would**

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<b>Response ID: 16072</b>	<b>convey. While the Draft EIS presented data about the quantity of these finer-grained sediments, the discussion about the areal distribution and role of these sediments in terms of maintaining and strengthening wetlands that are deteriorating could be improved.</b>
	As described in Chapter 4, Section 4.2.3 in Geology and Soils of the EIS, sand and coarser-grained sediments would be deposited in the immediate outfall area while finer-grained sediment would be deposited farther gulfward in the basin. Land gains associated with the proposed Project would primarily be in the immediate outfall area (see Chapter 4, Figures 4.2-2 through 4.2-4 in Geology and Soils). Chapter 4, Sections 4.2.3.2.2.1 Geology and 4.6.5.1.2.4 Land Accretion have been revised in the Final EIS to further address the importance of fine-grained sediments for marsh building and sustenance.
<b>Concern ID: 63030</b>	<b>The executive summary for Wetland Resources and Waters of the U.S. fails to capture the significance of wetland impacts within the context of the delta cycle (see van Beek and Gagliano 1984; Figs. 1, 2) and fails to discuss the implications of not reconnecting the river to the Barataria Basin.</b>
<b>Response ID: 16038</b>	The implication of not reconnecting the Mississippi River to the Barataria Basin was considered in the Draft EIS. The No Action Alternative, assessed for each resource throughout the EIS, describes the projected future conditions without the proposed Project. Impacts on wetlands under the No Action Alternative are addressed in Chapter 4, Section 4.6.5.1 in Wetland Resources and Waters of the U.S. of the EIS, and comparisons of the change in wetland area during operations of the proposed Project as compared to conditions under the No Action Alternative are included in the Section ES.4, Wetland Resources and Waters of the U.S. in the Executive Summary. Further, Chapter 3, Sections 3.1.4.1 Mississippi River and 3.1.4.2 Barataria Basin of the EIS address the deltaic processes that formed the proposed Project area; however, Sections 3.1.4.2 and 3.2.1.1 Historical Context, have been supplemented in the Final EIS to further discuss historic conditions and include the referenced study (van Beek and Gagliano 1984).
<b>Concern ID: 63031</b>	<b>The executive summary for Wetland Resources and Waters of the U.S. should indicate that the proposed Project would also benefit brackish marshes.</b>
<b>Response ID: 16039</b>	As shown in Chapter 4, Section 4.6 Wetland Resources and Waters of the U.S., Table 4.6-3 of the EIS, the proposed Project is projected to reduce the total area of brackish marsh in the Barataria Basin when compared with the No Action Alternative over its operational period. As addressed in Section 4.6, some areas of brackish marsh that would be converted to open water under the No Action Alternative may be

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sustained by sediments transported by the proposed Project; however, some brackish marsh under the proposed Project would be converted to fresh water in the immediate outfall area. Because this issue was considered in the Draft EIS, no related edits have been made to the Final EIS.

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**Concern ID: 63033**

**The executive summary for Wetland Resources and Waters of the U.S. should reiterate in the 3rd sentence of the first paragraph that the proposed Project would benefit wetlands by providing additional nutrients.**

**Response ID: 16040**

Chapter 4, Section 4.6.5.1 in Wetland Resources and Waters of the U.S. of the EIS includes an analysis of the proposed Project's impacts with respect to increased nutrients transported by the diversion to wetlands in the Barataria Basin and the benefits those nutrients would provide. Because this issue was considered in the Draft EIS, no related edits have been made to the Final EIS.

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**Concern ID: 63034**

**The executive summary for Wetland Resources and Waters of the U.S. should provide additional detail on the impact of various river flow volumes on salinity in the birdfoot delta. The validity of this analysis is questionable because high river flows would overwhelm the birdfoot delta with freshwater regardless of a reduction in flow caused by the diversion, while at low flows, when the diversion is most likely to affect salinity in the birdfoot delta, the diversion still only represents a 10 percent reduction in river flow.**

**Response ID: 16041**

Chapter 4, Section 4.6.5.1 in Wetland Resources and Waters of the U.S. of the EIS provides a detailed analysis of the impacts of reduced sediment and freshwater flow to the birdfoot delta associated with the proposed Project. In addition, Figures 4.5-3 and 4.5-4 in Chapter 4, Section 4.5.5.1 in Surface Water and Sediment Quality, depict the average salinity projected under the proposed Project and No Action Alternatives in the Project area (including the birdfoot delta). Salinity was modeled using a historical representative hydrograph to quantify river flows; the representative hydrograph differs by each decade during Project operations. The results of the analysis find that the proposed Project would cause permanent, minor increases in salinity in the birdfoot delta during Project operations; the maximum increase would be 5 ppt above the No Action Alternative conditions. Finally, Appendix E Delft3D Modeling provides a detailed description of the Delft3D Basinwide Model used to provide quantitative projections of proposed Project impacts. Because these issues were considered in the Draft EIS, no related edits have been made to the Final EIS.

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**Concern ID: 63035**

**The executive summary for Wetland Resources and Waters of the U.S. should reconsider the operating plan for Davis Pond and how**

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<b>Response ID: 16042</b>	<p><b>the Davis Pond Diversion would be affected by the proposed Project.</b></p> <p>Chapter 4, Section 4.6.5.1 in Wetland Resources and Waters of the U.S. of the EIS provides a detailed analysis of the impacts of operations of the proposed Project on the Davis Pond Freshwater Diversion. Because this issue was considered in the Draft EIS, no related edits have been made to the Final EIS. The operations plan for the Davis Pond Freshwater Diversion is outside the scope of this analysis. Further, there are no plans at this time to change the operating plan for the Davis Pond Freshwater Diversion Project. As discussed in Chapter 5, Section 5.3 Fish and Wildlife Coordination Act Report Recommendations of the Draft EIS, as part of the Fish &amp; Wildlife Coordination Act consultation, USFWS has recommended, and CPRA has agreed to implement, development of a basin-wide operations and basin monitoring data repository to help in the general coordination among diversion operators, within their authorizations.</p> <p>As part of the evaluation of the proposed Project and potential alternatives, the Delft3D model runs and the EIS assumed operations of other diversions consistent with their current or anticipated operational protocols, including the Davis Pond Freshwater Diversion for the hydrodynamic and water quality simulations. The Davis Pond Freshwater Diversion was not included in the Delft 3D morphological modeling simulations.</p> <p>Based on Delft3D Basinwide Modeling results, proposed MBSD Project operations are expected to reduce the frequency with which the Davis Pond Freshwater Diversion would be operated during certain months of the year to meet its current operational guidelines. Refer to Chapter 4, Section 4.5.7 in Surface Water and Sediment Quality of the EIS for further details on the projected number of days for the Davis Pond Freshwater Diversion opening. Potential impacts to the Davis Pond Freshwater Diversion will be further considered as part of the Section 408 permission request process for the proposed MBSD Project.</p>
<b>Concern ID: 63036</b>	<p><b>The executive summary for Wetland Resources and Waters of the U.S. should clarify whether the stated beneficial impacts on the spread of invasive species would be an adverse impact on the environment, and specify the invasive species considered in this paragraph.</b></p>
<b>Response ID: 16043</b>	<p>Chapter 4, Section 4.6.5.2 in Wetland Resources and Waters of the U.S. of the EIS analyzes the potential impacts on the spread of invasive species in wetlands in the proposed Project area, including identifying the species considered in the analysis. Chapter 4, Section 4.9.4 in Terrestrial Wildlife and Habitat and Section 4.10.4.6 in Aquatic Resources also analyze the potential for Project impacts on the spread of invasive plants and animals in uplands and aquatic habitats. The</p>

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proposed Project could reduce the spread of invasive species in the birdfoot delta, which is considered a beneficial impact to the birdfoot delta. However, operation of the proposed Project could result in the introduction or spread of invasive wetland plant species in the Barataria Basin. The Executive Summary of the Final EIS has been revised to clarify the impact language.

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<b>Concern ID: 63059</b>	<b>The freshwater habitat components of Louisiana’s estuaries are under tremendous threat from erosion, saltwater intrusion, and sea-level rise, and are at risk of completely disappearing given physical limitations preventing inland marsh migration (Glick et al. 2013).</b>
<b>Response ID: 16065</b>	The literature cited by the commenter (Glick et al. 2013) was reviewed. Chapter 3, Section 3.6.2.2 in Wetland Resources and Waters of the U.S. of the EIS describes the causes of historic wetland losses in the Barataria Basin and is consistent with those documented by Glick et al. (2013), including sea-level rise. Because this issue was considered in the Draft EIS, no related edits have been made to the Final EIS.
<b>Concern ID: 63061</b>	<b>Identify the amount of water and sediment diverted during the 2019 Bonnet Carré Spillway opening and describe the creation/restoration of wetlands from those diverted sediments.</b>
<b>Response ID: 16067</b>	The Bonnet Carré Spillway is an emergency flood control structure that is not operated for ecological response. A summary of select natural and man-made diversions in southeastern Louisiana has been developed to compare the purpose and/or characteristics of these diversions to the proposed MBSD Project, and their recorded impacts on the natural environment. This summary, which includes additional discussion on the Bonnet Carré Spillway, is available in Appendix U Summary of Select Natural and Man-made Diversions in Southeastern Louisiana of the Final EIS.
<b>Concern ID: 63062</b>	<b>Early model runs used in the Draft EIS predicted accelerated loss of the brackish marsh in the first 10 to 60 days as these delicate plants cannot tolerate voluminous river water inundation.</b>
<b>Response ID: 16068</b>	Chapter 4, Section 4.6.5.1.2.4 Land Accretion of the Final EIS has been revised to include additional analysis regarding the loss of some wetlands in the immediate outfall area due to scouring and inundation during the initial period following commencement of operations.
<b>Concern ID: 63063</b>	<b>Barataria Basin is host to thousands of miles of unused oil canals, whose neglect has altered local hydrology to the detriment of marshes within 2 kilometers of the “spoil banks” constructed of the cast aside materials from canal excavation. The Draft EIS did not consider these hydrologic alterations as significant. However,</b>

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<b>Response ID: 16069</b>	<b>in the commenter’s experience, the cumulative impact of small canal projects can be significant.</b>
<b>Concern ID: 63039</b>	<b>The proposed Project would create wetlands, which would in turn provide a myriad of benefits, including helping to protect the coastline from sea-level rise and flooding due to storms.</b>
<b>Response ID: 16046</b>	Chapter 4, Section 4.6.5.1 in Wetland Resources and Waters of the U.S. of the Draft EIS disclosed the projected wetland gains. Associated benefits, such as building coastal resiliency, from the proposed Project are addressed throughout the Draft EIS. Also see a discussion of the proposed Project’s benefits in Chapter 3, Section 3.2.1.6 Benefits Multiple Resources of the LA TIG’s Final Restoration Plan.

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## EC60600 - Air Quality

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<b>Concern ID: 61925</b>	<b>The Draft EIS belittled the major impacts the proposed Mid-Barataria Sediment Diversion would have on Ironton, and implied that impacts are limited to construction. Ironton already is inundated with pollution from an upriver grain terminal (CHS) and Alliance Refinery and down river coal export terminals. Removing trees from the land removes a critical buffer of air quality protection for Ironton.</b>
<b>Response ID: 16187</b>	Chapter 3, Section 3.7.2 in Air Quality of the EIS describes the existing air quality classification under the Clean Air Act in the proposed Project area. Plaquemines Parish is designated as “unclassifiable/in attainment” for all criteria pollutants, meaning that the air quality in the area meets or is cleaner than national standards. As described in Chapter 4, Section 4.7.3.2 of the EIS in Air Quality, the Action Alternatives would cause minor to moderate adverse impacts on air quality during construction related to the use of combustion-powered equipment and fugitive dust generated by off-road vehicle use, earthwork (such as land clearing and ground excavation), aggregate and material handling (including concrete manufacturing), and wind erosion of exposed piles of dredged and excavated material. As described in Chapter 4, Section 4.7.4.2 in Air Quality of the EIS, the Action Alternatives would cause negligible air quality impacts during operation of the proposed Project due to active maintenance, which

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would not be sufficient to cause the proposed Project area to be re-designated as a non-attainment area. Tree cover can improve air quality via uptake of pollutants and the proposed Project would require clearing of some of the forest areas between Ironton and the existing Alliance Refinery. However, as depicted in Chapter 4, Section 4.18 Land Use and Land Cover, Figure 4.18-1, forest vegetation would remain on either side of the diversion structure and would continue to provide some buffer to air emissions from the Alliance Refinery and dust from the grain terminal for the community of Ironton. Chapter 3, Section 3.7.2 of the Final EIS was updated to identify existing sources of emissions in the Project vicinity include operation of the Alliance Refinery, the CHS terminal, and other industrial facilities.

Chapter 4, Section 4.15 Environmental Justice of the Final EIS has been revised to clarify information about potential impacts on the community of Ironton.

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**Concern ID: 63127**

**The future without action is a future of increasing oil and gas leaks into the Barataria Basin. The commenters believe that many or most of the ongoing environmental harms to the Barataria Basin are not mentioned in the Draft EIS. The Draft EIS mentioned over 2,600 miles of hazardous liquid pipelines, and over 4,990 “unplugged” (Townsend-Small et al. 2016), inactive wells, 15,979 plugged wells, and 799 active wells. Many of these unplugged, unproductive wells are likely leaking methane into the upper atmosphere.**

**Response ID: 16188**

The EIS acknowledges that oil and gas development has affected the Barataria Basin (see Chapter 3, Section 3.2.3 in Geology and Soils and Section 3.23 Hazardous, Toxic, and Radioactive Waste Assessment of the EIS). In addition, literature provided by the commenter (Townsend-Small et al. 2016), has been reviewed and Chapter 3, Section 3.7.2.1 Climate Change and Greenhouse Gases in the Final EIS has been revised to include a discussion of sources of GHG emissions in Louisiana, including oil and gas production identified in this reference, as well as other ongoing activities.

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## EC60700 - Noise

### No Concerns/Responses for Noise

## EC60800 - Terrestrial Wildlife/Habitat

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**Concern ID: 62889**

**The Draft EIS ignores or underestimates likely positive impacts to upland wildlife (deer, hogs, furbearers, nutria), wetland wildlife (waterfowl, wading birds, colonial nesting birds), and wildlife with**



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<b>Response ID: 16189</b>	<b>lower salinity tolerances (alligators), as well as foraging habitat (migratory shorebirds and neotropical migrants), nesting habitat (marsh birds) and prey availability for a variety of species.</b>
	<p>The Draft EIS evaluated the effects of the proposed Project on terrestrial resources. The impacts of the proposed Project on upland species are discussed in Chapter 4, Section 4.9.4.2 in Terrestrial Wildlife and Habitat of the EIS, but are generally anticipated to be minor and adverse. Conversely, the effects of the proposed Project on wetland wildlife, wildlife with lower salinity tolerances, foraging/nesting habitat, and prey availability in the Barataria Basin are generally anticipated to be beneficial, as discussed throughout Section 4.9 Terrestrial Wildlife and Habitat.</p> <p>In addition, the potential benefits of the proposed Project to multiple resources in the Gulf are described in Section 3.2.1.6 (Benefits Multiple Resources) of the LA TIG's Restoration Plan.</p>
<b>Concern ID: 62890</b>	<b>The wetlands and coastal habitats of Louisiana are essential to the bird populations (both resident and migratory) and must be protected and restored. The proposed Project is important to maintaining and rebuilding important bird habitat.</b>
<b>Response ID: 16190</b>	<p>Chapter 3, Section 3.9.2.1 in Terrestrial Wildlife and Habitat of the Draft EIS identified the importance of area habitats and resources to migratory, and other, birds in the Barataria Basin. Further, Chapter 4, Section 4.9.4.2 in Terrestrial Wildlife and Habitat of the Draft EIS, discussed the maintenance and creation of marsh, as well as initial land accretion and creation of mudflats, that is projected to occur as part of the proposed Project, and identified that the net addition of these habitats would generally be beneficial to waterfowl and shorebirds.</p> <p>The potential benefits of the proposed Project to resources in the Gulf, including birds, are also described in Section 3.2.1.6 (Benefits Multiple Resources) of the LA TIG's Restoration Plan.</p>
<b>Concern ID: 62892</b>	<b>The proposed MBSD Project would create wetlands supportive of birds (bald eagles, spring and fall migrants, waterbirds, and marsh birds) and other wildlife that are experiencing a high rate of coastal land (habitat) loss.</b>
<b>Response ID: 16191</b>	<p>Chapter 4, Section 4.9.4.2 in Terrestrial Wildlife and Habitat of the Draft EIS, discussed the maintenance and creation of marsh that is projected to occur as part of the proposed Project, and identified that the net addition of wetlands would generally be beneficial to area birds. As identified in Section 4.12.3.2 in Threatened and Endangered Species of the Draft EIS, the creation and maintenance of wetlands could affect bald eagle aquatic foraging habitat and prey species, but would likely result in negligible effects on the bald eagle itself.</p>

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The potential benefits of the proposed Project to resources in the Gulf, including birds, are also described in Section 3.2.1.6 (Benefits Multiple Resources) of the LA TIG's Restoration Plan.

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**Concern ID: 62893****The proposed MBSD Project would kill wildlife.****Response ID: 16192**

As described in Chapter 4, Section 4.9 Terrestrial Wildlife and Habitat of the Draft EIS, wildlife would experience both adverse and beneficial impacts during proposed Project construction and operations, with specific impacts depending on the individual life history and tolerances of a given species.

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**Concern ID: 62894**

**Colonial nesting waterbirds are documented within 1 mile of the proposed Project and activities within a certain radius of an active colony are generally prohibited. Nesting colonies can move from year to year and no current information is available on the status of these colonies. If work for the proposed Project would commence during the nesting season, a field visit to the worksite to look for evidence of nesting colonies is required. This field visit should take place no more than 2 weeks before construction begins. If no nesting colonies are found within 1,000 feet (2,000 feet for brown pelicans) of the proposed Project, no further consultation with Louisiana Wildlife Diversity Program (WDP) staff may be necessary. If active nesting colonies are found within the previously stated distances of the proposed Project, further consultation with WDP staff would be required. Colonies should be surveyed by a qualified biologist to document species present and the extent of colonies. Additionally, LDWF should be provided with a survey report. For report requirements and restrictions for minimizing disturbance to colonial nesting birds or if at any time Louisiana Natural Heritage Program-tracked species are encountered within the proposed Project area, please contact our WDP biologists at 225-765-2643.**

**Response ID: 16193**

As noted in Chapter 4, Section 4.9.3.2 in Terrestrial Wildlife and Habitat and Appendix R1 (Mitigation and Stewardship Plan) of the EIS, if a permit is issued, CPRA would conduct pre-construction surveys for colonial waterbirds and would provide the survey results to the LDWF for review. As further noted in Chapter 5, Section 5.3 Fish and Wildlife Coordination Act Report Recommendations of the EIS, if a permit is issued, CPRA has agreed to implement Conservation Recommendation 13 resulting from the Fish and Wildlife Coordination Act consultation with USFWS, which requires inspection and monitoring measures similar to those recommended by the commenter. Because this issue was addressed in the Draft EIS, no related edits have been made to the Final EIS.

The Mitigation and Stewardship Plan and the Monitoring and Adaptive Management (MAM) Plan provided in the Draft EIS Appendix R were

submitted by CPRA and represent a range of potential mitigation, stewardship, monitoring and adaptive management measures (collectively, measures). At the time of publication of the Draft EIS for public review, Appendix R contained draft Plans and CPRA had not identified which of the measures contained in those Plans it intended to implement. The Final EIS Appendix R contains the final Plans and specifies which measures CPRA and the LA TIG intend to implement. Generally, impact determinations discussed in the EIS represent anticipated Project effects without implementation of these measures except in instances where such measures are identified in the discussion. If any mitigation, monitoring, or adaptive management measures are required by USACE as part of its approval of the proposed Project, such measures would be required as special conditions of the Department of the Army (DA) Section 10/404 permit and would be listed in the permit, if one is issued. Implementation of specific measures contained in either Plan, but not included in the Section 10/404 permit as special conditions, would not be required by USACE. USACE does not know whether any particular measure that is not a DA permit condition would be implemented. Measures that USACE currently contemplates as conditions of a DA Section 10/404 permit, if one is issued, are provided in Chapter 4, Section 4.27 Mitigation Summary of the EIS.

The LA TIG explains in Section 1.5 of the Final Restoration Plan that it anticipates requiring implementation of the Mitigation and Stewardship Plan, MAM Plan, and Marine Mammal Intervention Plan as components of the proposed Project, if the Project is approved by the LA TIG for funding. Decisions regarding which measures would be required as part of the LA TIG's funding decision would be set forth in the LA TIG Record of Decision related to the proposed Project.

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**Concern ID: 62895**

**Feral hogs significantly damage levee systems and the increased water levels surrounding marshes would drive them (and other wildlife) further onto the current levee system, exacerbating the damage. Commenter asked how the issue would be addressed.**

**Response ID: 16166**

As noted in Chapter 4, Section 4.9 in Terrestrial Wildlife and Habitat of the Draft EIS, while feral hogs are sometimes found in marsh habitat, they are more common in forested habitat. As described in Section 4.4 Surface Water and Coastal Processes, water level increases from the proposed Project are not expected in northern portions of the basin or within federal levee systems. As shown in Chapter 3, Section 3.6 Wetland Resources and Waters of the U.S., Figure 3.6-1, and Section 3.18.2 Existing Land Use/Land Cover, Figure 3.18-1 forested lands/wetlands are located primarily in these areas. Therefore, increased water levels from the diversion are not expected to appreciably increase feral hog use of and damage to levees in the proposed Project area. Construction of the proposed Project would be

expected to destroy and remove approximately 149 acres of forested lands (about 20 acres of which are forested wetlands) from within the Project construction footprint. Feral hogs using those forests would be displaced during construction and operation and would be expected to move to other areas. See Sections 4.9.3.2 and 4.9.4.2 of the Draft EIS. Section 4.9.4.2.3.2 Terrestrial Invasive Animals was updated for the Final EIS to discuss the potential for feral hogs to damage levees during periods of increased water levels.

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**Concern ID: 62896**

**Some wildlife species would have higher survival, but the survival of others would decrease. Commenter expressed concern regarding impacts on wildlife and questioned if there would be more gains than losses.**

**Response ID: 16194**

As described in Chapter 4, Section 4.9 Terrestrial Wildlife and Habitat of the Draft EIS, wildlife would experience both adverse and beneficial impacts during proposed Project construction and operations, with specific impacts depending on the individual life history and tolerances of a given species. The proposed Project is not anticipated to result in the loss of individual species throughout the Barataria Basin, but rather would cause a shift in the species assemblages to account for the modified habitat present in the basin. For example, species with higher-salinity requirements that are currently present would remain during operation of the proposed Project, but would likely move further south to account for changing salinities. These potential impacts of the proposed Project on various species and wildlife groups are analyzed and described in detail in Chapter 4, Sections 4.9 Terrestrial Wildlife and Habitat, 4.10 Aquatic Resources, 4.11 Marine Mammals, and 4.12 Threatened and Endangered Species in the EIS.

As discussed in Sections 4.16.5.1 and 4.16.5.2 in Recreation and Tourism, the proposed Project would cause minor, permanent, adverse impacts on recreational fishing for spotted seatrout and moderate, permanent, beneficial impacts on recreational fishing for red drum, which are the most targeted species by recreational anglers in the basin (targeted in 87 percent of angler trips between 2014 and 2018). Other species that are targeted include southern flounder, largemouth bass, sheepshead, black drum, sand seatrout, gafftopsail catfish, and blue crab. Both adverse and beneficial impacts to these species are anticipated over time relative to the No Action Alternative, but are anticipated to have negligible effects on angling effort in the basin, as these species are targeted in less than 2 percent of angling trips. Section 4.16.5.2.3 Recreational Fishing of the Final EIS has been updated to acknowledge that some recreational fishers may need to modify their traditional fishing locations to target specific species that may modify habitat use (either temporarily or permanently) based on changing salinities.

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<b>Concern ID: 62898</b>	<b>The 2018 publication “Bird distribution among marsh types on the northern Gulf of Mexico” in the Journal of Coastal Research (vol. 34 (5):1060-1086) presents the results of bird counts at 100 locations in the marsh, tracked for several years starting in 2010.</b>
<b>Response ID: 16196</b>	The literature cited by the commenter (Yaukey 2018) has been reviewed and incorporated into Chapter 4, Section 4.9.4.2.2.3 Wetlands (Wet Pasture/Marsh/Bottomland Hardwoods) of the Final EIS.

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<b>Concern ID: 62900</b>	<b>The Draft EIS underestimated likely benefits of the proposed Project on wildlife and habitat, as indicated by the receiving areas of the Mississippi and Atchafalaya Rivers, which are vastly more productive and show greater wildlife diversity and abundance than comparable areas of fresh and brackish marsh with no riverine input. A few select instances where this is apparent include:</b>
	<ul style="list-style-type: none"><li>• <b>waterfowl and wading bird abundance;</b></li><li>• <b>foraging habitat for migratory shorebirds and neotropical migrants;</b></li><li>• <b>nesting habitat for marsh birds;</b></li><li>• <b>prey availability for a wide variety of predators (birds, amphibians, reptiles, fish, and terrestrial and marine mammals);</b></li><li>• <b>net benthic and fisheries productivity;</b></li><li>• <b>growth rates and density for submerged aquatic vegetation;</b></li><li>• <b>the revival of woody vegetation, important for local songbirds, neotropical migrants and wintering birds;</b></li><li>• <b>pioneer species like black willow (which is exploding in the Davis Pond, Caernarvon and Mardi Gras Pass outfall areas);</b></li><li>• <b>bald cypress retention and recruitment in areas formerly too saline or submerged; and</b></li><li>• <b>survival and recruitment of live oaks and other maritime forest vegetation on natural levees and cheniers where saline soils have inhibited their growth, recruitment, and survival for decades.</b></li></ul>
<b>Response ID: 16198</b>	Chapter 4, Section 4.9.4.2 in Terrestrial Wildlife and Habitat of the EIS, discusses the benefits to waterfowl (and other birds) and general wildlife from the wetlands projected to be built or maintained in the Barataria Basin by the proposed Project. In addition, Sections 4.10.4.1 and 4.10.4.4 in Aquatic Resources indicate major beneficial impacts on SAV and minor to moderate beneficial impacts on fauna (through food

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web production), respectively, in the Barataria Basin from operation of the proposed Project.

A summary of select natural and man-made diversions in southeastern Louisiana has been developed to compare the purpose and/or characteristics of these diversions to the proposed MBSD Project, and to discuss their recorded impacts on the natural environment. This summary, which includes observed changes in wildlife, wildlife habitat, and vegetation growth from other diversions, is available in Appendix U Summary of Select Natural and Man-made Diversions in Southeastern Louisiana of the Final EIS.

In addition, the potential benefits of the proposed Project to multiple resources in the Gulf are described in Section 3.2.1.6 (Benefits Multiple Resources) of the LA TIG's Restoration Plan.

<b>Concern ID: 62905</b>	<b>The wetlands in the birdfoot delta and species better adapted to high-salinity environments would be negatively affected.</b>
<b>Response ID: 16202</b>	Wetlands in the birdfoot delta would be negatively impacted by the proposed Project as discussed in Chapter 4, Section 4.6.5 in Wetland Resources and Waters of the U.S. of the EIS. Brackish and saline marsh, as well as species better adapted to higher salinities, would generally be negatively affected in areas closer to the diversion where salinity decreases are expected to be pronounced (see Chapter 4, Section 4.10 Aquatic Resources of the EIS); however, as noted in Section 4.5.5.1 in Surface Water and Sediment Quality, the salinity in the birdfoot delta is actually anticipated to increase slightly with proposed Project operations. Adverse impacts to wildlife from operation of the proposed Project are also discussed in the EIS, and more information on these impacts can be found in Chapter 4, Section 4.9 Terrestrial and Wildlife Habitat. Because this issue was addressed in the Draft EIS, no related edits have been made to the Final EIS.
<b>Concern ID: 62897</b>	<b>Organic plant biomass is being converted to animal biomass as marsh loss occurs, serving as a prey base. But there is a fixed quantity of stored organic biomass and once it is gone, it is gone. Therefore, the No Action Alternative would have dire consequences overall for coastal bird and wildlife populations and the habitats on which they depend, because the system's energy continues to be depleted.</b>
<b>Response ID: 16195</b>	The comment is consistent with the EIS (Chapter 4, Section 4.9.4.1 in Terrestrial Wildlife and Habitat) that identifies continued wetland loss to be a major adverse impact on wetland wildlife due, in part, to a decreasing food source. In addition, as stated in Section 4.10.4.4 in Aquatic Resources, the current Barataria Basin food web is relatively complicated with a high degree of resilience, although detritus plays an important role. In a system that would become predominantly open



water and soft bottom habitat with a low amount of wetlands, the food web would likely become more plankton-based and less detrital-based. This would represent a reduction in net system energy flow, trophic diversity, and faunal diversity compared to the existing system. The system could therefore be less resilient compared to one with multiple trophic pathways and detrital subsidies. Because this issue was addressed in the Draft EIS, no related edits have been made to the Final EIS.

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<b>Concern ID: 62899</b>	<b>The Draft EIS likely underestimated the value of the riverine reintroduction to wildlife and the estuarine system, as seen at the sites of several new planned and accidental riverine avulsions, such as West Bay, Mardi Gras Pass, Fort St. Philip, delta-wide crevasses in the birdfoot delta, Davis Pond, Caernarvon, and Wax Lake. Biophysically, the introduction of carbon, nitrogen, and phosphorus into declining marshes would automatically trigger concomitant increases in net primary productivity, with beneficial effects amplified up the trophic pyramid (Day et al. 2021, Tupitza and Glaspie 2020, Wissel and Fry 2005).</b>
<b>Response ID: 16197</b>	A summary of select natural and man-made diversions in southeastern Louisiana, including those noted by the commenter, has been developed to compare the purpose and/or characteristics of these diversions to the proposed MBSD Project, and their recorded impacts on the natural environment. This summary, which includes the impacts of these other diversions on wildlife and the respective estuarine systems, is available in Appendix U Summary of Select Natural and Man-made Diversions in Southeastern Louisiana of the Final EIS. In addition, the impacts of nutrient input from the proposed Project on the food web were discussed in Chapter 4, Section 4.10.4.4 in Aquatic Resources of the Draft EIS, which is consistent with the commenter's referenced statement and acknowledges the anticipated increase in primary productivity (and associated benefits to the food web) from nutrient input during Project operations and no changes to the Final EIS were warranted.
<b>Concern ID: 62901</b>	<b>The executive summary for Terrestrial Wildlife and Habitat is confusing and should be put into the context of the delta cycle (that more salt tolerant species are reflective of an abandoned, degrading delta lobe).</b>
<b>Response ID: 16199</b>	The commenter's request regarding the evaluation of impacts on terrestrial wildlife and habitat is acknowledged. To help address these concerns, additional discussions of the delta cycle, and the role that the diversion may play in this cycle, has been added to Chapter 3, Sections 3.1.4.2 Barataria Basin and 3.2.1.1 Historical Context of the Final EIS. Additional discussion related to the Project's impacts on geomorphology and historic deltaic landforms has also been added to

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Chapter 4, Section 4.2.3.2.2.3, Geomorphology. However, it is important to note that, as identified in Chapter 2, Section 2.9 Summary of Environmental Consequences Under Each Alternative and discussed throughout Chapter 4 Environmental Consequences of the EIS, the No Action Alternative is compared to existing conditions to understand the anticipated changes in the environment that would occur irrespective of the proposed Project. Thereafter, the anticipated environmental consequences of the proposed Project action alternatives are compared to the results of the No Action Alternative analysis. Section ES.1 Introduction and Authority of the Executive Summary has been revised to include this clarification.

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**Concern ID: 62903**

**The freshening of systems allows the revival and recolonization of freshwater and brackish species. This is dramatically true in the case of trees and shrubs, few of which tolerate higher salinities. In the outfall areas of existing recent diversions, early successional willows are growing in profusion (for example, see CRMS3169), and succession to longer lived species like bald cypress would very likely follow. Meanwhile, on higher ground, stressed and dying natural levee and chenier vegetation like live oak may be revived, and recruitment of new woody vegetation can begin again.**

**Response ID: 16200**

A summary of select natural and man-made diversions in southeastern Louisiana has been developed to compare the purpose and/or characteristics of these diversions to the proposed MBSD Project, and their recorded impacts on the natural environment. This summary is available in Appendix U Summary of Select Natural and Man-made Diversions in Southeastern Louisiana of the Final EIS. Chapter 4, Section 4.9.4.2.1 Vegetation has also been revised to supplement the analysis of proposed Project's impacts on vegetation.

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**Concern ID: 63853**

**Louisiana wetlands provide habitat for 5 million migratory waterfowl during the winter months. Other migratory birds depend on the natural habitats of wetlands, marsh islands, estuary crabs, white/brown shrimp, finfish species, and oysters.**

**Response ID: 16203**

Chapter 3, Section 3.9.2.1 in Terrestrial Wildlife and Habitat of the Draft EIS identified the importance of area habitats and resources to migratory, and other, birds in the Barataria Basin. In addition, Chapter 4, Sections 4.6 Wetland Resources and Waters of the U.S. and 4.9 Terrestrial Wildlife and Habitat, discussed the benefits of the additional wetland creation that would be anticipated with the proposed Project, including the benefits of those wetlands on waterfowl. There would be both adverse and beneficial impacts on the food resources listed for migratory birds, including adverse impacts on brown shrimp, oysters, and some finfish, and beneficial impacts on blue crab, white shrimp,

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and certain finfish, as discussed in Chapter 4, Section 4.10.4.5 in Aquatic Resources.

In addition, the potential benefits of the proposed Project to multiple resources in the Gulf are described in Section 3.2.1.6 (Benefits Multiple Resources) of the LA TIG's Restoration Plan.

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**Concern ID: 62904**

**The loss of any single species would disrupt the local ecology, leading to harsher responses to natural disasters.**

**Response ID: 16201**

As described in Chapter 4, Section 4.9 Terrestrial Wildlife and Habitat of the Draft EIS, wildlife would experience both adverse and beneficial impacts during proposed Project construction and operations, with specific impacts depending on the individual life history and tolerances of a given species. The proposed Project is not anticipated to result in the loss of individual species throughout the Barataria Basin, but rather would cause a shift in the species assemblages to account for the modified habitat present in the basin. For example, species with higher-salinity requirements that are currently present would remain during operation of the proposed Project, but would likely move further south to account for changing salinities. The potential impacts of the proposed Project on various species and wildlife groups are analyzed and described in detail in Chapter 4, Sections 4.9 Terrestrial Wildlife and Habitat, 4.10 Aquatic Resources, 4.11 Marine Mammals, and 4.12 Threatened and Endangered Species of the EIS. Because this issue was addressed in the Draft EIS, no related edits have been made to the Final EIS.

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## EC60900 - Aquatic Resources

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**Concern ID: 62690**

**The proposed Project would destroy the ecosystem and its flora and fauna, including oyster, shrimp, crabs, fish, sea turtles, and dolphins.**

**Response ID: 16073**

As discussed throughout Chapter 4 Environmental Consequences of the Draft EIS, the proposed Project would result in impacts on the general character of the Barataria Basin, including, but not limited to, salinity, temperature, land accretion, and water quality. These impacts would generally be either adverse or beneficial on a given species depending on habitat tolerances of area plants and animals, with moderate to major adverse impacts anticipated to those plants and animals that are unable to tolerate the modified habitat. In many cases, impacts on the Barataria Basin resources would be higher near the diversion outfall, where land building/sedimentation, salinity, and water level impacts would be greatest, and would decrease with distance from the outfall. For example, the decrease in salinity that would occur

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upon initial operation of the proposed Project would result in major adverse impacts on various species (oysters, brown shrimp, bottlenose dolphins) over a relatively short period of time; however, the accumulating fresh water and sediments would create or maintain wetlands over long-term or permanent basis (that is, extending through the remainder of the 50-year period of analysis) which would benefit other commercially or recreationally important aquatic species such as white shrimp, blue crab, and Gulf menhaden, and would increase storm protection for communities north of the immediate outfall area; the Delft3D Basinwide Model projects these benefits to increase over time and to be greatest in the 2060s (see Chapter 4, Sections 4.6.5.1 in Wetland Resources and Waters of the U.S., 4.10.4.5 in Aquatic Resources, 4.11.5.2 in Marine Mammals, and 4.20.4.2 in Public Health and Safety, Including Flood and Storm Hazard Risk Reduction). As discussed in Section 4.12.2.2 Sea Turtles, the proposed Project would have negligible to minor adverse impacts on hawksbill and leatherback sea turtles, but minor to moderate adverse impacts on Kemp's ridley, green, and loggerhead sea turtles due to the potential for increased interactions between sea turtles and commercial shrimp fishing efforts, if shrimp and shrimp fishers move from mid-basin locations to locations lower in the basin or in nearshore/offshore waters (where more sea turtles would be present). However, NMFS has determined that these impacts would not jeopardize the continued existence of sea turtles (see Appendix O4 NMFS Biological Opinion of the Final EIS).

The USACE and the LA TIG are evaluating the projected impacts of the Project in the EIS. As part of its Section 10/404 permitting decision-making process, USACE also conducts a public interest review, which weighs the probable harms of the proposed action against its potential benefits.

The LA TIG recognizes that any of the large-scale sediment diversion alternatives considered would potentially result in varying degrees of collateral injuries, including some high degree collateral injuries, to natural resources that were injured by the spill (see the Executive Summary and Section 3.2.1.5 [Avoids Collateral Injury] of the LA TIG's Restoration Plan). The intended restoration of fresh water flows from the Mississippi River, which historically had characterized and shaped the Barataria Basin ecosystem before levee construction, would result in collateral injury to species that depend on the current higher-salinity conditions in the basin. However, without the proposed Project, there would also be adverse impacts to some of the same species due to large-scale wetland loss over time, as is anticipated from ongoing sea-level rise, subsidence, and other existing stressors, which is anticipated to reduce the suitability of habitat for many of the species that currently occur in Barataria Basin. The LA TIG must weigh the potential for and extent of collateral injury against the benefits of the proposed Project

(see Section 3.2.4 [Overall OPA Evaluation Conclusions] of the Restoration Plan for a discussion of how the LA TIG weighed the potential collateral injury of the proposed Project against its potential benefits). The LA TIG believes that a sediment diversion is the only way to achieve a self-sustaining ecosystem in the Barataria Basin that creates and maintains wetlands. As described in Section 3.2.1.6 (Benefits Multiple Resources – Alternative 1) of the Restoration Plan, this sustained ecosystem would be expected to benefit many fish and wildlife species in the basin, including many of those negatively affected by the spill, such as red drum, blue crab, white shrimp, Gulf menhaden, and migratory waterfowl. These benefits to fish and wildlife species also would translate to benefits to recreational users who watch, fish, or hunt those species. In addition, these benefits would not only accrue throughout the Barataria Basin but, through the transport of productivity, also in the offshore ecosystems of the northern Gulf of Mexico. The LA TIG's Restoration Plan indicates that by reestablishing deltaic processes, the proposed Project would be expected to enhance the ecological productivity of the estuary and improve food web dynamics that would provide benefit to the northern Gulf of Mexico ecosystem.

The LA TIG has selected the proposed Project as its Preferred Alternative in the Final Restoration Plan because it believes it is critical to achieving the overall goals of the Wetlands, Coastal, and Nearshore Habitats Restoration Type in the NRDA Trustees' Final PDARP/PEIS, which include providing benefits across the interconnected northern Gulf of Mexico ecosystem, and placing particular emphasis on coastal and nearshore habitat restoration in the historical Mississippi River Delta plain in Louisiana.

The CPRA has revised its Mitigation and Stewardship Plan and Monitoring and Adaptive Management (MAM) Plan in response to public concerns about these impacts. See Appendices R1 and R2 to the Final EIS for more information.

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<b>Concern ID: 62692</b>	<b>The proposed Project would introduce or facilitate the spread of invasive species (for example, carp, zebra mollusks, apple snails, Asian clams, water hyacinth, giant salvinia, hydrilla, nutria, northern snakehead) and freshwater pathogens to the basin, which could affect other living resources and impede navigation.</b>
<b>Response ID: 16074</b>	The commenter correctly notes the potential for the proposed Project to introduce or facilitate the spread of invasive species from the Mississippi River into the Barataria Basin and resulting from the alteration of existing habitat characteristics, which is consistent with discussions in the EIS in Chapter 3, Section 3.10.6 and Chapter 4, Section 4.10.4.6 in Aquatic Resources; Sections 3.6.3 and 4.6.5.2 in Wetland Resources and Waters of the U.S.; and Sections 3.9.4 and

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4.9.4.2 in Terrestrial Wildlife and Habitat. The sections in Chapter 4 also identify how the introduction or spread of invasive species may negatively impact other living resources. The northern snakehead is not currently known to occur in Louisiana; however, if its presence is later identified in the Mississippi River, its introduction or spread via the proposed Project would result in similar impacts on the environment as those described in Section 4.10.4.6 Aquatic Invasive Species of the EIS. The potential introduction of pathogens (specifically, fecal coliform [not typically pathogenic, but an indicator for other pathogenic bacteria] and Enterocci) is discussed in Section 4.5.5.8 Fecal Coliform; a discussion of fecal coliform has been added to Section 4.10.4.4.2.5 Dissolved Oxygen of the Final EIS. Section 4.10.4.6.2.1 Aquatic Invasive Species has also been supplemented to discuss potential threats to navigation in the Final EIS.

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**Concern ID: 62696**

**Oysters are not well adapted to prolonged periods of low salinity and would experience higher mortality and lower reproductive success as a result of the proposed Project.**

**Response ID: 16075**

The commenter correctly notes the impacts on oysters from low salinity. As discussed in Chapter 4, Section 4.10.4.5 in Aquatic Resources of the Draft EIS, operation of the proposed Project would result in a permanent, major adverse impact on oysters, due in large part to decreases in salinity.

To address Project impacts, CPRA would implement a fishery mitigation plan, which has been revised for the Final EIS in response to public comments (see the Mitigation and Stewardship Plan, Appendix R1 of the Final EIS). Mitigation and stewardship measures aimed at oyster impacts include establishment of new oyster seed grounds in appropriate areas of the basin, enhancing existing public and private seed ground, enhancement of broodstock reefs, and funding to support off-bottom oyster culture.

Although not being implemented to mitigate the effects of the MBSD, the LA TIG also continues to address oil spill related injuries to oysters through various non-Project-related restoration/fishery improvement actions, including: the LA TIG's funding of \$10 million in public and private oyster reef enhancement through the Living Coastal and Marine Resources funding allocation, the LA TIG's funding of \$9.7 million in oyster broodstock reef enhancement through the Living Coastal and Marine Resources funding allocation, and the LA TIG's allocation of \$5.8 million in Living Coastal and Marine Resources funds to support the operations of the Voisin Hatchery.

The Mitigation and Stewardship Plan and the Monitoring and Adaptive Management (MAM) Plan provided in the Draft EIS (Appendix R) were submitted by CPRA and represent a range of potential mitigation, stewardship, monitoring and adaptive management measures

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(collectively, measures). At the time of publication of the Draft EIS for public review, Appendix R contained draft Plans and CPRA had not identified which of the measures contained in those Plans it intended to implement. The Final EIS Appendix R contains the final Plans and specifies which measures CPRA and the LA TIG intend to implement. Generally, impact determinations discussed in the EIS represent anticipated Project effects without implementation of these measures except in instances where such measures are identified in the discussion. If any mitigation, monitoring, or adaptive management measures are required by USACE as part of its approval of the proposed Project, such measures would be required as special conditions of the Department of the Army (DA) Section 10/404 permit and would be listed in the permit, if one is issued. Implementation of specific measures contained in either Plan, but not included in the Section 10/404 permit as special conditions, would not be required by USACE. USACE does not know whether any particular measure that is not a DA permit condition would be implemented. Measures that USACE currently contemplates as conditions of a DA Section 10/404 permit, if one is issued, are provided in Chapter 4, Section 4.27 Mitigation Summary of the EIS.

The LA TIG explains in Section 1.5 of the Final Restoration Plan that it anticipates requiring implementation of the Mitigation and Stewardship Plan, MAM Plan, and Marine Mammal Intervention Plan as components of the proposed Project, if the Project is approved by the LA TIG for funding. Decisions regarding which measures would be required as part of the LA TIG's funding decision would be set forth in the LA TIG Record of Decision related to the proposed Project.

<b>Concern ID: 62698</b>	<b>Brown shrimp are not well adapted to prolonged periods of low salinity and would experience higher mortality and lower reproductive success as a result of the proposed Project.</b>
<b>Response ID: 16076</b>	The commenter correctly notes the impacts on brown shrimp from low salinity, as discussed in Chapter 4, Section 4.10.4.5 in Aquatic Resources; however, as noted in the Draft EIS, brown shrimp reproduce offshore and, although the number of shrimp surviving to reproduce may change, the reproductive success of surviving shrimp is not anticipated to change. Overall, the Draft EIS anticipated a permanent, major adverse impact on brown shrimp from the proposed Project, due in part to reduced salinity in portions of the Barataria Basin.
<b>Concern ID: 62699</b>	<b>The Draft EIS ignores the beneficial effects of low-salinity waters on low-salinity-tolerant and freshwater species.</b>
<b>Response ID: 16077</b>	The EIS acknowledges the beneficial effects of low-salinity waters on low-salinity-tolerant and freshwater species throughout Chapter 4, Sections 4.9 Terrestrial Wildlife and Habitat and 4.10 Aquatic



Resources, which identify that the impacts on a given species are related to their salinity tolerance and habitat preferences. For example, the EIS indicates that low-salinity waters would directly benefit alligators, largemouth bass (and other freshwater fishes), and the biomass of SAV. Because this issue was addressed in the Draft EIS, no related edits were made to the Final EIS. These benefits, among others, are also described in Chapter 3, Section 3.2.1.6 in OPA Evaluation of the Alternatives of the LA TIG's Restoration Plan; because this was described in the Draft Restoration Plan, no related edits were made to the Final Restoration Plan.

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**Concern ID: 62700**

**The oysters would move further south and the white shrimp and bass would benefit from the freshwater diversion.**

**Response ID: 16078**

The commenter correctly notes the potential for oysters to use more southern areas of Barataria Bay, and the proposed Project benefits to white shrimp and bass, as described in Chapter 4, Section 4.10.4.5 in Aquatic Resources of the Draft EIS. This benefit, among others, was also described in Chapter 3, Section 3.2.1.6 in OPA Evaluation of the Alternatives of the LA TIG's Draft Restoration Plan.

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**Concern ID: 62701**

**The commenter expressed concern regarding impacts on fishing and questions if a net gain or loss of survival would occur if the increased survival of certain fish species due to the freshwater input were compared to the decreased survival of others.**

**Response ID: 16079**

As described throughout Chapter 4, Section 4.10 Aquatic Resources of the EIS, operation of the proposed Project would affect fish species in the Barataria Basin in both beneficial and adverse ways, with the overall impacts to a given species being dependent on that species' habitat preferences and tolerances. The proposed Project is not anticipated to result in the loss of individual species throughout the Barataria Basin, but rather would cause a shift in the species assemblages to account for the modified habitat present in the basin. For example, species with higher-salinity requirements that are currently present (for example, brown shrimp, oysters) would remain during operation of the proposed Project but would likely move further south to account for changing salinities (see Chapter 4, Section 4.10.4.5 in Aquatic Resources of the EIS).

As discussed in Sections 4.16.5.1 and 4.16.5.2 in Recreation and Tourism, the proposed Project would cause minor, permanent, adverse impacts on recreational fishing for spotted seatrout and moderate, permanent, beneficial impacts on recreational fishing for red drum, which are the most targeted species by recreational anglers in the basin (targeted in 87 percent of angler trips between 2014 and 2018). Other species that are targeted include southern flounder, largemouth bass, sheepshead, black drum, sand seatrout, gafftopsail catfish, and blue crab. Both adverse and beneficial impacts to these species are



anticipated over time relative to the No Action Alternative, but are anticipated to have negligible effects on angling effort in the basin, as these species are targeted in less than 2 percent of angling trips. Section 4.16.5.2.3 Recreational Fishing of the Final EIS has been updated to acknowledge that some recreational fishers may need to modify their traditional fishing locations to target specific species that may modify habitat use (either temporarily or permanently) based on changing salinities.

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**Concern ID: 62702**

**The movement from an estuary to a delta-building system would adversely impact commercially-harvested species.**

**Response ID: 16080**

The movement from an estuary to a delta-building system would result in either adverse or beneficial impacts on commercially-harvested species, based on habitat preferences and life histories, as summarized in Chapter 4, Section 4.10 Aquatic Resources, Table 4.10-6 of the Draft EIS. In the LA TIG's Draft Restoration Plan, commercially-harvested species that could experience collateral injury from the proposed Project were also described in Chapter 3, Section 3.2.1.5 in OPA Evaluation of the Alternatives, and species that could benefit from the proposed Project were discussed in Section 3.2.1.6 Benefits Multiple Resources.

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**Concern ID: 62703**

**The proposed Project would preclude larval recruitment of shrimp, oyster, crab and essential finfish.**

**Response ID: 16081**

The proposed Project would preclude recruitment of certain larval species in certain areas of the basin (generally the outfall area and into the mid-basin) during certain portions of their transport period, as discussed in Chapter 4, Section 4.10.4.5 in Aquatic Resources of the Draft EIS. For example, operations above base flow would vary year by year, but are generally expected to occur between December/January and June/July and would overlap the majority of the larval transport period for brown shrimp (late January to June), thereby precluding larval recruitment to the outfall area. However, Atlantic croaker larvae are transported into the estuary from October to May (with peaks in November and February), such that larval migration to the outfall area would be precluded only during a portion of its larval transport period.

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**Concern ID: 62704**

**The Executive Summary for Aquatic Resources should clarify that wetland habitats are distinct from "open water" habitats.**

**Response ID: 16082**

The Executive Summary for Aquatic Resources in the Draft EIS accurately identified wetlands as a habitat that benefits aquatic fauna due to the presence of vegetation and habitat structure. The Executive Summary in the Final EIS has been updated to distinguish structured habitat (such as wetlands) from open water habitats.

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<b>Concern ID: 62705</b>	<b>The Executive Summary for Aquatic Resources should acknowledge that the proposed Project impacts must be considered in the context of the delta cycle.</b>
<b>Response ID: 16083</b>	The commenter's request regarding the evaluation of impacts on aquatic resources is acknowledged. To help address these concerns, additional discussions of the delta cycle, and the role that the diversion may play in this cycle, have been added to Chapter 3, Sections 3.1.4.2 Barataria Basin and 3.2.1.1 Historical Context of the Final EIS. Additional discussion related to the Project's impacts on geomorphology and historic deltaic landforms has also been added to Chapter 4, Section 4.2.3.2.2.3, Geomorphology. However, it is important to note that, as identified in Chapter 2, Section 2.9 Summary of Environmental Consequences Under Each Alternative and discussed throughout Chapter 4 Environmental Consequences of the EIS, the No Action Alternative is compared to existing conditions to understand the anticipated changes in the environment that would occur irrespective of the proposed Project. Thereafter, the anticipated environmental consequences of the proposed Project action alternatives are compared to the results of the No Action Alternative analysis. Section ES.1 Introduction and Authority of the Executive Summary has been revised to include this clarification.
<b>Concern ID: 62707</b>	<b>The EIS does not acknowledge, or underestimates, the beneficial impacts of river water on the growth rates and density of SAV in coastal Louisiana.</b>
<b>Response ID: 16085</b>	Chapter 4, Section 4.10.4.1 in Aquatic Resources of the EIS discusses the impacts of the proposed Project on SAV, including the overall beneficial impact of freshwater input on SAV biomass. Because this issue was addressed in the Draft EIS, no related edits were made to the Final EIS.
<b>Concern ID: 62708</b>	<b>The release of polluted river water into the Barataria Basin would create harmful algal blooms and/or large areas of low dissolved oxygen that could negatively affect aquatic fauna including mortality of adults and juveniles that may not be able to escape impacted areas.</b>
<b>Response ID: 16086</b>	As discussed in Chapter 4, Section 4.10.4.4 in Aquatic Resources of the EIS, the input of nutrients from the Mississippi River is generally anticipated to be beneficial to the food web, although there is an acknowledged potential for harmful algal blooms. As mentioned in Section 4.5.5.1 in Surface Water and Sediment Quality of the EIS, the majority of the Barataria Basin is shallow and well-mixed by wind and tidal action, such that it is not typically prone to stratification that promotes hypoxic (dissolved oxygen of less than 2 to 3 mg/L) conditions. Further, as discussed in Section 4.10.4.4 in Aquatic Resources, the Delft3D Basinwide Model's dissolved oxygen results do

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not suggest that Project implementation would result in oxygen concentrations below 5 mg/L on an average monthly basis; therefore, although sporadic and limited areas of low dissolved oxygen may occur, mainly in the summer months, no large or prolonged periods/layers of low dissolved oxygen are projected by the Delft3D Basinwide Model, nor anticipated based on the Barataria Basin's identification as a largely well-mixed estuary. To make this clearer in the Final EIS, language indicating that the Delft 3D Basinwide Model results do not suggest that a significant hypoxic zone will form in Barataria Basin due to Project implementation has been added to Section 4.5.5.5.2 in Dissolved Oxygen of the Final EIS.

The Monitoring and Adaptive Management (MAM) Plan (Appendix R2), which has been updated for the Final EIS in response to public comments, includes CPRA's plan to implement a monitoring program for phytoplankton species composition, including harmful cyanobacterial/algal bloom species (and associated toxins) (see Sections 3.7.3.10 and 3.7.3.11 of Appendix R2 of the Final EIS).

The Mitigation and Stewardship Plan and the MAM Plan provided in the Draft EIS Appendix R were submitted by CPRA and represent a range of potential mitigation, stewardship, monitoring and adaptive management measures (collectively, measures). At the time of publication of the Draft EIS for public review, Appendix R contained draft Plans and CPRA had not identified which of the measures contained in those Plans it intended to implement. The Final EIS Appendix R contains the final Plans and specifies which measures CPRA and the LA TIG intend to implement. Generally, impact determinations discussed in the EIS represent anticipated Project effects without implementation of these measures except in instances where such measures are identified in the discussion. If any mitigation, monitoring, or adaptive management measures are required by USACE as part of its approval of the proposed Project, such measures would be required as special conditions of the Department of the Army (DA) Section 10/404 permit and would be listed in the permit, if one is issued. Implementation of specific measures contained in either Plan, but not included in the Section 10/404 permit as special conditions, would not be required by USACE. USACE does not know whether any particular measure that is not a DA permit condition would be implemented. Measures that USACE currently contemplates as conditions of a DA Section 10/404 permit, if one is issued, are provided in Chapter 4, Section 4.27 Mitigation Summary of the EIS.

The LA TIG explains in Section 1.5 of the Final Restoration Plan that it anticipates requiring implementation of the Mitigation and Stewardship Plan, MAM Plan, and Marine Mammal Intervention Plan as components of the proposed Project, if the Project is approved by the LA TIG for funding. Decisions regarding which measures would be required as

part of the LA TIG's funding decision would be set forth in the LA TIG Record of Decision related to the proposed Project.

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<b>Concern ID: 62709</b>	<b>The 2019 opening of the Bonnet Carré Spillway caused significant impacts to aquatic fauna from the release of river water, and resulted in a declared fisheries disaster of at least \$58 million.</b>
<b>Response ID: 16087</b>	A summary of select natural and man-made diversions in southeastern Louisiana, including the Bonnet Carré Spillway, has been developed to compare the purpose and/or characteristics of these diversions to the proposed MBSD Project, and their recorded impacts on the natural environment, including area fisheries. This summary is available in Appendix U Summary of Select Natural and Man-made Diversions in Southeastern Louisiana of the Final EIS. However, it is important to note that the Bonnet Carré Spillway is an emergency flood control structure that is not operated for ecological purposes. The anticipated impacts of the proposed Project on aquatic fauna from the release of river water is discussed in detail in Chapter 4, Section 4.10 Aquatic Resources.
<b>Concern ID: 62710</b>	<b>The Draft EIS may underestimate likely increases in net primary productivity for aquatic estuarine organisms, which would translate into more biomass in both the proposed Project area and into the northern Gulf of Mexico.</b>
<b>Response ID: 16088</b>	Chapter 4, Section 4.10.4.4 in Aquatic Resources of the EIS identifies the overall effects of increased nutrients to the Barataria Basin as minor to moderate and beneficial based on benefits to the food web, and Section 4.10.4.5 accounts for these food web benefits in the individual determinations for each key species. Because this issue was addressed in the Draft EIS, no related edits have been made to the Final EIS. The potential for nearshore and offshore ecosystem benefits are also described in Chapter 3, Section 3.2.16 in OPA Evaluation of the Alternatives of the LA TIG's Restoration Plan.
<b>Concern ID: 62711</b>	<b>Sedimentation from the proposed Project would completely silt over oysters, resulting in 100 percent mortality in areas directly impacted.</b>
<b>Response ID: 16089</b>	As discussed in Chapter 4, Sections 4.10.4.4 and 4.10.4.5 in Aquatic Resources of the Draft EIS, portions of the Little Lake Public Oyster Seed Ground (POSG) would experience substantial sedimentation over time, likely converting hard substrates to soft bottom in those areas over time. However, the Little Lake POSG is not currently a productive oyster reef and the areas with live/productive oyster reef (further south) would experience less sedimentation from the proposed Project, and at rates that the oyster reef/oysters would be expected to survive.  To address some projected adverse Project impacts, CPRA would implement a fishery mitigation plan, which has been revised for the

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Final EIS in response to public comments (see CPRA's Mitigation and Stewardship Plan in Appendix R1 of the Final EIS). CPRA's mitigation and stewardship measures aimed at oyster impacts include establishment of new oyster seed grounds in appropriate areas of the basin, enhancing existing public and private seed ground, enhancement of broodstock reefs, and funding to support off-bottom oyster culture. Although not being implemented to mitigate the effects of the MBSD, the LA TIG also continues to address oil spill related injuries to oysters through various non-Project-related restoration/fishery improvement actions, including: the LA TIG's funding of \$10 million in public and private oyster reef enhancement through the Living Coastal and Marine Resources funding allocation, the LA TIG's funding of \$9.7 million in oyster broodstock reef enhancement through the Living Coastal and Marine Resources funding allocation, and the LA TIG's allocation of \$5.8 million in Living Coastal and Marine Resources funds to support the operations of the Voisin Hatchery.

The Mitigation and Stewardship Plan and the Monitoring and Adaptive Management (MAM) Plan provided in the Draft EIS Appendix R were submitted by CPRA and represent a range of potential mitigation, stewardship, monitoring and adaptive management measures (collectively, measures). At the time of publication of the Draft EIS for public review, Appendix R contained draft Plans and CPRA had not identified which of the measures contained in those Plans it intended to implement. The Final EIS Appendix R contains the final Plans and specifies which measures CPRA and the LA TIG intend to implement. Generally, impact determinations discussed in the EIS represent anticipated Project effects without implementation of these measures except in instances where such measures are identified in the discussion. If any mitigation, monitoring, or adaptive management measures are required by USACE as part of its approval of the proposed Project, such measures would be required as special conditions of the Department of the Army (DA) Section 10/404 permit and would be listed in the permit, if one is issued. Implementation of specific measures contained in either Plan, but not included in the Section 10/404 permit as special conditions, would not be required by USACE. USACE does not know whether any particular measure that is not a DA permit condition would be implemented. Measures that USACE currently contemplates as conditions of a DA Section 10/404 permit, if one is issued, are provided in Chapter 4, Section 4.27 Mitigation Summary of the EIS.

The LA TIG explains in Section 1.5 of the Final Restoration Plan that it anticipates requiring implementation of the Mitigation and Stewardship Plan, MAM Plan, and Marine Mammal Intervention Plan as components of the proposed Project, if the Project is approved by the LA TIG for funding. Decisions regarding which measures would be required as

part of the LA TIG's funding decision would be set forth in the LA TIG Record of Decision related to the proposed Project.

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**Concern ID: 62722**

**The release of polluted river water through Bonnet Carré, Caernarvon, and Davis Pond resulted in algal blooms, low dissolved oxygen, and lasting adverse effects on local flora and fauna.**

**Response ID: 16100**

Chapter 4, Sections 4.5.5.5 in Surface Water and Sediment Quality and 4.10.4.4 in Aquatic Resources of the EIS analyze the potential impact of Project operations on dissolved oxygen concentrations and the potential for algal blooms. In addition, a summary of select natural and man-made diversions in southeastern Louisiana has been developed to compare the purpose and/or characteristics of these diversions to the proposed MBSD Project, and their recorded impacts on the natural environment. This summary is available in Appendix U Summary of Select Natural and Man-made Diversions in Southeastern Louisiana of the Final EIS.

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**Concern ID: 62723**

**Various studies can prove that the higher the salinity of the water, the lower the mortality rate of brown and white shrimp, and the higher percentage of reproduction. The introduction of nearly 6.5 billion cubic feet of fresh water per day would significantly decrease the amount of shrimp and other seafood from reproducing, and would increase their mortality rate.**

**Response ID: 16101**

The impacts of the proposed Project's introduction of fresh water on brown and white shrimp were analyzed and are discussed in Chapter 4, Section 4.10.4.5 in Aquatic Resources of the EIS. The impacts on brown shrimp from Project operations are anticipated to be major and adverse, due in part to salinity changes; however, white shrimp are more tolerant of lower salinities and younger life stages are present in the basin later in the year than brown shrimp, resulting in less exposure to higher diversion flows. Therefore, no significant adverse impacts on white shrimp survival are projected. White shrimp would be expected to experience minor to moderate benefits from the increased marsh, SAV, and primary production projected to occur from the proposed Project. The projected benefits of the proposed Project to white shrimp outweigh the negative effects, resulting in an overall negligible to minor benefit on white shrimp from the Project. See Section 4.10.4.5 Key Species of the EIS. Both brown and white shrimp spawn outside of the estuary, where salinity would not be affected by Project operations. Because these issues were addressed in the Draft EIS, no related edits have been made to the Final EIS.

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**Concern ID: 62724**

**On average, the Mississippi River gets up to 79 degrees Fahrenheit at the height of the reproductive cycle of white shrimp. The Barataria Basin during that same timeframe measures on average 91 degrees Fahrenheit. The temperature differential**



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**would cause adverse reactions to shrimp species including lower growth and survival rates, a decrease in habitat suitability, and relocation of the shrimp to more favorable habitat.**

**Response ID: 16102**

The changes in water temperatures in the Barataria Basin based on the input of cooler river water were analyzed and discussed in Chapter 4, Section 4.10.4.4 in Aquatic Resources of the EIS, which acknowledges that the average monthly temperature under the Applicant's Preferred Alternative would decrease by up to 11.9°F (6.6°C), particularly in cooler months near at the outfall, which may result in changes in bioenergetics and area avoidance by fauna. As discussed in Section 4.10.4.5 in Aquatic Resources, temperature is one of the principal drivers of growth and survival for white and brown shrimp. For white shrimp, post-larvae (the youngest stage occurring in the basin) generally enter the basin from May through November (with peaks in June and September) when temperature differentials would be smaller compared to the No Action Alternative. Further, the HSI model results for juvenile white shrimp, which consider optimum temperature ranges, did not identify significant decreases in habitat suitability. Although individual adverse impacts on white shrimp would occur from the proposed Project, the overall impact of the Project on white shrimp is anticipated to be negligible to minor beneficial. For brown shrimp, post-larvae (the youngest stage occurring in the basin) generally enter the basin from January through June when temperature differentials would be larger compared to the No Action Alternative, particularly in the outfall area. However, although the HSI model results for juvenile brown shrimp did identify significant decreases in habitat suitability, the driver for these impacts primarily related to salinity, rather than temperature, decreases. The overall impact of the Project on brown shrimp is anticipated to be major, permanent, and adverse. Because this issue was addressed in the Draft EIS, no related edits have been made to the Final EIS.

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**Concern ID: 62725**

**The sheer current of the inflowing water would displace shrimp and other species, pushing them further into the Gulf and precluding them from returning to the basin over time.**

**Response ID: 16103**

The changes in water flows in the Barataria Basin from the proposed Project are discussed in Chapter 4, Section 4.10.4.4 in Aquatic Resources, which states that water would continue to follow its general trend of daily movements through the basin passes during Project operations, such that larval advection from marine habitats into the estuary would likely not be affected. The effects on shrimp and other species, from current-related impacts within the basin, are discussed in Section 4.10.4.5 in Aquatic Resources of the EIS. Because these issues were addressed in the Draft EIS, no related edits have been made to the Final EIS.

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<b>Concern ID: 62726</b>	<b>The proposed Project would change the habitat of the Barataria Basin in a manner that would decrease key shellfish and finfish, which would subsequently affect higher and lower trophic levels in the food chain.</b>
<b>Response ID: 16104</b>	The commenter is correct that the proposed Project would change the habitat in the Barataria Basin in a manner than would decrease or increase key shellfish and finfish, as noted in Chapter 4, Section 4.10, Table 4.10.6 in Aquatic Resources of the Draft EIS. A discussion of the food web impacts from the proposed Project in the Barataria Basin is included in Section 4.10.4.4 in Aquatic Resources of the Draft EIS.
<b>Concern ID: 62727</b>	<b>Appendix O does not include impacts to the general biological communities of the basin.</b>
<b>Response ID: 16105</b>	Appendix O1 (Biological Assessment) of the EIS is the assessment of impacts to federally listed threatened and endangered species, prepared as part of the Endangered Species Act consultation between USACE and NMFS and USFWS. Impacts on the general biological communities in the Barataria Basin are discussed in Chapter 4, Sections 4.9 Terrestrial Wildlife and Habitat, 4.10 Aquatic Resources, and 4.11 Marine Mammals of the EIS. Because these issues were addressed in the Draft EIS, no related edits have been made to the Final EIS.
<b>Concern ID: 62728</b>	<b>Additional studies may determine that the fisheries impacts identified in the Draft EIS are incorrect and that all the fisheries in the Barataria Basin would be ruined.</b>
<b>Response ID: 16106</b>	USACE and the LA TIG considered the best information and data available to them in drafting the EIS. No changes to the Final EIS have been made.
<b>Concern ID: 62729</b>	<b>The commenter questioned to what degree the proposed Project would impact the Mississippi Sound and its aquatic life.</b>
<b>Response ID: 16107</b>	The proposed Project is not anticipated to have discernable effects on aquatic life outside of the Project area, which includes the Barataria Basin and the Mississippi River birdfoot delta (particularly for biological resources), as defined in Chapter 3, Section 3.1.1 in Introduction of the EIS; therefore, negligible to no impacts on aquatic life in the Mississippi Sound are anticipated from the construction and operation of the proposed MBSD Project. Because this issue was addressed in the Draft EIS, no related edits have been made to the Final EIS.
<b>Concern ID: 62730</b>	<b>Historical information on oyster beds in the Barataria Basin should be included and cited in the EIS.</b>
<b>Response ID: 16108</b>	Historical information on oyster beds in the Barataria Basin is included in Chapter 3, Section 3.10.5.2 (Key Fish and Shellfish Species in the

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Barataria Basin) of the EIS. Because this issue was addressed in the Draft EIS, no related edits have been made to the Final EIS.

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**Concern ID: 62731**

**The acute and significant change in salinity resulting from Project operation would adversely affect commercial species.**

**Response ID: 16109**

The projected change in salinity from the proposed Project is discussed in Chapter 4, Section 4.10.4.4 in Aquatic Resources of the EIS, which indicates that impacts on a particular species (whether commercially important or not) from salinity changes would be dependent on the salinity tolerance of that species, but that species intolerant of the lower salinities in the outfall area would likely shift their habitat usage to areas further south. The adverse impacts of decreased salinity on certain commercially-harvested species are discussed in Section 4.10.4.5 in Aquatic Resources; decreased salinity is noted as a driving factor of adverse impacts on brown shrimp and oysters, and would have a lesser effect on southern flounder. Other commercially important species, such as white shrimp, blue crab, bay anchovy, and Gulf menhaden, would likely experience overall beneficial effects from the Project, despite the projected changes in salinity. Because this issue was addressed in the Draft EIS, no related edits have been made to the Final EIS.

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**Concern ID: 62732**

**Leveeing of the Mississippi River resulted in a saltier Barataria Basin, causing saltwater species to make a northward shift; without restoration, these changes will continue, resulting in a loss of species that rely on productive freshwater and intermediate wetland habitats.**

**Response ID: 16110**

The commenter correctly notes the impacts from the No Action Alternative, as discussed in Chapter 4, Sections 4.10.4.4 and 4.10.4.5 in Aquatic Resources of the EIS. Because these issues were addressed in the Draft EIS, no related edits have been made to the Final EIS.

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**Concern ID: 62733**

**The impacts on oysters and the oyster industry from the over-freshening of Breton Sound should be considered in the development of the proposed MBSD Project.**

**Response ID: 16111**

The impacts on oysters and the oyster industry from fresh water delivered through the proposed MBSD Project are discussed in Chapter 4, Sections 4.10.4.5 in Aquatic Resources and 4.14.4.2 in Commercial Fisheries of the EIS, respectively. As noted in those discussions, the proposed Project is anticipated to have major, permanent adverse impacts on eastern oysters in the Barataria Basin. Because these issues were addressed in the Draft EIS, no related edits have been made to the Final EIS.

To address Project impacts, CPRA would implement a fishery mitigation plan, which has been revised for the Final EIS in response to

public comments (see the Mitigation and Stewardship Plan in Appendix R1 of the Final EIS). Mitigation and stewardship measures aimed at oyster impacts include establishment of new oyster seed grounds in appropriate areas of the basin, enhancing existing public and private seed ground, enhancement of broodstock reefs, and funding to support off-bottom oyster culture. Although not being implemented to mitigate the effects of the MBSD, the LA TIG also continues to address oil spill related injuries to oysters through various non-Project-related restoration/fishery improvement actions, including: the LA TIG's funding of \$10 million in public and private oyster reef enhancement through the Living Coastal and Marine Resources funding allocation, the LA TIG's funding of \$9.7 million in oyster broodstock reef enhancement through the Living Coastal and Marine Resources funding allocation, and the LA TIG's allocation of \$5.8 million in Living Coastal and Marine Resources funds to support the operations of the Voisin Hatchery.

The Mitigation and Stewardship Plan and the Monitoring and Adaptive Management (MAM) Plan provided in the Draft EIS Appendix R were submitted by CPRA and represent a range of potential mitigation, stewardship, monitoring and adaptive management measures (collectively, measures). At the time of publication of the Draft EIS for public review, Appendix R contained draft Plans and CPRA had not identified which of the measures contained in those Plans it intended to implement. The Final EIS Appendix R contains the final Plans and specifies which measures CPRA and the LA TIG intend to implement. Generally, impact determinations discussed in the EIS represent anticipated Project effects without implementation of these measures except in instances where such measures are identified in the discussion. If any mitigation, monitoring, or adaptive management measures are required by USACE as part of its approval of the proposed Project, such measures would be required as special conditions of the Department of the Army (DA) Section 10/404 permit and would be listed in the permit, if one is issued. Implementation of specific measures contained in either Plan, but not included in the Section 10/404 permit as special conditions, would not be required by USACE. USACE does not know whether any particular measure that is not a DA permit condition would be implemented. Measures that USACE currently contemplates as conditions of a DA Section 10/404 permit, if one is issued, are provided in Chapter 4, Section 4.27 Mitigation Summary of the EIS.

The LA TIG explains in Section 1.5 of the Final Restoration Plan that it anticipates requiring implementation of the Mitigation and Stewardship Plan, MAM Plan, and Marine Mammal Intervention Plan as components of the proposed Project, if the Project is approved by the LA TIG for funding. Decisions regarding which measures would be required as

part of the LA TIG's funding decision would be set forth in the LA TIG Record of Decision related to the proposed Project.

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**Concern ID: 62734**

**Wetlands built by the Mississippi and Atchafalaya Rivers, as well as by wetlands downstream of Mardi Gras Pass, have shown resiliency and a diverse assemblage of freshwater and estuarine species during spring flows and active water diversions.**

**Response ID: 16112**

The commenter's observations are consistent with Chapter 4, Section 4.10.4.5 in Aquatic Resources of the EIS, which notes that, while some species would be negatively impacted by the freshwater flows from the diversion (including oysters, brown shrimp, spotted seatrout, and southern flounder), a higher number of key fishery species would either be unaffected or be benefitted by the proposed Project (including white shrimp, blue crab, bay anchovy, Gulf menhaden, red drum, Atlantic croaker, and largemouth bass). Because these issues were addressed in the Draft EIS, no related edits have been made to the Final EIS.

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**Concern ID: 62735**

**Operation of the proposed Project would allow for the return of productive oyster grounds in the lower basin, which would in turn improve water quality, fisheries habitat, and natural protection for Grand Isle.**

**Response ID: 16113**

As discussed in Chapter 4, Section 4.10.4.5 in Aquatic Resources of the EIS, operation of the proposed Project could allow for increased production of oyster grounds in the lower basin; however, this would likely be contingent on the enhancement of existing substrates to make them more suitable. The Final Mitigation and Stewardship Plan (Appendix R1), which has been revised for the Final EIS, describes CPRA's mitigation and stewardship measures, including those measures intended to offset adverse impacts on oysters; these mitigation and stewardship measures have been revised in response to public comment since the release of the Draft EIS.

The Mitigation and Stewardship Plan and the Monitoring and Adaptive Management (MAM) Plan provided in the Draft EIS Appendix R were submitted by CPRA and represent a range of potential mitigation, stewardship, monitoring and adaptive management measures (collectively, measures). At the time of publication of the Draft EIS for public review, Appendix R contained draft Plans and CPRA had not identified which of the measures contained in those Plans it intended to implement. The Final EIS Appendix R contains the final Plans and specifies which measures CPRA and the LA TIG intend to implement. Generally, impact determinations discussed in the EIS represent anticipated Project effects without implementation of these measures except in instances where such measures are identified in the discussion. If any mitigation, monitoring, or adaptive management measures are required by USACE as part of its approval of the proposed Project, such measures would be required as special

conditions of the Department of the Army (DA) Section 10/404 permit and would be listed in the permit, if one is issued. Implementation of specific measures contained in either Plan, but not included in the Section 10/404 permit as special conditions, would not be required by USACE. USACE does not know whether any particular measure that is not a DA permit condition would be implemented. Measures that USACE currently contemplates as conditions of a DA Section 10/404 permit, if one is issued, are provided in Chapter 4, Section 4.27 Mitigation Summary of the EIS.

The LA TIG explains in Section 1.5 of the Final Restoration Plan that it anticipates requiring implementation of the Mitigation and Stewardship Plan, MAM Plan, and Marine Mammal Intervention Plan as components of the proposed Project, if the Project is approved by the LA TIG for funding. Decisions regarding which measures would be required as part of the LA TIG's funding decision would be set forth in the LA TIG Record of Decision related to the proposed Project.

<b>Concern ID: 62736</b>	<b>The flora and fauna of Louisiana can adapt to seasonal changes in salinity and many of them thrive because of those changes, not in spite of them.</b>
<b>Response ID: 16114</b>	Comment noted. The proposed Project is anticipated to have both beneficial and adverse impacts on the flora and fauna of the Barataria Basin, as discussed throughout Chapter 4, Section 4.10 Aquatic Resources of the EIS. Because these issues were addressed in the Draft EIS, no related edits have been made to the Final EIS.
<b>Concern ID: 62737</b>	<b>The proposed Project would result in the loss of red drum.</b>
<b>Response ID: 16115</b>	As identified in Chapter 4, Section 4.10, Table 4.10-6 in Aquatic Resources of the EIS, the proposed Project is not expected to have an adverse impact on, or resulting loss of, red drum. Rather, changes in the Barataria Basin are anticipated to have an overall beneficial effect on red drum abundance. Because these issues were addressed in the Draft EIS, no related edits have been made to the Final EIS.
<b>Concern ID: 62738</b>	<b>The proposed Project would affect salinity in the basin, but there would still be red drum and there would be more bass</b>
<b>Response ID: 16116</b>	As identified in Chapter 4, Section 4.10, Table 4.10-6 in Aquatic Resources of the Draft EIS, the commenter correctly notes that the proposed Project is anticipated to have an overall beneficial effect on red drum and largemouth bass abundance through either direct or indirect effects of the decreasing salinity induced by Project operations.
<b>Concern ID: 62739</b>	<b>The commenter questioned what would happen to bayou living and fishing in the future.</b>
<b>Response ID: 16117</b>	Impacts of the proposed Project on Recreation and Tourism are discussed in Chapter 4, Section 4.16.5.2, impacts on local communities

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	are discussed in Section 4.13 Socioeconomics, and impacts on Aquatic Resources are discussed throughout Section 4.10 of the EIS. Because these issues were addressed in the Draft EIS, no related edits have been made to the Final EIS.
<b>Concern ID: 62740</b>	<b>Specific field research indicates that fishes and crustaceans tolerate much lower salinity than those found in scientific literature; this research is available at <a href="http://www.herke-estuarine-fisheries.com">www.herke-estuarine-fisheries.com</a> and should be cited in the EIS.</b>
<b>Response ID: 16118</b>	Although the noted website does not appear to exist as identified, select references by the comment author have been reviewed. Herke et al. 1987 (Abundance of Young Brown Shrimp in Natural and Semi-Impounded Marsh Nursery Areas: Relation to Temperature and Salinity) was incorporated into Chapter 4, Section 4.10.4.5.2.1 Brown Shrimp of the Final EIS.
<b>Concern ID: 62741</b>	<b>The EIS should present not only the anticipated future conditions of the Barataria Basin, but also the salinity levels and distribution of shellfish, finfish, and other wildlife that were present 80 to 100 years ago. This past description will highlight that the proposed Project would return parts of the basin to more historic conditions and retard the rate wetland loss and saltwater intrusion compared to the No Action Alternative.</b>
<b>Response ID: 16119</b>	Multiple sections within Chapter 3 Affected Environment of the Final EIS have been supplemented to further discuss the past conditions of the Barataria Basin, including Chapter 3, Sections 3.1.4.2 Barataria Basin, 3.2.1.1 in Geology and Soils, 3.9.1 in Terrestrial Wildlife and Habitat, and 3.10.1 in Aquatic Resources.
<b>Concern ID: 62742</b>	<b>The commenter recommends that extensive studies be done on the marine resources and their habitat to evaluate the effect of the polluted Mississippi River that would be redirected into Barataria Bay</b>
<b>Response ID: 16120</b>	Chapter 4, Section 4.10.4.4 in Aquatic Resources of the EIS includes the results of Delft 3D Basinwide modeling for projected nutrient loading in the Barataria Basin, including nitrogen and phosphorus inputs from the Mississippi River. Individual assessment of potential contaminants, including nitrogen, phosphorus, sulfate, fecal coliform, and atrazine were modeled and discussed in Sections 4.5.5.3, 4.5.5.4, 4.5.5.7, 4.5.5.8, and 4.5.5.9 (respectively) in Surface Water and Sediment Quality. These sections indicate that the proposed Project would result in beneficial decreases in sulfate in the Barataria Basin and would have negligible impacts on atrazine levels and they are therefore not specifically discussed in Section 4.10; however, a discussion of fecal coliform has been added to Section 4.10.4.4.2.5 Dissolved Oxygen of the Final EIS. In addition, CPRA's Mitigation and Stewardship Plan

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(Appendix R1 of the EIS) describes CPRA's mitigation and stewardship measures, including the agency's agreement with the USFWS' recommendation to monitor for certain contaminants, (through sampling of fish, shellfish, and potentially bald eagle feces and blood) during diversion operations, if applicable.

The Mitigation and Stewardship Plan and the Monitoring and Adaptive Management (MAM) Plan provided in the Draft EIS Appendix R were submitted by CPRA and represent a range of potential mitigation, stewardship, monitoring and adaptive management measures (collectively, measures). At the time of publication of the Draft EIS for public review, Appendix R contained draft Plans and CPRA had not identified which of the measures contained in those Plans it intended to implement. The Final EIS Appendix R contains the final Plans and specifies which measures CPRA and the LA TIG intend to implement. Generally, impact determinations discussed in the EIS represent anticipated Project effects without implementation of these measures except in instances where such measures are identified in the discussion. If any mitigation, monitoring, or adaptive management measures are required by USACE as part of its approval of the proposed Project, such measures would be required as special conditions of the Department of the Army (DA) Section 10/404 permit and would be listed in the permit, if one is issued. Implementation of specific measures contained in either Plan, but not included in the Section 10/404 permit as special conditions, would not be required by USACE. USACE does not know whether any particular measure that is not a DA permit condition would be implemented. Measures that USACE currently contemplates as conditions of a DA Section 10/404 permit, if one is issued, are provided in Chapter 4, Section 4.27 Mitigation Summary of the EIS.

The LA TIG explains in Section 1.5 of the Final Restoration Plan that it anticipates requiring implementation of the Mitigation and Stewardship Plan, MAM Plan, and Marine Mammal Intervention Plan as components of the proposed Project, if the Project is approved by the LA TIG for funding. Decisions regarding which measures would be required as part of the LA TIG's funding decision would be set forth in the LA TIG Record of Decision related to the proposed Project.

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**Concern ID: 62743**

**An estimated 75 percent of the state commercial and recreational fishing depends on wetlands. As result, when wetlands are lost, so are the habitats that sustain the fishing industry.**

**Response ID: 16121**

The commenter correctly notes the importance of wetlands to fisheries populations (and therefore the fisheries themselves), and the detrimental effect of wetland loss to many of those fisheries, as discussed in Chapter 3, Section 3.10.2 in Aquatic Resources and throughout Chapter 4, Section 4.10 Aquatic Resources of the Draft EIS.



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<b>Concern ID: 62750</b>	<b>The commenter opposes any diversion of fresh water that does not conform to the salinity cycles and water parameters needed by oysters in the Mississippi Sound.</b>
<b>Response ID: 16128</b>	Comment noted. The proposed Project is not anticipated to have discernable effects on aquatic life outside of the Project area, which includes the Barataria Basin and the Mississippi River birdfoot delta (particularly for biological resources), as defined in Chapter 3, Section 3.1.1 in Introduction of the EIS; therefore, negligible to no impacts on oysters in the Mississippi Sound are anticipated from the construction and operation of the proposed MBSD Project. Because this issue was addressed in the Draft EIS, no related edits have been made to the Final EIS.
<b>Concern ID: 62751</b>	<b>The EIS severely underestimates both the short- and long-term damages to the shrimp fisheries. While it is true that white shrimp production may increase, the reduction of the annual brown shrimp far exceeds any increase in the white shrimp production, as evidenced in production records from the Breton Sound area after inputs from the Caernarvon Freshwater Diversion and Mardi Gras Pass.</b>
<b>Response ID: 16129</b>	<p>As discussed in Chapter 4, Section 4.10.4.5 in Aquatic Resources of the EIS, brown shrimp are anticipated to experience a major decrease in abundance from operation of the proposed Project, and white shrimp are anticipated to experience a negligible to minor increase in abundance; therefore, the commenter is correct that the increase in white shrimp abundance would not outweigh the decrease in brown shrimp. As further discussed in EIS Chapter 4, Section 4.14.4.2 in Commercial Fisheries, overall impacts on the commercial shrimp industry would be expected to be moderate to major, permanent, and adverse, with the potential for a substantial loss of income in some months due to the decreased abundance of brown shrimp.</p> <p>Further, a summary of select natural and man-made diversions in southeastern Louisiana, including the Caernarvon Freshwater Diversion and Mardi Gras Pass, has been developed to compare the purpose and/or characteristics of these diversions to the proposed MBSD Project, and their recorded impacts on the natural environment. This summary is available in Appendix U Summary of Select Natural and Man-made Diversions in Southeastern Louisiana of the Final EIS.</p>
<b>Concern ID: 62752</b>	<b>Long-term exposure to excessive fresh water would eventually be detrimental to all shrimp species. Vermilion Bay after years of overexposure to freshwater, has no brown shrimp production and minimal white shrimp production.</b>
<b>Response ID: 16130</b>	The impacts of the proposed Project's introduction of fresh water on brown and white shrimp were analyzed and are discussed in Chapter 4,

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Section 4.10.4.5 in Aquatic Resources of the EIS. The impacts on brown shrimp from Project operations are anticipated to be major and adverse, due in part to salinity changes. White shrimp are more tolerant of lower salinities and are anticipated to experience a negligible to minor increase in abundance; for white shrimp, the projected benefits of the proposed Project outweigh the negative effects, resulting in an overall negligible to minor benefit on white shrimp from the Project.

To further address the commenter's concern, a summary of select natural and man-made diversions in southeastern Louisiana, including the Wax Lake Outlet, which has impacted Vermilion Bay, has been developed to compare the purpose and/or characteristics of these diversions to the proposed MBSD Project, and their recorded impacts on the natural environment. This summary is available in Appendix U Summary of Select Natural and Man-made Diversions in Southeastern Louisiana of the Final EIS.

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**Concern ID: 62753**

**The task force strongly recommends that more consideration be given to real life effects of excessive fresh water on shrimp populations, including the 2019 opening of the Bonne Carré Spillway which caused over \$285 million in damages.**

**Response ID: 16131**

As discussed in Chapter 4, Section 4.10.4.5 in Aquatic Resources of the EIS, brown shrimp are anticipated to experience a major decrease in abundance from operation of the proposed Project, and white shrimp are anticipated to experience a negligible to minor increase in abundance; these assessments included review of available literature as well as model projections. The Bonnet Carré Spillway is an emergency flood control structure that is not operated for ecological purposes. However, a summary of select natural and man-made diversions in southeastern Louisiana has been developed to compare the purpose and/or characteristics of these diversions to the proposed MBSD Project, and their recorded impacts on the natural environment. This summary is available in Appendix U Summary of Select Natural and Man-made Diversions in Southeastern Louisiana of the Final EIS.

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**Concern ID: 62757**

**Although tolerant of a wide range of salinities, oysters require several years of favorable salinity conditions for reef areas to develop and populations to become self-sustaining. While there are positive effects of flood pulses, massive freshets can cause elevated levels of oyster mortality, especially when water temperatures are high**

**Response ID: 16135**

Consistent with the commenter's statements, there would be both positive and negative effects on oysters from the salinity changes projected to occur during operation of the proposed Project, with potentially positive benefits on oysters in the lower basin, where salinity is expected to remain high enough to allow growth and survival, but low enough to minimize the potential for predation and disease.

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However, the overall impact of freshwater input on oysters anticipated to be major and adverse. The effects of altered temperatures and salinities on oysters during operation of the proposed Project are further discussed in Chapter 4, Section 4.10.4.5 in Aquatic Resources of the EIS. Because these issues were addressed in the Draft EIS, no related edits have been made to the Final EIS.

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<b>Concern ID: 62758</b>	<b>The operation of the MBSD could also affect reefs through sedimentation and burial.</b>
<b>Response ID: 16136</b>	The commenter correctly notes that existing oyster reefs could be affected through sedimentation and burial during operation of the proposed Project, with the potential for adverse effects related to distance from the outfall and the current productivity of the reef (in other words, if oyster growth can outpace sediment deposition rates). The potential for oyster reef burial from sedimentation during operation of the proposed Project is further discussed in Chapter 4, Sections 4.10.4.4 and 4.10.4.5 in Aquatic Resources of the EIS. Because these issues were addressed in the Draft EIS, no related edits have been made to the Final EIS.
<b>Concern ID: 62759</b>	<b>Nutrient rich waters may contribute to excessive fouling of reef areas, which could impact oysters and other fisheries.</b>
<b>Response ID: 16137</b>	Chapter 4, Sections 4.10.4.4.2.2 Substrates and 4.10.4.5.2.11 Eastern Oysters in the Final EIS has been revised to discuss the potential for nutrient loading from the proposed Project to increase fouling of oyster reefs and oysters, respectively.
<b>Concern ID: 62760</b>	<b>Sedimentation in EFH would have substantial impacts in the short-term.</b>
<b>Response ID: 16138</b>	The impacts of sedimentation from the proposed Project on EFH are discussed in Chapter 4, Section 4.10.4.3 in Aquatic Resources and Appendix N2 Essential Fish Habitat Assessment (Section 6.6 [Project Effects to EFH]) of the EIS. Generally, the proposed Project would convert one type of EFH to another type. Over time, Project-related sedimentation would result in increased emergent marsh, and could affect sand/shell substrates and oyster reefs that are located higher in the basin by converting them to soft bottom EFH habitats. Both beneficial and adverse impacts from sedimentation would occur over time, with sediment building faster in the immediate outfall area. However, the effects of sediment deposition related to wetland creation and burial of structured habitat (for example shell or vegetation, which provide refugia for fauna) are not likely to be substantial in the short-term (generally defined as a 3-year period). Because these issues were addressed in the Draft EIS, no related edits have been made to the Final EIS.

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<b>Concern ID: 62761</b>	<b>Shrimp require years of undisturbed bottom habitat to be able bury themselves in the sediments to evade depredation and to survive to spawn.</b>
<b>Response ID: 16139</b>	Chapter 4, Sections 4.10.4.5.2.1 (Brown Shrimp) and 4.10.4.5.2.2 (White Shrimp) of the Final EIS have been supplemented to discuss predator avoidance through burial, and how the proposed Project could affect that potential.
<b>Concern ID: 62762</b>	<b>The continuous input of colder river water would drastically alter the dynamics of EFH that is critically dependent on stable warm temperatures for the optimal growth of marine species.</b>
<b>Response ID: 16140</b>	The impacts of decreased water temperatures from the proposed Project on EFH and managed species are discussed in Appendix N2 Essential Fish Habitat Assessment (Section 6.5.6 [Project Effects on Water Temperature]) of the EIS, which indicates the potential for faunal stress and mortality during opening of the diversion each year, as well as in areas near the outfall during winter. Similarly, Chapter 4, Sections 4.10.4.4 and 4.10.4.5 in Aquatic Resources discuss the potential impacts of water temperature on the water column (decreases of up to 11.9°F in certain months at mid-basin stations) and how changes in water temperature may affect aquatic fauna in general, and select managed species, respectively. However, Section 4.10.4.1.2 in Submerged Aquatic Vegetation of the Final EIS has been updated to discuss impacts on SAV from the lower temperatures associated with Mississippi River water input.
<b>Concern ID: 62771</b>	<b>The estuary provides a food source and nursing grounds for many species of fish (including migratory species), invertebrates, aquatic insects, which are threatened by this proposed Project.</b>
<b>Response ID: 16149</b>	The impacts to the Barataria Basin from the proposed Project were discussed throughout Chapter 4, Section 4.10 Aquatic Resources of the Draft EIS, which included both adverse and beneficial impacts on area flora and fauna, based on the specific life histories and habitat preferences.
<b>Concern ID: 62772</b>	<b>The diversion would end the brown shrimp fishery in the upper/mid-basin.</b>
<b>Response ID: 16150</b>	As discussed in Chapter 4, Section 4.10.4.5 in Aquatic Resources and Section 4.14.4 in Commercial Fisheries of the EIS, habitat suitability for brown shrimp in the Barataria Basin would decrease, particularly in the mid- to lower basin (see Figure 4.10-16). Brown shrimp, and particularly earlier life stages of brown shrimp, may be precluded from the immediate outfall area in periods of high flow, instead being transported into areas west and south of the outfall, where water flow would be generally unaffected by diversion operation. Larger juvenile and sub-adult brown shrimp would remain in the southern basin, where

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salinities would generally be below optimal, but still relatively suitable. Salinity in the Lower Barataria Basin may decrease below optimal levels for large juveniles and sub-adults in the spring and summer, but these life stages can tolerate low-salinity conditions and would remain in these lower basin habitats. The species is anticipated to have decreased abundance over time; however, the viability of the population is not anticipated to be affected, such that brown shrimp would remain in the Barataria Basin. As identified in Section 4.14.4.2 in Commercial Fisheries, impacts on the brown shrimp fishery are also anticipated to be major, permanent, and adverse associated with adverse impacts on brown shrimp abundance over time as compared to No Action Alternative. Adverse impacts to the fishery may be partially offset by changes in fisher behavior, especially given that the greatest impacts may be occurring later in the analysis period, but these adjustments could increase operating costs. Impacts could further encourage fishers to exit from the industry. Potential new entrants may adapt more easily by investing in more flexible vessels/gear than they would have otherwise, or they may pursue alternative employment. Communities reliant on employment and expenditures associated with this industry would be adversely affected. Because this issue was addressed in the Draft EIS, no related edits have been made to the Final EIS.

The Draft Mitigation and Stewardship Plan (Appendix R1 to the Draft EIS) included measures focused on establishing a sustainable fishing industry in the long term, rather than measures for compensating the short-term economic losses of individual fishers. Since publication of the Draft EIS and in response to comments, CPRA has expanded and refined this Mitigation and Stewardship Plan in the Final EIS (Appendix R1). The Final Mitigation and Stewardship Plan includes the following measures aimed at supporting and sustaining the fishing industry:

- Providing financial and technical assistance for alternate business ventures and job training for alternate jobs (Workforce/Business training -- \$2 million allocation)
- Funding for shrimp vessel improvements, including, potentially, larger boats, and improving docks (shrimp Vessel/Facility improvements -- \$15 million allocation)
- Establishing new oyster seed grounds (\$4 million allocation)
- Enhancing public and private oyster grounds (\$15 million allocation)
- Enhancing oyster broodstock reefs (\$4 million allocation)

- R&D for collaboration with fishers to innovate and change the way their operations work (Alternative Oyster Culture techniques -- \$8 million allocation)
- Marketing and outreach support (\$5 million allocation including oysters, brown shrimp, finfish, and crab).

CPRA engaged the fishing community potentially impacted by the proposed Project through public meetings and community-based organizations to solicit input on mitigation and stewardship strategies. A summary of these public engagement meetings and outreach efforts is in Chapter 7 Public Involvement of the Final EIS. CPRA plans to continue utilizing community-based organizations to help ensure that diverse populations become aware of and take advantage of the mitigation and stewardship measures that CPRA would offer if the proposed Project is approved and funded.

The Mitigation and Stewardship Plan and the Monitoring and Adaptive Management (MAM) Plan provided in the Draft EIS Appendix R were submitted by CPRA and represent a range of potential mitigation, stewardship, monitoring and adaptive management measures (collectively, measures). At the time of publication of the Draft EIS for public review, Appendix R contained draft Plans and CPRA had not identified which of the measures contained in those Plans it intended to implement. The Final EIS Appendix R contains the final Plans and specifies which measures CPRA and the LA TIG intend to implement. Generally, impact determinations discussed in the EIS represent anticipated Project effects without implementation of these measures except in instances where such measures are identified in the discussion. If any mitigation, monitoring, or adaptive management measures are required by USACE as part of its approval of the proposed Project, such measures would be required as special conditions of the Department of the Army (DA) Section 10/404 permit and would be listed in the permit, if one is issued. Implementation of specific measures contained in either Plan, but not included in the Section 10/404 permit as special conditions, would not be required by USACE. USACE does not know whether any particular measure that is not a DA permit condition would be implemented. Measures that USACE currently contemplates as conditions of a DA Section 10/404 permit, if one is issued, are provided in Chapter 4, Section 4.27 Mitigation Summary of the EIS.

The LA TIG explains in Section 1.5 of the Final Restoration Plan that it anticipates requiring implementation of the Mitigation and Stewardship Plan, MAM Plan, and Marine Mammal Intervention Plan as components of the proposed Project, if the Project is approved by the LA TIG for funding. Decisions regarding which measures would be required as



part of the LA TIG's funding decision would be set forth in the LA TIG Record of Decision related to the proposed Project.

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**Concern ID: 62773**

**The decreased salinity and increased turbidity in the proposed Project area would decrease the commercial and recreational productivity of important finfish and shellfish species, including crab, oyster, white and brown shrimp, red drum, black drum, speckled trout, and flounder.**

**Response ID: 16151**

Chapter 4, Section 4.10.4.5 in Aquatic Resources of the EIS discusses the effects of decreased salinity and increased turbidity on select commercially and recreationally important species, where applicable. In light of the number of species present, these key species were chosen to use as representative species for impact analyses. These species were selected to cover a range of different feeding guilds, habitat usage, and life histories, and to describe how the individual effects of the proposed Project, as described in Section 4.10.4.4, could combine to cumulatively affect a given species. As summarized in Table 4.10-6, the proposed Project would be expected to decrease the abundance of oysters, brown shrimp, spotted trout, and southern flounder, but could result in increased abundance of blue crab, white shrimp, and red drum. Although black drum was not selected as a key species for evaluation in the EIS, its life history has similarities to that of the red drum and Atlantic croaker, and it is likely to experience a similar range of impacts (negligible impacts to moderate benefits) from operation of the proposed Project. Because this issue was addressed in the Draft EIS, no related edits have been made to the Final EIS.

The Draft Mitigation and Stewardship Plan (Appendix R1 to the Draft EIS) included measures focused on establishing a sustainable fishing industry in the long term, rather than measures for compensating the short-term economic losses of individual fishers. In response to comments, CPRA has expanded and refined this Mitigation and Stewardship Plan in the Final EIS (Appendix R1). The Final Mitigation and Stewardship Plan includes the following measures aimed at supporting and sustaining the fishing industry:

- Providing financial and technical assistance for alternate business ventures and job training for alternate jobs (Workforce/Business training -- \$2 million allocation)
- Funding for shrimp vessel improvements, including, potentially, larger boats, and improving docks (shrimp Vessel/Facility improvements -- \$15 million allocation)
- Establishing new oyster seed grounds (\$4 million allocation)
- Enhancing public and private oyster grounds (\$15 million allocation)



- Enhancing oyster broodstock reefs (\$4 million allocation)
- R&D for collaboration with fishers to innovate and change the way their operations work (Alternative Oyster Culture techniques -- \$8 million allocation)
- Marketing and outreach support (\$5 million allocation including oysters, brown shrimp, finfish, and crab).

CPRA engaged the fishing community potentially impacted by the proposed Project through public meetings and community-based organizations to solicit input on mitigation and stewardship strategies. A summary of these public engagement meetings and outreach efforts is in Chapter 7 Public Involvement of the Final EIS. CPRA plans to continue utilizing community-based organizations to help ensure that diverse populations become aware of and take advantage of the mitigation and stewardship measures that CPRA would offer if the proposed Project is approved and funded.

The Mitigation and Stewardship Plan and the Monitoring and Adaptive Management (MAM) Plan provided in the Draft EIS Appendix R were submitted by CPRA and represent a range of potential mitigation, stewardship, monitoring and adaptive management measures (collectively, measures). At the time of publication of the Draft EIS for public review, Appendix R contained draft Plans and CPRA had not identified which of the measures contained in those Plans it intended to implement. The Final EIS Appendix R contains the final Plans and specifies which measures CPRA and the LA TIG intend to implement. Generally, impact determinations discussed in the EIS represent anticipated Project effects without implementation of these measures except in instances where such measures are identified in the discussion. If any mitigation, monitoring, or adaptive management measures are required by USACE as part of its approval of the proposed Project, such measures would be required as special conditions of the Department of the Army (DA) Section 10/404 permit and would be listed in the permit, if one is issued. Implementation of specific measures contained in either Plan, but not included in the Section 10/404 permit as special conditions, would not be required by USACE. USACE does not know whether any particular measure that is not a DA permit condition would be implemented. Measures that USACE currently contemplates as conditions of a DA Section 10/404 permit, if one is issued, are provided in Chapter 4, Section 4.27 Mitigation Summary of the EIS.

The LA TIG explains in Section 1.5 of the Final Restoration Plan that it anticipates requiring implementation of the Mitigation and Stewardship Plan, MAM Plan, and Marine Mammal Intervention Plan as components of the proposed Project, if the Project is approved by the LA TIG for funding. Decisions regarding which measures would be required as

part of the LA TIG's funding decision would be set forth in the LA TIG Record of Decision related to the proposed Project.

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<b>Concern ID: 62774</b>	<b>The commenter questioned how the proposed diversion would affect fisheries productivity in the Project area and indicated that the analysis should include an assessment of the data from the Davis Pond.</b>
<b>Response ID: 16152</b>	Impacts of the diversion on aquatic species would vary by species and are discussed in Chapter 4, Sections 4.10.4.5 and 4.10.5.5 in Aquatic Resources and 4.14.4 in Commercial Fisheries of the EIS. The Delft 3D Basinwide Model includes Davis Pond operations and the results capture how the Project operations are projected to affect Davis Pond operations. A summary of select natural and man-made diversions in southeastern Louisiana (including Davis Pond) has been developed to compare the purpose and/or characteristics of these diversions to the proposed MBSD Project, and to describe their recorded impacts on the natural environment. This summary is available in Appendix U Summary of Select Natural and Man-made Diversions in Southeastern Louisiana of the Final EIS.
<b>Concern ID: 63152</b>	<b>There are many fish species of conservation concern in the northern Gulf of Mexico including the dusky shark, sand tiger shark, Warsaw grouper, speckled hind (grouper), Alabama shad, key silverside, opossum pipefish, and mangrove rivulus. (NOAA 2012).</b>
<b>Response ID: 16154</b>	The lists of special status species discussed in the Essential Fish Habitat Assessment (Appendix N2 of the EIS) and Chapter 4, Section 4.12 Threatened and Endangered Species were developed in consultation with NMFS and include those species anticipated to incur potential impact from construction or operation of the proposed Project. As these species were not identified as species of concern for the Project during the EFH and ESA consultations, they are not discussed in the EIS. Because these issues were addressed in the Draft EIS, no related edits have been made to the Final EIS.
<b>Concern ID: 63154</b>	<b>Oysters are the cornerstone of everything in Louisiana (tourism and industry) and oysters need salinities of between 10 and 20 ppm. The oyster fields in the greater New Orleans area and Mississippi Sound are the largest oyster fields in the world at the moment, despite hanging on for dear life.</b>
<b>Response ID: 16155</b>	The salinity requirements of oysters are discussed in Chapter 3, Section 3.10.5.2 in Aquatic Resources and impacts on oysters from salinity changes due to the proposed Project are discussed in Chapter 4, Section 4.10.5.5 in Aquatic Resources of the EIS. The importance of oysters to the commercial fishery is discussed in Chapter 3, Section 3.14.3 in Commercial Fisheries and impacts on these

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industries/activities are discussed in Chapter 4, Section 4.14.4.2 in Commercial Fisheries.

Overall, the eastern oyster fishery in the Project area is expected to experience major, permanent, adverse impacts under the Applicant's Preferred Alternative relative to the No Action Alternative, although it is possible that areas near the barrier islands could be used as seed grounds and growing areas for adults when salinities are too low throughout the rest of the Barataria Basin. This determination considers expected impacts on oyster abundance as well as the anticipated response from commercial fishers.

As indicated in Table 4.16-2 of the EIS, recreational oyster harvest accounts for a very small portion of overall recreational fishing effort in the Barataria Basin; therefore, impacts to recreation and tourism associated with changes to recreational harvest of oysters are expected to be negligible.

While availability of shrimp and oysters from the basin would decrease due to the Project relative to the No Action Alternative, shrimp and oysters from Louisiana would continue to be available to restaurants, potentially at higher prices. Restaurants willing to pay a premium for local seafood would likely do so, and additional imports would likely also occur. Under the Applicant's Preferred Alternative and the No Action Alternative, consumers in Louisiana would experience higher prices for locally caught seafood, or would consume additional imported shrimp, though the impact would likely occur sooner and be more significant under the Applicant's Preferred Alternative.

The proposed Project is not anticipated to have discernable effects on aquatic life outside of the Project area, which includes the Barataria Basin and the Mississippi River birdfoot delta (particularly for biological resources), as defined in Chapter 3, Section 3.1.1 in Introduction of the EIS; therefore, negligible to no impacts on aquatic life in the Mississippi Sound are anticipated from the construction and operation of the proposed MBSD Project. Because these issues were addressed in the Draft EIS, no related edits have been made to the Final EIS.

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**Concern ID: 62706**

**The proposed Project would not be likely to create hard bottom habitat, but would likely affect oyster reefs in both a positive and negative manner.**

**Response ID: 16084**

The Executive Summary for Aquatic Resources has been revised in the Final EIS to indicate that no hard bottom would be created by the proposed Project. Oysters and oyster reefs would experience both beneficial and adverse effects, with overall effects expected to be adverse, as described in Chapter 4, Sections 4.10.4.4 and 4.10.4.5 in Aquatic Resources of the EIS.

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<b>Concern ID: 62712</b>	<b>Aquatic fauna do not respond directly to nutrient concentrations and the Mississippi River Delta is not oligotrophic.</b>
<b>Response ID: 16090</b>	The commenter correctly notes that aquatic fauna do not respond directly to nutrient concentrations. As discussed in Chapter 4, Section 4.10.4.4.2.4 in Aquatic Resources of the EIS, increased nutrient levels may result in increased primary productivity in the Barataria Basin, such that the increased nutrient loads would indirectly lead to benefits for aquatic fauna. Although the basin is not oligotrophic, Section 4.5 Surface Water and Sediment Quality indicates that certain nutrients, such as total nitrogen and total phosphorus concentrations in the basin, would be elevated compared to the No Action Alternative, allowing for the increased primary productivity. Section 4.10.4.4.2.4 Nutrient Loading of the Final EIS has been revised to clarify this point. The EIS further acknowledges in Section 4.10.4.4.2.4, that increased nutrient loads also have the potential to cause adverse impacts on fauna through decreases in DO and harmful algal blooms that can be caused from increased phytoplankton biomass.
<b>Concern ID: 62713</b>	<b>It is unclear whether the first complete paragraph on page ES-12 is intended to refer to both animals and plants. If it is unintended to focus on animals, clarify why there is such a focus on SAV.</b>
<b>Response ID: 16091</b>	The first paragraph of the Executive Summary for Aquatic Resources identifies aquatic fauna as the focus, but also identifies SAV as a habitat type that aquatic fauna benefit from. As such, Chapter 4, Section 4.10.4.1 in Aquatic Resources has an SAV-specific assessment in the EIS. Because this issue was addressed in the Draft EIS, no related edits have been made to the Final EIS.
<b>Concern ID: 62715</b>	<b>The Executive Summary for Aquatic Resources should indicate that high diversion flows adversely affect the larval recruitment of estuarine fauna, but not of freshwater fauna.</b>
<b>Response ID: 16093</b>	Consistent with Chapter 4, Section 4.10.4.5 in Aquatic Resources of the EIS, it is estuarine species for which the high diversion flows are a potential recruitment concern, not freshwater species. Therefore, the Executive Summary for Aquatic Resources has been revised in the Final EIS to clarify that the potential for high diversion flows to adversely affect recruitment is specific to estuarine species.
<b>Concern ID: 62716</b>	<b>Commenters asked for clarification of why estuarine species are the focus of the EIS in the context of an abandoned, degrading delta lobe.</b>
<b>Response ID: 16094</b>	The commenter's concern regarding the evaluation of impacts on aquatic resources is acknowledged. To help address these concerns, additional discussions of the delta cycle, and the role that the diversion may play in this cycle, has been added to Chapter 3, Sections 3.1.4.2 Barataria Basin and 3.2.1.1 Historical Context of the Final EIS.

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Additional discussion related to the proposed Project's impacts on geomorphology and historic deltaic landforms has also been added to Chapter 4, Section 4.2.3.2.2.3, Geomorphology. However, it is important to note that, as identified in Chapter 2, Section 2.9 Summary of Environmental Consequences Under Each Alternative and discussed throughout Chapter 4 Environmental Consequences of the EIS, the No Action Alternative is compared to existing conditions to understand the anticipated changes in the environment that would occur irrespective of the proposed Project. Thereafter, the anticipated environmental consequences of the proposed Project action alternatives are compared to the results of the No Action Alternative analysis. Section ES.1 Introduction and Authority of the Executive Summary has been revised to include this clarification. Therefore, although the EIS acknowledges that conditions have changed over time, anticipated Project impacts are compared to future conditions without the Project in the Barataria Basin, which is currently an estuarine ecosystem. Thus, the EIS has selected species representative of an estuarine system in assessing the proposed Project's potential impacts.

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**Concern ID: 62717**

**Discuss how the diversion would affect phytoplankton standing stocks and productivity, and how any such effects would impact oysters.**

**Response ID: 16095**

Nutrient loading and its projected effects on the food web are discussed in Chapter 4, Section 4.10.4.4 in Aquatic Resources of the EIS. As described, nutrient increases would stimulate primary productivity, which would contribute to increases in low trophic level species, such as shrimp, crabs, small planktivorous fish. As filter feeders, the increase in primary producers would also benefit oysters; Sections 4.10.4.4.2.4 Nutrient Loading and 4.10.4.5.2.11 Eastern Oysters of the Final EIS have been revised to acknowledge this benefit.

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**Concern ID: 62718**

**Fecal coliform concentrations adversely affect the people who eat contaminated oysters and the economics of the oyster fishery, not the oysters themselves.**

**Response ID: 16096**

Anticipated changes in fecal coliform levels in the Barataria Basin from riverine inputs are discussed in Chapter 4, Section 4.5.5.8.2 in Fecal Coliform of the EIS. Section 4.14.4.2.3 Eastern Oyster Fishery in the Final EIS has been revised to discuss the potential impacts of increased fecal coliform levels on oyster propagation and harvest. Reference to fecal coliform as an impact driver for oysters in the Executive Summary for Aquatic Resources has been removed in the Final EIS.

Additionally, Appendix R2 in the Final EIS includes CPRA's Monitoring and Adaptive Management (MAM) Plan, which includes monthly fecal

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coliform monitoring (Section 3.7.5.1) starting prior to construction and continuing during Project operations.

At the time of publication of the Draft EIS for public review, the Mitigation and Stewardship Plan and the MAM Plan (Appendix R) contained draft Plans and CPRA had not identified which of the measures contained in those Plans it intended to implement. The Final EIS Appendix R contains the final Plans and specifies which measures CPRA and the LA TIG intend to implement. Generally, impact determinations discussed in the EIS represent anticipated Project effects without implementation of these measures except in instances where such measures are identified in the discussion. If any mitigation, monitoring, or adaptive management measures are required by USACE as part of its approval of the proposed Project, such measures would be required as special conditions of the Department of the Army (DA) Section 10/404 permit and would be listed in the permit, if one is issued. Implementation of specific measures contained in either Plan, but not included in the Section 10/404 permit as special conditions, would not be required by USACE. USACE does not know whether any particular measure that is not a DA permit condition would be implemented. Measures that USACE currently contemplates as conditions of a DA Section 10/404 permit, if one is issued, are provided in Chapter 4, Section 4.27 Mitigation Summary of the EIS.

The LA TIG explains in Section 1.5 of the Final Restoration Plan that it anticipates requiring implementation of the Mitigation and Stewardship Plan, MAM Plan, and Marine Mammal Intervention Plan as components of the proposed Project, if the Project is approved by the LA TIG for funding. Decisions regarding which measures would be required as part of the LA TIG's funding decision would be set forth in the LA TIG Record of Decision related to the proposed Project.

<b>Concern ID: 62719</b>	<b>The EIS should evaluate the potential impacts to white shrimp.</b>
<b>Response ID: 16097</b>	Impacts on white shrimp from the proposed Project are discussed in Chapter 4, Section 4.10.4.5 in Aquatic Resources of the EIS. Because this issue was addressed in the Draft EIS, no related edits have been made to the Final EIS.
<b>Concern ID: 62720</b>	<b>The EIS overestimates the likely impact of low dissolved oxygen because the Barataria Bay is shallow and well-mixed, likely allowing for low dissolved oxygen to occur only in the deeper areas/holes created by humans.</b>
<b>Response ID: 16098</b>	Chapter 4, Section 4.10.4.4 in Aquatic Resources of the EIS indicates the potential impact of low DO to be adverse, but negligible to minor based on the Barataria Basin's depth and identification as a well-mixed estuary, which would likely only allow for pockets of low DO in deeper



areas. Because this issue was addressed in the Draft EIS, no related edits have been made to the Final EIS.

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<b>Concern ID: 62721</b>	<b>Dredging to obtain sediment for marsh creation has led to large holes in coastal Louisiana which almost certainly contain pockets of low dissolved oxygen; however, these pockets of low dissolved oxygen are not identified in the assessment of other projects.</b>
<b>Response ID: 16099</b>	Comment noted. No changes to the EIS are warranted as the comment is directed to DO analyses for other projects. Including or excluding data from environmental analyses for coastal restoration not related to the proposed Project is outside the scope of this EIS.
<b>Concern ID: 62754</b>	<b>The proposed Project, once operating, would create a river-fed deltaic estuary with an abundance of life.</b>
<b>Response ID: 16132</b>	The proposed Project would have both beneficial and adverse effects on aquatic life during operations, as discussed throughout Chapter 4, Section 4.10 Aquatic Resources of the Draft EIS. The benefits of the proposed Project are also discussed in detail in Section 3.2.1.6 (Benefits Multiple Resources) of the LA TIG's Final Restoration Plan.
<b>Concern ID: 62755</b>	<b>The diversion of nutrient delivery from the mouth of the Mississippi River to the mid-basin may ameliorate some of the imbalances which often lead to hypoxic conditions in the open Gulf, and would certainly lead to increases in many estuarine organisms.</b>
<b>Response ID: 16133</b>	As discussed in Chapter 4, Section 4.10.4.4 in Aquatic Resources of the EIS, nutrient levels in water diverted from the Mississippi River may result in increased primary productivity in the Barataria Basin, which would lead to benefits for aquatic fauna. The birdfoot delta is projected to have negligible changes in nutrient loads. Further, Section 4.25.5 in Cumulative Impacts, Surface Water and Sediment Quality of the Final EIS has been revised to discuss the Gulf Hypoxia Action Plan, which highlights the important role that river diversions could play in reducing nutrient loads. In addition, substantial nutrient load reduction could be achieved through the measures being implemented by the other states and entities involved with the Mississippi River/Gulf of Mexico Watershed Nutrient Task Force. These combined efforts could lessen the potential impacts of excess nutrient loads to Barataria Basin and the northern Gulf of Mexico.
<b>Concern ID: 62763</b>	<b>While there are positive effects of flood pulses associated with hurricanes that help flush the bays and estuaries of oyster diseases, massive freshets, such as those from high amounts of rain water (including tropical storms) or the proposed Project, can cause elevated levels of oyster mortality.</b>

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<b>Response ID: 16141</b>	Consistent with the commenter's statements, there would be both positive and negative effects on oysters from the salinity changes projected to occur during operation of the proposed Project, with the overall impact of freshwater input on oysters anticipated to be major and adverse. The effects of altered salinities, including prolonged decreases in salinity, on oysters are further discussed in Chapter 4, Section 4.10.4.5 in Aquatic Resources of the EIS. Because these issues were addressed in the Draft EIS, no related edits have been made to the Final EIS.
<b>Concern ID: 62764</b>	<b>The diversion is intended to restore and rebuild marsh, but would affect the existing flora/fauna in the basin during operations, which the designers say could adapt and survive in the modified environment.</b>
<b>Response ID: 16142</b>	As described throughout Chapter 4, Section 4.10 Aquatic Resources of the Draft EIS, operation of the proposed Project would affect the existing flora and fauna of the Barataria Basin in both beneficial and adverse ways, with the overall impacts to a given species being dependent on that species habitat preferences and tolerances.
<b>Concern ID: 62765</b>	<b>Without the oyster reefs, which would die in the fresh water, the commenter questioned how the ecosystem would be filtered.</b>
<b>Response ID: 16143</b>	As described in Chapter 3, Section 3.6 Wetland Resources and Waters of the U.S. of the Draft EIS, wetlands improve water quality by removing organic and inorganic toxic materials, suspended sediments, and nutrients via plant uptake and sedimentation. Chapter 4, Section 4.6.5.1 in Wetland Resources and Waters of the U.S. identifies a projected maximum wetland gain of 17,100 acres associated with the proposed Project at year 2060 before dropping to 12,700 acres at year 2070 in the Barataria Basin. The increase in wetlands, when compared to the No Action Alternative, would continue to filter the ecosystem. In addition, Section 4.10.4.2.2 in Benthic Resources of the Final EIS has been supplemented to describe the increase in freshwater filter feeders that would also work to partially offset the water filtration capacity lost due to the decrease in oyster abundance.
<b>Concern ID: 62766</b>	<b>A community model for oysters can be used to quantify the ecological benefits of an oyster reef in an ecosystem restoration project. This technical note describes additional benefits to consider during restoration planning: <a href="https://erdc-library.erdc.dren.mil/jspui/bitstream/11681/4023/1/TN-EMRRP-ER-01.pdf">https://erdc-library.erdc.dren.mil/jspui/bitstream/11681/4023/1/TN-EMRRP-ER-01.pdf</a>.</b>
<b>Response ID: 16144</b>	The benefits of oyster reefs are qualitatively discussed in Chapter 3, Section 3.10.5.2.11 Eastern Oysters. This section has been supplemented in the Final EIS with the identified reference to further clarify the benefits of oyster reefs. However, the stated intent of the

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referenced study is to provide information to planners on the economic benefits provided by oyster reef restoration, so that the full range of benefits can be considered when planning and evaluating oyster restoration projects. Restoration processes beyond assessment of the proposed delta restoration are outside the scope of this EIS.

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**Concern ID: 62767**

**Reefs provide both ecological and economic benefits. Ecological benefits result from the water quality, erosion prevention and stabilization, and habitat services provided by reefs (Wilber 2002).**

**Response ID: 16145**

The benefits of oyster reefs are qualitatively discussed in Chapter 3, Section 3.10.5.2.11 Eastern Oysters; however, this section has been supplemented in the Final EIS with the identified reference (Wilber 2002) to further clarify the benefits of oyster reefs.

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**Concern ID: 62768**

**USACE needs to conduct a spatial analysis of future suitable areas for oyster reef creation and restoration, which should include additional data, not investigated in this MBSD study, such as temperatures, bottom conditions, water mixing, and diversion modeling.**

**Response ID: 16146**

As discussed in Chapter 1, Section 1.6 Scope of the EIS, the EIS was developed to assess the environmental and socioeconomic impacts of the proposed Project. The Mitigation and Stewardship Plan (Appendix R1), which has been revised for the Final EIS in response to public comments, describes CPRA's mitigation and stewardship measures, including those measures proposed to partially offset some of the anticipated adverse impacts on oysters. Those mitigation and stewardship measures rely upon further sampling once the diversion begins operations (if permits are issued) to understand the most suitable locations for restoring oyster reef areas. Implementation of mitigation and stewardship measures would be led by CPRA. USACE would not participate in oyster mitigation and stewardship measures.

The Mitigation and Stewardship Plan and the Monitoring and Adaptive Management (MAM) Plan provided in the Draft EIS Appendix R were submitted by CPRA and represent a range of potential mitigation, stewardship, monitoring and adaptive management measures (collectively, measures). At the time of publication of the Draft EIS for public review, Appendix R contained draft Plans and CPRA had not identified which of the measures contained in those Plans it intended to implement. The Final EIS Appendix R contains the final Plans and specifies which measures CPRA and the LA TIG intend to implement. Generally, impact determinations discussed in the EIS represent anticipated Project effects without implementation of these measures except in instances where such measures are identified in the discussion. If any mitigation, monitoring, or adaptive management measures are required by USACE as part of its approval of the proposed Project, such measures would be required as special

conditions of the Department of the Army (DA) Section 10/404 permit and would be listed in the permit, if one is issued. Implementation of specific measures contained in either Plan, but not included in the Section 10/404 permit as special conditions, would not be required by USACE. USACE does not know whether any particular measure that is not a DA permit condition would be implemented. Measures that USACE currently contemplates as conditions of a DA Section 10/404 permit, if one is issued, are provided in Chapter 4, Section 4.27 Mitigation Summary of the EIS.

The LA TIG explains in Section 1.5 of the Final Restoration Plan that it anticipates requiring implementation of the Mitigation and Stewardship Plan, MAM Plan, and Marine Mammal Intervention Plan as components of the proposed Project, if the Project is approved by the LA TIG for funding. Decisions regarding which measures would be required as part of the LA TIG's funding decision would be set forth in the LA TIG Record of Decision related to the proposed Project.

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**Concern ID: 62769**

**River water contains industrial and biological pollutants which could degrade water quality within the estuary and would adversely affect all marine life.**

**Response ID: 16147**

Chapter 4, Sections 4.5.5.3 through 4.5.5.9 in Surface Water and Sediment Quality of the EIS discuss anticipated changes in chemical concentrations in the Barataria Basin due to the proposed Project. The general impacts of certain chemical compounds/nutrients on aquatic resources are discussed in Section 4.10.4.4 in Aquatic Resources. Other potential contaminants, including sulfate, atrazine, and fecal coliform were also modeled and discussed in Sections 4.5.5.7 and 4.5.5.9. The Draft EIS concludes that the proposed Project would result in beneficial decreases in sulfate and would have negligible impacts on atrazine levels. Sulfate and atrazine are therefore not specifically discussed in Section 4.10 Aquatic Resources; however, a discussion of fecal coliform has been added to Section 4.10.4.4.2.5 Dissolved Oxygen of the Final EIS.

Additionally, Appendix R2 in the Final EIS includes CPRA's Monitoring and Adaptive Management (MAM) Plan, which includes monthly fecal coliform monitoring (Section 3.7.5.1) and periodic sampling for Contaminants of Concern in fish, shellfish, and wildlife (Section 3.7.3.23).

At the time of publication of the Draft EIS for public review, the MAM Plan (Appendix R) contained draft Plans and CPRA had not identified which of the measures contained in those Plans it intended to implement. The Final EIS Appendix R contains the final Plans and specifies which measures CPRA and the LA TIG intend to implement. Generally, impact determinations discussed in the EIS represent anticipated Project effects without implementation of these measures

except in instances where such measures are identified in the discussion. If any mitigation, monitoring, or adaptive management measures are required by USACE as part of its approval of the proposed Project, such measures would be required as special conditions of the Department of the Army (DA) Section 10/404 permit and would be listed in the permit, if one is issued. Implementation of specific measures contained in either Plan, but not included in the Section 10/404 permit as special conditions, would not be required by USACE. USACE does not know whether any particular measure that is not a DA permit condition would be implemented. Measures that USACE currently contemplates as conditions of a DA Section 10/404 permit, if one is issued, are provided in Chapter 4, Section 4.27 Mitigation Summary of the EIS.

The LA TIG explains in Section 1.5 of the Final Restoration Plan that it anticipates requiring implementation of the Mitigation and Stewardship Plan, MAM Plan, and Marine Mammal Intervention Plan as components of the proposed Project, if the Project is approved by the LA TIG for funding. Decisions regarding which measures would be required as part of the LA TIG's funding decision would be set forth in the LA TIG Record of Decision related to the proposed Project.

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**Concern ID: 62770**

**The commenters' concerns regarding this proposed diversion are rooted in other similar experiences. The PDARP/PEIS indicated "collateral injuries" to estuarine organisms such as oysters and brown shrimp, Mardi Gras Pass decimated oyster reefs, and high-volume diversions (natural or man-made) have obliterated marsh grass and the natural ecology in impacted areas.**

**Response ID: 16148**

As discussed in Chapter 4, Section 4.10.4.5 in Aquatic Resources of the EIS, the impact of the proposed Project on brown shrimp and oysters is anticipated to be major and adverse, due in part to salinity changes. Conversely, the proposed Project is anticipated to have a major beneficial impact on wetlands in the Barataria Basin from the diversion of sediment and fresh water. A summary of select natural and man-made diversions in southeastern Louisiana, including Mardi Gras Pass, has been developed to compare the purpose and/or characteristics of these diversions and their recorded impacts on the natural environment, including estuarine organisms and marsh grasses to the proposed MBSD Project. This summary is available in Appendix U Summary of Select Natural and Man-made Diversions in Southeastern Louisiana of the Final EIS.

The LA TIG's Final Restoration Plan recognizes the potential collateral injuries that could result from the proposed Project. In selecting the LA TIG's Preferred Alternative, the LA TIG evaluated a reasonable range of alternatives under the factors outlined in 15 CFR §990.54. The LA TIG strove to identify an alternative that would provide the right balance

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in terms of being cost-appropriate, meeting LA TIG goals, having a high likelihood of success, avoiding collateral injury, benefiting multiple resources, and protecting public health and safety. See Sections 3.2.4.7 (Identification of a Preferred Alternative), 3.2.1.5 (Avoids Collateral Injury), and 3.2.2.5 (Avoids Collateral Injury) of the LA TIG's Final Restoration Plan. A project can harm species also harmed by the spill and still be an appropriate project under OPA and this is especially true for projects like sediment diversions that seek to reestablish deltaic processes that shaped the historic delta ecosystems and which necessarily entails re-introducing freshwater flows that had historically characterized the Barataria Basin before construction of levees.

The LA TIG recognizes that there are clear tradeoffs among the alternatives in terms of the likely benefits achieved and risks related to collateral injury and public health and safety. Given these tradeoffs, the LA TIG selected Alternative 1 as the LA TIG's Preferred Alternative.

The LA TIG believes the proposed MBSD Project is critical to achieving the overall goals of the Wetlands, Coastal, and Nearshore Habitats Restoration Type in the Final PDARP/PEIS, which includes providing benefits across the interconnected northern Gulf of Mexico ecosystem, and placing particular emphasis on coastal and nearshore habitat restoration in the historical Mississippi River Delta plain in Louisiana. While recognizing the risks for collateral injury, the LA TIG believes the net benefits of the proposed Project meet OPA's requirement of restoration, rehabilitation, replacement, or acquisition of the equivalent, of the natural resources injured by the spill.

The Draft Mitigation and Stewardship Plan (Appendix R1 to the Draft EIS) included measures focused on establishing a sustainable fishing industry in the long term, rather than measures for compensating the short-term economic losses of individual fishers. Since publication of the Draft EIS and in response to comments, CPRA has expanded and refined this Mitigation and Stewardship Plan in the Final EIS (Appendix R1). The Final Mitigation and Stewardship Plan includes the following measures aimed at supporting and sustaining the fishing industry:

- Providing financial and technical assistance for alternate business ventures and job training for alternate jobs (Workforce/Business training -- \$2 million allocation)
- Funding for shrimp vessel improvements, including, potentially, larger boats, and improving docks (shrimp Vessel/Facility improvements -- \$15 million allocation)
- Establishing new oyster seed grounds (\$4 million allocation)
- Enhancing public and private oyster grounds (\$15 million allocation)

- Enhancing oyster broodstock reefs (\$4 million allocation)
- R&D for collaboration with fishers to innovate and change the way their operations work (Alternative Oyster Culture techniques -- \$8 million allocation)
- Marketing and outreach support (\$5 million allocation including oysters, brown shrimp, finfish, and crab).

CPRA engaged the fishing community potentially impacted by the proposed Project through public meetings and community-based organizations to solicit input on mitigation and stewardship strategies. A summary of these public engagement meetings and outreach efforts is in Chapter 7 Public Involvement of the Final EIS. CPRA plans to continue utilizing community-based organizations to help ensure that diverse populations become aware of and take advantage of the mitigation and stewardship measures that CPRA would offer if the proposed Project is approved and funded.

At the time of publication of the Draft EIS for public review, the Mitigation and Stewardship Plan and the Monitoring and Adaptive Management (MAM) Plan (Appendix R) contained draft Plans and CPRA had not identified which of the measures contained in those Plans it intended to implement. The Final EIS Appendix R contains the final Plans and specifies which measures CPRA and the LA TIG intend to implement. Generally, impact determinations discussed in the EIS represent anticipated Project effects without implementation of these measures except in instances where such measures are identified in the discussion. If any mitigation, monitoring, or adaptive management measures are required by USACE as part of its approval of the proposed Project, such measures would be required as special conditions of the Department of the Army (DA) Section 10/404 permit and would be listed in the permit, if one is issued. Implementation of specific measures contained in either Plan, but not included in the Section 10/404 permit as special conditions, would not be required by USACE. USACE does not know whether any particular measure that is not a DA permit condition would be implemented. Measures that USACE currently contemplates as conditions of a DA Section 10/404 permit, if one is issued, are provided in Chapter 4, Section 4.27 Mitigation Summary of the EIS.

The LA TIG explains in Section 1.5 of the Final Restoration Plan that it anticipates requiring implementation of the Mitigation and Stewardship Plan, MAM Plan, and Marine Mammal Intervention Plan as components of the proposed Project, if the Project is approved by the LA TIG for funding. Decisions regarding which measures would be required as part of the LA TIG's funding decision would be set forth in the LA TIG Record of Decision related to the proposed Project.



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<b>Concern ID: 64217</b>	<b>The EIS needs to provide supporting evidence of the assertion that the proposed Project would cause increased occurrence of invasive plant species.</b>
<b>Response ID: 16156</b>	Chapter 4, Section 4.10.4.6 in Aquatic Resources of the EIS identifies literature reviewed, and the evaluation and impact conclusions reflect the best professional judgment based on sound science and expertise of the USACE and cooperating agencies, to determine the potential for increased occurrence of invasive plants due to the proposed Project. Because this issue was addressed in the Draft EIS, no related edits have been made to the Final EIS.
<b>Concern ID: 62714</b>	<b>The Executive Summary for Aquatic Resources indicates a negative effect on SAV followed by a later positive effect. Mississippi River water greatly stimulates SAV growth in the delta. There are no seagrasses here, so there is no reason to be concerned with effects of river water on SAV.</b>
<b>Response ID: 16092</b>	Chapter 3, Section 3.10.2.1 and Chapter 4, Section 4.10.4.1 in Aquatic Resources of the EIS discuss the SAV species likely present in the proposed Project area and the impacts to them from the proposed Project. Overall, the proposed Project would likely initially result in adverse impact on SAV in the basin from a relatively quick change in salinity, which may result in die-offs of species intolerant of the new salinity regime early in the Project life. However, the initial adverse impacts on SAV would be temporary, with permanent beneficial impacts to overall coverage and biomass of SAV once the salinity regime stabilizes. Consistent with the commenter's statement and the noted sections of the EIS, there are no seagrasses in the proposed Project area; however, there are multiple other species of SAV that may occur in the proposed Project area, such as hydrilla and wild celery. Because this issue was addressed in the Draft EIS, no related edits have been made to the Final EIS.
<b>Concern ID: NEW (based on 61733)</b>	<b>The opening of the Davis Pond and Caernarvon diversions to combat effects of the DWH oil spill has had significant impacts on the fish and mega-invertebrate community associated with reduced salinity and lower water turbidity.</b>
<b>Response ID: NEW (based on 16159)</b>	<p>The impacts that the DWH oil spill had on fish and mega-invertebrates in the Barataria Basin, and the drivers of those impacts, were considered in the Draft EIS. These impacts are discussed throughout Chapter 3 Affected Environment, including time series representations of LDWF fisheries independent data for key species that cover the period of the DWH oil spill.</p> <p>As stated in Chapter 1, Section 1.4 Purpose and Need of the EIS, the purpose of the Project is to restore for injuries caused by the DWH oil spill by implementing a large-scale sediment diversion in the Barataria</p>

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Basin that would reconnect and reestablish sustainable deltaic processes between the Mississippi River and the Barataria Basin through the delivery of sediment, fresh water, and nutrients to support the long-term viability of existing and planned coastal restoration efforts. This EIS serves as the environmental review required by NEPA to inform the LA TIG's OPA decision regarding funding the construction of the proposed MBSD Project using damages paid by BP following the DWH oil spill (see Section 1.6.1 The OPA and DWH NRDA Decisions of the EIS).

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## EC61000 - Marine Mammals

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**Concern ID: 62986**

**The Project would drive decreases in salinity that would reduce the overall health, survival, and reproduction of bottlenose dolphins that reside in the Barataria Basin, a species that was negatively affected by the Deepwater Horizon oil spill (NMFS, 2013). Some commenters felt that because of this, the Project should either not move forward or its operation should be altered.**

**National Marine Fisheries Service (NMFS). 2013. Roy Crabtree (NMFS) to Elizabeth Davoli (CPRA). <https://s3.documentcloud.org/documents/726710/national-marine-fisheries-service-comments-on.pdf>**

**Response ID: 16701**

The concerns raised by the commenters about the projected decreases in salinity and resulting effects on Barataria Bay dolphins were considered in the Draft EIS. More specifically, Chapter 4, Section 4.11.5.2 in Marine Mammals of the EIS acknowledges that the proposed Project would likely have significant, adverse impacts to Barataria Basin dolphins, a species that suffered significant impacts from the DWH oil spill. This section also discusses the physiological changes caused by exposure to low-salinity water, the duration of those changes that leads to mortality, and the anticipated mortality of a large portion of the dolphin population in the Barataria Basin within the first decade. These sections of the EIS provide a more in-depth analysis of potential impacts to dolphins than the letter cited by the commenter.

The concerns raised by the commenters were also considered in the LA TIG's Draft Restoration Plan (see Section 3.2.1.5 [Collateral Injury]); the Final Restoration Plan has been edited consistent with changes made to the Final EIS and see below regarding new, related content included in Appendix R.

The LA TIG recognizes that any of the large-scale sediment diversion alternatives considered would potentially result in varying degrees of collateral injuries, including some high degree collateral injuries, to

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natural resources, like dolphins, that were injured by the spill (see the Executive Summary and Section 3.2.1.5 [Avoids Collateral Injury] of the Restoration Plan). The intended restoration of freshwater flows from the Mississippi River, which historically had characterized and shaped the Barataria Basin ecosystem before levee construction, would result in collateral injury to species that depend on the current higher-salinity conditions that exist without freshwater flows. However, without the proposed Project, there would also be adverse impacts to some of the same species due to large-scale wetland loss over time, as is anticipated from ongoing sea-level rise, subsidence, and other existing stressors, which is anticipated to reduce the suitability of habitat for many of the species that currently occur in Barataria Basin.

The LA TIG must weigh the potential for and extent of collateral injury against the benefits of the proposed Project (see Section 3.2.4 [Overall OPA Evaluation Conclusions] of the Restoration Plan for a discussion of how the LA TIG weighed the potential collateral injury of the proposed Project against its benefits). The LA TIG believes that a sediment diversion is the only way to achieve a self-sustaining ecosystem in the Barataria Basin that creates and maintains wetlands. As described in Section 3.2.1.6 (Benefits Multiple Resources – Alternative 1) of the Restoration Plan, this sustained ecosystem would be expected to benefit many fish and wildlife species in the basin, including many of those negatively affected by the spill, such as red drum, blue crab, white shrimp, Gulf menhaden, and migratory waterfowl. These benefits to fish and wildlife species also would translate to benefits to recreational users who watch, fish, or hunt those species. In addition, these benefits would not only accrue throughout the Barataria Basin but, through the transport of productivity, also in the offshore ecosystems of the northern Gulf of Mexico. By reestablishing deltaic processes, the proposed Project would be expected to enhance the ecological productivity of the estuary and improve food web dynamics that would provide benefit to the northern Gulf of Mexico ecosystem.

The LA TIG has selected the proposed Project as its Preferred Alternative in the Restoration Plan because it is critical to achieving the overall goals of the Wetlands, Coastal, and Nearshore Habitats Restoration Type in the Final PDARP/PEIS, which include providing benefits across the interconnected northern Gulf of Mexico ecosystem, and placing particular emphasis on coastal and nearshore habitat restoration in the historical Mississippi River Delta plain in Louisiana.

Since release of the Draft EIS and the LA TIG's Draft Restoration Plan, the LA TIG has developed a new Marine Mammal Intervention Plan to further respond to and recognize expressed public concerns about the potential impacts of the proposed Project on marine mammals (see Appendix R5 to the Final EIS). The Plan outlines a spectrum of

response actions ranging from recovery/relocation to no intervention to euthanasia. While the more severe actions (that is, euthanasia) may not offset the ultimate outcome of dolphin mortality associated with the proposed Project, it can alleviate animal suffering. Where relocation is possible (if it is possible), the goal would be to release dolphins into more hospitable habitat where any health impacts would be minimized.

In addition, in recognition that the proposed Project would likely result in significant marine mammal collateral injuries, and acknowledging the inability to fully avoid or mitigate collateral injuries, CPRA has designed and would implement a suite of stewardship measures to benefit dolphins in Louisiana (see Appendix R1 [Mitigation and Stewardship Plan] of the Final EIS for more details about these actions). CPRA has also updated marine mammal related monitoring and adaptive management activities since the release of the Draft EIS to include more details regarding strategies and protocols that would be used at the onset of operations to minimize impacts on dolphins, as well as the process through which operational data would be used to evaluate potential modifications to those strategies and protocols; see Appendix R2 (Monitoring and Adaptive Management Plan) to the Final EIS for more information.

The Mitigation and Stewardship Plan and the Monitoring and Adaptive Management (MAM) Plan provided in Draft EIS Appendix R were submitted by CPRA and represent a range of potential mitigation, stewardship, monitoring and adaptive management measures (collectively, measures). At the time of publication of the Draft EIS for public review, Appendix R contained draft Plans and CPRA had not identified which of the measures contained in those Plans it intended to implement. The Final EIS Appendix R contains the final Plans, including the additional Marine Mammal Intervention Plan, and specifies which measures CPRA and the LA TIG intend to implement. Generally, impact determinations discussed in the EIS represent anticipated Project effects without implementation of these measures except in instances where such measures are identified in the discussion. If any mitigation, monitoring or adaptive management measures are required by USACE as part of its approval of the proposed Project, such measures would be required as special conditions of the Department of the Army (DA) Section 10/404 permit and would be listed in the permit, if one is issued. Implementation of specific measures contained in either Plan, but not included in the Section 10/404 permit as special conditions, would not be required by USACE. USACE does not know whether any particular measure that is not a DA permit condition would be implemented. Measures that USACE currently contemplates as conditions of a DA Section 10/404 permit, if one is issued, are provided in Chapter 4, Section 4.27 Mitigation Summary of the EIS.

The LA TIG explains in Section 1.5 of the Final Restoration Plan that it anticipates requiring implementation of the Mitigation and Stewardship Plan, MAM Plan, and Marine Mammal Intervention Plan as components of the proposed Project, if the Project is approved by the LA TIG for funding. Decisions regarding which measures would be required as part of the LA TIG's funding decision would be set forth in the LA TIG Record of Decision related to the proposed Project.

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**Concern ID: 63066**

**It is not clear why the negative impacts to bottlenose dolphins are expected from the proposed Project when dolphin injuries and mortality have not been associated with other freshwater releases or diversion projects such as Wax Lake Delta. Dolphins may simply reduce their use of less saline environments as conditions change.**

**Response ID: 16589**

The potential for dolphins to simply reduce their use of damaging, less saline environments by moving to higher saline environments was considered in the Draft EIS. More specifically, Chapter 4, Section 4.11 (Marine Mammals) of the EIS describes the impacts on bottlenose dolphins from freshwater exposure; these impacts are well documented and include observations and data collected in Louisiana associated with the release of fresh water. Most recently, a freshening event in 2019 resulted in the declaration of a bottlenose dolphin unusual mortality event (UME) in the northern Gulf of Mexico. The Bonnet Carré Spillway, Pearl River, and Lower Mississippi River distributaries contributed to low salinity in the region, resulting in increased mortality and strandings of bottlenose dolphins. Existing data on low-salinity exposure were used to develop a dose-response model that forms the basis for the evaluation of impacts in the EIS (Booth et al., 2020). Existing populations of bottlenose dolphins in Louisiana are largely reflective of the predominant conditions in a given area. Within Barataria Bay, dolphins demonstrate site fidelity to small areas of the basin which, as described in the EIS, has led to the identification of distinct strata (for example, Takeshita et al., 2020). Some of the dolphins tolerate lower salinity waters within Upper Barataria Bay, but are not expected to survive the amount and duration of fresh water released from the diversion. The Barataria Bay bottlenose dolphin stocks' extreme site fidelity and estuarine nature also suggests the dolphins would not move to areas with higher salinity, such as near the barrier islands or Gulf of Mexico.

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**Concern ID: 63067**

**The majority of the bottlenose dolphin population of this area will be destroyed... not just killed but sentenced to a horrific death. Freshwater releases at Bonnet Carré Spillway in 2019 resulted in an unusual mortality event (UME), demonstrating the harm that freshwater releases can cause to dolphins. A study by the Galveston Bay Dolphin Research Program also found that dolphins in upper Galveston Bay developed skin lesions after**

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**flooding from Hurricane Harvey. Additional studies further support the harm that the diversion could cause by demonstrating negative impacts to dolphins from exposure to low-salinity conditions (Deming and Garrison, 2021; Duignan et al., 2020; McClain et al., 2020).**

**Deming, A., and L. Garrison. 2021. 2019 Northern Gulf of Mexico bottlenose dolphin unusual mortality event. Marine Mammal Commission meeting/webinar on “Effects of Low Salinity Exposure on Bottlenose Dolphins,” 23 March 2021. Oral presentation. <https://www.mmc.gov/events-meetings-and-workshops/other-events/effects-of-low-salinity-exposure-on-bottlenose-dolphins-webinar/>**

**Duignan, P.J., N.S. Stephens, and K. Robb. 2020. Fresh water skin disease in dolphins: a case definition based on pathology and environmental factors in Australia. Scientific Reports 10:21979.**

**McClain, A.M., R. Daniels, F.M. Gomez, S.H. Ridgway, R. Takeshita, E.D. Jensen, and C.R. Smith. 2020. Physiological effects of low-salinity exposure on bottlenose dolphins (*Tursiops truncatus*). Journal of Zoological and Botanical Gardens 1:61-75.**

**Response ID: 16590**

The Draft EIS included an analysis based on extensive literature and soon-to-be published data (now published) demonstrating the impacts of low-salinity conditions on dolphins. These data were considered as part of an Expert Elicitation (a garnering of expert opinions to determine or quantify an unknown) that resulted in dose-response curves (Booth et al. 2020) and summarized in Chapter 4, Section 4.11.3 (Marine Mammals - Overview of Impact Analysis Approach) of the EIS. While Deming and Garrison (2021) was presented after the release of the Draft EIS, the presentation was based on data that were fully considered in the Draft EIS, including as part of the Expert Elicitation. Along with other relevant data (for example, BBES tagging studies), the analysis contained in the Draft EIS determined that there would be a significant, adverse, permanent impact on the BBES Stock. Further, the analysis in the Draft EIS concluded that if the 75,000 cfs Alternative were implemented, impacts would be immediate and only a remnant population would be likely to exist near the barrier islands after 50 years of operation.

After release of the Draft EIS, at the request of the Marine Mammal Commission, the National Marine Mammal Foundation and University of St. Andrews released a population impact projection based on the information presented in the Draft EIS (including annual survival rates from Garrison et al. 2020) coupled with an updated population model for BBES dolphins (Schwacke et al. 2022, Thomas et al. 2021). This new, additional analysis has been incorporated into the Final EIS in Chapter 4, Sections 4.11.5.2 Barataria Bay Estuarine Stock and

supports the original determination in the Draft EIS of major, permanent, adverse impacts on the BBES dolphin population. The research presented in the McClain et al. (2020) study cited by commenters was considered in the Draft EIS [cited at the time as McClain et al. (in prep)]; the research presented by Duignan et al. (2020) is consistent with the established literature and does not change the conclusions of the Draft EIS, but this study has been incorporated in Chapter 4, Section 4.11.5.2.2.1 General Effects on Dolphin Health of the Final EIS. Similarly, the information included in the Deming and Garrison presentation was considered in the Draft EIS, is consistent with the conclusions of the Draft EIS, and the presentation has now been cited in Section 4.11.5.2.2.

Since release of the Draft EIS and the LA TIG's Draft Restoration Plan, the LA TIG has developed a new Marine Mammal Intervention Plan to further respond to and recognize expressed public concerns about the potential impacts of the proposed Project on marine mammals (see Appendix R5 to the Final EIS). The Plan outlines a spectrum of response actions ranging from recovery/relocation to no intervention to euthanasia. While the more severe actions (that is, euthanasia) may not offset the ultimate outcome of dolphin mortality associated with the proposed Project, it can alleviate animal suffering. Where relocation is possible, the goal would be to release dolphins into more hospitable habitat where any health impacts would be minimized. In addition, in recognition that the proposed Project would likely result in significant marine mammal collateral injuries, and acknowledging the inability to fully avoid or mitigate collateral injuries, CPRA has designed and would implement a suite of stewardship measures (see Appendix R1 [Mitigation and Stewardship Plan] of the Final EIS for more details about these actions). CPRA has also updated marine mammal related monitoring and adaptive management activities since the release of the Draft EIS to include specific marine mammal response triggers that may affect Project operation mitigation efforts; see Appendix R2 (Monitoring and Adaptive Management [MAM] Plan) to the Final EIS for more information.

The Mitigation and Stewardship Plan and the MAM Plan provided in Draft EIS Appendix R were submitted by CPRA and represent a range of potential mitigation, stewardship, monitoring and adaptive management measures (collectively, measures). At the time of publication of the Draft EIS for public review, Appendix R contained draft Plans and CPRA had not identified which of the measures contained in those Plans it intended to implement. The Final EIS Appendix R contains the final Plans, including the additional Marine Mammal Intervention Plan, and specifies which measures CPRA and the LA TIG intend to implement. Generally, impact determinations discussed in the EIS represent anticipated Project effects without



implementation of these measures except in instances where such measures are identified in the discussion. If any mitigation, monitoring or adaptive management measures are required by USACE as part of its approval of the proposed Project, such measures would be required as special conditions of the Department of the Army (DA) Section 10/404 permit and would be listed in the permit, if one is issued. Implementation of specific measures contained in these Plans, but not included in the Section 10/404 permit as special conditions, would not be required by USACE. USACE does not know whether any particular measure that is not a DA permit condition would be implemented. Measures that USACE currently contemplates as conditions of a DA Section 10/404 permit, if one is issued, are provided in Chapter 4, Section 4.27 Mitigation Summary of the EIS.

The LA TIG explains in Section 1.5 of the Final Restoration Plan that it anticipates requiring implementation of the Mitigation and Stewardship Plan, MAM Plan, and Marine Mammal Intervention Plan as components of the proposed Project, if the Project is approved by the LA TIG for funding. Decisions regarding which measures would be required as part of the LA TIG's funding decision would be set forth in the LA TIG Record of Decision related to the proposed Project.

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**Concern ID: 63069**

**The Draft EIS did not include detailed information about the potential impacts of the proposed Project on bottlenose dolphins.**

**Response ID: 16592**

The Draft EIS included an analysis of the impacts to marine mammals, including bottlenose dolphins, in Chapter 4, Section 4.11 (Marine Mammals). The EIS quantifies the impact on dolphin survival rates (the percentage of existing dolphins that would survive from one year to the next year) for different populations of dolphins (Table 4.11-5) from the most pronounced stressor, salinity, but also includes a qualitative assessment on other impacts such as wetland shifts, prey species impacts, HABs, water temperature, and other impacts. The Final EIS includes the incorporation of additional population impact analysis that was completed by Thomas et al. (2021) after the Draft EIS was released for public comment.

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**Concern ID: 63070**

**A recent study suggests that the proposed Project would not only prevent the recovery of the BBES Stock, but it would result in the functional extinction of dolphins in the West, Central, and Southeast strata of the stock area (Thomas et al., 2021). The only dolphins remaining in the basin would live adjacent to the barrier islands, and even this group would become severely reduced over the 50-year planning horizon of the proposed Project. Additionally, an expert elicitation (Booth and Thomas, 2021) building on previous studies (Garrison et al., 2020; Schwacke et al., 2017; Thomas et al., 2021) suggests that while dolphins can endure some periods of exposure to low salinity, the period of**



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**tolerable exposure shortens for dolphins exposed to acute changes in salinity, and the median time to death is 22 days with continuous exposure to water with salinity levels below 5 ppt.**

**Booth, C., and L. Thomas. 2021. An expert elicitation of the effects of low-salinity water exposure on bottlenose dolphins. *Oceans* 2(1):179-192.**

**Garrison, L.P, J. Litz, and C. Sinclair. 2020. Predicting the effects of low salinity associated with the Mid-Barataria Sediment Diversion Project on resident common bottlenose dolphins (*Tursiops truncatus*) in Barataria Bay, Louisiana. NOAA Technical Memorandum NOAA NMFS- SEFSC-748. 97 pages.**

**Schwacke, L.H., L. Thomas, R.S. Wells, W.E. McFee, A.A. Hohn, K.D. Mullin, E.S. Zolman, B.M. Quigley, T.K. Rowles, and J.H. Schwacke. 2017. Quantifying injury to common bottlenose dolphins from the Deepwater Horizon oil spill using an age-, sex- and class-structured population model. *Endangered Species Research* 33:265-279.**

**Thomas, L., Marques, T., Booth, C., Takeshita, R., and L. Schwacke. 2021. Predicted population consequences of low salinity associated with the proposed Mid-Barataria Sediment Diversion Project on bottlenose dolphins in the Barataria Bay Estuarine System Stock.**

**Response ID: 16593**

The Draft EIS included an analysis of the impacts to marine mammals, including BBES dolphins in Chapter 4, Section 4.11.5.2 Barataria Bay Estuarine Stock. This analysis incorporated the Booth and Thomas (2021), Garrison et al. (2020), and Schwacke et al. (2017) studies, and the Final EIS includes additional analyses that were completed by Thomas et al. (2021) after the Draft EIS was released for public comment. The impact conclusions in the Draft EIS were based in large part on Garrison et al. (2020), which predicts that only a remnant population of dolphins would continue to exist in Barataria Basin after diversion operations commenced. The conclusion of major, permanent, adverse impact to bottlenose dolphins is also supported by Thomas et al. (2021), which built on these earlier studies and concludes that, after 1 year of operation of the Applicant's Preferred Alternative, there would be 61 percent fewer dolphins in the Central stratum than under the No Action Alternative, 35 percent fewer in the West stratum, 12 percent fewer in the Southeast stratum, and 2 percent fewer in the Island stratum, with 25 percent fewer overall. Thomas, et al. further concluded that after 10 years of operation, there would be 100 percent reduction in the populations of dolphins in the Central and West strata, an 82 percent reduction in the population of the Southeast stratum dolphins, and a 34 percent reduction in the population of the Island stratum dolphins as compared against the No Action Alternative, with

an overall difference in population of 78 percent. (Note that Thomas, et al. 2022 slightly refined some of these projections.) After 50 years of operation, in three out of the four strata, dolphins are predicted to be functionally extinct (defined as less than or equal to dolphin in Thomas, et al. 2022) under the Applicant's Preferred Alternative, with the remaining Island stratum being 85 percent lower [95 percent CI -28 -- -99] under the Applicant's Preferred Alternative than under the No Action Alternative. Overall, by the year 2076, the median predicted stock size across all of Barataria Bay under the Applicant's Preferred Alternative is projected to be 143 dolphins (95 percent CI 11-706) compared to a predicted 3,363 dolphins (95 percent CI 2,831-4,289) predicted to inhabit the Barataria Bay under the No Action Alternative. In other words, the BBES dolphin stock is projected to be 96 percent smaller (95 percent CI -80 -- -100) under the Applicant's Preferred Alternative than then No Action Alternative. Chapter 4, Section 4.11 Marine Mammals of the Final EIS has been updated to reflect the results of Thomas et al. (2021).

Booth and Thomas (2021) evaluated multiple scenarios with different salinity changes, and in one of those scenarios' where bottlenose dolphins experience a change in salinity within 0 to 5 days from typical salinity environment (that is, mean 15 to 25 ppt) down to an atypical environment with salinity below 5 ppt for an extended period, the median time to death would be 22 days.

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**Concern ID: 63071**

**The dire forecasts about the near-term effects on dolphin populations in parts of Barataria Bay depend upon a number of unproven and improbable assumptions about dolphin adaptability and tolerance for living in the delta (Garrison et al., 2020). Conversely, the continued collapse of the marsh platform in the Barataria Basin will eventually reach a tipping point at which the prey base of dolphins in the bay would shrink and could eventually collapse. The long-term health of dolphins in the northern Gulf of Mexico depends on reconnecting the river to the delta and reestablishing the deltaic cycle.**

**Garrison, L.P, Litz, J. and Sinclair, C. 2020. Predicting the effects of low salinity associated with the MBSD Project on resident common bottlenose dolphins (*Tursiops truncatus*) in Barataria Bay, LA. NOAA Technical Memorandum NOAA NMFS-SEFSC-748: 97 p.**

**Response ID: 16594**

The Draft EIS recognized that the loss of wetlands under the No Action Alternative would result in a gradually increasing, from negligible to moderate, adverse impact on dolphins (see Chapter 4, Section 4.11.5.1 [Operational Impacts]). The impacts on bottlenose dolphins from freshwater exposure have been well documented, including observations and data collected in association with the release of fresh

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water in Louisiana (see Chapter 4, Section 4.11 [Marine Mammals] of the EIS for more details). Most recently, a freshening event in 2019 resulted in the declaration of an unusual mortality event (UME) in the northern Gulf of Mexico. Existing data on low-salinity exposure were used to develop a dose-response model that formed the basis for the evaluation of impacts in the Draft EIS (see Chapter 4, Section 4.11.3 [Overview of Impact Analysis Approach]). The dose-response model was coupled with an updated population model to evaluate potential changes in survival rates with in BBES. These potential decreases in survival rates caused by the diversion were compared to future conditions without the diversion (the No Action Alternative). The analysis contained in the Draft EIS determined that there would be a major, adverse, long-term impact on the BBES Stock. That conclusion is also supported by Thomas et al. (2021), which built on earlier studies and concludes that, after 1 year of operation of the Applicant's Preferred Alternative, there would be 61 percent fewer dolphins in the Central stratum than under the No Action Alternative, 35 percent fewer in the West stratum, 12 percent fewer in the Southeast stratum, and 2 percent fewer in the Island stratum, with 25 percent fewer overall. Thomas, et al. 2021 further concluded that after 10 the planned 50 years of operation, there would be 100 percent reduction in the populations of dolphins in the Central and West strata, an 82 percent reduction in the population of the Southeast stratum dolphins, and a 34 percent reduction in the population of the Island stratum dolphins as compared against the No Action Alternative, with an overall difference in population of 78 percent. (Note that Thomas, et al. 2022 slightly refined some of these projections.) After 50 years of operation, in three out of the four strata, dolphins are predicted to be functionally extinct under the Applicant's Preferred Alternative, with the remaining Island stratum being severely reduced relative to the No Action Alternative (that is, the median predicted population size of the Island stratum would be 85 percent lower [95 percent CI 28-99] under the Applicant's Preferred Alternative than under the No Action Alternative). Overall, by the year 2076, the median predicted stock size across all of Barataria Bay under the Applicant's Preferred Alternative is 143 dolphins (95 percent CI 11-706) compared to a predicted 3,363 (95 percent CI 2,831-4,289) predicted to inhabit the Barataria Bay under the No Action Alternative. In other words, the BBES dolphin stock would be 96 percent smaller (95 percent CI 80-100) under the Applicant's Preferred Alternative than then No Action Alternative. Chapter 4, Section 4.11 Marine Mammals of the Final EIS has been updated to reflect the results of Thomas et al (2021). The impacts of Project-induced wetland changes on dolphins is discussed in Chapter 4, Section 4.11.5 Operational Impacts of the EIS.

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<b>Concern ID: 63072</b>	<b>The EIS should include an analysis of the potential impacts of the proposed Project on bottlenose dolphins in the Mississippi Sound.</b>
<b>Response ID: 16595</b>	While Figure 3.11-1 of the Draft EIS showed the distribution of bottlenose dolphin stocks in southeast Louisiana, including the Mississippi Sound Stock, it was not meant to imply that all depicted stocks would be affected by the Project. The figure has been updated to clarify this point in the Final EIS. The Project would divert fresh water, sediment, and nutrients into the Barataria Basin on the western side of the Mississippi River. The Barataria Basin has no hydrological connection to Mississippi Sound, and the Mississippi Sound Stock does not extend into the Barataria Basin, or any other area that would be affected by the Project. Therefore, the Mississippi Sound Stock is not included in the analysis of the impacts of the Project.
<b>Concern ID: 63075</b>	<b>The estimates of bottlenose dolphin survival rates provided in the Draft EIS may be inaccurate due to key modeling assumptions and limitations, which were acknowledged in the Draft EIS and associated studies (Garrison et al., 2020). For example, because the models used by the Draft EIS did not look at the cumulative effect of multiple stressors and exposure to low-salinity waters over many years, the Draft EIS likely underestimates the impact of the proposed Project on bottlenose dolphins.</b>
<b>Response ID: 16596</b>	<b>Garrison, L.P, Litz, J. and Sinclair, C. 2020. Predicting the effects of low salinity associated with the MBSD Project on resident common bottlenose dolphins (<i>Tursiops truncatus</i>) in Barataria Bay, LA. NOAA Technical Memorandum NOAA NMFS-SEFSC-748: 97 p.</b>  USACE and the LA TIG acknowledge the assumptions and limitations of the modeling, and the resulting uncertainties (including potential underestimation of adverse impacts) noted by the commenter. In addition to the Delft3D modeling, published, peer-reviewed studies (and in some cases, pre-published data available only to the NMFS EIS authors) were reviewed in conjunction with development of the EIS's evaluation of projected impacts to bottlenose dolphin populations in the Project area. The Final EIS includes additional analyses that were completed by Thomas et al. (2021) after the Draft EIS was released for public comment. The EIS considers multiple sources of stress for bottlenose dolphins including salinity and temperature; sedimentation and land loss; contaminant and nutrients; food web and ecological interactions; and dolphin prey. While quantitative analysis regarding the combined effects of multiple stressors and prolonged salinity exposure are not currently available, the qualitative analysis supports the permanent, major, adverse impact on BBES dolphins found in the EIS (the most significant adverse impact category of the EIS).

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**Concern ID: 63076**

**Another operational alternative that should be considered is management of the timing of freshwater influxes to minimize impacts on dolphin reproductive success. Commenters provided multiple references for further information on dolphin reproduction and health.**

**Bejarano, A.C., R.S. Wells, and D.P. Costa. 2017. Development of a bioenergetic model for estimating energy requirements and prey biomass consumption of the bottlenose dolphin *Tursiops truncatus*. *Ecological Modelling* 356: 162-172.**

**Mattson, M., K. Mullin, G. Ingram, and W. Hoggard. 2006. Age structure and growth of the bottlenose dolphin (*Tursiops truncatus*) from strandings in the Mississippi Sound region of the north-central Gulf of Mexico from 1986 to 2003. *Marine Mammal Science* 22:654-666.**

**Miller L.J., A.D. Mackey, T. Hoffland, M. Solangi, and S.A. Kuczaj III. 2010. Potential effects of a major hurricane on Atlantic bottlenose dolphin (*Tursiops truncatus*) reproduction in the Mississippi Sound. 2010. *Marine Mammal Science* 26(3):707-715.**

**Miller L.J., A.D. Mackey, M. Solangi, and S.A. Kuczaj III. 2013. Population abundance and habitat utilization of bottlenose dolphins in the Mississippi Sound. *Aquatic Conservation: Marine and Freshwater Ecosystems* 23:145-151.**

**Rowe, L.E., R.J.C. Currey, S.M. Dawson, and D. Johnson. 2010. Assessment of epidermal condition and calf size of Fjordland bottlenose dolphin *Tursiops truncatus* populations using dorsal fin photographs and photogrammetry. *Endangered Species Research* 11:83-89.**

**Urian, K.W., D.A. Duffield, A.J. Read, R.S. Wells, and D.D. Shell. 1996. Seasonality of reproduction in bottlenose dolphins, *Tursiops truncatus*. *Journal of Mammalogy* 77:394-403.**

**Wells, R.S., M.D. Scott, and A.B. Irvine. 1987. The social structure of free-ranging bottlenose dolphins. Pages 247-305 in H.H. Genoways (ed.). *Current Mammalogy*. Plenum Press, New York, New York.**

**Response ID: 16705**

Impacts on dolphin reproduction were considered in the Draft EIS. More specifically, Chapter 4, Sections 4.11.5.1 and 4.11.5.2 in Marine Mammals included an analysis of the potential impacts of harmful algal blooms, spring flows, and multiple stressors on reproductive health. Section 4.11.5.2 also considered the potential impacts of reduced reproductive health on the recovery trajectory of BBES Stock population. Some citations mentioned by the commenter (Bejarano et al., 2107; Miller et al., 2013; and Urian et al., 1996) were included in the Draft EIS. The other citations mentioned by the commenter (Mattson et

al., 2006; Miller et al., 2010; Rowe et al., 2010, and Wells et al., 1987) were reviewed and would not change the findings of the EIS, but they have been added to Section 4.11.

As discussed in Chapter 2, Section 2.4.2 Evaluation of Operational Trigger, in developing the proposed Project, CPRA considered different operational triggers for the diversion, including using pulsing operational regimes, to determine whether various operational alternatives would meet the purpose and need of the Project and which would best meet those purposes. CPRA concluded that a simple on/off operational trigger with no pulsing provides the greatest total volume of sediment.

Section 4.11.5.2 of the Draft EIS finds that the timing of the proposed Project operations would result in the lowest salinity levels in the BBES Stock area at the peak of dolphin calving and that this would represent a serious threat to dolphin reproductive success.

With respect to approaches that CPRA could use to mitigate potential impacts to dolphins, the LA TIG and CPRA have developed three documents that address the issue.

First is CPRA's Mitigation and Stewardship Plan, which includes support for a state-wide stranding program, a program to reduce non-diversion related stressors to dolphins, and additional stranding surge capacity in response to unusual marine mammal mortality (see Section 3.2.1.1.5 [Associated Stewardship Measures – Alternative 1] of the Final Restoration Plan).

Second is the MAM Plan, which CPRA expanded in response to public comments to include more details regarding the process through which operational data would be used to evaluate potential modifications to those strategies and protocols (see Appendix R2 to the Final EIS). As stated in the MAM Plan, adaptive management strategies, such as timing of freshwater influxes, are largely reliant upon data that would only be available once operations commence but may also be informed by new information gained during the preoperational period. At that time, these data would be used to evaluate potential operational actions, including timing and magnitude of freshwater influxes, that may further minimize impacts to marine mammals and dolphin reproductive success while achieving Project goals.

Third is the Marine Mammal Intervention Plan, which outlines a spectrum of response actions for dolphins affected by the operation of the diversion, ranging from recovery/relocation to no intervention to euthanasia. While the more severe actions (that is, euthanasia) may not offset the ultimate outcome of dolphin mortality associated with the proposed Project, it can alleviate animal suffering. Where relocation is possible, the goal would be to release dolphins into more hospitable



habitat where any health impacts would be minimized. For more information, see Appendix R5 to the Final EIS.

The Mitigation and Stewardship Plan and the Monitoring and Adaptive Management (MAM) Plan provided in Draft EIS Appendix R were submitted by CPRA and represent a range of potential mitigation, stewardship, monitoring and adaptive management measures (collectively, measures). At the time of publication of the Draft EIS for public review, Appendix R contained draft Plans and CPRA had not identified which of the measures contained in those Plans it intended to implement. The Final EIS Appendix R contains the final Plans, including the additional Marine Mammal Intervention Plan, and specifies which measures CPRA and the LA TIG intend to implement. Generally, impact determinations discussed in the EIS represent anticipated Project effects without implementation of these measures except in instances where such measures are identified in the discussion. If any mitigation, monitoring or adaptive management measures are required by USACE as part of its approval of the proposed Project, such measures would be required as special conditions of the Department of the Army (DA) Section 10/404 permit and would be listed in the permit, if one is issued. Implementation of specific measures contained in either Plan, but not included in the Section 10/404 permit as special conditions, would not be required by USACE. USACE does not know whether any particular measure that is not a DA permit condition would be implemented. Measures that USACE currently contemplates as conditions of a DA Section 10/404 permit, if one is issued, are provided in Chapter 4, Section 4.27 Mitigation Summary of the EIS.

The LA TIG explains in Section 1.5 of the Final Restoration Plan that it anticipates requiring implementation of the Mitigation and Stewardship Plan, MAM Plan, and Marine Mammal Intervention Plan as components of the proposed Project, if the Project is approved by the LA TIG for funding. Decisions regarding which measures would be required as part of the LA TIG's funding decision would be set forth in the LA TIG Record of Decision related to the proposed Project.

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**Concern ID: 63077**

**The Draft EIS underestimates the harm to bottlenose dolphins that would be caused during the construction of the proposed Project. More specifically, increased exposure to underwater noise due to increased vessel traffic in Barataria Bay during the construction period will in all likelihood exacerbate the dolphins' stress and health problems. There also will be a greater risk of vessel strikes during construction.**

**Response ID: 16597**

The impacts to dolphins of increased vessel traffic in Barataria Basin were acknowledged and discussed in Chapter 4, Section 4.11.4.2 (Marine Mammals - Construction Impacts) of the Draft EIS. That

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discussion concluded by noting that, while vessel traffic in the Barataria Basin would increase with construction activities, that “noise-producing construction activities [like vessel traffic] have minimal overlap with the BBES Stock range and thus are anticipated to have negligible to minor, temporary, indirect, and adverse impacts on bottlenose dolphins.” The Draft EIS also states that impacts on marine mammals from construction would be predominantly due to risks of strikes from transiting construction vessels. Because this was previously addressed in the Draft EIS, no related edits were made in the Final EIS.

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**Concern ID: 63078**

**The impact of increased freshwater inputs from the Mississippi River into coastal areas of Louisiana in 2019 caused a die-off leading to an unusual mortality event (UME). The Louisiana Department of Wildlife and Fisheries (LDWF) was winding down its involvement in the marine mammal stranding network during that time. While a group called Audubon Coastal Wildlife Network attempted to fill the void left by the LDWF, critical data were missed. It is estimated that only 33 percent of stranded animals were reported for Louisiana during the whole of the 2019 UME.**

**Response ID: 16598**

Chapter 4, Section 4.11.5.2.2.1 General Effects on Dolphin Health of the Final EIS has been revised to acknowledge the limitations of data collection by the LDWF during the 2019 UME. Analysis in the Final EIS is based on additional expert opinion regarding effects on dolphins from freshwater exposure compiled for Booth & Thomas (2021) and new data reported in Thomas, et al. (2021). This additional information supported the impact conclusions in the Draft EIS. NOAA has assumed coordination of the Louisiana Marine Mammal Stranding Network. Independent of this Project, the LA TIG has funded a project to support stranding network enhancements. Further, through the Project, the LA TIG would support an additional 20 years of funding for the Louisiana Marine Mammal Stranding Network.

The Mitigation and Stewardship Plan and the Monitoring and Adaptive Management (MAM) Plan provided in Draft EIS Appendix R were submitted by CPRA and represent a range of potential mitigation, stewardship, monitoring and adaptive management measures (collectively, measures). At the time of publication of the Draft EIS for public review, Appendix R contained draft Plans and CPRA had not identified which of the measures contained in those Plans it intended to implement. The Final EIS Appendix R contains the final Plans, including the additional Marine Mammal Intervention Plan, and specifies which measures CPRA and the LA TIG intend to implement. Generally, impact determinations discussed in the EIS represent anticipated Project effects without implementation of these measures except in instances where such measures are identified in the discussion. If any mitigation, monitoring or adaptive management measures are required by USACE as part of its approval of the Project,

such measures would be required as special conditions of the Department of the Army (DA) Section 10/404 permit and would be listed in the permit, if one is issued. Implementation of specific measures contained in either Plan, but not included in the Section 10/404 permit as special conditions, would not be required by USACE. USACE does not know whether any particular measure that is not a DA permit condition would be implemented. Measures that USACE currently contemplates as conditions of a DA Section 10/404 permit, if one is issued, are provided in Chapter 4, Section 4.27 Mitigation Summary of the EIS.

The LA TIG explains in Section 1.5 of the Final Restoration Plan that it anticipates requiring implementation of the Mitigation and Stewardship Plan, MAM Plan, and Marine Mammal Intervention Plan as components of the proposed Project, if the Project is approved by the LA TIG for funding. Decisions regarding which measures would be required as part of the LA TIG's funding decision would be set forth in the LA TIG Record of Decision related to the proposed Project.

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**Concern ID: 63080**

**The Corps and the TIG have circumvented a legal process intended to conserve marine mammals and protect ecosystems by obtaining a Congressionally-mandated MMPA waiver for the proposed Project. The waiver does not establish a quota for how many dolphins can be taken by the proposed Project, and it is clear that the level of take for this stock will be grossly unsustainable, in clear violation of the MMPA (absent BBA-18). The legislative waiver, quite simply, provided Congressional permission to break the law. It is critical for the protection of marine mammals that such a legislative waiver be a one-off occurrence.**

**Response ID: 16599**

The U.S. Army Corps had no role in seeking a Marine Mammal Protection Act waiver for this Project from Congress, nor did any federal agencies on the LA TIG. CPRA sought the waiver.

Title II, section 20201 of the Bipartisan Budget Act of 2018 provides: "(a) In recognition of the consistency of the Mid-Barataria Sediment Diversion, Mid-Breton Sound Sediment Diversion, and Calcasieu Ship Channel Salinity Control Measures projects, as selected by the 2017 Louisiana Comprehensive Master Plan for a Sustainable Coast, with the findings and policy declarations in section 2(6) of the Marine Mammal Protection Act (16 U.S. C. 1361 et seq., as amended) regarding maintaining the health and stability of the marine ecosystem, within 120 days of the enactment of this section, the Secretary of Commerce shall issue a waiver pursuant to section 101(a)(3)(A) and this section to Section 101(a) and Section 102(a) of the Act, for such projects that will remain in effect for the duration of the construction, operations and maintenance of the projects. No rulemaking, permit,

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determination, or other condition or limitation shall be required when issuing a waiver pursuant to this section. (b) Upon issuance of a waiver pursuant to this section, the State of Louisiana shall, in consultation with the Secretary of Commerce: (1) To the extent practicable and consistent with the purposes of the projects, minimize impacts on marine mammal species and population stocks; and (2) Monitor and evaluate the impacts of the projects on such species and population stocks.”

The National Marine Fisheries Service issued the waiver in March 2018. Since that waiver in 2018, CPRA has not requested any additional waivers for coastal restoration projects. More information on the waiver can be found at

<https://www.fisheries.noaa.gov/action/marine-mammal-protection-act-waiver-select-louisiana-coastal-master-plan-projects>.

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**Concern ID: 63626**

**The success of the Project is uncertain, but the Project would cause dolphin deaths regardless of its success or failure.**

**Response ID: 16600**

Chapter 4, Section 4.11.5.2 (Barataria Bay Estuarine Stock) of the Draft EIS acknowledged that the MBSD would result in mortality and severely compromised health of a significant number of individuals belonging to the Barataria Bay estuarine stock (BBES) of bottlenose dolphins. This section has been updated to incorporate research by Thomas, et al. (2021) that was completed after release of the Draft EIS. According to data published by Thomas, et al. (2021) most of the approximately 2,300 dolphins within the Barataria Basin would perish within the first 10 years of start of operations of the proposed Project (comparing the anticipated Barataria Basin 2027 dolphin population (2,307 dolphins) to the projected 2038 population under the Preferred Alternative (644 dolphins) indicates that approximately 72 percent of the dolphins would perish). These additional data built on earlier studies analyzed, and support the impact conclusions, in the Draft EIS.

The commenter’s concern that Project success is uncertain is acknowledged. The value of fresh water, sediment, and nutrients in the ecological productivity and sustainability of the Barataria Basin is discussed throughout Chapter 4 (Environmental Consequences) of the EIS. Each of the Alternatives analyzed in the EIS, except for the No Action Alternative, are expected to meet the purpose and need of the Project, and uncertainties in the overall impacts of the Project, both beneficial and adverse, are incorporated into the analyses included in Chapter 4 Environmental Consequences of the EIS. More specifically, salinity impacts of the Project are assessed using the Delft3D Basinwide Model, and this model’s projections of future conditions include uncertainties. Uncertainties are incorporated into the EIS impact conclusions and are briefly summarized in the EIS in Chapter 4, Section 4.1.3.3 (Model Limitations and Uncertainty), and in detail in

Appendix E (Delft3D Modeling, Section 8.0 Model Limitations and Uncertainties). Uncertainties related to the Marine Mammals impact analysis are summarized in detail in Chapter 4, 4.11.3.1 (Marine Mammals, General Caveats to Impact Analysis Approach).

Since release of the Draft EIS and the LA TIG's Draft Restoration Plan, the LA TIG has developed a new Marine Mammal Intervention Plan to further respond to and recognize expressed public concerns about the potential impacts of the proposed Project on marine mammals (see Appendix R5 to the Final EIS). The Plan outlines a spectrum of response actions ranging from recovery/relocation to no intervention to euthanasia. While the more severe actions (that is, euthanasia) may not offset the ultimate outcome of dolphin mortality associated with the proposed Project, it can alleviate animal suffering. Where relocation is possible, the goal would be to release dolphins into more hospitable habitat where any health impacts would be minimized. In addition, in recognition that the proposed Project would likely result in significant marine mammal collateral injuries, and acknowledging the inability to fully avoid or mitigate collateral injuries, CPRA has designed and would implement a suite of stewardship measures (see Appendix R1 [Mitigation and Stewardship Plan] of the Final EIS for more details about these actions). CPRA has also updated marine mammal related monitoring and adaptive management activities since the release of the Draft EIS to include specific marine mammal response triggers that may affect Project operation mitigation efforts; see Appendix R2 (Monitoring and Adaptive Management [MAM] Plan) to the Final EIS for more information.

The Mitigation and Stewardship Plan and the MAM Plan provided in Draft EIS Appendix R were submitted by CPRA and represent a range of potential mitigation, stewardship, monitoring and adaptive management measures (collectively, measures). At the time of publication of the Draft EIS for public review, Appendix R contained draft Plans and CPRA had not identified which of the measures contained in those Plans it intended to implement. The Final EIS Appendix R contains the final Plans, including the additional Marine Mammal Intervention Plan, and specifies which measures CPRA and the LA TIG intend to implement. Generally, impact determinations discussed in the EIS represent anticipated Project effects without implementation of these measures except in instances where such measures are identified in the discussion. If any mitigation, monitoring or adaptive management measures are required by USACE as part of its approval of the proposed Project, such measures would be required as special conditions of the Department of the Army (DA) Section 10/404 permit and would be listed in the permit, if one is issued. Implementation of specific measures contained in either Plan, but not included in the Section 10/404 permit as special conditions, would not

be required by USACE. USACE does not know whether any particular measure that is not a DA permit condition would be implemented. Measures that USACE currently contemplates as conditions of a DA Section 10/404 permit, if one is issued, are provided in Chapter 4, Section 4.27 Mitigation Summary of the EIS.

The LA TIG explains in Section 1.5 of the Final Restoration Plan that it anticipates requiring implementation of the Mitigation and Stewardship Plan, MAM Plan, and Marine Mammal Intervention Plan as components of the proposed Project, if the Project is approved by the LA TIG for funding. Decisions regarding which measures would be required as part of the LA TIG's funding decision would be set forth in the LA TIG Record of Decision related to the proposed Project.

With respect to the LA TIG's Restoration Plan, the LA TIG's conclusion that the Project is likely to succeed in providing the predicted Project benefits is detailed discussed in Section 3.2.1.4 (Likelihood of Success) of the Final Restoration Plan.

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**Concern ID: 63627**

**A commenter expressed opposition to the diversion because more studies are needed on dolphins and other marine life.**

**Response ID: 16601**

The Draft EIS included an analysis of the impacts to marine mammals, including bottlenose dolphins in Chapter 4, Section 4.11 Marine Mammals. That analysis included a review of the extensive studies of the BBES dolphin stock since the DWH oil spill as well as a comprehensive literature review of studies of the impact of low-salinity waters on dolphins that was incorporated into the Expert Elicitation described in Chapter 4, Section 4.11.3 Overview of Impact Analysis Approach. The Final EIS also incorporates additional analysis by Thomas et al. (2021), which was published after the Draft EIS was released for public comment. Based on these sources, the EIS projects that the proposed Project would have major, adverse, permanent impacts to BBES dolphins, resulting in their functional extinction except for a small number that may survive around Grand Isle.

The LA TIG notes, however, that the MAM Plan, included in Appendix R2 to the EIS, includes extensive monitoring before and during Project operations, which would help address key uncertainties, such as the optimal balance between sediment and freshwater input needed to achieve the Project purpose, and could provide information critical to informing potential operational modifications over time that could reduce negative impacts to dolphins.

The Mitigation and Stewardship Plan and the Monitoring and Adaptive Management (MAM) Plan provided in Draft EIS Appendix R were submitted by CPRA and represent a range of potential mitigation, stewardship, monitoring and adaptive management measures (collectively, measures). At the time of publication of the Draft EIS for

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public review, Appendix R contained draft Plans and CPRA had not identified which of the measures contained in those Plans it intended to implement. The Final EIS Appendix R contains the final Plans, including the additional Marine Mammal Intervention Plan, and specifies which measures CPRA and the LA TIG intend to implement. Generally, impact determinations discussed in the EIS represent anticipated Project effects without implementation of these measures except in instances where such measures are identified in the discussion. If any mitigation, monitoring or adaptive management measures are required by USACE as part of its approval of the Project, such measures would be required as special conditions of the Department of the Army (DA) Section 10/404 permit and would be listed in the permit, if one is issued. Implementation of specific measures contained in either Plan, but not included in the Section 10/404 permit as special conditions, would not be required by USACE. USACE does not know whether any particular measure that is not a DA permit condition would be implemented. Measures that USACE currently contemplates as conditions of a DA Section 10/404 permit, if one is issued, are provided in Chapter 4, Section 4.27 Mitigation Summary of the EIS.

The LA TIG explains in Section 1.5 of the Final Restoration Plan that it anticipates requiring implementation of the Mitigation and Stewardship Plan, MAM Plan, and Marine Mammal Intervention Plan as components of the proposed Project, if the Project is approved by the LA TIG for funding. Decisions regarding which measures would be required as part of the LA TIG's funding decision would be set forth in the LA TIG Record of Decision related to the proposed Project.

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**Concern ID: 63628**

**A commenter expressed confusion as to why NOAA would allow a diversion that would kill dolphins.**

**Response ID: 16602**

Chapter 3, Section 3.11.1 Marine Mammals in the Northern Gulf of Mexico of the Final EIS has been revised to discuss the Marine Mammal Protection Act waiver.

The concerns raised by the commenters regarding the impacts to dolphins were considered in the LA TIG's Draft Restoration Plan. The LA TIG recognizes that any of the large-scale sediment diversion alternatives considered would potentially result in varying degrees of collateral injuries, including some high degree collateral injuries, to natural resources injured by the spill (see the Executive Summary and Section 3.2.1.5 [Avoids Collateral Injury] of the Restoration Plan). The intended restoration of freshwater flows from the Mississippi River, which historically had characterized and shaped the Barataria Basin ecosystem before levee construction, would result in collateral injury to species that depend on the current higher-salinity conditions that exist without freshwater flows. However, without the proposed Project, there

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would also be adverse impacts to some of the same species due to large-scale wetland loss over time, as is anticipated from ongoing sea-level rise, subsidence, and other existing stressors, which is anticipated to reduce the suitability of habitat for many of the species that currently occur in Barataria Basin.

The LA TIG must weigh the potential for and extent of collateral injury against the benefits of the proposed Project (see Section 3.2.4 [Overall OPA Evaluation Conclusions] of the Restoration Plan for a discussion of how the LA TIG weighed the potential collateral injury of the proposed Project against its potential benefits). The DWH oil spill resulted in the oiling of more than 1,100 kilometers of wetlands, nearly all of which were located in coastal Louisiana (see Section 2.0 [Restoration Planning Process] of the Restoration Plan). The heaviest oiling occurred in the Barataria Basin, resulting in substantial injuries to natural resources in the basin. Recognizing that the resulting loss of marsh productivity affected resources throughout the northern Gulf of Mexico ecosystem, the State of Louisiana and the federal Trustees that negotiated the DWH Natural Resource Damages settlement allocated \$4 billion, almost half of the total settlement amount, to restoring Louisiana's wetland, coastal, and nearshore habitats (see Section 1.1 [Background and Summary of the Settlement] in the Restoration Plan).

The LA TIG believes that a sediment diversion is the only way to achieve a self-sustaining ecosystem in the Barataria Basin that creates and maintains wetlands. As described in Section 3.2.1.6 (Benefits Multiple Resources – Alternative 1) of the Restoration Plan, this sustained ecosystem would be expected to benefit many fish and wildlife species in the basin, including many of those negatively affected by the spill, such as red drum, blue crab, white shrimp, Gulf menhaden, and migratory waterfowl. These benefits to fish and wildlife species also would translate to benefits to recreational users who watch, fish, or hunt those species. In addition, these benefits would not only accrue throughout the Barataria Basin but, through the transport of productivity, also in the offshore ecosystems of the northern Gulf of Mexico. By reestablishing deltaic processes, the proposed Project would be expected to enhance the ecological productivity of the estuary and improve food web dynamics that would provide benefit to the northern Gulf of Mexico ecosystem.

The LA TIG has selected the proposed Project as its Preferred Alternative in the Restoration Plan because it is critical to achieving the overall goals of the Wetlands, Coastal, and Nearshore Habitats Restoration Type in the Final PDARP/PEIS, which include providing benefits across the interconnected northern Gulf of Mexico ecosystem, and placing particular emphasis on coastal and nearshore habitat restoration in the historical Mississippi River Delta plain in Louisiana.



With regard to the Marine Mammal Protection Act (MMPA), the Bipartisan Budget Act of 2018, Public Law 115-123 included a requirement that the Secretary of Commerce, as delegated to the Assistant Administrator of the NMFS, issue a waiver of the MMPA moratorium and prohibition for three projects, including the proposed MBSD Project. Accordingly, NMFS issued the waiver on March 15, 2018.

Since release of the Draft EIS and the LA TIG's Draft Restoration Plan, the LA TIG has developed a new Marine Mammal Intervention Plan to further respond to and recognize expressed public concerns about the potential impacts of the proposed Project on marine mammals (see Appendix R5 to the Final EIS). The Plan outlines a spectrum of response actions ranging from recovery/relocation to no intervention to euthanasia. While the more severe actions (that is, euthanasia) may not offset the ultimate outcome of dolphin mortality associated with the proposed Project, it can alleviate animal suffering. Where relocation is possible, the goal would be to release dolphins into more hospitable habitat where any health impacts would be minimized. In addition, in recognition that the proposed Project would likely result in significant marine mammal collateral injuries, and acknowledging the inability to fully avoid or mitigate collateral injuries, CPRA has designed and would implement a suite of stewardship measures (see Appendix R1 [Mitigation and Stewardship Plan] of the Final EIS for more details about these actions). CPRA has also updated marine mammal related monitoring and adaptive management activities since the release of the Draft EIS to include specific marine mammal response triggers that may affect Project operation mitigation efforts; see Appendix R2 (Monitoring and Adaptive Management [MAM] Plan) to the Final EIS for more information.

The Mitigation and Stewardship Plan and the MAM Plan provided in Draft EIS Appendix R were submitted by CPRA and represent a range of potential mitigation, stewardship, monitoring and adaptive management measures (collectively, measures). At the time of publication of the Draft EIS for public review, Appendix R contained draft Plans and CPRA had not identified which of the measures contained in those Plans it intended to implement. The Final EIS Appendix R contains the final Plans, including the additional Marine Mammal Intervention Plan, and specifies which measures CPRA and the LA TIG intend to implement. Generally, impact determinations discussed in the EIS represent anticipated Project effects without implementation of these measures except in instances where such measures are identified in the discussion. If any mitigation, monitoring or adaptive management measures are required by USACE as part of its approval of the proposed Project, such measures would be required as special conditions of the Department of the Army (DA) Section

10/404 permit and would be listed in the permit, if one is issued. Implementation of specific measures contained in either Plan, but not included in the Section 10/404 permit as special conditions, would not be required by USACE. USACE does not know whether any particular measure that is not a DA permit condition would be implemented. Measures that USACE currently contemplates as conditions of a DA Section 10/404 permit, if one is issued, are provided in Chapter 4, Section 4.27 Mitigation Summary of the EIS.

The LA TIG explains in Section 1.5 of the Final Restoration Plan that it anticipates requiring implementation of the Mitigation and Stewardship Plan, MAM Plan, and Marine Mammal Intervention Plan as components of the proposed Project, if the Project is approved by the LA TIG for funding. Decisions regarding which measures would be required as part of the LA TIG's funding decision would be set forth in the LA TIG Record of Decision related to the proposed Project.

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**Concern ID: 63629**

**Operation of the MBSD will adversely affect dolphin prey species, such as spotted sea trout, as well as other important marine resources, such as submerged aquatic vegetation, benthic algae and other benthic fauna, brown shrimp, southern flounder, and eastern oyster.**

**Response ID: 16603**

The impact of the Project on dolphin prey species was discussed and considered in detail in Chapter 4, Section 4.11.5.1 (Marine Mammals - General Impacts on Habitat and the Environment) of the Draft EIS, which notes:

Certain marine mammal prey species are more tolerant of lower salinity waters than others. Of the 10 key species analyzed in Section 4.10 Aquatic Resources that are known BBES dolphin prey (representing 75 percent of the stomach prey content), the Applicant's Preferred Alternative would result in overall minor beneficial impacts on six species (red drum, Gulf menhaden, bay anchovy, blue crab, white shrimp, and bass) and a major adverse impact on brown shrimp, minimal adverse impact of spotted seatrout, negligible to minimal adverse impact on southern flounder, and neutral impacts on Atlantic croaker. Oysters are not known to be a prey item for BBES dolphins.

Further, as discussed in Section 4.11.5.1 (General Impacts on Habitat and the Environment in Marine Mammals), initial adverse impacts on SAV would be temporary, with permanent beneficial impacts to overall coverage and biomass of SAV once the salinity regime stabilizes. Although the specific timing of these changes cannot be predicted, Section 4.10.4.1.2 in Submerged Aquatic Vegetation has been updated in the Final EIS to indicate that SAV colonized mudflats relatively quickly (within 2 years), once conditions were suitable, at Mardi Gras Pass (on the east side of the Mississippi River). The resulting increase in SAV biomass would result in increased primary productivity,

increased nursery habitat for aquatic species, and shifts in the food web would play a role in the impacts on dolphin prey species. Impacts on benthic algae would be adverse or beneficial, depending on the salinity tolerance of a given species (see Section 4.10.4.2 [Benthic Resources]).

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**Concern ID: 63631**

**A commenter questions whether the freshwater releases at Bonnet Carré Spillway led to an unusual mortality event (UME) that occurred in 2019.**

**Response ID: 16604**

Chapter 4, Section 4.11.5.2 (Barataria Bay Estuarine Stock) of the EIS summarizes the dolphin deaths, stranding numbers, and body conditions that led to the UME declaration in 2019. After analyzing various potential causes for the increase in dolphin mortality, scientists determined that the most likely cause of this UME was exposure to low-salinity waters in 2019 from the above average freshwater discharge into the Northern Gulf of Mexico. Prolonged exposure to low-salinity water (for example, less than 10ppt) has been documented to have harmful health impacts on bottlenose dolphins, ranging from skin lesions and serum electrolyte abnormalities to death.

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**Concern ID: 63632**

**While modeling has been done to estimate the impact of changing salinities on dolphins, there are large gaps in knowledge that may result in over- or under-estimating Project impacts. The pre-construction dolphin monitoring outlined in the Draft EIS may help address these gaps and should be leveraged to explore modifications to Project operation that could reduce negative impacts to dolphins.**

**Response ID: 16605**

The Draft EIS recognized the uncertainty inherent in the model projections used to assess impacts of the Project on various elements of the environment, including dolphins (see Chapter 4, Section 4.11 [Marine Mammals] of the Draft EIS). The LA TIG agrees that the monitoring commitments included in the MAM Plan, which include extensive pre- and post-Project operation monitoring, would help address these uncertainties and would provide information critical to potential operational modifications that could reduce negative impacts to dolphins.

The Mitigation and Stewardship Plan and the Monitoring and Adaptive Management (MAM) Plan provided in Draft EIS Appendix R were submitted by CPRA and represent a range of potential mitigation, stewardship, monitoring and adaptive management measures (collectively, measures). At the time of publication of the Draft EIS for public review, Appendix R contained draft Plans and CPRA had not identified which of the measures contained in those Plans it intended to implement. The Final EIS Appendix R contains the final Plans, including the additional Marine Mammal Intervention Plan, and specifies which measures CPRA and the LA TIG intend to implement.

Generally, impact determinations discussed in the EIS represent anticipated Project effects without implementation of these measures except in instances where such measures are identified in the discussion. If any mitigation, monitoring or adaptive management measures are required by USACE as part of its approval of the Project, such measures would be required as special conditions of the Department of the Army (DA) Section 10/404 permit and would be listed in the permit, if one is issued. Implementation of specific measures contained in either Plan, but not included in the Section 10/404 permit as special conditions, would not be required by USACE. USACE does not know whether any particular measure that is not a DA permit condition would be implemented. Measures that USACE currently contemplates as conditions of a DA Section 10/404 permit, if one is issued, are provided in Chapter 4, Section 4.27 Mitigation Summary of the EIS.

The LA TIG explains in Section 1.5 of the Final Restoration Plan that it anticipates requiring implementation of the Mitigation and Stewardship Plan, MAM Plan, and Marine Mammal Intervention Plan as components of the proposed Project, if the Project is approved by the LA TIG for funding. Decisions regarding which measures would be required as part of the LA TIG's funding decision would be set forth in the LA TIG Record of Decision related to the proposed Project.

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**Concern ID: 63068**

**It is not clear why the Draft EIS suggests that the proposed Project would result in wetland loss that would harm dolphin health and reproduction. More specifically, observations suggest that the Project is actually projected to increase wetland habitat. It is not clear how wetland creation and a decrease in wetland loss rates affect residual health and reproduction effects from the DWH spill to dolphins.**

**Response ID: 16591**

To clarify, although the diversion is expected to increase wetland habitat, the freshwater influx that would result from diversion operations is anticipated to be the primary driver of dolphin mortality and morbidity. The projected impacts of wetland changes and freshwater flows caused by the Project on dolphins were discussed in detail in Chapter 4, Section 4.11.5 (Marine Mammals - Operational Impacts) of the Draft EIS.

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**Concern ID: 63630**

**The Project will lead to long-term benefits for marine mammals and dolphin populations by restoring the marine ecosystem and by carrying out monitoring and mitigation of the near-term impacts described by the Draft EIS and associated studies (Garrison et al., 2020).**

**Response ID: 16706**

The Draft EIS included an analysis of the impacts to marine mammals, including BBES dolphins in Chapter 4, Section 4.11 Marine Mammals. While the analyses in the EIS suggest that some prey resources upon

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which dolphins rely may benefit from the proposed Project, the analyses overall suggest that the impact of the proposed Project on dolphins would be immediate, significant, and adverse. These analyses incorporated studies from Booth and Thomas (2021), Garrison et al. (2020), and Schwacke et al. (2017) and the Final EIS includes additional analyses that were complete by Thomas et al. (2021) after the Draft EIS was released for public comment.

The impact conclusion in the Draft EIS was based in large part on Garrison et al. (2020), which predicts that only a “remnant population” of dolphins would continue to exist in Barataria Basin after diversion operations commenced. That conclusion is confirmed by Thomas et al. (2021), which concludes that, after 1 year of operation of the Applicant’s Preferred Alternative, there would be 61 percent fewer dolphins in the Central stratum than under the No Action Alternative, 35 percent fewer in the West stratum, 12 percent fewer in the Southeast stratum and 2 percent fewer in the Island stratum, with 25 percent fewer overall. Thomas, et al. further concluded that after 10 years of operation, there would be 100 percent reduction in the populations of dolphins in the Central and West strata, an 82 percent reduction in the population of the Southeast stratum dolphins and a 34 percent reduction in the population of the Island stratum dolphins as compared against the No Action Alternative with an overall difference in population of 78 percent. After the planned 50 years of operation, dolphins in three out of the four strata are predicted to be extinct under the Applicant’s Preferred Alternative, with the remaining Island stratum population being 85 percent lower [95 percent CI 28-99] under the Applicant’s Preferred Alternative than under the No Action Alternative). Overall, by the year 2076, the median predicted stock size across all of Barataria Bay under the Applicant’s Preferred Alternative is projected to be 143 dolphins (95 percent CI 11-706) compared to a predicted 3,363 dolphins (95 percent CI 2831-4289) predicted to inhabit Barataria Bay under the No Action Alternative. In other words, the BBES dolphin stock is predicted to be 96 percent smaller (95 percent CI 80-100) under the Applicant’s Preferred Alternative than then No Action Alternative. Section 4.11 Marine Mammals of the Final EIS has been updated to reflect the results of Thomas et al (2021).

To respond to and recognize expressed public concerns about the potential impacts of the proposed Project on marine mammals, the LA TIG has developed a new Marine Mammal Intervention Plan to further (see Appendix R5 to the Final EIS). The Plan outlines a spectrum of response actions ranging from recovery/relocation to no intervention to euthanasia. While the more severe actions (that is, euthanasia) may not offset the ultimate outcome of dolphin mortality associated with the proposed Project, it can alleviate animal suffering. Where relocation is

possible, the goal would be to release dolphins into more hospitable habitat where any health impacts would be minimized.

In addition, in recognition that the proposed Project would likely result in significant marine mammal collateral injuries, and acknowledging the inability to fully avoid or mitigate collateral injuries, CPRA has designed and would implement a suite of stewardship measures to benefit dolphins (see Appendix R1 [Mitigation and Stewardship Plan] of the Final EIS for more details about these actions). CPRA has also updated marine mammal related monitoring and adaptive management activities since the release of the Draft EIS to include more details regarding strategies and protocols that would be used at the onset of operations to minimize impacts on dolphins, as well as the process through which operational data would be used to evaluate potential modifications to those strategies and protocols; see Appendix R2 (Monitoring and Adaptive Management [MAM] Plan) to the Final EIS for more information.

The Mitigation and Stewardship Plan and the MAM Plan provided in Draft EIS Appendix R were submitted by CPRA and represent a range of potential mitigation, stewardship, monitoring and adaptive management measures (collectively, measures). At the time of publication of the Draft EIS for public review, Appendix R contained draft Plans and CPRA had not identified which of the measures contained in those Plans it intended to implement. The Final EIS Appendix R contains the final Plans, including the additional Marine Mammal Intervention Plan, and specifies which measures CPRA and the LA TIG intend to implement. Generally, impact determinations discussed in the EIS represent anticipated Project effects without implementation of these measures except in instances where such measures are identified in the discussion. If any mitigation, monitoring or adaptive management measures are required by USACE as part of its approval of the proposed Project, such measures would be required as special conditions of the Department of the Army (DA) Section 10/404 permit and would be listed in the permit, if one is issued. Implementation of specific measures contained in either Plan, but not included in the Section 10/404 permit as special conditions, would not be required by USACE. USACE does not know whether any particular measure that is not a DA permit condition would be implemented. Measures that USACE currently contemplates as conditions of a DA Section 10/404 permit, if one is issued, are provided in Chapter 4, Section 4.27 Mitigation Summary of the EIS.

The LA TIG explains in Section 1.5 of the Final Restoration Plan that it anticipates requiring implementation of the Mitigation and Stewardship Plan, MAM Plan, and Marine Mammal Intervention Plan as components of the proposed Project, if the Project is approved by the LA TIG for funding. Decisions regarding which measures would be required as



part of the LA TIG's funding decision would be set forth in the LA TIG Record of Decision related to the proposed Project.

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## EC61100 - Threatened & Endangered Species

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<b>Concern ID: 63106</b>	<b>The proposed Project would kill more sea turtles than did the DWH oil spill with BP monies.</b>
<b>Response ID: 16204</b>	<p>Chapter 4, Section 4.12.2.2 Sea Turtles of the EIS, determined that the proposed Project would have negligible to minor adverse impacts on hawksbill and leatherback sea turtles, but minor to moderate adverse impacts on Kemp's ridley, green, and loggerhead sea turtles due to the potential for increased interactions between sea turtles and commercial shrimp fishing efforts.</p> <p>In compliance with the Endangered Species Act of 1973, as amended (16 U.S.C. §§ 1531 et. seq.), the NMFS' Biological Opinion on the proposed Project (included in the Final EIS as Appendix O4) concludes the proposed Project is not likely to jeopardize the continued existence of sea turtles and authorizes "take" for the Project, which is defined as to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture or collect, or attempt to engage in any such conduct. In its Biological Opinion, the NMFS authorizes the incidental take of 783 sea turtles per year, including 370 Kemp's ridley sea turtles (including up to 38 mortalities), 319 loggerhead sea turtles (including up to 10 mortalities), and 94 green sea turtles (including up to 9 mortalities). Over the 50-year Project life, this could equate to a take of 39,150 sea turtles (including up to 2,850 sea turtles mortalities). This can be compared to the lower-end estimate of 4,900 large juvenile/adult, 56,000 juvenile, and 35,000 hatchling sea turtles killed by the DWH oil spill (NMFS 2020).</p>
<b>Concern ID: 63107</b>	<b>The proposed Project would kill sea turtles, which commenters indicated should stop the proposed Project.</b>
<b>Response ID: 16205</b>	<p>Chapter 4, Section 4.12.2.2 Sea Turtles of the EIS, determined that the proposed Project would have negligible to minor adverse impacts on hawksbill and leatherback sea turtles, but minor to moderate adverse impacts on Kemp's ridley, green, and loggerhead sea turtles due to the potential for increased interactions between sea turtles and commercial shrimp fishing efforts.</p> <p>In compliance with the Endangered Species Act of 1973, as amended (16 U.S.C. §§ 1531 et. seq.), the NMFS' Biological Opinion on the proposed Project (included in the Final EIS as Appendix O4) concludes the proposed Project is not likely to jeopardize the continued existence</p>

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of sea turtles and authorizes a “take” for the Project, which is defined as to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture or collect, or attempt to engage in any such conduct. In its Biological Opinion, the NMFS authorizes the incidental take of 783 sea turtles per year, including 370 Kemp’s ridley sea turtles (including up to 38 mortalities), 319 loggerhead sea turtles (including up to 10 mortalities), and 94 green sea turtles (including up to 9 mortalities). Over the 50-year Project life, this could equate to a take of 39,150 sea turtles (including up to 2,850 sea turtles mortalities). This can be compared to the lower-end estimate of 4,900 large juvenile/adult, 56,000 juvenile, and 35,000 hatchling sea turtles killed by the DWH oil spill (NMFS 2020). Under the Endangered Species Act, NMFS can authorize the incidental take of sea turtles, but it cannot authorize a project that jeopardizes the continued existence of sea turtles in the proposed Project area.

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**Concern ID: 63108****Commenters questioned how many sea turtles would be killed by the proposed Project.****Response ID: 16409**

In compliance with the Endangered Species Act of 1973, as amended (16 U.S.C. §§ 1531 et. seq.), the NMFS’ Biological Opinion on the proposed Project (included in the Final EIS as Appendix O4) concludes the proposed Project is not likely to jeopardize the continued existence of sea turtles and authorizes a “take” for the Project, which is defined as to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture or collect, or attempt to engage in any such conduct. In its Biological Opinion, the NMFS authorizes the incidental take of 783 sea turtles per year, including 370 Kemp’s ridley sea turtles (including up to 38 mortalities), 319 loggerhead sea turtles (including up to 10 mortalities), and 94 green sea turtles (including up to 9 mortalities). Over the 50-year Project life, this could equate to a take of 39,150 sea turtles (including up to 2,850 sea turtles mortalities).

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**Concern ID: 63109****Additional studies should be conducted to determine the impacts of the proposed Project on biota (including sea turtles).****Response ID: 16206**

In compliance with the Endangered Species Act of 1973, as amended (16 U.S.C. §§ 1531 et. seq.), the NMFS prepared a Biological Opinion on the proposed Project (Appendix O4 of the Final EIS), which authorizes the incidental take of 783 sea turtles per year, including 370 Kemp’s ridley sea turtles (including up to 38 mortalities), 319 loggerhead sea turtles (including up to 10 mortalities), and 94 green sea turtles (including up to 9 mortalities). Over the 50-year Project life, this could equate to a take of 39,150 sea turtles (including up to 2,850 sea turtles mortalities).

In addition, Section 8.3 of the NMFS’ Biological Opinion requires that the federal action agencies ensure that the Project proponent monitor brown shrimp fishing effort in the action area; fund, implement, and

annually report on a salinity monitoring program in Barataria Bay; and funds and implements a monitoring plan targeting the distribution, health, and habitat use of sea turtles in the Barataria Basin.

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**Concern ID: 63110**

**The commenters are concerned with the impacts that this proposed Project would have on threatened and endangered species in the area and indicated that there are likely to be minor to moderate adverse effects for the Kemp's ridley, loggerhead and green sea turtles, and the pallid sturgeon in the area.**

**Response ID: 16253**

The adverse effects on these species from the proposed Project were further evaluated by the USFWS (pallid sturgeon) and the NMFS (sea turtles in Barataria Basin waters) in their Biological Opinions; the respective Biological Opinions have been included in Appendices O3 and O4 of the Final EIS. Both agencies have determined that the construction and operation of the proposed Project would not be likely to jeopardize the continued existence of these species. NMFS has authorized a take of up to 783 Kemp's ridley, loggerhead, and green sea turtles (total) per year (including up to 57 mortalities per year). The USFWS has authorized the loss (by death or serious injury) of 48 pallid sturgeon per year.

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**Concern ID: 63111**

**The EIS indicates that there are likely to be major indirect adverse effects on bald eagles, which may be exposed to contamination as a result of this proposed Project.**

**Response ID: 16255**

No major impact is anticipated for bald eagles due to the proposed Project. As identified in Chapter 4, Section 4.12.3.2 in Threatened and Endangered Species of the Draft EIS, the proposed Project is anticipated to have a negligible to moderate, permanent, indirect, and adverse impact on bald eagles, with the potential for moderate adverse impacts if contaminants are present in the diverted water, the prey become contaminated, and bald eagles consume the contaminated prey; no related edits have been made in the Final EIS.

Appendix R1 (Mitigation and Stewardship Plan) of the EIS describes CPRA's proposed monitoring measures, including CPRA's agreement to monitor for contaminants, at the request of the USFWS. As discussed in Chapter 5, Section 5.3 Fish and Wildlife Coordination Act Report Recommendations of the EIS, CPRA has agreed to a conservation recommendation proposed by USFWS that requires CPRA implement an adaptive sampling plan to detect potential contamination that could impact bald eagles.

The Mitigation and Stewardship Plan and the Monitoring and Adaptive Management (MAM) Plan provided in the Draft EIS Appendix R were submitted by CPRA and represent a range of potential mitigation, stewardship, monitoring and adaptive management measures (collectively, measures). At the time of publication of the Draft EIS for

public review, Appendix R contained draft Plans and CPRA had not identified which of the measures contained in those Plans it intended to implement. The Final EIS Appendix R contains the final Plans and specifies which measures CPRA and the LA TIG intend to implement. Generally, impact determinations discussed in the EIS represent anticipated Project effects without implementation of these measures except in instances where such measures are identified in the discussion. If any mitigation, monitoring, or adaptive management measures are required by USACE as part of its approval of the proposed Project, such measures would be required as special conditions of the Department of the Army (DA) Section 10/404 permit and would be listed in the permit, if one is issued. Implementation of specific measures contained in either Plan, but not included in the Section 10/404 permit as special conditions, would not be required by USACE. USACE does not know whether any particular measure that is not a DA permit condition would be implemented. Measures that USACE currently contemplates as conditions of a DA Section 10/404 permit, if one is issued, are provided in Chapter 4, Section 4.27 Mitigation Summary of the EIS.

The LA TIG explains in Section 1.5 of the Final Restoration Plan that it anticipates requiring implementation of the Mitigation and Stewardship Plan, MAM Plan, and Marine Mammal Intervention Plan as components of the proposed Project, if the Project is approved by the LA TIG for funding. Decisions regarding which measures would be required as part of the LA TIG's funding decision would be set forth in the LA TIG Record of Decision related to the proposed Project.

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**Concern ID: 63119**

**The mass deaths of manatees this year is concerning to the commenter.**

**Response ID: 16268**

The 2020-2021 unusual mortality event (UME) was issued for manatees along Florida's east coast. The UME is being investigated to determine the cause, but preliminary information indicates that it is related to a reduction of food availability in portions of Indian River Lagoon (USFWS 2021). Although manatees transiting through the proposed Project area would likely be Florida residents, the UME is unrelated to the proposed Project and the proposed Project is not anticipated to result in injury or mortality of a manatee.

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**Concern ID: 63121**

**The negative repercussions from the diversion are influenced by a salinity differential in the source and receiving waters, impacting threatened and endangered species by its suddenness and magnitude.**

**Response ID: 16272**

Chapter 4, Section 4.12 Threatened and Endangered Species of the Final EIS has been revised to discuss the potential impact of an acute change in salinity on special status species, as applicable. However, because the impacts on special status species discussed in the

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Biological Opinions are within the range of impact identified in the Draft EIS, no changes were warranted to the determinations provided in the Draft EIS.

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**Concern ID: 63122**

**There are five species of sea turtle that are listed as threatened or endangered in the Gulf of Mexico.**

**Response ID: 16273**

The commenter correctly notes that five federally listed sea turtles occur in the northern Gulf of Mexico, as identified in Chapter 4, Section 4.12 Threatened and Endangered Species, Table 4.12-1 of the EIS; therefore, no related edits have been made to the Final EIS.

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**Concern ID: 63123**

**The Gulf sturgeon would be at high risk due to their diadromous spawning in the Pearl River and Pascagoula river basins.**

**Response ID: 16274**

The proposed Project is not anticipated to have discernable effects on aquatic life outside of the Project area, which includes the Barataria Basin and the Mississippi River birdfoot delta (particularly for biological resources), as defined in Chapter 3, Section 3.1.1 in Introduction of the EIS. As noted in Section 3.12.1 in Threatened and Endangered Species and Figure 3.12-1 of the EIS, the Gulf sturgeon's range is outside the proposed Project area, and the species is therefore not carried forward for an evaluation of impacts from the proposed Project in Chapter 4 Environmental Consequences. Because the issue raised by the commenter was addressed in the Draft EIS, no related edits have been made in the Final EIS.

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**Concern ID: 63112**

**The EIS should exclude any conclusions regarding pallid sturgeon risk until their presence near the proposed Project is confirmed.**

**Response ID: 16256**

As discussed in Chapter 4, Section 4.12.2.3 in Threatened and Endangered Species and Appendix O1 (Biological Assessment) of the Draft EIS, the EIS analysis recognizes that pallid sturgeon density in the Lower Mississippi River is believed to be extremely low. In accordance with NEPA and the ESA, the EIS appropriately includes an analysis and determination of impacts on the pallid sturgeon from the proposed Project, based on a range of possible local population sizes. The adverse effects on pallid sturgeon from the proposed Project were further evaluated by the USFWS in its Biological Opinion, which has been included as Appendix O3 of the Final EIS. The USFWS determined that the construction and operation of the proposed Project would not be likely to jeopardize the continued existence of the pallid sturgeon and authorized the loss (by death or serious injury) of 48 pallid sturgeon per year.

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**Concern ID: 63113**

**The Executive Summary for Threatened and Endangered Species should be supplemented to explain how the proposed Project may "increase commercial shrimping interactions" with sea turtles given the expected decline in shrimp populations in the estuary.**

**Response ID: 16257**

The detailed assessment of impacts on sea turtles, including the potential for increased commercial shrimping interactions, was included in Chapter 4, Section 4.12.2.2 in Threatened and Endangered Species of the Draft EIS; therefore, no related edits have been made to the Final EIS. As stated in Section 4.12.2.2, changes in local shrimp populations (including a decrease in the brown shrimp population and a negligible to minor increase in the white shrimp population) may result in changes to the shrimp fishery in the proposed Project area. If these changes result in shrimp fishers focusing on locations lower in the basin or in nearshore/offshore waters (where more sea turtles would be present), it may increase the potential for interactions between fishers and sea turtles, which is a primary threat to sea turtles. Increased interactions could increase the rate of injury and mortality to sea turtles present in the proposed Project area.

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**Concern ID: 63114**

**Explain the statement in the Executive Summary for Threatened and Endangered Species that indicates the “presence of core use habitat in the Barataria Basin (Kemp’s ridley).”**

**Response ID: 16259**

The detailed assessment of impacts on sea turtles, including a discussion of the Kemp’s ridley’s core use habitat in the Barataria Basin, was included in Chapter 4, Section 4.12.2.2 in Threatened and Endangered Species and Appendix O1 (Biological Assessment) of the Draft EIS. However, Chapter 3, Section 3.12.1.1.2.3 Kemp’s Ridley Sea Turtle of the Final EIS has been revised to clarify that “core use” habitat is a general term used to represent important foraging and migratory areas that have been identified for juvenile and post-nesting Kemp’s ridley sea turtles.

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**Concern ID: 63115**

**The Executive Summary for Threatened and Endangered Species ignores the likely positive effects of the proposed Project on Kemp’s ridley sea turtle, due to the Project’s likely positive impacts on its preferred prey, blue crabs.**

**Response ID: 16261**

The detailed assessment of impacts on sea turtles, including the likely positive effects of increased blue crabs on Kemp’s ridley sea turtles, was included in Chapter 4, Section 4.12.2.2 in Threatened and Endangered Species in the Draft EIS; therefore, no related edits have been made to the Final EIS.

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**Concern ID: 63116**

**Commenter disagrees with the adverse conclusion for the piping plover, red knot, and black rail. The proposed Project would greatly increase mudflat and sand flat habitat in the outfall area, which would be used by these species.**

**Response ID: 16262**

Comment noted. The EIS concludes in Chapter 4, Section 4.12.2.4 in Threatened and Endangered Species that the proposed Project is not likely to adversely affect piping plover and red knot, as any impact to those two birds or their prey would be negligible to minor adverse. As

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identified in this section, sediment input would create mudflats prior to the establishment of wetland vegetation; however, this is considered a negligible benefit to the piping plover and red knot as they typically use the barrier islands for foraging. With regard to eastern black rail, which are generally believed to inhabit vegetated areas, Section 4.12.2.5 in Threatened and Endangered Species of the EIS concludes that the proposed Project would have both individually adverse and beneficial impacts on the species from changing habitats, including adverse, temporary to short-term impacts from salinity changes that may alter the presence of infaunal prey species, and positive, long-term effects from marsh creation and preservation. However, due to the low species density likely in the proposed Project area, the overall impact on the species would be negligible. The proposed Project is not anticipated to increase sandflat habitat. Because use of mudflats was discussed in the Draft EIS, no related edits have been made in the Final EIS.

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**Concern ID: 63117**

**The Executive Summary for Threatened and Endangered species should provide detailed support for the statement that bald eagles may be adversely impacted from potential contaminant uptake given the assertions elsewhere that the proposed Project would not load additional contaminants into the receiving area. There is likely some risk of localized PAH loading, but there is a lot of uncertainty. Monitoring is needed. The USEPA assessed this question for the Maurepas Diversion and determined that there was no impact on bald eagles due to contaminants.**

**Response ID: 16264**

See Chapter 5, Section 5.3 Fish and Wildlife Coordination Act Report Recommendations of the EIS. CPRA has agreed to a Fish and Wildlife Coordination Act conservation recommendation identified by USFWS that CPRA implement an adaptive monitoring/sampling plan for fish and shellfish in the diversion outfall area and in the Mississippi River to detect potential contamination that could impact bald eagles. Because the issues raised by the commenter were addressed in the Draft EIS, no related edits have been made in the Final EIS.

The Mitigation and Stewardship Plan and the Monitoring and Adaptive Management (MAM) Plan provided in the Draft EIS Appendix R were submitted by CPRA and represent a range of potential mitigation, stewardship, monitoring and adaptive management measures (collectively, measures). At the time of publication of the Draft EIS for public review, Appendix R contained draft Plans and CPRA had not identified which of the measures contained in those Plans it intended to implement. The Final EIS Appendix R contains the final Plans and specifies which measures CPRA and the LA TIG intend to implement. Generally, impact determinations discussed in the EIS represent anticipated Project effects without implementation of these measures except in instances where such measures are identified in the discussion. If any mitigation, monitoring, or adaptive management



measures are required by USACE as part of its approval of the proposed Project, such measures would be required as special conditions of the Department of the Army (DA) Section 10/404 permit and would be listed in the permit, if one is issued. Implementation of specific measures contained in either Plan, but not included in the Section 10/404 permit as special conditions, would not be required by USACE. USACE does not know whether any particular measure that is not a DA permit condition would be implemented. Measures that USACE currently contemplates as conditions of a DA Section 10/404 permit, if one is issued, are provided in Chapter 4, Section 4.27 Mitigation Summary of the EIS.

The LA TIG explains in Section 1.5 of the Final Restoration Plan that it anticipates requiring implementation of the Mitigation and Stewardship Plan, MAM Plan, and Marine Mammal Intervention Plan as components of the proposed Project, if the Project is approved by the LA TIG for funding. Decisions regarding which measures would be required as part of the LA TIG's funding decision would be set forth in the LA TIG Record of Decision related to the proposed Project.

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**Concern ID: 63120**

**The Draft EIS and the LA TIG's Draft Restoration Plan (Section 3.2.1.6.2) should be reconciled with respect to determinations for the saltmarsh topminnow, with the Draft EIS indicating minor to moderate benefits and the Draft Feasibility Report indicating both beneficial and adverse impact.**

**Response ID: 16269**

The Draft EIS Chapter 4, Section 4.12.3.1 in Threatened and Endangered Species and the LA TIG's Draft Restoration Plan (Section 3.2.1.6.2 [Benefits to Water Column Resources]) consistently noted a combination of adverse and beneficial impacts on the saltmarsh topminnow, with an overall minor to moderate benefit anticipated from construction and operation of the proposed Project; therefore, no related edits have been made to the Final EIS or the LA TIG's Final Restoration Plan.

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**Concern ID: 63118**

**Commenter strongly disagrees with the adverse impact noted for the manatee as manatees like fresh water and SAV and suggests that an independent manatee expert should review the conclusion.**

**Response ID: 16266**

Chapter 4, Section 4.12.2.1 in Threatened and Endangered Species of the Draft EIS acknowledged the potential benefits of decreased salinity and increased SAV; however, the Draft EIS also identified a potential for adverse impact from increased vessel movement and noise associated with construction and operation of the proposed Project, resulting in a negligible to minor adverse impact/not likely to adversely affect determination. Further, as noted in Appendix O3 USFWS Biological Opinion of the Final EIS, the USFWS considered the effects

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of the proposed Project on the West Indian manatee and concurred with the determination in the EIS for this species.

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**Concern ID: NEW**

**It is imperative that the operational plan includes continual adaptive mitigation of unavoidable impacts to critical habitat in the Breton and Mississippi Sound areas.**

**Response ID: NEW**

As discussed in Sections 3.12 and 4.12 (Threatened and Endangered Species) of the EIS and Appendices O-3 and O-4, ESA designated critical habitat for the loggerhead sea turtle and piping plover is within the Project area, as is proposed critical habitat for the red knot. However, the Project would have no effect on these designated or proposed areas of critical habitat.

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## EC61200 – Socioeconomics

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**Concern ID: 62009**

**The negative socioeconomic consequences would devastate southeast Louisiana, destroy people’s livelihoods, displace people living near the diversion, and destroy property in the areas impacted by the proposed MBSD Project.**

**Response ID: 16207**

The issues raised by the commenters were considered in the Draft EIS. Chapter 4, Section 4.13 Socioeconomics, discusses impacts of the proposed Project on the economy of Louisiana, including impacts on population, property values, and community cohesion. As noted in these sections, the proposed Project would have both beneficial and adverse socioeconomic impacts on the people and communities within the Project area. Minor to moderate, permanent adverse socioeconomic impacts are expected to occur near the immediate outfall area outside of flood protection. Minor to moderate, permanent, beneficial socioeconomic impacts are expected to occur in the west bank New Orleans area north of the diversion. Moderate to major, beneficial, temporary impacts from job creation and economic activity in the proposed Project area are anticipated. In addition, the Socioeconomics Technical Report in Appendix H1 provides additional details on these projected effects.

As part of its restoration planning efforts, the LA TIG recognizes that there are clear tradeoffs among the alternatives in terms of the likely benefits achieved and risks related to collateral injury and public health and safety. The LA TIG believes the proposed MBSD Project is critical to achieving the overall goals of the Wetlands, Coastal, and Nearshore Habitats Restoration Type in the Final PDARP/PEIS, which include providing benefits across the interconnected northern Gulf of Mexico ecosystem, and placing particular emphasis on coastal and nearshore habitat restoration in the historical Mississippi River Delta plain in Louisiana. While recognizing the risks for collateral injury, the LA TIG

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believes the net benefits of the proposed Project meet OPA's requirement of restoration, rehabilitation, replacement, or acquisition of the equivalent, of the natural resources injured by the DWH oil spill.

The commenters' concern regarding the potential impacts of the diversion were considered by CPRA and the LA TIG in developing the Mitigation and Stewardship Plan (Appendix R1) issued with the Draft EIS. The Mitigation and Stewardship Plan issued with the Draft EIS included mitigation to address and offset some of the projected impacts of the Project on fisheries and surrounding communities outside levee protection including providing structural mitigation and stewardship measures for increased water levels that are projected to result due to the Project, such as raising roads or improving bulkheads. Since publication of the Draft EIS and in response to comments, CPRA has expanded and refined this Mitigation and Stewardship Plan in the Final EIS (Appendix R1).

In communities south of the Project site outside of federal levee protection where the proposed Project is projected to cause increased water levels, CPRA plans to take one of two approaches. In Myrtle Grove, CPRA is planning to improve the bulkhead around the Myrtle Grove Marina Estates Subdivision. By improving this bulkhead, CPRA would reduce the incidence of tidal flooding in the Myrtle Grove Marina Estates Subdivision compared to future conditions without the Project. See Table 1 in the Final Mitigation and Stewardship Plan for more details. CPRA plans to acquire a temporary right-of-way to permit improvement of the bulkhead, voluntarily or through eminent domain if necessary, from the property owners in the Myrtle Grove Marina Estates Subdivision.

In other communities south of the Project site outside of federal levee protection, from Woodpark south to the communities of Grand Bayou and Happy Jack, CPRA plans to elevate the portions of public roads outside of levee protection that provide access to each of these communities. In addition, CPRA plans to acquire the right to add and/or increase water flow on landowners' properties through the purchase of Project servitudes from landowners in these communities. The Project servitude would allow CPRA to flow water over the landowner's property at heights and durations that are greater than would be the case in the future without the Project. The Project servitude would be recorded against title to the property and would run with the land. CPRA would attempt to negotiate with the landowner to acquire this servitude. If the CPRA and the landowner were unable to reach a negotiated agreement, CPRA would exercise its eminent domain authority to purchase the Project servitude. CPRA would compensate those landowners for the value of the Project servitude. A property owner would be able to use the funds received in exchange for the servitude to implement flood mitigation measures. As an alternative

to these measures, CPRA may consider purchasing an impacted property outright (that is, in fee) if requested by the owner. Decisions about whether to purchase a property would be made on a case-by-case basis depending on the particular circumstances.

These measures are described in CPRA's Final Mitigation and Stewardship Plan (Appendix R1 to the Final EIS).

Structural measures in CPRA's Mitigation and Stewardship Plan are not included in CPRA's DA permit application and if this permit is approved, would not be authorized under the DA permit. Many of these structural measures would require additional DA and other permits prior to installation. Such permits are not guaranteed and would take time for USACE and other regulating agencies to process.

A DA permit does not convey any property rights and does not authorize any injury to property or invasion of rights or any infringement of Federal, state or local laws or regulations. The applicant's signature on an application is an affirmation that the applicant possesses or will possess the requisite property interest to undertake the activity proposed in the application.

The Mitigation and Stewardship Plan and the Monitoring and Adaptive Management (MAM) Plan provided in the Draft EIS Appendix R were submitted by CPRA and represent a range of potential mitigation, stewardship, monitoring and adaptive management measures (collectively, measures). At the time of publication of the Draft EIS for public review, Appendix R contained draft Plans and CPRA had not identified which of the measures contained in those Plans it intended to implement. The Final EIS Appendix R contains the final Plans and specifies which measures CPRA and the LA TIG intend to implement. Generally, impact determinations discussed in the EIS represent anticipated Project effects without implementation of these measures except in instances where such measures are identified in the discussion. If any mitigation, monitoring, or adaptive management measures are required by USACE as part of its approval of the proposed Project, such measures would be required as special conditions of the Department of the Army (DA) Section 10/404 permit and would be listed in the permit, if one is issued. Implementation of specific measures contained in either Plan, but not included in the Section 10/404 permit as special conditions, would not be required by USACE. USACE does not know whether any particular measure that is not a DA permit condition would be implemented. Measures that USACE currently contemplates as conditions of a DA Section 10/404 permit, if one is issued, are provided in Chapter 4, Section 4.27 Mitigation Summary of the EIS.

The LA TIG explains in Section 1.5 of the Final Restoration Plan that it anticipates requiring implementation of the Mitigation and Stewardship

Plan, MAM Plan, and Marine Mammal Intervention Plan as components of the proposed Project, if the Project is approved by the LA TIG for funding. Decisions regarding which measures would be required as part of the LA TIG's funding decision would be set forth in the LA TIG Record of Decision related to the proposed Project.

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**Concern ID: 62010**

**Sediment transported by the diversion into the basin would cause the main waterways to have increased shoaling, become too shallow to pass through, and would require dredging in order to access personal properties. This plan should address the potential loss of access for homes, camps, and businesses due to the increased shoaling.**

**Response ID: 16208**

The impacts raised by the commenters were considered in the Draft EIS; therefore, no related edits have been made to the Final EIS. The EIS describes impacts on marine transportation and maintenance dredging in Chapter 4, 4.21 Navigation. This section also describes potential impacts on access due to delays when dredging. In addition, refer to Section 4.13 Socioeconomics for a discussion of socioeconomic impacts due to potential sedimentation in Barataria Basin navigation channels and canals. The proposed Project would have moderate, intermittent but permanent, adverse impacts on marine traffic efficiency and safety for shallow-draft vessels. The proposed Project would also cause minor to moderate, permanent, adverse impacts in dredging requirements for portions of the Mississippi River Navigation Channel and the birdfoot delta due to Project-induced changes to typical shoaling patterns and locations. As stated in Chapter 4, Section 4.21 Navigation, the USACE would continue to maintain federal navigation channels in the proposed Project area during Project operations. In acknowledgement of commenters' concerns regarding sediment and shoaling impacting navigation, the Mitigation and Stewardship Plan in Appendix R1 in the Final EIS includes measures to mitigate impacts on navigation in the basin resulting from operation of the Project, including monitoring and dredging or other measures for certain non-federal navigation channels including Wilkinson Canal (see Appendix R1 [Mitigation and Stewardship Plan] to the Final EIS for additional details).

The Mitigation and Stewardship Plan and the Monitoring and Adaptive Management (MAM) Plan provided in the Draft EIS Appendix R were submitted by CPRA and represent a range of potential mitigation, stewardship, monitoring and adaptive management measures (collectively, measures). At the time of publication of the Draft EIS for public review, Appendix R contained draft Plans and CPRA had not identified which of the measures contained in those Plans it intended to implement. The Final EIS Appendix R contains the final Plans and specifies which measures CPRA and the LA TIG intend to implement. Generally, impact determinations discussed in the EIS represent

anticipated Project effects without implementation of these measures except in instances where such measures are identified in the discussion. If any mitigation, monitoring, or adaptive management measures are required by USACE as part of its approval of the proposed Project, such measures would be required as special conditions of the Department of the Army (DA) Section 10/404 permit and would be listed in the permit, if one is issued. Implementation of specific measures contained in either Plan, but not included in the Section 10/404 permit as special conditions, would not be required by USACE. USACE does not know whether any particular measure that is not a DA permit condition would be implemented. Measures that USACE currently contemplates as conditions of a DA Section 10/404 permit, if one is issued, are provided in Chapter 4, Section 4.27 Mitigation Summary of the EIS.

The LA TIG explains in Section 1.5 of the Final Restoration Plan that it anticipates requiring implementation of the Mitigation and Stewardship Plan, MAM Plan, and Marine Mammal Intervention Plan as components of the proposed Project, if the Project is approved by the LA TIG for funding. Decisions regarding which measures would be required as part of the LA TIG's funding decision would be set forth in the LA TIG Record of Decision related to the proposed Project.

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**Concern ID: 62011**

**Commenters are concerned about the impacts of the proposed MBSD Project operations on the coastal communities including Jean Lafitte, lower Lafitte, Barataria, Crown Point, and the island of Grand Isle.**

**Response ID: 16209**

The impacts raised by the commenters were considered in the Draft EIS. Chapter 4, Section 4.13 Socioeconomics considers impacts on community populations, housing and property values, community infrastructure, as well as community cohesion and other potential socioeconomic impacts on affected communities in the proposed Project area. As described, communities near the immediate outfall area (within 10 miles north and 20 miles south) outside of flood protection are anticipated to experience increased tidal flooding and storm surge that may increase ongoing trends in outmigration and cause minor to moderate, permanent, adverse impacts on community cohesion in these areas. Long-term benefits of the proposed Project are also anticipated in communities in the west bank New Orleans area north of the diversion, where decreases in storm damages are anticipated over time due to the Project. The communities of Lafitte and Des Allemands are located in areas anticipated to experience permanent, minor to moderate beneficial impacts associated with storm hazards. The proposed Project is projected to increase surge heights by only up to 0.1 foot in the community of Grand Isle. Chapter 4, Sections 4.13 Socioeconomics, 4.14 Commercial Fisheries, and 4.15 Environmental Justice provide detailed analyses of impacts from the

proposed Project. The Socioeconomics Technical Report in Appendix H1 provides additional details.

As part of its restoration planning efforts, the LA TIG recognizes that there are clear tradeoffs among the alternatives in terms of the likely benefits achieved and risks related to collateral injury and public health and safety. The LA TIG believes the proposed MBSD Project is critical to achieving the overall goals of the Wetlands, Coastal, and Nearshore Habitats Restoration Type in the Final PDARP/PEIS, which include providing benefits across the interconnected northern Gulf of Mexico ecosystem, and placing particular emphasis on coastal and nearshore habitat restoration in the historical Mississippi River Delta plain in Louisiana.

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**Concern ID: 62013**

**The Myrtle Grove subdivision is a residential neighborhood composed of homes, not camps, many of which may not have access to flood insurance. The proposed MBSD Project would increase flooding of the properties which would severely impact access to property and property values in Myrtle Grove and other affected areas such as Lake Hermitage.**

**Response ID: 16210**

The impacts raised by the commenters were considered in the Draft EIS in Chapter 4, Section 4.13 Socioeconomics, which discusses impacts of the proposed Project on property values, and Chapter 4, Section 4.20 Public Health and Safety, Including Flood and Storm Hazard Risk Reduction which discusses flood and storm related impacts due to the Project. The EIS (Section 4.13.5.3 in Socioeconomics) finds that the proposed Project would result in minor to moderate, permanent, adverse impacts on housing and property values in communities near the immediate outfall areas (within 10 miles north and 20 miles south) and outside of flood protection. These affected areas include the communities of Myrtle Grove, Hermitage, Suzie Bayou North, Suzie Bayou South, Woodpark, Happy Jack, and Grand Bayou, and to a lesser extent portions of Lafitte. In addition, negligible to minor increases in levee overtopping south of the immediate outfall area may occur in future years following delta formation (after approximately 20 years of Project operations) in the outfall area in communities inside levees, with the greatest increases in communities adjacent to the NOV-NFL Levee system.

The Final EIS discusses modeled impacts of the Project on water surface elevations and corresponding tidal inundation in Lafitte, Myrtle Grove, and Grand Bayou. These three communities are generally representative of other communities in the basin, including Hermitage, Suzie Bayou North, Suzie Bayou South, Woodpark, and Happy Jack (see Figure 4.13-1 in Section 4.13.1 Area of Potential Impacts in Socioeconomics). Lafitte, Myrtle Grove, and Grand Bayou also represent varying levels of exposure to tidal flooding. As explained in

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Section 4.20.3 Public Health and Safety – Overview of Model for Impact Analysis, Grand Bayou has no structural protection and would experience similar tidal flooding as the unprotected communities of Hermitage, Suzie Bayou North, Suzie Bayou South, and Happy Jack. Myrtle Grove impacts would be similar to the neighborhood of Woodpark. Without implementation of the measures outlined in the Mitigation and Stewardship Plan (Appendix R1), the largest impact on tidal inundation frequency due to the diversion is projected to occur in Myrtle Grove, as this is the community that is closest to the immediate outfall area of the proposed diversion structure outside flood protection and thus is projected to see the greatest increase in water levels.

Section 4.13.5.3 Housing and Property Values has been revised in the Final EIS to provide additional discussion of potential effects of the proposed Project on the availability of flood insurance. The Final EIS concludes that the proposed Project would not impact the availability flood insurance, but may cause an increase in flood insurance premium for some properties in communities projected to experience increases in tidal flooding and storm hazards. See Section 4.13.5.3.2.1 in Socioeconomics and Section 4.15.4.2.3 and 4.15.5.1.2 in Environmental Justice of the Final EIS for further discussion of the potential effect of the Project on the cost of flood insurance. Due to the evolving implementation of FEMA's Risk Rating 2.0, it is difficult to predict how flood insurance premiums may change. Since issuance of the Draft EIS, CPRA has expanded and refined the mitigation and stewardship measures intended to address the inundation projected in the communities south of the proposed Project's immediate outfall area including Myrtle Grove, Woodpark, Suzie Bayou, Deer Range, Lake Hermitage, Grand Bayou, and Happy Jack. CPRA plans to provide a combination of structural improvements (for example, improving bulkheads and raising roads and homes) and non-structural measures.

Structural measures in CPRA's Mitigation and Stewardship Plan are not included in CPRA's DA permit application and if this permit is approved, would not be authorized under the DA permit. Many of these structural measures would require additional DA and other permits prior to installation. Such permits are not guaranteed and would take time for USACE and other regulating agencies to process.

A DA permit does not convey any property rights and does not authorize any injury to property or invasion of rights or any infringement of Federal, state or local laws or regulations. The applicant's signature on an application is an affirmation that the applicant possesses or will possess the requisite property interest to undertake the activity proposed in the application.

In Woodpark, Suzie Bayou, Deer Range, Lake Hermitage, Grand Bayou, and Happy Jack, CPRA plans to purchase Project servitudes



from landowners. The Project servitude would allow CPRA to flow water over the landowner's property at heights and durations that are greater than would be in the case in the future without the Project. The Project servitude would be recorded against title to the property and would run with the land. CPRA would attempt to negotiate with the affected landowner to acquire this servitude. If the CPRA and the landowner were unable to reach a negotiated agreement, CPRA would exercise its eminent domain authority to purchase the servitude. CPRA would compensate those landowners for the value of the Project servitude. A property owner would be able to use the funds received in exchange for the servitude to implement flood mitigation and stewardship measures. See Section 6.3.2 of the Mitigation and Stewardship Plan in Appendix R1 to the Final EIS.

The Mitigation and Stewardship Plan and the Monitoring and Adaptive Management (MAM) Plan provided in the Draft EIS Appendix R were submitted by CPRA and represent a range of potential mitigation, stewardship, monitoring and adaptive management measures (collectively, measures). At the time of publication of the Draft EIS for public review, Appendix R contained draft Plans and CPRA had not identified which of the measures contained in those Plans it intended to implement. The Final EIS Appendix R contains the final Plans and specifies which measures CPRA and the LA TIG intend to implement. Generally, impact determinations discussed in the EIS represent anticipated Project effects without implementation of these measures except in instances where such measures are identified in the discussion. If any mitigation, monitoring, or adaptive management measures are required by USACE as part of its approval of the proposed Project, such measures would be required as special conditions of the Department of the Army (DA) Section 10/404 permit and would be listed in the permit, if one is issued. Implementation of specific measures contained in either Plan, but not included in the Section 10/404 permit as special conditions, would not be required by USACE. USACE does not know whether any particular measure that is not a DA permit condition would be implemented. Measures that USACE currently contemplates as conditions of a DA Section 10/404 permit, if one is issued, are provided in Chapter 4, Section 4.27 Mitigation Summary of the EIS.

The LA TIG explains in Section 1.5 of the Final Restoration Plan that it anticipates requiring implementation of the Mitigation and Stewardship Plan, MAM Plan, and Marine Mammal Intervention Plan as components of the proposed Project, if the Project is approved by the LA TIG for funding. Decisions regarding which measures would be required as part of the LA TIG's funding decision would be set forth in the LA TIG Record of Decision related to the proposed Project.

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<b>Concern ID: 62014</b>	<b>The proposed MBSD Project would reduce tax revenue for the parishes located in the impacted area and the funds to support vital services in these areas.</b>
<b>Response ID: 16211</b>	The EIS considers and describes impacts on tax revenue in Chapter 4, Section 4.13.4 and 4.13.5 in Socioeconomics. There is also a discussion of Public Services and Utilities in this chapter (Section 4.13 Socioeconomics). As described, the proposed Project construction would have minor to moderate short-term benefits on sales and use taxes in local jurisdictions and the state associated with construction spending. Negligible to minor permanent adverse impacts on tax revenues from sales and use taxes, including associated with impacts on commercial fishing activities, as well as property tax collections associated with reduced property values are anticipated in Plaquemines Parish due to operation of the proposed Project. Potential adverse effects on utilities associated with reduced property taxes are also anticipated during the operations phase of the proposed Project.
<b>Concern ID: 62015</b>	<b>Commenter supports implementation of the proposed MBSD Project to restore the wetlands. The Barataria Basin needs its infrastructure to return which would have a substantial economic impact, support birds and other wildlife, and also bring back jobs to this area.</b>
<b>Response ID: 16212</b>	The commenters' support of the proposed Project is acknowledged. The EIS evaluates economic impacts of the proposed Project in Chapter 4.13 Socioeconomics, and Appendix H1, Socioeconomics Technical Report, including potential employment impacts. In addition, Chapter 4, Section 4.16.5.2 in Recreation and Tourism describes how the proposed Project would impact recreational and sport fishing in the Barataria Basin.
<b>Concern ID: 62016</b>	<b>Commenter inquired as to why CPRA is not required to adjust operations, conduct maintenance dredging, or provide alternative boat access for Myrtle Grove if Wilkinson Canal is impacted.</b>
<b>Response ID: 16213</b>	<p>The impacts on channel and canal navigation raised by the commenters were considered in the Draft EIS. As stated in Chapter 4, Section 4.21 Navigation, the USACE would continue to maintain federal navigation channels in the proposed Project area during Project operations.</p> <p>In acknowledgement of the commenters' concerns regarding maintenance of non-federal navigation channels and canals impacted by sedimentation of the proposed diversion, CPRA has supplemented the Final Mitigation and Stewardship Plan with measures to mitigate impacts on navigation in the basin resulting from operation of the Project, including monitoring and dredging or other measures for certain federal and non-federal navigation channels including the</p>

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Barataria Waterway and Wilkinson Canal (see Appendix R1 [Mitigation and Stewardship Plan] to the Final EIS for additional details).

The Mitigation and Stewardship Plan and the Monitoring and Adaptive Management (MAM) Plan provided in the Draft EIS Appendix R were submitted by CPRA and represent a range of potential mitigation, stewardship, monitoring and adaptive management measures (collectively, measures). At the time of publication of the Draft EIS for public review, Appendix R contained draft Plans and CPRA had not identified which of the measures contained in those Plans it intended to implement. The Final EIS Appendix R contains the final Plans and specifies which measures CPRA and the LA TIG intend to implement. Generally, impact determinations discussed in the EIS represent anticipated Project effects without implementation of these measures except in instances where such measures are identified in the discussion. If any mitigation, monitoring, or adaptive management measures are required by USACE as part of its approval of the proposed Project, such measures would be required as special conditions of the Department of the Army (DA) Section 10/404 permit and would be listed in the permit, if one is issued. Implementation of specific measures contained in either Plan, but not included in the Section 10/404 permit as special conditions, would not be required by USACE. USACE does not know whether any particular measure that is not a DA permit condition would be implemented. Measures that USACE currently contemplates as conditions of a DA Section 10/404 permit, if one is issued, are provided in Chapter 4, Section 4.27 Mitigation Summary of the EIS.

The LA TIG explains in Section 1.5 of the Final Restoration Plan that it anticipates requiring implementation of the Mitigation and Stewardship Plan, MAM Plan, and Marine Mammal Intervention Plan as components of the proposed Project, if the Project is approved by the LA TIG for funding. Decisions regarding which measures would be required as part of the LA TIG's funding decision would be set forth in the LA TIG Record of Decision related to the proposed Project.

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**Concern ID: 62017**

**Commenter requests a supplemental EIS due to the lack of specificity concerning this proposal to the residence, parish, and fishing communities.**

**Response ID: 16220**

The issues raised by the commenters were considered in the Draft EIS; therefore, no related edits have been made to the Final EIS and a supplemental EIS is not warranted. The EIS includes analysis of socioeconomic impacts, including increased flooding impacts, on affected communities. Sections 4.13 Socioeconomics, 4.14 Commercial Fisheries, 4.15 Environmental Justice, and 4.20 Public Health and Safety, Including Flood and Storm Hazard Risk Reduction provide detailed analyses of impacts from the proposed MBSD Project.

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Projected increased flooding in the communities surrounding the diversion is discussed in Section 4.20.4.2 Operational Impacts in Public Health and Safety, Including Flood and Storm Hazard Risk Reduction. The Socioeconomics section evaluates impacts on economy, employment and business activity, population, housing, taxes, public services, community cohesion and protection of children in light of the best data available to USACE and the LA TIG to evaluate the impacts over the 50-year analysis period. The EIS also contains separate analysis of impacts on commercial fisheries and on minority and low-income populations, including a table (Table 4.15-1) that summarizes individual communities and the potential impacts. In addition, the Socioeconomics Technical Report in Appendix H provides additional details. Appendix P Flood and Storm Hazards Evaluation provides additional details on the flood modeling and impacts.

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**Concern ID: 62018**

**Commenters noted inconsistencies in the property values presented in the EIS and Appendices. Specifically, comments highlighted a need to reconcile the property value of \$52 Million for Myrtle Grove in Appendix H Socioeconomics Technical Report compared to the value of \$5.9 Million for Myrtle Grove and all the other affected communities in Chapter 4, Section 4.13.5.3 in Socioeconomics of the main body of the EIS.**

**Response ID: 16214**

The commenter's concern with the consistency of property valuation in the EIS is acknowledged. The issues raised by the commenters were considered in the Draft EIS. Appendix H1 Socioeconomics Technical Report and Chapter 4, Section 4.13.5.3 Housing and Property Values in Socioeconomics present different statistics about housing values. Specifically, Table 2-6 in Appendix H1 Socioeconomics Technical Report presents total property values based on estimated online fair market estimates in Myrtle Grove. Section 4.13.5.3 Housing and Property Values in Socioeconomics presents the assessed value of properties as reported by the Plaquemines Parish Assessor. Per the Plaquemines Parish Assessor, the assessed value is calculated as 15 percent of the fair market value for all commercial improvements, and 10 percent of the fair market value for all residential improvements and all land. For clarity, edits have been made to Section 4.13.5.3 and Appendix H1 Socioeconomics Technical Report of the Final EIS.

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**Concern ID: 62019**

**The Draft EIS fails to address extended economic and community impacts of this proposed Project. The proposed MBSD Project would not only affect localized Louisiana concerns, but would impact no less than three other Gulf Coast states including Texas, Mississippi, and Alabama.**

**Response ID: 16215**

EIS Chapter 3, Section 3.1.1 Project Area identifies the area of analysis for the EIS which includes the Barataria Basin and portions of Mississippi River birdfoot delta. For socioeconomic impacts, the EIS

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identifies the area of potential impacts as the 10-parish Project area due to indirect socioeconomic impacts. Most impacts would likely be concentrated in Plaquemines, Lafourche, and Jefferson Parishes, Louisiana. For commercial fisheries, the proposed Project area includes two basins (the Barataria Basin and a portion of the Mississippi River Basin birdfoot delta). The proposed Project is not anticipated to have discernable effects on aquatic resources outside of the Project area. Commercial fishermen that travel to Barataria Basin to fish for species that would be adversely affected, particularly shrimp and oysters, could also be adversely affected by the proposed Project. Chapter 4, Section 4.14.4 Operational Impacts in Commercial Fisheries in the Final EIS has been revised to acknowledge this.

In response to one commenter's request for supplemental environmental review to consider potential impacts of the Project on the Texas shrimp fishery, the NOAA Technical Memorandum cited in support of that request has been reviewed. The technical memo does not confirm the comment that shrimp from the Barataria Basin migrate to Texas. While that memo does report that tagged brown shrimp released in Louisiana were recovered in Texas, those recovered shrimp were released in offshore waters south of Calcasieu Lake. Tagged shrimp that were released in the Caillou Lake estuary, which is in the Terrebonne Basin (on the western side of the Barataria Basin) were not recovered in Texas.

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**Concern ID: 62020**

**The EIS is lacking in detail and particularly vague when it comes to addressing the impacts on the communities that are within a 2-mile radius of the Mid-Barataria Sediment Diversion: Ironton, Myrtle Grove, and Wood Park. An assessment should be made on how the construction of this proposed Project might impact the property value of homes in the surrounding area and that those landowners/homeowners be made aware of the impact. Efforts should be made to reduce, as much as possible, the potential negative impacts that the construction of this proposed Project would have on surrounding communities including Ironton, Myrtle Grove, and Wood Park.**

**Response ID: 16216**

The impacts raised by the commenters were considered in the Draft EIS. The EIS includes analysis of socioeconomic impacts on affected communities. Section 4.13 Socioeconomics, 4.14 Commercial Fisheries, and 4.15 Environmental Justice provide detailed analyses of impacts from the proposed Project. In addition, the Socioeconomics Technical Report in Appendix H of the EIS provides additional details. In Chapter 4, Section 4.15.5 Environmental Justice of the Final EIS, a section has been added that provides a summary of impacts on the community of Ironton to assist understanding impacts of the proposed Project on that community.

CPRA has engaged in public outreach meetings with the communities and groups impacted by the proposed MBSD Project to solicit input on mitigation strategies, including reaching out to local non-profits to assist with and facilitate meetings with the impacted communities and groups. A summary of these public outreach meetings can be found in Chapter 7 Public Involvement of the Final EIS. The Mitigation and Stewardship Plan in Appendix R1 of the EIS provides additional details about mitigation proposed by CPRA for the proposed Project, including mitigation and stewardship measures for the communities projected to be impacted.

The Mitigation and Stewardship Plan and the Monitoring and Adaptive Management (MAM) Plan provided in the Draft EIS Appendix R were submitted by CPRA and represent a range of potential mitigation, stewardship, monitoring and adaptive management measures (collectively, measures). At the time of publication of the Draft EIS for public review, Appendix R contained draft Plans and CPRA had not identified which of the measures contained in those Plans it intended to implement. The Final EIS Appendix R contains the final Plans and specifies which measures CPRA and the LA TIG intend to implement. Generally, impact determinations discussed in the EIS represent anticipated Project effects without implementation of these measures except in instances where such measures are identified in the discussion. If any mitigation, monitoring, or adaptive management measures are required by USACE as part of its approval of the proposed Project, such measures would be required as special conditions of the Department of the Army (DA) Section 10/404 permit and would be listed in the permit, if one is issued. Implementation of specific measures contained in either Plan, but not included in the Section 10/404 permit as special conditions, would not be required by USACE. USACE does not know whether any particular measure that is not a DA permit condition would be implemented. Measures that USACE currently contemplates as conditions of a DA Section 10/404 permit, if one is issued, are provided in Chapter 4, Section 4.27 Mitigation Summary of the EIS.

The LA TIG explains in Section 1.5 of the Final Restoration Plan that it anticipates requiring implementation of the Mitigation and Stewardship Plan, MAM Plan, and Marine Mammal Intervention Plan as components of the proposed Project, if the Project is approved by the LA TIG for funding. Decisions regarding which measures would be required as part of the LA TIG's funding decision would be set forth in the LA TIG Record of Decision related to the proposed Project.

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Concern ID: 62021

**The ecological pressures created by the Mississippi River Levee System on coastal lands make properties more vulnerable to hurricane damage, as well as potentially decreasing property**



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<b>Response ID: 16217</b>	<p><b>values. The coastal communities and housing market is put at risk if bold action is not taken to restore the coast.</b></p> <p>The proposed MBSD Project is expected to reduce loss of coastal wetlands in Louisiana relative to the No Action Alternative. The EIS finds in Chapter 4, Section 4.13 Socioeconomics that the proposed Project would have minor, permanent, beneficial impacts on housing and property values as the land gained as a result of the proposed Project would decrease the risks of storm hazards, particularly in areas north of the diversion and in the west bank New Orleans area.</p>
<b>Concern ID: 62022</b>	<p><b>The Draft EIS lays out how many jobs would be created through construction and the proposed Project would also bring desperately needed jobs and economic growth. Plaquemines Parish, where the proposed Project would be constructed, and the surrounding region - including Orleans and Jefferson Parishes - would expect to see a significant economic boost.</b></p>
<b>Response ID: 16218</b>	<p>The EIS describes the jobs impact from the construction of the diversion in Chapter 4, Section 4.13.4.2 in Socioeconomics. The EIS finds that moderate to major, temporary economic benefits are anticipated from proposed Project construction.</p>
<b>Concern ID: 62024</b>	<p><b>Electricity system resilience has become an increasingly important aspect of planning, which is recognized by the Regional Transmission Organization that Louisiana is situated in. A restored coast would help provide energy security through the protection it provides by creating a buffer for extreme weather events, and lowering storm surge. A more protected power grid also means reduced costs, which should translate to lower rates for consumers.</b></p>
<b>Response ID: 16219</b>	<p>The EIS considers impacts on Public Services and Utilities in Chapter 4, Section 4.13 Socioeconomics. As described, most public services and utilities infrastructure are located inside flood protection, though a few facilities are not. Beneficial impacts on public service infrastructure and utilities are expected in areas distant from the diversion and to the north associated with decreases in storm hazards with the proposed Project as compared to the No Action Alternative.</p> <p>Additionally, the LA TIG finds that restoration of the coastal environment is intended to build resiliency, including security for infrastructure such as power providers.</p>
<b>Concern ID: 62025</b>	<p><b>Appendix H of the Draft EIS titled “Socioeconomics Technical Report” provides information relevant to the analysis of potential impacts to socioeconomic resources resulting from the proposed Project. Appendix D to Appendix H, titled “Economic Impact of the Design and Construction of the Mid-Barataria Sediment Diversion Project” includes a breakdown of the cost estimates for</b></p>

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**the design and construction of the proposed Project. This appendix does not clearly set forth the cost/value of the borrow material that CPRA will excavate from Midway's property and use for the proposed Project. Without this information, the Draft EIS does not accurately analyze the impacts of the proposed Project on socioeconomics.**

**Response ID: 16221**

The commenter's concern regarding ensuring appropriate compensation for any property owner whose property is acquired or taken as part of the proposed Project is acknowledged. As part of any property acquisition to implement the proposed Project, CPRA would compensate landowners for property used for the Project in accord with Louisiana and Federal law, including the Louisiana Constitution and the Fifth Amendment of the U.S. Constitution.

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**Concern ID: 62026**

**The proposed Project would destroy wetlands in certain areas in the beginning phases and over time proposes to create wetlands in the outfall area. The Applicant has not publicly addressed the issue of the Public Trust Doctrine and future land and mineral rights. The commenter inquires as to who would own land and mineral rights in the outfall area where land may be built and if the public would be allowed to fish, hunt, and navigate through the outfall areas which are important socioeconomic questions for local stakeholders.**

**Response ID: 16222**

According to CPRA, due to concerns about safety of the public and security for the proposed Project facilities, there is not a plan to make the diversion structure or immediate outfall area accessible for public use. CPRA is, however, planning to provide signage and other public space near the proposed Project to educate the public regarding the purpose and functioning on the Project. CPRA also states that ownership of any lands created by operation of the proposed Project would be determined in accord with current state law, including mineral rights, pursuant to La. R.S. 31:149 and La. R.S. 49:214.5.5(E) and that pursuant to La. R.S. 49:214.5.5(B), the proposed Project would not create any rights to the public in or on private property.

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**Concern ID: 62027**

**The Draft EIS cites Oxfam America's Social Vulnerability Index from 2009, but the Water Institute of the Gulf and the Louisiana Coastal Protection and Restoration Authority have developed some work in this area through their 2017 Coastal Master Plan process. This more current application could be useful in analyzing this proposed Project.**

**Response ID: 16223**

Chapter 3, Section 3.15 Environmental Justice of the EIS cites community social vulnerability data from NOAA from 2019. While the Coastal Master Plan is a valuable and detailed document, the NOAA data used in the EIS represents the best data available to the USACE and LA TIG since it is more recent and provides community-specific

metrics for many areas near the proposed Project. The commenter is correct that the Socioeconomics Technical Report in Appendix H1 cites the older Oxfam report. For the Final EIS, Appendix H1 Socioeconomics Technical Report has been updated to be consistent with the main body of the EIS and utilize the NOAA data.

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**Concern ID: 62029**

**The EIS describes immediate, major, and permanent adverse impacts on several critical species in the Barataria Basin, including shrimp and oysters. The health of commercial fisheries and the socioeconomic well-being of coastal communities are closely intertwined. Such impacts would inflict economic harm on businesses, families, and individuals.**

**Response ID: 16225**

The issues raised by the commenters were considered in the Draft EIS. The EIS acknowledges that communities reliant on employment and expenditures associated with the shrimp and oyster fisheries would be adversely impacted. The EIS also acknowledges the importance of commercial fisheries to the Louisiana economy and communities, as described by commenters. Chapter 4, Section 4.13 Socioeconomics, discusses impacts of the proposed Project on the economy of Louisiana and Section 4.14 Commercial Fisheries describes impacts to commercial fisheries. As summarized in Section 4.14.5, moderate to major adverse impacts to shrimp and oyster fisheries in the proposed Project area are anticipated under the Applicant's Preferred Alternative. Changes in abundance may exacerbate trends of aging fishers leaving the industry and would have adverse impacts on the overall fishery. Adverse impacts may be partially offset by changes in fisher behavior. Additional details on the regional and community level economic impacts on commercial fisheries due to the proposed MBSD Project can be found in Section 4.14 Commercial Fisheries.

CPRA's Draft Mitigation and Stewardship Plan (Appendix R1 to the Draft EIS) included measures focused on establishing a sustainable fishing industry in the long term, rather than measures for compensating the short-term economic losses of individual fishers. Since publication of the Draft EIS and in response to comments, CPRA has expanded and refined this Mitigation and Stewardship Plan in the Final EIS (Appendix R1). The Final Mitigation and Stewardship Plan includes the following measures aimed at supporting and sustaining the fishing industry:

- Providing financial and technical assistance for alternate business ventures and job training for alternate jobs (Workforce/Business training -- \$2 million allocation)
- Funding for shrimp vessel improvements, including, potentially, larger boats, and improving docks (shrimp Vessel/Facility improvements -- \$15 million allocation)

- Establishing new oyster seed grounds (\$4 million allocation)
- Enhancing public and private oyster grounds (\$15 million allocation)
- Enhancing oyster broodstock reefs (\$4 million allocation)
- R&D for collaboration with fishers to innovate and change the way their operations work (Alternative Oyster Culture techniques -- \$8 million allocation)
- Marketing and outreach support (\$5 million allocation including oysters, brown shrimp, finfish, and crab).

The Mitigation and Stewardship Plan and the Monitoring and Adaptive Management (MAM) Plan provided in the Draft EIS Appendix R were submitted by CPRA and represent a range of potential mitigation, stewardship, monitoring and adaptive management measures (collectively, measures). At the time of publication of the Draft EIS for public review, Appendix R contained draft Plans and CPRA had not identified which of the measures contained in those Plans it intended to implement. The Final EIS Appendix R contains the final Plans and specifies which measures CPRA and the LA TIG intend to implement. Generally, impact determinations discussed in the EIS represent anticipated Project effects without implementation of these measures except in instances where such measures are identified in the discussion. If any mitigation, monitoring, or adaptive management measures are required by USACE as part of its approval of the proposed Project, such measures would be required as special conditions of the Department of the Army (DA) Section 10/404 permit and would be listed in the permit, if one is issued. Implementation of specific measures contained in either Plan, but not included in the Section 10/404 permit as special conditions, would not be required by USACE. USACE does not know whether any particular measure that is not a DA permit condition would be implemented. Measures that USACE currently contemplates as conditions of a DA Section 10/404 permit, if one is issued, are provided in Chapter 4, Section 4.27 Mitigation Summary of the EIS.

The LA TIG explains in Section 1.5 of the Final Restoration Plan that it anticipates requiring implementation of the Mitigation and Stewardship Plan, MAM Plan, and Marine Mammal Intervention Plan as components of the proposed Project, if the Project is approved by the LA TIG for funding. Decisions regarding which measures would be required as part of the LA TIG's funding decision would be set forth in the LA TIG Record of Decision related to the proposed Project.

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**Concern ID: 62030**

**Louisiana plays a vital role in the economic infrastructure of the USA. Ports carry 20 percent of waterborne commerce and provide 26 percent of the commercial fishery landings measured by weight**

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<b>Response ID: 16226</b>	<p><b>and 18 percent of our nation's oil. If the proposed Project should fail, our nation's energy economic security would be devastated.</b></p> <p>The EIS considers impacts on Public Services and Utilities in Chapter 4, Section 4.13 Socioeconomics. Chapter 3 also provides background information on the importance of regional mineral resources and fisheries. As described, most public services and utilities infrastructure are located inside flood protection, though a few facilities are not. Beneficial impacts on public service infrastructure and utilities are expected in areas distant from the diversion and to the north associated with decreases in storm hazards with the proposed Project as compared to the No Action Alternative. Additionally, the LA TIG finds that restoration of the coastal environment is intended to build resiliency, including security for infrastructure.</p>
<b>Concern ID: 62034</b>	<p><b>Louisiana is a valuable landscape to millions of citizens, making it a working coast for both sportsmen and the commercial fisheries industry. This Coastal Master Plan must be able to show that it will improve the reduction of economic losses from storm surge, provide sustainable coastlines for residential, public, industry and commercial fisheries.</b></p>
<b>Response ID: 16228</b>	<p>While the proposed MBSD Project is part of the Louisiana Master Plan, the focus of this EIS is the proposed Project and the not the entire Master Plan. The purpose of the proposed MBSD Project is to reconnect the Barataria Basin and the Mississippi River through the delivery of sediment, fresh water and nutrients to support the long-term viability of existing and planned coastal restoration efforts. This is necessary to help restore habitat and ecosystem services injured as a result of the DWH oil spill. CPRA is considering various coastal restoration strategies in its Coastal Master Plan.</p>
<b>Concern ID: 64119</b>	<p><b>Commenters note that building a single acre of marshland serves no direct or positive economic purpose as opposed to the historically prolific fisheries of coastal Louisiana which generate an estimated \$2.4 billion in economic benefits for the State of Louisiana and the people of south Louisiana.</b></p>
<b>Response ID: 16233</b>	<p>The EIS recognizes the value of commercial as well as recreational fisheries in Chapter 3, Section 3.14 Commercial Fisheries and Section 3.16 Recreation and Tourism and considers adverse impacts that may occur due to the proposed Project on these activities in Chapter 4, Section 4.14 Commercial Fisheries and Section 4.16 Recreation and Tourism. Wetlands also serve important functions, including attenuation of wave and storm surges (in particular, refer to Chapter 3, Section 3.6 and Chapter 4, Section 4.6, which discuss Wetland Resources and Waters of the U.S. and Chapter 3, Section 3.14 and Chapter 4, Section 4.14 which discuss Commercial Fisheries). Wetland building itself does not conflict with commercial fishing uses of the</p>

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basin, as wetlands provide a diverse set of functions, which include providing habitat for finfish, shellfish, as well as other aquatic organisms.

As explained in Section 2.0 of this Appendix B2 DEIS Public Review and Public Meetings, USACE's involvement with the proposed Project is limited to its permitting decisions and associated NEPA and other evaluations of the proposed Project under the CWA Section 404 and RHA Sections 10 and 14 (33 USC Section 408). USACE is neither a proponent nor an opponent of the proposed MBSD Project, and USACE was not involved in the Restoration Plan. As explained in the Restoration Plan, the LA TIG is the group responsible for restoring natural resources and services within the Louisiana Restoration Area that were injured by the DWH oil spill; therefore, response content pertaining to the LA TIG's restoration planning has been addressed solely by the LA TIG, not USACE.

As part of the LA TIG's restoration planning efforts, the LA TIG believes the proposed MBSD Project is critical to achieving the overall goals of the Wetlands, Coastal, and Nearshore Habitats Restoration Type in the Final PDARP/PEIS, which include providing benefits across the interconnected northern Gulf of Mexico ecosystem, and placing particular emphasis on coastal and nearshore habitat restoration in the historical Mississippi River Delta plain in Louisiana. While recognizing the risks for collateral injury, the LA TIG believes the net benefits of the proposed Project meet OPA's requirement of restoration, rehabilitation, replacement, or acquisition of the equivalent, of the natural resources injured by the DWH oil spill.

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**Concern ID: 64057**

**The socioeconomic impacts would affect southeast Louisiana and the area impacted by the proposed MBSD Project for generations and ensure the end to the traditions and culture of south Louisiana and its families.**

**Response ID: 16230**

The EIS discusses impacts on the local communities and various quantitative and qualitative impacts from the proposed Project in Chapter 4, Section 4.13 Socioeconomics, including Community Cohesion (Section 4.13.5.6). Consistent with the concern of the commenter, the EIS does find potential minor to moderate, long-term adverse impacts on community cohesion from the proposed Project compared to the No Action Alternative.

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**Concern ID: 64060**

**The proposed MBSD Project would result in a financial impact on the surrounding communities that support the coastal community. More work needs to be produced to address the economic impacts for Louisiana as a whole and the locally impacted parishes from the proposed Project. This should include all of the state-wide economic issues that would result from the loss of natural resources which are heavily marketed as a basis for the**

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**industries of tourism, hospitality, restaurants, etc. Any failure to consider the complete economic impact of the destruction of seafood is inadequate given the nature of this proposed Project and the natural resource results actually delineated in the Draft EIS.**

**Response ID: 16231**

The Draft EIS considered the potential socioeconomic impacts of the Project; thus, no related changes have been made to the Final EIS. More specifically, the EIS acknowledges in Chapter 3, Section 3.14.7 in Commercial Fisheries that the seafood industry represents a major source of jobs and income in Louisiana, which includes commercial harvesters, seafood processors and dealers, seafood wholesalers and distributors, restaurants, tourism, and retail sales. Chapter 4, Section 4.14 Commercial Fisheries considers regional economic impacts and community impacts projected to result from the proposed Project on the shrimp, oyster, crab, and finfish fisheries, noting that communities with a high reliance on these landings may be most heavily impacted, and that indirect effects may include impacts to fish license holders, crew, dealers, suppliers, and seafood processors. While availability of shrimp and oysters from the Basin would decrease with the Project, shrimp and oysters from Louisiana would continue to be available to restaurants, though potentially at higher prices. Restaurants willing to pay a premium for local seafood would likely do so, and additional importing would likely also occur. Under both the Applicant's Preferred Alternative and the No Action Alternative, consumers in Louisiana would experience higher prices for locally caught seafood, or would consume additional imported shrimp over time. However, impacts would occur decades sooner under the Applicant's Preferred Alternative than under the No Action Alternative. This discussion has been added to Section 4.14 Commercial Fisheries in the Final EIS.

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**Concern ID: 64089**

**Commenters asked that the jobs that are created by construction of the proposed Project spur inclusive and equitable economic development. The Louisiana State and local economic development authorities should focus efforts through communication, recruitment, and training activities, into creating jobs for local residents, including minority residents. The same type of focused workforce development effort is likely necessary in order for these local jobs to translate into longer term economic benefits for affected communities. Work with the community to identify future needs of this workforce, including: providing adequate emergency and routine medical care for workers, facilitating the start and growth of small business to provide services to this workforce, and educating skilled workers who can later pivot to other jobs along our coast long after construction is complete.**



**Response ID: 16234**

With respect to the award of contracts, CPRA is required to follow the provisions of the Louisiana Public Bid Law, including those contained in Title 39, Chapter 17 (the Louisiana Procurement Code) and in Title 38, Chapter 10 (Public Contracts). CPRA has sought and regularly seeks engagement and participation from the public, agency, and stakeholder groups wishing to be involved in the coastal restoration process. Over the past several years, CPRA has conducted outreach associated with its Sediment Diversion Program, including Coastal Connections meetings throughout the proposed MBSD Project area. In addition, since the release of the Draft EIS, CPRA has engaged the public through meetings with the communities projected to be impacted by the proposed MBSD Project to solicit input on mitigation strategies, including reaching out to local non-profits to assist with and facilitate meetings with the impacted communities. CPRA states that it would provide additional opportunities for public engagement if the proposed Project moves forward. A summary of these public engagement meetings can be found in Chapter 7 Public Involvement of the Final EIS.

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**Concern ID: 64090**

**Commenters request assurance that their community resources like sewage, water, broadband etc. can handle construction impacts in both the short and long term.**

**Response ID: 16232**

The EIS considers impacts to local public services and utilities within the 10-parish Project area in Chapter 4, Section 4.13.5.5 Public Services and Utilities in Socioeconomics. As described, construction of the proposed Project would not affect electric power plants or water supply or treatment facilities, as none are located in the Project construction footprint. Beneficial impacts on public service infrastructure and utilities are expected in areas distant from the diversion and to the north associated with decreases in storm hazards with the proposed Project as compared to the No Action Alternative. Additionally, the LA TIG finds in its Restoration Plan that restoration of the coastal environment is intended to build resiliency including security for infrastructure.

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**Concern ID: 62028**

**Commenters suggest integrating more current data and information before the release of the Final EIS, including and especially the 2020 Census data. This data would show important population shifts to communities in Jefferson, Lafourche, and Plaquemines Parish, as well as the major metropolitan area of greater New Orleans. However, the use of census data may not accurately identify the individuals and businesses economically reliant on the Barataria Basin resources and does not reflect long-term or more recent income levels of those directly involved in businesses or jobs related to the resources.**



**Response ID: 16224**

The EIS uses a variety of data sources to best describe the regional economy and populations, including relatively recently released statistics from the U.S. Census Bureau American Community Survey (ACS), data from 2010 Decennial Census, as well as a variety of state and local sources. Initial data from the 2020 Decennial Census was released in fall 2021 for Congressional redistricting purposes, with the bulk of the remaining 2020 Decennial Census data projected to be released over the next few years. The Final EIS has been revised to update the 2010 Decennial Census data to 2020 Census data. This update provides the most recent population and demographic data available for the some of the very small communities described in the EIS. Data for particular industries that may be affected by the Project, such as commercial fishing, are presented using state sources or other local data as available.

**Concern ID: 62031**

**The Draft EIS acknowledges that measuring economic and socioeconomic impacts over an extended period is an inexact science and particularly difficult to anticipate over long-time horizons. Yet, that is exactly what CPRA has done and what is captured and presented to the public in the Draft EIS. It also fails to build confidence in a project that claims to be based in such detailed and exact science.**

**Response ID: 16227**

Pursuant to NEPA, the EIS has been prepared to evaluate the anticipated impacts on the human environment from the proposed Project and reasonable alternatives to it, including No Action. Accurate, high-quality data and scientific analysis was used in the EIS, including input from agencies' own experts. The EIS makes this information available to the public and to decision makers. Although its forecasts of economic and socioeconomic impacts are not certain, the agencies have endeavored to prepare an EIS containing full disclosure of anticipated impacts, as well as all information necessary for the decision makers to understand the environmental consequences of their decisions. Where information is unavailable or incomplete, those data gaps are disclosed in the document.

Appendix R2 in the Final EIS includes CPRA's Monitoring and Adaptive Management (MAM) Plan, which was jointly developed by CPRA and its federal partners in the LA TIG. The MAM Plan provides flexible, science-based approaches to monitor and assess Project success as well as potential adaptive management actions to minimize impacts of the proposed Project and decision points that could lead to changes in management.

The Mitigation and Stewardship Plan and the MAM Plan provided in the Draft EIS Appendix R were submitted by CPRA and represent a range of potential mitigation, stewardship, monitoring and adaptive management measures (collectively, measures). At the time of

publication of the Draft EIS for public review, Appendix R contained draft Plans and CPRA had not identified which of the measures contained in those Plans it intended to implement. The Final EIS Appendix R contains the final Plans and specifies which measures CPRA and the LA TIG intend to implement. Generally, impact determinations discussed in the EIS represent anticipated Project effects without implementation of these measures except in instances where such measures are identified in the discussion. If any mitigation, monitoring, or adaptive management measures are required by USACE as part of its approval of the proposed Project, such measures would be required as special conditions of the Department of the Army (DA) Section 10/404 permit and would be listed in the permit, if one is issued. Implementation of specific measures contained in either Plan, but not included in the Section 10/404 permit as special conditions, would not be required by USACE. USACE does not know whether any particular measure that is not a DA permit condition would be implemented. Measures that USACE currently contemplates as conditions of a DA Section 10/404 permit, if one is issued, are provided in Chapter 4, Section 4.27 Mitigation Summary of the EIS.

The LA TIG explains in Section 1.5 of the Final Restoration Plan that it anticipates requiring implementation of the Mitigation and Stewardship Plan, MAM Plan, and Marine Mammal Intervention Plan as components of the proposed Project, if the Project is approved by the LA TIG for funding. Decisions regarding which measures would be required as part of the LA TIG's funding decision would be set forth in the LA TIG Record of Decision related to the proposed Project.

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**Concern ID: 62035**

**Important assets like historical oyster reefs should be protected. Louisiana's coastal communities depend on the health of the estuaries for economic sustenance.**

**Response ID: 16229**

The EIS discusses impacts on the local communities and impacts on local fisheries from the proposed Project in Section 4.14 Commercial Fisheries, Section 4.15 Environmental Justice, and Section 4.13 Socioeconomics, including Community Cohesion (Section 4.13.5.6). Consistent with the concern of the commenter, the EIS does find potential major, permanent, adverse impacts on subsistence fishing for communities from the proposed Project compared to the No Action Alternative (Section 4.15.4.2). Additional details on oysters and designated oyster grounds in the Project area can be found in Section 4.10.4.5, Key Species in Aquatic Resources. The proposed Project is expected to have major, direct, permanent, adverse impacts on oysters.

CPRA has developed mitigation and stewardship measures which include increased funding for creation of broodstock reefs, funding for creation of new oyster seed grounds, funding for enhancing public and private oyster reefs and increased funding to further develop alternative

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oyster culture methods, including off-bottom oyster culture. These are detailed in the Final Mitigation and Stewardship Plan, Appendix R1 to the Final EIS.

The Mitigation and Stewardship Plan and the Monitoring and Adaptive Management (MAM) Plan provided in the Draft EIS Appendix R were submitted by CPRA and represent a range of potential mitigation, stewardship, monitoring and adaptive management measures (collectively, measures). At the time of publication of the Draft EIS for public review, Appendix R contained draft Plans and CPRA had not identified which of the measures contained in those Plans it intended to implement. The Final EIS Appendix R contains the final Plans and specifies which measures CPRA and the LA TIG intend to implement. Generally, impact determinations discussed in the EIS represent anticipated Project effects without implementation of these measures except in instances where such measures are identified in the discussion. If any mitigation, monitoring, or adaptive management measures are required by USACE as part of its approval of the proposed Project, such measures would be required as special conditions of the Department of the Army (DA) Section 10/404 permit and would be listed in the permit, if one is issued. Implementation of specific measures contained in either Plan, but not included in the Section 10/404 permit as special conditions, would not be required by USACE. USACE does not know whether any particular measure that is not a DA permit condition would be implemented. Measures that USACE currently contemplates as conditions of a DA Section 10/404 permit, if one is issued, are provided in Chapter 4, Section 4.27 Mitigation Summary of the EIS.

The LA TIG explains in Section 1.5 of the Final Restoration Plan that it anticipates requiring implementation of the Mitigation and Stewardship Plan, MAM Plan, and Marine Mammal Intervention Plan as components of the proposed Project, if the Project is approved by the LA TIG for funding. Decisions regarding which measures would be required as part of the LA TIG's funding decision would be set forth in the LA TIG Record of Decision related to the proposed Project.

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## EC61300 – Commercial Fisheries

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**Concern ID: 62071**

**The proposed MBSD Project would negatively impact the seafood industry, including shrimp, crab, and oyster fisheries. Commercial fisheries are directly linked to the favorable conditions of the estuary and its resources being healthy,**

**Response ID: 16241****abundant, and consistently available but that would be forever changed by the introduction of polluted Mississippi River water.**

The issues raised by the commenters were considered in the Draft EIS. Chapter 4, Section 4.14.4.2 in Commercial Fisheries of the Draft EIS discussed impacts of the proposed MBSD Project on commercial fisheries. As summarized in Section 4.14.5, as compared to the No Action Alternative, moderate to major adverse impacts on shrimp and oyster fisheries in the Project area are anticipated under the Applicant's Preferred Alternative.

The LA TIG's Final Restoration Plan also acknowledges these impacts, and notes that such impacts are also anticipated under the No Action Alternative, but on a longer timeline. The Restoration Plan also notes that some benefits to the blue crab fishery and some finfish are anticipated.

CPRA has developed a plan to mitigate the potential adverse Project impacts. The Draft Mitigation and Stewardship Plan (Appendix R1 to the Draft EIS) included measures focused on establishing a sustainable fishing industry in the long term, rather than measures for compensating the short-term economic losses of individual fishers. In response to public comments, CPRA has expanded and refined the Mitigation and Stewardship Plan in the Final EIS (Appendix R1). The Final Mitigation and Stewardship Plan includes the following measures aimed at supporting and sustaining the fishing industry:

- Providing financial and technical assistance for alternate business ventures and job training for alternate jobs (Workforce/Business training -- \$2 million allocation)
- Funding for shrimp vessel improvements, including, potentially, larger boats, and improving docks (shrimp Vessel/Facility improvements -- \$15 million allocation)
- Establishing new oyster seed grounds (\$4 million allocation)
- Enhancing public and private oyster grounds (\$15 million allocation)
- Enhancing oyster broodstock reefs (\$4 million allocation)
- R&D for collaboration with fishers to innovate and change the way their operations work (Alternative Oyster Culture techniques -- \$8 million allocation)
- Marketing and outreach support (\$5 million allocation including oysters, brown shrimp, finfish, and crab).

CPRA engaged the fishing community potentially impacted by the proposed Project through public meetings and community-based organizations to solicit input on mitigation strategies. A summary of

these public engagement meetings and outreach efforts can be found in Chapter 7 Public Involvement of the Final EIS. CPRA plans to continue utilizing community-based organizations to help ensure that diverse populations become aware of and take advantage of the mitigation and stewardship measures that CPRA would offer if the proposed Project is approved and funded.

The Mitigation and Stewardship Plan and the Monitoring and Adaptive Management (MAM) Plan provided in the Draft EIS Appendix R were submitted by CPRA and represent a range of potential mitigation, stewardship, monitoring and adaptive management measures (collectively, measures). At the time of publication of the Draft EIS for public review, Appendix R contained draft Plans and CPRA had not identified which of the measures contained in those Plans it intended to implement. The Final EIS Appendix R contains the final Plans and specifies which measures CPRA and the LA TIG intend to implement. Generally, impact determinations discussed in the EIS represent anticipated Project effects without implementation of these measures except in instances where such measures are identified in the discussion. If any mitigation, monitoring, or adaptive management measures are required by USACE as part of its approval of the proposed Project, such measures would be required as special conditions of the Department of the Army (DA) Section 10/404 permit and would be listed in the permit, if one is issued. Implementation of specific measures contained in either Plan, but not included in the Section 10/404 permit as special conditions, would not be required by USACE. USACE does not know whether any particular measure that is not a DA permit condition would be implemented. Measures that USACE currently contemplates as conditions of a DA Section 10/404 permit, if one is issued, are provided in Chapter 4, Section 4.27 Mitigation Summary of the EIS.

The LA TIG explains in Section 1.5 of the Final Restoration Plan that it anticipates requiring implementation of the Mitigation and Stewardship Plan, MAM Plan, and Marine Mammal Intervention Plan as components of the proposed Project, if the Project is approved by the LA TIG for funding. Decisions regarding which measures would be required as part of the LA TIG's funding decision would be set forth in the LA TIG Record of Decision related to the proposed Project.

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**Concern ID: 62077**

**The proposed MBSD Project would put an economic burden on local commercial fisherman and related businesses including those who fish for oysters, shrimp, crawfish, crabs, and alligators. Altogether, Louisiana's commercial fisheries provide approximately 35,000 jobs for Louisiana residents and produce and sell \$2.4 billion of seafood annually. Fisherman would lose their source of income and livelihood. The diversion would**

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**displace so many Louisiana workers, and would further dampen a weak south Louisiana economy.**

**Response ID: 16242**

The issues raised by the commenters were considered in the Draft EIS. Chapter 4, Section 4.14.4.2 in Commercial Fisheries of the Draft EIS discussed impacts of the proposed MBSD Project on commercial fisheries. As summarized in Section 4.14.5, as compared to the No Action Alternative, moderate to major adverse impacts on shrimp and oyster fisheries in the Project area are anticipated with the proposed Project. Negligible to minor beneficial impacts are anticipated on blue crab and white shrimp, and moderate beneficial impacts are anticipated on Gulf menhaden, under the Applicant's Preferred Alternative. As discussed in Chapter 4, Section 4.9.4.2.2.3 in Terrestrial Wildlife and Habitat, minor beneficial impacts are anticipated on alligator populations under the Applicant's Preferred Alternative. The EIS acknowledges that communities reliant on employment and expenditures associated with the shrimp and oyster fisheries would be adversely impacted by the proposed MBSD Project.

CPRA has developed a plan to mitigate some potential adverse Project impacts. The Draft Mitigation and Stewardship Plan (Appendix R1 to the Draft EIS) included measures focused on establishing a sustainable fishing industry in the long term, rather than measures for compensating the short-term economic losses of individual fishers. In response to comments, CPRA has expanded and refined this Mitigation and Stewardship Plan in the Final EIS (Appendix R1). The Final Mitigation and Stewardship Plan includes the following measures aimed at supporting and sustaining the fishing industry:

- Providing financial and technical assistance for alternate business ventures and job training for alternate jobs (Workforce/Business training -- \$2 million allocation)
- Funding for shrimp vessel improvements, including, potentially, larger boats, and improving docks (shrimp Vessel/Facility improvements -- \$15 million allocation)
- Establishing new oyster seed grounds (\$4 million allocation)
- Enhancing public and private oyster grounds (\$15 million allocation)
- Enhancing oyster broodstock reefs (\$4 million allocation)
- R&D for collaboration with fishers to innovate and change the way their operations work (Alternative Oyster Culture techniques -- \$8 million allocation)
- Marketing and outreach support (\$5 million allocation including oysters, brown shrimp, finfish, and crab).



CPRA engaged the fishing community potentially impacted by the proposed Project through public meetings and community-based organizations to solicit input on mitigation and stewardship strategies. A summary of these public engagement meetings and outreach efforts can be found in Chapter 7 Public Involvement of the Final EIS. CPRA plans to continue utilizing community-based organizations to help ensure that diverse populations become aware of and take advantage of the mitigation and stewardship measures that CPRA would offer if the proposed Project is approved and funded.

The Mitigation and Stewardship Plan and the Monitoring and Adaptive Management (MAM) Plan provided in the Draft EIS Appendix R were submitted by CPRA and represent a range of potential mitigation, stewardship, monitoring and adaptive management measures (collectively, measures). At the time of publication of the Draft EIS for public review, Appendix R contained draft Plans and CPRA had not identified which of the measures contained in those Plans it intended to implement. The Final EIS Appendix R contains the final Plans and specifies which measures CPRA and the LA TIG intend to implement. Generally, impact determinations discussed in the EIS represent anticipated Project effects without implementation of these measures except in instances where such measures are identified in the discussion. If any mitigation, monitoring, or adaptive management measures are required by USACE as part of its approval of the proposed Project, such measures would be required as special conditions of the Department of the Army (DA) Section 10/404 permit and would be listed in the permit, if one is issued. Implementation of specific measures contained in either Plan, but not included in the Section 10/404 permit as special conditions, would not be required by USACE. USACE does not know whether any particular measure that is not a DA permit condition would be implemented. Measures that USACE currently contemplates as conditions of a DA Section 10/404 permit, if one is issued, are provided in Chapter 4, Section 4.27 Mitigation Summary of the EIS.

The LA TIG explains in Section 1.5 of the Final Restoration Plan that it anticipates requiring implementation of the Mitigation and Stewardship Plan, MAM Plan, and Marine Mammal Intervention Plan as components of the proposed Project, if the Project is approved by the LA TIG for funding. Decisions regarding which measures would be required as part of the LA TIG's funding decision would be set forth in the LA TIG Record of Decision related to the proposed Project.

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**Concern ID: 62078**

**The proposed MBSD Project would cause the loss of Louisiana shrimp, oyster, crab and finfish production which would impact the seafood based supply chain of southern Louisiana, including**



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**corresponding impacts on restaurants in New Orleans and southern Louisiana.****Response ID: 16243**

The impacts raised by the commenters were considered in the Draft EIS. The EIS acknowledges in Chapter 3, Section 3.14.7 in Commercial Fisheries that the seafood industry represents a major source of jobs and income in Louisiana, which includes commercial harvesters, seafood processors and dealers, seafood wholesalers and distributors, and retail sales. Chapter 4, Section 4.14 Commercial Fisheries discusses regional economic impacts and community impacts on the shrimp, oyster, crab, and finfish fisheries, noting that communities with a high reliance on these landings may be most heavily impacted, and that indirect effects may include impacts to fish license holders, crew, dealers, suppliers, and seafood processors. While availability of shrimp and oysters from the basin would decrease with the Project, shrimp and oysters from Louisiana would continue to be available to restaurants, potentially at higher prices. Restaurants willing to pay a premium for local seafood would likely do so, and additional importing would likely also occur. Under both the Applicant's Preferred Alternative and the No Action Alternative, consumers in Louisiana would experience higher prices for locally caught seafood, or would consume additional imported shrimp over time. However, impacts would occur decades sooner under the Applicant's Preferred Alternative than under the No Action Alternative. This discussion has been added to Section 4.14 Commercial Fisheries in the Final EIS.

CPRA has developed a plan to mitigate some potential adverse Project impacts. The Draft Mitigation and Stewardship Plan (Appendix R1 to the Draft EIS) included measures focused on establishing a sustainable fishing industry in the long term, rather than measures for compensating the short-term economic losses of individual fishers. In response to comments, CPRA has expanded and refined this Mitigation and Stewardship Plan in the Final EIS (Appendix R1). The Final Mitigation and Stewardship Plan includes the following measures aimed at supporting and sustaining the fishing industry:

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- Enhancing oyster broodstock reefs (\$4 million allocation)
- R&D for collaboration with fishers to innovate and change the way their operations work (Alternative Oyster Culture techniques -- \$8 million allocation)
- Marketing and outreach support (\$5 million allocation including oysters, brown shrimp, finfish, and crab).

CPRA engaged the fishing community potentially impacted by the proposed Project through public meetings and community-based organizations to solicit input on mitigation and stewardship strategies. A summary of these public engagement meetings and outreach efforts is in Chapter 7 Public Involvement of the Final EIS. CPRA plans to continue utilizing community-based organizations to help ensure that diverse populations become aware of and take advantage of the mitigation and stewardship measures that CPRA would offer if the proposed Project is approved and funded.

The Mitigation and Stewardship Plan and the Monitoring and Adaptive Management (MAM) Plan provided in the Draft EIS Appendix R were submitted by CPRA and represent a range of potential mitigation, stewardship, monitoring and adaptive management measures (collectively, measures). At the time of publication of the Draft EIS for public review, Appendix R contained draft Plans and CPRA had not identified which of the measures contained in those Plans it intended to implement. The Final EIS Appendix R contains the final Plans and specifies which measures CPRA and the LA TIG intend to implement. Generally, impact determinations discussed in the EIS represent anticipated Project effects without implementation of these measures except in instances where such measures are identified in the discussion. If any mitigation, monitoring, or adaptive management measures are required by USACE as part of its approval of the proposed Project, such measures would be required as special conditions of the Department of the Army (DA) Section 10/404 permit and would be listed in the permit, if one is issued. Implementation of specific measures contained in either Plan, but not included in the Section 10/404 permit as special conditions, would not be required by USACE. USACE does not know whether any particular measure that is not a DA permit condition would be implemented. Measures that USACE currently contemplates as conditions of a DA Section 10/404 permit, if one is issued, are provided in Chapter 4, Section 4.27 Mitigation Summary of the EIS.

The LA TIG explains in Section 1.5 of the Final Restoration Plan that it anticipates requiring implementation of the Mitigation and Stewardship Plan, MAM Plan, and Marine Mammal Intervention Plan as components of the proposed Project, if the Project is approved by the LA TIG for funding. Decisions regarding which measures would be required as

part of the LA TIG's funding decision would be set forth in the LA TIG Record of Decision related to the proposed Project.

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**Concern ID: 62079**

**Commenters are concerned that impacts similar to those caused by the fresh water from Bonnet Carré Spillway openings would affect fisheries in the Barataria Basin with the proposed MBSD Project.**

**Response ID: 16244**

The Project area for the MBSD EIS includes the Barataria Basin and the Mississippi River birdfoot delta. Existing operations and influences of rivers and diversions, including but not limited to the Bonnet Carré Spillway, were incorporated into the baseline conditions of the No Action Alternative and action alternatives assessed in the Draft EIS, Chapter 4 Environmental Consequences, Sections 4.2 through 4.24. Reasonably foreseeable future (but not existing) diversions, such as the Mid-Breton Diversion, were analyzed for impacts in combination with existing diversions and the proposed MBSD diversion in Chapter 4, Section 4.25 Cumulative Impacts.

A summary of select natural and man-made diversions in southeastern Louisiana has been developed to compare the purpose and/or characteristics of these diversions to the proposed MBSD Project, and to discuss their recorded impacts on the natural environment. This summary is available in Appendix U Summary of Select Natural and Man-made Diversions in Southeastern Louisiana of the Final EIS. Note that the Bonnet Carré Spillway is an emergency flood control structure that is not operated for ecological purposes.

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**Concern ID: 62083**

**Commenters suggested that shrimping, fishing, and oysters would disappear in the Barataria Basin because of the fresh water diluting the salinity to a level that cannot sustain breeding of these species.**

**Response ID: 16247**

The issues raised by the commenters were considered in the Draft EIS. Chapter 4, Section 4.10 Aquatic Resources of the Draft EIS described impacts of the proposed Project on finfish and shrimp and oyster species. As described, impacts may include those associated with changes in salinity. As summarized in EIS Section 4.14.5 in Commercial Fisheries, as compared to the No Action Alternative moderate to major adverse impacts on shrimp and oyster fisheries in the Project area are anticipated under the Applicant's Preferred Alternative, primarily by accelerating the decline of species abundance that is also anticipated under the No Action Alternative sometime after 2050. While abundance of shrimp and oysters would decline under the Applicant's Preferred Alternative (as compared to the No Action Alternative), the EIS impact analysis does not anticipate shrimp and oysters would disappear from the basin. Benefits to the blue crab fishery and some finfish are also anticipated.

CPRA has developed a plan to mitigate the potential adverse Project impacts. The Draft Mitigation and Stewardship Plan (Appendix R1 to the Draft EIS) included measures focused on establishing a sustainable fishing industry in the long term, rather than measures for compensating the short-term economic losses of individual fishers. In response to comments, CPRA has expanded and refined this Mitigation and Stewardship Plan in the Final EIS (Appendix R1). The Final Mitigation and Stewardship Plan includes the following measures aimed at supporting and sustaining the fishing industry:

- Providing financial and technical assistance for alternate business ventures and job training for alternate jobs (Workforce/Business training -- \$2 million allocation)
- Funding for shrimp vessel improvements, including, potentially, larger boats, and improving docks (shrimp Vessel/Facility improvements -- \$15 million allocation)
- Establishing new oyster seed grounds (\$4 million allocation)
- Enhancing public and private oyster grounds (\$15 million allocation)
- Enhancing oyster broodstock reefs (\$4 million allocation)
- R&D for collaboration with fishers to innovate and change the way their operations work (Alternative Oyster Culture techniques -- \$8 million allocation)
- Marketing and outreach support (\$5 million allocation including oysters, brown shrimp, finfish, and crab).

CPRA engaged the fishing community potentially impacted by the proposed Project through public meetings and community-based organizations to solicit input on mitigation and stewardship strategies. A summary of these public engagement meetings and outreach efforts can be found in Chapter 7 Public Involvement of the Final EIS. CPRA plans to continue utilizing community-based organizations to help ensure that diverse populations become aware of and take advantage of the mitigation and stewardship measures that CPRA would offer if the proposed Project is approved and funded.

The Mitigation and Stewardship Plan and the Monitoring and Adaptive Management (MAM) Plan provided in the Draft EIS Appendix R were submitted by CPRA and represent a range of potential mitigation, stewardship, monitoring and adaptive management measures (collectively, measures). At the time of publication of the Draft EIS for public review, Appendix R contained draft Plans and CPRA had not identified which of the measures contained in those Plans it intended to implement. The Final EIS Appendix R contains the final Plans and specifies which measures CPRA and the LA TIG intend to implement.

Generally, impact determinations discussed in the EIS represent anticipated Project effects without implementation of these measures except in instances where such measures are identified in the discussion. If any mitigation, monitoring, or adaptive management measures are required by USACE as part of its approval of the proposed Project, such measures would be required as special conditions of the Department of the Army (DA) Section 10/404 permit and would be listed in the permit, if one is issued. Implementation of specific measures contained in either Plan, but not included in the Section 10/404 permit as special conditions, would not be required by USACE. USACE does not know whether any particular measure that is not a DA permit condition would be implemented. Measures that USACE currently contemplates as conditions of a DA Section 10/404 permit, if one is issued, are provided in Chapter 4, Section 4.27 Mitigation Summary of the EIS.

The LA TIG explains in Section 1.5 of the Final Restoration Plan that it anticipates requiring implementation of the Mitigation and Stewardship Plan, MAM Plan, and Marine Mammal Intervention Plan as components of the proposed Project, if the Project is approved by the LA TIG for funding. Decisions regarding which measures would be required as part of the LA TIG's funding decision would be set forth in the LA TIG Record of Decision related to the proposed Project. Impacts related to subsistence activities are discussed in Section 4.15 Environmental Justice.

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**Concern ID: 62084**

**Commenters believe that the proposed MBSD Project would cause economic loss annually to other Gulf Coast states. The Mississippi Gulf Coast seafood and fishing industry would be devastated.**

**Response ID: 16248**

Chapter 3, Section 3.1.1 Project Area of the Draft EIS identifies the analysis area for the EIS. This is the area in which the Project is anticipated to have discernable effects. For socioeconomic impacts, the EIS identifies the area of potential impacts as the 10-parish Project area due to indirect socioeconomic impacts. Most impacts would likely be concentrated in Plaquemines, Lafourche and Jefferson Parishes, Louisiana. For Commercial Fisheries, the Project area includes two basins (the Barataria Basin and a portion of the Mississippi River Basin). The proposed Project is not anticipated to have discernable effects on aquatic resources outside of the Project area. Commercial fishermen that travel to Barataria Basin to fish for species that would be adversely affected, particularly shrimp and oysters, could also be adversely affected by the proposed Project. Chapter 4, Section 4.14.4.2 in Commercial Fisheries of the Final EIS has been revised to acknowledge this. Those commercial fishermen would be eligible to

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participate in the fishery mitigation programs discussed in the Mitigation and Stewardship Plan (Appendix R1 to the EIS).

The Mitigation and Stewardship Plan and the Monitoring and Adaptive Management (MAM) Plan provided in the Draft EIS Appendix R were submitted by CPRA and represent a range of potential mitigation, stewardship, monitoring and adaptive management measures (collectively, measures). At the time of publication of the Draft EIS for public review, Appendix R contained draft Plans and CPRA had not identified which of the measures contained in those Plans it intended to implement. The Final EIS Appendix R contains the final Plans and specifies which measures CPRA and the LA TIG intend to implement. Generally, impact determinations discussed in the EIS represent anticipated Project effects without implementation of these measures except in instances where such measures are identified in the discussion. If any mitigation, monitoring, or adaptive management measures are required by USACE as part of its approval of the proposed Project, such measures would be required as special conditions of the Department of the Army (DA) Section 10/404 permit and would be listed in the permit, if one is issued. Implementation of specific measures contained in either Plan, but not included in the Section 10/404 permit as special conditions, would not be required by USACE. USACE does not know whether any particular measure that is not a DA permit condition would be implemented. Measures that USACE currently contemplates as conditions of a DA Section 10/404 permit, if one is issued, are provided in Chapter 4, Section 4.27 Mitigation Summary of the EIS.

The LA TIG explains in Section 1.5 of the Final Restoration Plan that it anticipates requiring implementation of the Mitigation and Stewardship Plan, MAM Plan, and Marine Mammal Intervention Plan as components of the proposed Project, if the Project is approved by the LA TIG for funding. Decisions regarding which measures would be required as part of the LA TIG's funding decision would be set forth in the LA TIG Record of Decision related to the proposed Project. Impacts related to subsistence activities are discussed in Section 4.15 Environmental Justice.

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**Concern ID: 62085**

**Concerns were raised that the proposed MBSD Project would affect fishermen with smaller vessels. Fishermen would have to travel farther towards the Gulf in their boats to catch some species such as speckled trout, and brown and white shrimp. Most inshore fishing vessels are not large enough or equipped to go any further outside the basin.**

**Response ID: 16249**

The impacts raised by the commenters were considered in the Draft EIS. Chapter 4, Section 4.14.4.2 in Commercial Fisheries of the Draft EIS discusses impacts of the proposed MBSD Project on commercial

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fisheries. As summarized in Section 4.14.5, moderate to major adverse impacts on brown shrimp and oyster fisheries in the Project area are anticipated. Section 4.14.4.2 Applicant's Preferred Alternative discusses the potential adaptive responses of fishermen to changes in species abundance, including the potential for substitution of species and need for gear upgrades, as well as increasing the length of fishing trips. CPRA has developed a plan to mitigate some potential adverse Project impacts. The Draft Mitigation and Stewardship Plan (Appendix R1 to the Draft EIS) included measures focused on establishing a sustainable fishing industry in the long term, rather than measures for compensating the short-term economic losses of individual fishers. In response to comments, CPRA has expanded and refined this Mitigation and Stewardship Plan in the Final EIS (Appendix R1). The Final Mitigation and Stewardship Plan includes the following measures aimed at supporting and sustaining the fishing industry:

- Providing financial and technical assistance for alternate business ventures and job training for alternate jobs (Workforce/Business training -- \$2 million allocation)
- Funding for shrimp vessel improvements, including, potentially, larger boats, and improving docks (shrimp Vessel/Facility improvements -- \$15 million allocation)
- Establishing new oyster seed grounds (\$4 million allocation)
- Enhancing public and private oyster grounds (\$15 million allocation)
- Enhancing oyster broodstock reefs (\$4 million allocation)
- R&D for collaboration with fishers to innovate and change the way their operations work (Alternative Oyster Culture techniques -- \$8 million allocation)
- Marketing and outreach support (\$5 million allocation including oysters, brown shrimp, finfish, and crab).

CPRA engaged the fishing community potentially impacted by the proposed Project through public meetings and community-based organizations to solicit input on mitigation and stewardship strategies. A summary of these public engagement meetings and outreach efforts can be found in Chapter 7 Public Involvement of the Final EIS. CPRA plans to continue utilizing community-based organizations to help ensure that diverse populations become aware of and take advantage of the mitigation and stewardship measures that CPRA would offer if the proposed Project is approved and funded.

The Mitigation and Stewardship Plan and the Monitoring and Adaptive Management (MAM) Plan provided in the Draft EIS Appendix R were submitted by CPRA and represent a range of potential mitigation,



stewardship, monitoring and adaptive management measures (collectively, measures). At the time of publication of the Draft EIS for public review, Appendix R contained draft Plans and CPRA had not identified which of the measures contained in those Plans it intended to implement. The Final EIS Appendix R contains the final Plans and specifies which measures CPRA and the LA TIG intend to implement. Generally, impact determinations discussed in the EIS represent anticipated Project effects without implementation of these measures except in instances where such measures are identified in the discussion. If any mitigation, monitoring, or adaptive management measures are required by USACE as part of its approval of the proposed Project, such measures would be required as special conditions of the Department of the Army (DA) Section 10/404 permit and would be listed in the permit, if one is issued. Implementation of specific measures contained in either Plan, but not included in the Section 10/404 permit as special conditions, would not be required by USACE. USACE does not know whether any particular measure that is not a DA permit condition would be implemented. Measures that USACE currently contemplates as conditions of a DA Section 10/404 permit, if one is issued, are provided in Chapter 4, Section 4.27 Mitigation Summary of the EIS.

The LA TIG explains in Section 1.5 of the Final Restoration Plan that it anticipates requiring implementation of the Mitigation and Stewardship Plan, MAM Plan, and Marine Mammal Intervention Plan as components of the proposed Project, if the Project is approved by the LA TIG for funding. Decisions regarding which measures would be required as part of the LA TIG's funding decision would be set forth in the LA TIG Record of Decision related to the proposed Project.

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**Concern ID: 62089**

**The Barataria Estuary would be more productive as a result of the increased input of carbon and the vital building blocks of life, which would mean opportunities for increased seafood harvest. The proposed MBSD Project is of critical importance for this transformation to one of our nation's most productive fisheries.**

**Response ID: 16250**

The commenter's support of the proposed Project is acknowledged. Chapter 4, Section 4.10 Aquatic Resources in the Draft EIS describes anticipated impacts from the proposed Project on aquatic species. As described, impacts would range from adverse to beneficial, depending on the species.

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**Concern ID: 62091**

**Commenters requested that detailed information on the full cost/benefit analysis regarding commercial fisheries be provided.**

**Response ID: 16251**

NEPA does not require that the EIS contain a cost-benefit analysis unless it is relevant to the agency's decision. USACE generally assumes that a permit applicant has done its own economic evaluation of a proposed project. The EIS evaluates potential adverse as well as

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potential beneficial impacts to commercial fisheries in Chapter 4, Section 4.14 Commercial Fisheries.

Consistent with OPA regulations, in the LA TIG's Final Restoration Plan the LA TIG has evaluated a range of alternatives based on multiple criteria including the cost to carry out each alternative, the likelihood of success, the extent to which future injury would be prevented and avoid collateral injury, the extent of benefits to more than one natural resource, and the effect on public safety. This analysis can be found in Section 3 of the Restoration Plan.

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**Concern ID: 62098**

**Commenter expresses concern that the Draft EIS is biased against the Project, over emphasizing and/or over-reporting the potential negative impacts to certain fisheries (particularly brown shrimp) and understating the Project benefits and the likely outcomes if the Project is not implemented.**

**Response ID: 16252**

The issues raised by the commenters were considered in the Draft EIS. The EIS follows NEPA guidance and presents the adverse as well as the beneficial impacts of the Project in an unbiased manner. The EIS was developed considering the best information and data available to USACE and the LA TIG at the time of writing.

In addition, the benefits of the Project are described in Section 3.2.1.6 Benefits Multiple Resources of the LA TIG's Restoration Plan.

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**Concern ID: 62102**

**Commenter suggested that USACE consider a recent study by LDWF regarding the principal commercial fisheries in Barataria Bay (An Assessment of the Principal Commercial Fisheries in Barataria Bay and Its Environs in April 2021) as part of its analysis of the Project.**

**Response ID: 16254**

The LDWF study was not available at the time that the Draft EIS was being developed; however, LDWF provided the agencies with the preliminary data that was included in the referenced report. The data was used in development of the Draft EIS discussion of commercial fisheries. The reference to the LDWF Barataria Bay fisheries data has been revised in the Final EIS to acknowledge its relationship to the published study.

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**Concern ID: 62103**

**The Draft EIS does not fully address the anticipated destruction of multiple components of the commercial oyster fishery, including oyster habitat, off-bottom oyster farms, and the oyster hatchery at Grand Isle resulting from impacts to water quality and changes in salinity.**

**Response ID: 16258**

Impacts of the proposed Project on eastern oysters are discussed in the Aquatic Resources section of the EIS in Chapter 4, Section 4.10.4.5, Key Species. The section identifies that most adverse impacts on oysters are anticipated at mid-basin locations, while some

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beneficial impacts may occur in the lower basin, including the Grand Isle area. The off-bottom and hatchery components of the oyster fishery would not be affected by the Project, or may benefit from it. Specifically, the only significant off-bottom oyster fisheries in Barataria Basin occurs in the lower basin. As indicated in Chapter 3, Section 3.14.6, Aquaculture, the Mike Voisin Oyster Hatchery in Grand Isle is the only commercially available source of oyster larvae and seed. These areas could benefit from the Project. Final EIS Chapter 4, Section 4.14 Commercial Fishing has been revised to discuss these effects.

CPRA's Mitigation and Stewardship Plan includes measures to increase funding for the development of broodstock reefs, enhancing public and private oyster areas, creating a new public oyster seed ground and to further develop alternative oyster culture methods, including off-bottom oyster culture. See the Mitigation and Stewardship Plan, Appendix R1 to the Final EIS for more information.

The Mitigation and Stewardship Plan and the Monitoring and Adaptive Management (MAM) Plan provided in the Draft EIS Appendix R were submitted by CPRA and represent a range of potential mitigation, stewardship, monitoring and adaptive management measures (collectively, measures). At the time of publication of the Draft EIS for public review, Appendix R contained draft Plans and CPRA had not identified which of the measures contained in those Plans it intended to implement. The Final EIS Appendix R contains the final Plans and specifies which measures CPRA and the LA TIG intend to implement. Generally, impact determinations discussed in the EIS represent anticipated Project effects without implementation of these measures except in instances where such measures are identified in the discussion. If any mitigation, monitoring, or adaptive management measures are required by USACE as part of its approval of the Project, such measures would be required as special conditions of the Department of the Army (DA) Section 10/404 permit and would be listed in the permit, if one is issued. Implementation of specific measures contained in either Plan, but not included in the Section 10/404 permit as special conditions, would not be required by USACE. USACE does not know whether any particular measure that is not a DA permit condition would be implemented. Measures that USACE currently contemplates as conditions of a DA Section 10/404 permit, if one is issued, are provided in Chapter 4, Section 4.27 Mitigation Summary of the EIS.

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part of the LA TIG's funding decision would be set forth in the LA TIG Record of Decision related to the proposed Project.

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**Concern ID: 64171**

**Comments were received suggesting that the MBSD would have negative impacts on the fishing industry due to further accelerations in exits from the industry especially for older members of the workforce for whom job retraining may not be as easily undertaken and the fact that there are less young fisherman coming into the fishing industry to replace the aging fisherman. The invaluable traditional ecological knowledge that has been passed down from generations could be lost.**

**Response ID: 16267**

Chapter 4, Section 4.14.4.2 in Commercial Fisheries of the Draft EIS discusses impacts of the proposed MBSD Project on commercial fisheries. As summarized in Section 4.14.5, moderate to major adverse impacts to shrimp and oyster fisheries in the Project area are anticipated. Section 4.14.4.2 Applicant's Preferred Alternative discusses the potential behavioral responses of fishermen to changes in species abundance, including the potential for substitution of species and need for gear upgrades, increasing the length of fishing trips, as well as exiting the industry.

CPRA has developed a plan to mitigate some potential adverse Project impacts. The Draft Mitigation and Stewardship Plan (Appendix R1 to the Draft EIS) included measures focused on establishing a sustainable fishing industry in the long term, rather than measures for compensating the short-term economic losses of individual fishers. In response to comments, CPRA has expanded and refined this Mitigation and Stewardship Plan in the Final EIS (Appendix R1). The Final Mitigation and Stewardship Plan includes the following measures aimed at supporting and sustaining the fishing industry:

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- Enhancing oyster broodstock reefs (\$4 million allocation)
- R&D for collaboration with fishers to innovate and change the way their operations work (Alternative Oyster Culture techniques -- \$8 million allocation)

- Marketing and outreach support (\$5 million allocation including oysters, brown shrimp, finfish, and crab).

CPRA engaged the fishing community potentially impacted by the proposed Project through public meetings and community-based organizations to solicit input on mitigation and stewardship strategies. A summary of these public engagement meetings and outreach efforts can be found in Chapter 7 Public Involvement of the Final EIS. CPRA plans to continue utilizing community-based organizations to help ensure that diverse populations become aware of and take advantage of the mitigation and stewardship measures that CPRA would offer if the proposed Project is approved and funded.

The Mitigation and Stewardship Plan and the Monitoring and Adaptive Management (MAM) Plan provided in the Draft EIS Appendix R were submitted by CPRA and represent a range of potential mitigation, stewardship, monitoring and adaptive management measures (collectively, measures). At the time of publication of the Draft EIS for public review, Appendix R contained draft Plans and CPRA had not identified which of the measures contained in those Plans it intended to implement. The Final EIS Appendix R contains the final Plans and specifies which measures CPRA and the LA TIG intend to implement. Generally, impact determinations discussed in the EIS represent anticipated Project effects without implementation of these measures except in instances where such measures are identified in the discussion. If any mitigation, monitoring, or adaptive management measures are required by USACE as part of its approval of the proposed Project, such measures would be required as special conditions of the Department of the Army (DA) Section 10/404 permit and would be listed in the permit, if one is issued. Implementation of specific measures contained in either Plan, but not included in the Section 10/404 permit as special conditions, would not be required by USACE. USACE does not know whether any particular measure that is not a DA permit condition would be implemented. Measures that USACE currently contemplates as conditions of a DA Section 10/404 permit, if one is issued, are provided in Chapter 4, Section 4.27 Mitigation Summary of the EIS.

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**Concern ID: 64297**

**Commenters noted that Project-induced sedimentation affecting some Barataria Basin navigation channels and marine**

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**infrastructure would result in permanent, moderate, adverse impacts on commercial fishing vessels using the affected channels and marinas if no mitigation efforts are taken to maintain channel depths.**

**Response ID: 16270**

The impacts raised by the commenters were considered in the Draft EIS. Chapter 4, Section 4.14.4.2 in Commercial Fisheries of the Draft EIS recognizes that Project-induced sedimentation affecting some Barataria Basin navigation channels and marine infrastructure would result in permanent, moderate, adverse impacts on commercial fishing vessels using the affected channels and marinas if no mitigation efforts are taken to maintain channel depths. Acknowledging concerns regarding maintenance of non-federal navigation channels and canals that could be impacted by sedimentation of the proposed diversion, CPRA's Mitigation and Stewardship Plan includes measures to mitigate impacts on navigation resulting from operation of the Project, including monitoring and dredging or other measures for certain non-federal navigation channels including Wilkinson Canal (see Appendix R1 [Mitigation and Stewardship Plan] to the Final EIS for additional details).

The Mitigation and Stewardship Plan and the Monitoring and Adaptive Management (MAM) Plan provided in the Draft EIS Appendix R were submitted by CPRA and represent a range of potential mitigation, stewardship, monitoring and adaptive management measures (collectively, measures). At the time of publication of the Draft EIS for public review, Appendix R contained draft Plans and CPRA had not identified which of the measures contained in those Plans it intended to implement. The Final EIS Appendix R contains the final Plans and specifies which measures CPRA and the LA TIG intend to implement. Generally, impact determinations discussed in the EIS represent anticipated Project effects without implementation of these measures except in instances where such measures are identified in the discussion. If any mitigation, monitoring, or adaptive management measures are required by USACE as part of its approval of the Project, such measures would be required as special conditions of the Department of the Army (DA) Section 10/404 permit and would be listed in the permit, if one is issued. Implementation of specific measures contained in either Plan, but not included in the Section 10/404 permit as special conditions, would not be required by USACE. USACE does not know whether any particular measure that is not a DA permit condition would be implemented. Measures that USACE currently contemplates as conditions of a DA Section 10/404 permit, if one is issued, are provided in Chapter 4, Section 4.27 Mitigation Summary of the EIS.

The LA TIG explains in Section 1.5 of the Final Restoration Plan that it anticipates requiring implementation of the Mitigation and Stewardship Plan, MAM Plan, and Marine Mammal Intervention Plan as components



of the proposed Project, if the Project is approved by the LA TIG for funding. Decisions regarding which measures would be required as part of the LA TIG's funding decision would be set forth in the LA TIG Record of Decision related to the proposed Project.

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**Concern ID: 62081**

**Commenters suggested that the "catch" would move elsewhere to a place they can still be harvested.**

**Response ID: 16245**

Chapter 4, Section 4.10 Aquatic Resources of the Draft EIS described anticipated impacts on aquatic species from the proposed Project. As described, there would be major adverse impacts on brown shrimp populations, while impacts to white shrimp and blue crab would be negligible to minor beneficial, and impacts on finfish would range from adverse to beneficial, depending on the species. Section 4.14.4.2 in Commercial Fisheries of the Draft EIS discussed potential responses of the commercial fishing industry to changes in fish abundance and catch within the basin as well as the potential for fishers to partially offset some adverse impacts by changing their fishing locations, while noting that these adjustments would likely be accompanied by increased costs.

CPRA has developed a plan to mitigate some potential adverse Project impacts. The Draft Mitigation and Stewardship Plan (Appendix R1 to the Draft EIS) included measures focused on establishing a sustainable fishing industry in the long term, rather than measures for compensating the short-term economic losses of individual fishers. In response to comments, CPRA has expanded and refined this Mitigation and Stewardship Plan in the Final EIS (Appendix R1). CPRA's Final Mitigation and Stewardship Plan includes the following measures aimed at supporting and sustaining the fishing industry:

- Providing financial and technical assistance for alternate business ventures and job training for alternate jobs (Workforce/Business training -- \$2 million allocation)
- Funding for shrimp vessel improvements, including, potentially, larger boats, and improving docks (shrimp Vessel/Facility improvements -- \$15 million allocation)
- Establishing new oyster seed grounds (\$4 million allocation)
- Enhancing public and private oyster grounds (\$15 million allocation)
- Enhancing oyster broodstock reefs (\$4 million allocation)
- R&D for collaboration with fishers to innovate and change the way their operations work (Alternative Oyster Culture techniques -- \$8 million allocation)



- Marketing and outreach support (\$5 million allocation including oysters, brown shrimp, finfish, and crab).

CPRA engaged the fishing community potentially impacted by the proposed Project through public meetings and community-based organizations to solicit input on mitigation and stewardship strategies. A summary of these public engagement meetings and outreach efforts can be found in Chapter 7 Public Involvement of the Final EIS. CPRA plans to continue utilizing community-based organizations to help ensure that diverse populations become aware of and take advantage of the mitigation and stewardship measures that CPRA would offer if the proposed Project is approved and funded.

The Mitigation and Stewardship Plan and the Monitoring and Adaptive Management (MAM) Plan provided in the Draft EIS Appendix R were submitted by CPRA and represent a range of potential mitigation, stewardship, monitoring and adaptive management measures (collectively, measures). At the time of publication of the Draft EIS for public review, Appendix R contained draft Plans and CPRA had not identified which of the measures contained in those Plans it intended to implement. The Final EIS Appendix R contains the final Plans and specifies which measures CPRA and the LA TIG intend to implement. Generally, impact determinations discussed in the EIS represent anticipated Project effects without implementation of these measures except in instances where such measures are identified in the discussion. If any mitigation, monitoring, or adaptive management measures are required by USACE as part of its approval of the proposed Project, such measures would be required as special conditions of the Department of the Army (DA) Section 10/404 permit and would be listed in the permit, if one is issued. Implementation of specific measures contained in either Plan, but not included in the Section 10/404 permit as special conditions, would not be required by USACE. USACE does not know whether any particular measure that is not a DA permit condition would be implemented. Measures that USACE currently contemplates as conditions of a DA Section 10/404 permit, if one is issued, are provided in Chapter 4, Section 4.27 Mitigation Summary of the EIS.

The LA TIG explains in Section 1.5 of the Final Restoration Plan that it anticipates requiring implementation of the Mitigation and Stewardship Plan, MAM Plan, and Marine Mammal Intervention Plan as components of the proposed Project, if the Project is approved by the LA TIG for funding. Decisions regarding which measures would be required as part of the LA TIG's funding decision would be set forth in the LA TIG Record of Decision related to the proposed Project.

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**Concern ID: 62107**

**Commenters suggested that while it is understandable that residents who rely upon the current Barataria Basin fisheries have**

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**fear and concern regarding a conversion to more freshwater oriented species in the basin, these fears of collapse would prove groundless. The commenters suggest that the government should facilitate fishers' shift into the new fisheries that evolve from the shifting species and location.**

**Response ID: 16263**

The issues raised by the commenters were considered in the Draft EIS. EIS Chapter 4, Section 4.14 Commercial Fisheries discusses the potential impacts on commercial fishing activities, which includes a discussion of potential behavioral changes that fishers may make in response to changes in species availability, including substitution of fish species, taking longer trips, and upgrading gear in Section 4.14.4.2 Applicant's Preferred Alternative in Commercial Fisheries. While substitution of species may occur, such changes have costs that the fishers must incur.

CPRA has developed a plan to mitigate some potential adverse Project impacts. CPRA's Draft Mitigation and Stewardship Plan (Appendix R1 to the Draft EIS) included measures focused on establishing a sustainable fishing industry in the long term, rather than measures for compensating the short-term economic losses of individual fishers. In response to comments, CPRA has expanded and refined its Mitigation and Stewardship Plan in the Final EIS (Appendix R1). The Final Mitigation and Stewardship Plan includes the following measures aimed at supporting and sustaining the fishing industry:

- Providing financial and technical assistance for alternate business ventures and job training for alternate jobs (Workforce/Business training -- \$2 million allocation)
- Funding for shrimp vessel improvements, including, potentially, larger boats, and improving docks (shrimp Vessel/Facility improvements -- \$15 million allocation)
- Establishing new oyster seed grounds (\$4 million allocation)
- Enhancing public and private oyster grounds (\$15 million allocation)
- Enhancing oyster broodstock reefs (\$4 million allocation)
- R&D for collaboration with fishers to innovate and change the way their operations work (Alternative Oyster Culture techniques -- \$8 million allocation)
- Marketing and outreach support (\$5 million allocation including oysters, brown shrimp, finfish, and crab).

CPRA engaged the fishing community potentially impacted by the proposed Project through public meetings and community-based organizations to solicit input on mitigation and stewardship strategies.

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A summary of these public engagement meetings and outreach efforts can be found in Chapter 7 Public Involvement of the Final EIS. CPRA plans to continue utilizing community-based organizations to help ensure that diverse populations become aware of and take advantage of the mitigation and stewardship measures that CPRA would offer if the proposed Project is approved and funded.

The Mitigation and Stewardship Plan and the Monitoring and Adaptive Management (MAM) Plan provided in the Draft EIS Appendix R were submitted by CPRA and represent a range of potential mitigation, stewardship, monitoring and adaptive management measures (collectively, measures). At the time of publication of the Draft EIS for public review, Appendix R contained draft Plans and CPRA had not identified which of the measures contained in those Plans it intended to implement. The Final EIS Appendix R contains the final Plans and specifies which measures CPRA and the LA TIG intend to implement. Generally, impact determinations discussed in the EIS represent anticipated Project effects without implementation of these measures except in instances where such measures are identified in the discussion. If any mitigation, monitoring, or adaptive management measures are required by USACE as part of its approval of the proposed Project, such measures would be required as special conditions of the Department of the Army (DA) Section 10/404 permit and would be listed in the permit, if one is issued. Implementation of specific measures contained in either Plan, but not included in the Section 10/404 permit as special conditions, would not be required by USACE. USACE does not know whether any particular measure that is not a DA permit condition would be implemented. Measures that USACE currently contemplates as conditions of a DA Section 10/404 permit, if one is issued, are provided in Chapter 4, Section 4.27 Mitigation Summary of the EIS.

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**Concern ID: 64168**

**Commenter questions the viability of workplace substitutions to other fishery species or industries and notes that these types of substitutions are not likely to fully offset the adverse impacts.**

**Response ID: 16265**

The impacts raised by the commenters were considered in the Draft EIS. Chapter 4, Section 4.14 Commercial Fisheries of the Draft EIS discussed the potential impacts on commercial fishing activities, which includes a discussion of potential behavioral changes that fishers may

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make in response to changes in species availability, including substitution of fish species, taking longer trips, and upgrading gear. While substitution of species may occur, such changes have costs that the fishers would incur.

CPRA has developed a plan to mitigate some potential adverse Project impacts. The Draft Mitigation and Stewardship Plan (Appendix R1 to the Draft EIS) included measures focused on establishing a sustainable fishing industry in the long term, rather than measures for compensating the short-term economic losses of individual fishers. In response to comments, CPRA has expanded and refined this Mitigation and Stewardship Plan in the Final EIS (Appendix R1). The Final Mitigation and Stewardship Plan includes the following measures aimed at supporting and sustaining the fishing industry:

- Providing financial and technical assistance for alternate business ventures and job training for alternate jobs (Workforce/Business training -- \$2 million allocation)
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- Enhancing public and private oyster grounds (\$15 million allocation)
- Enhancing oyster broodstock reefs (\$4 million allocation)
- R&D for collaboration with fishers to innovate and change the way their operations work (Alternative Oyster Culture techniques -- \$8 million allocation)
- Marketing and outreach support (\$5 million allocation including oysters, brown shrimp, finfish, and crab).

CPRA engaged the fishing community potentially impacted by the proposed Project through public meetings and community-based organizations to solicit input on mitigation and stewardship strategies. A summary of these public engagement meetings and outreach efforts can be found in Chapter 7 Public Involvement of the Final EIS. CPRA plans to continue utilizing community-based organizations to help ensure that diverse populations become aware of and take advantage of the mitigation and stewardship measures that CPRA would offer if the proposed Project is approved and funded.

The Mitigation and Stewardship Plan and the Monitoring and Adaptive Management (MAM) Plan provided in the Draft EIS Appendix R were submitted by CPRA and represent a range of potential mitigation, stewardship, monitoring and adaptive management measures

(collectively, measures). At the time of publication of the Draft EIS for public review, Appendix R contained draft Plans and CPRA had not identified which of the measures contained in those Plans it intended to implement. The Final EIS Appendix R contains the final Plans and specifies which measures CPRA and the LA TIG intend to implement. Generally, impact determinations discussed in the EIS represent anticipated Project effects without implementation of these measures except in instances where such measures are identified in the discussion. If any mitigation, monitoring, or adaptive management measures are required by USACE as part of its approval of the proposed Project, such measures would be required as special conditions of the Department of the Army (DA) Section 10/404 permit and would be listed in the permit, if one is issued. Implementation of specific measures contained in either Plan, but not included in the Section 10/404 permit as special conditions, would not be required by USACE. USACE does not know whether any particular measure that is not a DA permit condition would be implemented. Measures that USACE currently contemplates as conditions of a DA Section 10/404 permit, if one is issued, are provided in Chapter 4, Section 4.27 Mitigation Summary of the EIS.

The LA TIG explains in Section 1.5 of the Final Restoration Plan that it anticipates requiring implementation of the Mitigation and Stewardship Plan, MAM Plan, and Marine Mammal Intervention Plan as components of the proposed Project, if the Project is approved by the LA TIG for funding. Decisions regarding which measures would be required as part of the LA TIG's funding decision would be set forth in the LA TIG Record of Decision related to the proposed Project.

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**Concern ID: 62082**

**Commenters noted that the proposed MBSD Project would have multiple impacts to fisheries that commercial harvesters are dependent upon and that have not been fully evaluated or have been grossly underestimated thus far. These impacts include (A) continual sediment displacement that would smother essential oyster and shrimp habitat; (B) severe changes in water temperature that would directly affect the normal growth of a variety of juvenile marine species; (C) substantial increases in the frequency and duration of hypoxic events that would contribute to an increase in mortality of aquatic resources; and (D) the displacement of a variety of commercially important marine resources along with the fishermen whom harvest them. Overall, this proposed Project would have a devastating impact to both the culturally important marine resources and the fishing communities whom depend upon them.**

**Response ID: 16246**

The impacts raised by the commenters were considered in the Draft EIS. Chapter 4, Section 4.10.4.5 Key Species in Aquatic Resources in the Draft EIS described impacts of the proposed Project on finfish and

shrimp and oyster species. As described, impacts may result from various factors, for example, increased sedimentation, changes in salinity, increased nutrients, changes in water temperature and dissolved oxygen (hypoxia) is discussed in Section 4.10.4.4 General Impacts on Habitat and the Environment in Aquatic Resources. These impacts on species and habitat conditions inform Section 4.14 Commercial Fisheries, which discussed the impacts of the proposed Project on commercial fishing activities in detail. As described, the proposed Project is anticipated to have adverse impacts on commercial shrimp and oyster fisheries, negligible to minor beneficial effects on the blue crab fishery, and a range of impacts on finfish fisheries, depending on the species. Impacts related to subsistence activities are discussed in Section 4.15 Environmental Justice.

CPRA has developed a plan to mitigate some potential adverse Project impacts. The Draft Mitigation and Stewardship Plan (Appendix R1 to the Draft EIS) included measures focused on establishing a sustainable fishing industry in the long term, rather than measures for compensating the short-term economic losses of individual fishers. In response to comments, CPRA has expanded and refined its Mitigation and Stewardship Plan in the Final EIS (Appendix R1). The Final Mitigation and Stewardship Plan includes the following measures aimed at supporting and sustaining the fishing industry:

- Providing financial and technical assistance for alternate business ventures and job training for alternate jobs (Workforce/Business training -- \$2 million allocation)
- Funding for shrimp vessel improvements, including, potentially, larger boats, and improving docks (shrimp Vessel/Facility improvements -- \$15 million allocation)
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- R&D for collaboration with fishers to innovate and change the way their operations work (Alternative Oyster Culture techniques -- \$8 million allocation)
- Marketing and outreach support (\$5 million allocation including oysters, brown shrimp, finfish, and crab).

CPRA engaged the fishing community potentially impacted by the proposed Project through public meetings and community-based organizations to solicit input on mitigation and stewardship strategies. A summary of these public engagement meetings and outreach efforts can be found in Chapter 7 Public Involvement of the Final EIS. CPRA



plans to continue utilizing community-based organizations to help ensure that diverse populations become aware of and take advantage of the mitigation and stewardship measures that CPRA would offer if the proposed Project is approved and funded. Fishers who utilize the Barataria Basin would be eligible to participate in CPRA's MBSD fisheries mitigation program regardless of state residency. Eligibility requirements for this program would include use within the Project area and may include information from trip tickets and vessel licenses.

The Mitigation and Stewardship Plan and the Monitoring and Adaptive Management (MAM) Plan provided in the Draft EIS Appendix R were submitted by CPRA and represent a range of potential mitigation, stewardship, monitoring and adaptive management measures (collectively, measures). At the time of publication of the Draft EIS for public review, Appendix R contained draft Plans and CPRA had not identified which of the measures contained in those Plans it intended to implement. The Final EIS Appendix R contains the final Plans and specifies which measures CPRA and the LA TIG intend to implement. Generally, impact determinations discussed in the EIS represent anticipated Project effects without implementation of these measures except in instances where such measures are identified in the discussion. If any mitigation, monitoring, or adaptive management measures are required by USACE as part of its approval of the proposed Project, such measures would be required as special conditions of the Department of the Army (DA) Section 10/404 permit and would be listed in the permit, if one is issued. Implementation of specific measures contained in either Plan, but not included in the Section 10/404 permit as special conditions, would not be required by USACE. USACE does not know whether any particular measure that is not a DA permit condition would be implemented. Measures that USACE currently contemplates as conditions of a DA Section 10/404 permit, if one is issued, are provided in Chapter 4, Section 4.27 Mitigation Summary of the EIS.

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**Concern ID: 62105**

**Commenters expressed concerns over the health and reproductive capacity of Louisiana's marsh estuary systems that are extremely important to commercial fisheries should the proposed MBSD Project become fully implemented. The proposed MBSD Project impact area is a primary estuary for these economically important resources such as shrimp, oysters, crabs,**



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**and fish. Estuarine systems throughout the marsh serve as critical habitat for a variety of natural resources such as shrimp, oysters, crabs, and fish. Commercial fishermen, seafood business and seafood consumers are greatly dependent on these resources being healthy, abundant, and consistently available.**

**Response ID: 16260**

The EIS recognizes the value of estuarine habitats as well as the value of fisheries, and evaluated proposed Project impacts on estuarine habitats that would be adverse as well as beneficial (in particular, refer to Chapter 3, Section 3.6 and Chapter 4, Section 4.6, which discuss Wetland Resources, and Chapter 3, Section 3.14 and Chapter 4, Section 4.14, which discuss Commercial Fisheries). Beneficial impacts would include increases in primary productivity and available food sources, which could benefit or adversely affect fauna, depending on the organism's place in the food chain. However, increases in nutrient loading could also produce phytoplankton blooms, including HAB's, and die-offs of these blooms could in turn lead to decreases in dissolved oxygen. In addition, refer to the Essential Fish Habitat (EFH) Assessment in Appendix N Aquatic Resources including Essential Fish Habitat Assessment of the EIS for more details on the EFH in the Project area. Wetlands provide a diverse set of functions, which include providing habitat for finfish, shellfish, as well as other organisms. As such, wetland creation and commercial fishing are not mutually exclusive. The proposed Project is anticipated to have adverse effects on commercial fishing for some species (shrimp, oyster, southern flounder, spotted seatrout), primarily related to changes in salinity in the basin, the impacts of which are discussed in Chapter 4, Section 4.14 Commercial Fishing.

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## EC61400 – Environmental Justice

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**Concern ID: 61926**

**Commenter inquires if there will there be any kind of history done on the African American community that may have existed there prior to the proposed Project, or if there are any impacts on the African American community.**

**Response ID: 16271**

The Draft EIS (Chapter 2 of Appendix H1, Socioeconomics Technical Report) included information about the history of communities in the affected area, with attention to the Black and African American populations of those communities. The Draft EIS Chapter 4, Section 4.15 Environmental Justice also described potential impacts on low-income and minority populations from construction and operation of the proposed Project. In the Final EIS, Section 4.15.5.1 in Environmental Justice has been added to provide a summary of impacts on the majority-Black community of Ironton, which is the closest community to

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the diversion, to assist understanding the projected impacts of the proposed Project on that community.

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**Concern ID: 61927**

**The environmental justice aspects of the Project need further review because of the increase in flood conditions that would have disproportionate impacts on low-income or minority communities, including an American Indian village, outside of federal levee protection. These disproportionate impacts include devastating impacts on community culture.**

**Response ID: 16276**

The issues raised by the commenters were considered in the Draft EIS. The EIS Chapter 4, Section 4.15 Environmental Justice discusses potential impacts of the proposed Project on low-income and minority populations.

In addition, since the release of the Draft EIS, CPRA has engaged the public through outreach meetings with the communities projected to be impacted by the MBSD, including Grand Bayou, to solicit input on mitigation strategies, including reaching out to local non-profits to assist with and facilitate meetings with the impacted communities. Outreach efforts undertaken to better understand and address potential impacts on low-income and minority populations, including cultural impacts, are discussed in Chapter 7 of the Final EIS. Refer to the Final Mitigation and Stewardship Plan in Appendix R1 for mitigation and stewardship measures that would be implemented as a result of the public involvement and engagement efforts.

The Mitigation and Stewardship Plan and the Monitoring and Adaptive Management (MAM) Plan provided in the Draft EIS Appendix R were submitted by CPRA and represent a range of potential mitigation, stewardship, monitoring and adaptive management measures (collectively, measures). At the time of publication of the Draft EIS for public review, Appendix R contained draft Plans and CPRA had not identified which of the measures contained in those Plans it intended to implement. The Final EIS Appendix R contains the final Plans and specifies which measures CPRA and the LA TIG intend to implement. Generally, impact determinations discussed in the EIS represent anticipated Project effects without implementation of these measures except in instances where such measures are identified in the discussion. If any mitigation, monitoring, or adaptive management measures are required by USACE as part of its approval of the Project, such measures would be required as special conditions of the Department of the Army (DA) Section 10/404 permit and would be listed in the permit, if one is issued. Implementation of specific measures contained in either Plan, but not included in the Section 10/404 permit as special conditions, would not be required by USACE. USACE does not know whether any particular measure that is not a DA permit condition would be implemented. Measures that USACE

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currently contemplates as conditions of a DA Section 10/404 permit, if one is issued, are provided in Chapter 4, Section 4.27 Mitigation Summary of the EIS.

The LA TIG explains in Section 1.5 of the Final Restoration Plan that it anticipates requiring implementation of the Mitigation and Stewardship Plan, MAM Plan, and Marine Mammal Intervention Plan as components of the proposed Project, if the Project is approved by the LA TIG for funding. Decisions regarding which measures would be required as part of the LA TIG's funding decision would be set forth in the LA TIG Record of Decision related to the proposed Project.

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**Concern ID: 61928**

**In the case of environmental justice, the No Action Alternative as presented in the Draft EIS results in the affected communities eventually being subject to the same major adverse effects from climate change as if the Project was carried out.**

**Response ID: 16278**

As explained in Chapter 4, Section 4.15 Environmental Justice of the Draft EIS, this is correct for low-income and minority populations south of the diversion outside of flood protection. For other low-income and minority populations (for example, those residing in communities in the West Bank of New Orleans) and other resources (for example, commercial and subsistence fishing), Project impacts are projected to range from beneficial to adverse as compared to the No Action Alternative. Further details can be found in Section 4.15 Environmental Justice.

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**Concern ID: 61929**

**Commenters expressed that southeast Louisiana's fisheries-dependent residents have endured more overlapping disasters in one generation than anyone can reasonably expect of a community. They have suffered the levee breaches of Hurricane Katrina, the DWH oil spill's ongoing impacts on fish stock, the historic flood events of 2019, and COVID-19. Many of these same fishers have also survived forced refugee flight from Southeast Asia. Fishing is not just their livelihoods-it's their lives. One commenter suggested that at a very general level the Applicant's Preferred Alternative should be implemented when low-income, vulnerable fishing communities see a rebound in their profitability to a point where they can financially prepare for the proposed MBSD Project.**

**Response ID: 16280**

As noted in the purpose and need, the proposed Project is intended to support coastal restoration projects. Such projects may reduce the impacts of tropical events such as hurricanes and associated flooding. Without the Project, adverse impacts on commercial shrimp, oyster, crab, and certain finfish fisheries are anticipated due to reduced marsh habitat and increased salinity over the long term (that is, 50 years), but more rapidly after 2050 for shrimp and oyster, as discussed in Chapter 4, Section 4.14 Commercial Fisheries. It is anticipated that as the

coastal areas, including wetlands in the Barataria Basin, continue to erode, communities would be increasingly vulnerable to environmental disasters and the economic effects of declining fisheries. While the proposed Project would not stop subsidence and sea-level rise and associated impacts in the Barataria Basin, by 2070, the proposed Project is projected to create approximately 13,400 acres of land in the Barataria Basin and result in the loss of 3,000 acres of land in the birdfoot delta as compared to the No Action Alternative.

CPRA has expanded and refined its Mitigation and Stewardship Plan, Appendix R1 to the Final EIS, since publication of the Draft EIS and LA TIG's Restoration Plan based on community and resource agency input. The mitigation and stewardship measures now provide additional detail regarding specific efforts targeted at assisting low-income and minority populations in addressing the potential impacts of the Project.

The Mitigation and Stewardship Plan and the Monitoring and Adaptive Management (MAM) Plan provided in the Draft EIS Appendix R were submitted by CPRA and represent a range of potential mitigation, stewardship, monitoring and adaptive management measures (collectively, measures). At the time of publication of the Draft EIS for public review, Appendix R contained draft Plans and CPRA had not identified which of the measures contained in those Plans it intended to implement. The Final EIS Appendix R contains the final Plans and specifies which measures CPRA and the LA TIG intend to implement. Generally, impact determinations discussed in the EIS represent anticipated Project effects without implementation of these measures except in instances where such measures are identified in the discussion. If any mitigation, monitoring, or adaptive management measures are required by USACE as part of its approval of the Project, such measures would be required as special conditions of the Department of the Army (DA) Section 10/404 permit and would be listed in the permit, if one is issued. Implementation of specific measures contained in either Plan, but not included in the Section 10/404 permit as special conditions, would not be required by USACE. USACE does not know whether any particular measure that is not a DA permit condition would be implemented. Measures that USACE currently contemplates as conditions of a DA Section 10/404 permit, if one is issued, are provided in Chapter 4, Section 4.27 Mitigation Summary of the EIS.

The LA TIG explains in Section 1.5 of the Final Restoration Plan that it anticipates requiring implementation of the Mitigation and Stewardship Plan, MAM Plan, and Marine Mammal Intervention Plan as components of the proposed Project, if the Project is approved by the LA TIG for funding. Decisions regarding which measures would be required as

part of the LA TIG's funding decision would be set forth in the LA TIG Record of Decision related to the proposed Project.

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**New concern:**

**Part of the purpose of the diversion is to spend money on the problem of the sinking coast and to line the pockets of politicians.**

**New Response:**

The purpose of the proposed Project is discussed in Chapter 1, Section 1.4 Purpose and Need of the EIS. As stated in Chapter 4, Section 4.13 Socioeconomics, total construction expenditures (spending) during construction of the proposed Project were estimated in the Draft EIS to be \$1.309 billion under the Applicant's Preferred Alternative, of which 17 percent would be spent during the design phase, and 83 percent would be spent during the construction phase (2020 dollars) and would take approximately 5 years. These costs are subject to adjustment prior to the start of construction if the Project is permitted and funded. The spending that construction would generate is anticipated to benefit the region and the area. Assuming design and construction occur over a 10-year period, the proposed Project, including indirect and induced impacts, would support employment that would be equivalent to 29 percent of the workforce in Plaquemines Parish. However, although a portion of expenditures and employment would occur in the parish, much of the spending and employment supported by the proposed Project is anticipated to be distributed throughout the Project area. Regardless, the employment and expenditures on the proposed Project would be substantial and represent a major benefit.

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**Concern ID: 61930**

**The proposed MBSD Project is an inequitable use of public funds because its negative impacts fall most directly on marginalized ethnic groups, including African American, Native American, Latin American, Asian American, Canary Islander American (Islenos), and Croatian American and unjustly places the burden on Louisiana's coastal fishers. Risks often fall disproportionately on low-income or minority communities due to ongoing institutional injustices. These low-income and minority communities, including homes, cultures, and livelihoods of Indigenous people and other people of color are often sacrificed for the benefit of the "greater good", particularly for the larger tax bases upstream of the proposed MBSD Project. For example, when the levee breached at Mardi Gras Pass, nothing was done to re-protect the mostly African American oyster farmers and fishers whose oyster farms in Breton Sound were destroyed by the fresh water from Mardi Gras Pass. But a levee breach anywhere else along the Mississippi River would be quickly rebuilt and the impacted people would be indemnified. Also, the most effective flood risk reduction solutions, like home buyouts, are not offered to low-income populations in areas south of New Orleans. Both the Draft EIS and the LA TIG's Draft Restoration Plan would benefit from**

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**additional reflections on the natural and human history of the Project geography that resulted in such fundamental changes to the landscape and set us on the course of the land-loss crisis that Louisiana faces today. The EIS should describe historic, systemic inequities affecting communities with environmental justice concerns in the Project area to provide authentic and more complete context for the discussions.**

**Response ID: 16281**

The Draft EIS (including Section 4.15 Environmental Justice and Appendix H, Socioeconomics Technical Report at Chapter 2) included a discussion of communities with low-income and minority populations, including information about factors that have contributed to historic and systemic inequities in southeast Louisiana. As discussed in the EIS, the Project may have disproportionately high and adverse, long-term impacts on some low-income and minority populations in communities engaged in commercial and subsistence fishing and dependent on adversely impacted fisheries, as well as communities located near the immediate outfall area (within approximately 10 miles north and 20 miles south) and outside of federal levee protection. In addition, negligible to minor, adverse impacts related to increased risk of levee overtopping during certain 1 percent storm events south of the immediate outfall area may occur, which may impact the community of Ironton. Commenters also raised concerns about Mardi Gras Pass; however, the closure of Mardi Gras Pass is outside of the scope of the EIS.

CPRA has expanded and refined the Mitigation and Stewardship Plan, Appendix R1 to the Final EIS, since publication of the Draft EIS and LA TIG's Draft Restoration Plan based on community and resource agency input. The mitigation and stewardship measures now provide additional detail regarding specific efforts targeted at assisting low-income and minority populations in addressing the potential impacts of the Project.

The Mitigation and Stewardship Plan and the Monitoring and Adaptive Management (MAM) Plan provided in the Draft EIS Appendix R were submitted by CPRA and represent a range of potential mitigation, stewardship, monitoring and adaptive management measures (collectively, measures). At the time of publication of the Draft EIS for public review, Appendix R contained draft Plans and CPRA had not identified which of the measures contained in those Plans it intended to implement. The Final EIS Appendix R contains the final Plans and specifies which measures CPRA and the LA TIG intend to implement. Generally, impact determinations discussed in the EIS represent anticipated Project effects without implementation of these measures except in instances where such measures are identified in the discussion. If any mitigation, monitoring, or adaptive management measures are required by USACE as part of its approval of the Project, such measures would be required as special conditions of the



Department of the Army (DA) Section 10/404 permit and would be listed in the permit, if one is issued. Implementation of specific measures contained in either Plan, but not included in the Section 10/404 permit as special conditions, would not be required by USACE. USACE does not know whether any particular measure that is not a DA permit condition would be implemented. Measures that USACE currently contemplates as conditions of a DA Section 10/404 permit, if one is issued, are provided in Chapter 4, Section 4.27 Mitigation Summary of the EIS.

The LA TIG explains in Section 1.5 of the Final Restoration Plan that it anticipates requiring implementation of the Mitigation and Stewardship Plan, MAM Plan, and Marine Mammal Intervention Plan as components of the proposed Project, if the Project is approved by the LA TIG for funding. Decisions regarding which measures would be required as part of the LA TIG's funding decision would be set forth in the LA TIG Record of Decision related to the proposed Project.

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**Concern ID: 61931**

**Commenters noted that the proposed MBSD Project will provide critical storm surge protection to vulnerable communities such as Gretna, Harvey, Marrero, and Estelle. According to the CPRA Master Plan viewer social vulnerability map, which includes non-English speaking and natural resources dependent populations, there are a multitude of areas that are medium to high risk socially. These communities need to be protected where retreat is not always an option, and by building the Mid-Barataria Sediment Diversion, it can work towards those communities' long-term protection.**

**Response ID: 16284**

The commenter's support of the Project is acknowledged. The EIS Chapter 4, Section 4.15 Environmental Justice acknowledges that low-income and minority populations in communities north of the proposed diversion and inside of federal flood protection would experience some beneficial impacts related to additional protection from storm hazards as land building reduces storm surge and wave heights. Chapter 4, Section 4.20 Public Health and Safety provides additional information about storm hazard reduction afforded by creation and maintenance of wetland habitat within the diversion outfall area.

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**Concern ID: 61932**

**Communities with environmental justice concerns, which include all communities who are vulnerable to racial, ethnic, economic, and ecological violence, should be "meaningfully involved" in "the development, implementation, and enforcement of environmental laws, regulations, and policies" during the proposed MBSD Project.**

**Response ID: 16285**

As discussed in Chapter 1, Section 1.6 Scope of the EIS, and Chapter 4, Section 4.15 Environmental Justice, the EIS has been developed in accordance with applicable NEPA, CEQ, and USACE regulations and



guidance to identify the impacts that would likely occur if the proposed Project were to be approved. USACE, the LA TIG, and CPRA have engaged communities with environmental justice concerns in development of the EIS. Examples of public outreach provided by USACE for the EIS include special public notices for the permit application, the scoping process and scoping meetings, and public review of and public meetings regarding the Draft EIS. Material and information related to the Draft EIS were made available through Federal Register notices, press releases, social media, the New Orleans District website, newspapers, mail outs to distribution lists, and provision of hard copies of the Executive Summary and other materials to local libraries and community centers.

USACE and the LA TIG also coordinated with the SELA Voice organizations to understand the needs of the local communities, including communities with environmental justice concerns, regarding the best ways to reach out to these communities prior to the release of the Draft EIS and the LA TIG's Draft Restoration Plan and during the public comment period. Language interpretation and translation in Spanish, Vietnamese, and Khmer were provided at each of the joint virtual public meetings on the Draft EIS and the LA TIG's Draft Restoration Plan. Also, the Public Notice to announce the Draft EIS Notice of Availability, the Executive Summary for the Draft EIS, and the Executive Summary for the LA TIG's Draft Restoration Plan were translated into Spanish and Vietnamese. The consolidated pre-recorded public meeting presentation was also translated into Spanish, Vietnamese, and Khmer and available on the Project webpage.

CPRA has engaged in public outreach meetings with the communities projected to be impacted by the MBSD to solicit input on mitigation and stewardship strategies, including reaching out to local non-profits to assist with and facilitate meetings with the impacted communities. Outreach efforts undertaken to better understand and address potential impacts on communities with environmental justice concerns, including low-income and minority populations, such as cultural impacts, are discussed in Chapter 7 of the Final EIS. Refer to the Mitigation and Stewardship Plan in Appendix R1 for mitigation and stewardship measures that would be implemented as a result of the public involvement and engagement efforts.

The Mitigation and Stewardship Plan and the Monitoring and Adaptive Management (MAM) Plan provided in the Draft EIS Appendix R were submitted by CPRA and represent a range of potential mitigation, stewardship, monitoring and adaptive management measures (collectively, measures). At the time of publication of the Draft EIS for public review, Appendix R contained draft Plans and CPRA had not identified which of the measures contained in those Plans it intended to implement. The Final EIS Appendix R contains the final Plans and

specifies which measures CPRA and the LA TIG intend to implement. Generally, impact determinations discussed in the EIS represent anticipated Project effects without implementation of these measures except in instances where such measures are identified in the discussion. If any mitigation, monitoring, or adaptive management measures are required by USACE as part of its approval of the Project, such measures would be required as special conditions of the Department of the Army (DA) Section 10/404 permit and would be listed in the permit, if one is issued. Implementation of specific measures contained in either Plan, but not included in the Section 10/404 permit as special conditions, would not be required by USACE. USACE does not know whether any particular measure that is not a DA permit condition would be implemented. Measures that USACE currently contemplates as conditions of a DA Section 10/404 permit, if one is issued, are provided in Chapter 4, Section 4.27 Mitigation Summary of the EIS.

The LA TIG explains in Section 1.5 of the Final Restoration Plan that it anticipates requiring implementation of the Mitigation and Stewardship Plan, MAM Plan, and Marine Mammal Intervention Plan as components of the proposed Project, if the Project is approved by the LA TIG for funding. Decisions regarding which measures would be required as part of the LA TIG's funding decision would be set forth in the LA TIG Record of Decision related to the proposed Project.

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**Concern ID: 61933**

**Commenters expressed concern that the MBSD Project is going to cause a lot of problems for the community of Ironton and the neighboring communities. There is an alarming lack of detail and lack of analysis about how the MBSD Project would affect Ironton. Some specific concerns regarding Ironton include whether the MBSD Project would result in impacts on air quality, noise, traffic, emergency services, flood risks, and community cohesion.**

**Response ID: 16286**

The Draft EIS Chapter 4, Sections 4.7 Air Quality, 4.8 Noise; 4.13 Socioeconomics; 4.15 Environmental Justice; and 4.22 Land-Based Transportation identified potential air quality, noise, transportation, and flooding impacts specifically concerning the community of Ironton. In addition, Chapter 2 of Appendix H1 (Socioeconomics Technical Report) provides contextual information about the community. Section 4.15 Environmental Justice, has been revised to highlight information about potential impacts on the community of Ironton in the Final EIS. Also, in the Final EIS, Section 4.15.5.1 Environmental Justice has been added to provide a summary of impacts on the majority-Black community of Ironton, which is the closest community to the diversion, to assist understanding the projected impacts of the proposed Project on that community.

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CPRA has engaged in public outreach meetings with the communities that would be impacted by the MBSD to solicit input on mitigation strategies, including reaching out to local non-profits to assist with and facilitate meetings with the communities projected to be impacted. Outreach efforts to better understand community concerns regarding impacts, including cultural impacts, and mitigation and stewardship measures are discussed in Chapter 7 of the Final EIS. Refer to the Mitigation and Stewardship Plan in Appendix R1 for mitigation and stewardship measures that would be implemented as a result of the public involvement and engagement efforts.

The Mitigation and Stewardship Plan and the Monitoring and Adaptive Management (MAM) Plan provided in the Draft EIS Appendix R were submitted by CPRA and represent a range of potential mitigation, stewardship, monitoring and adaptive management measures (collectively, measures). At the time of publication of the Draft EIS for public review, Appendix R contained draft Plans and CPRA had not identified which of the measures contained in those Plans it intended to implement. The Final EIS Appendix R contains the final Plans and specifies which measures CPRA and the LA TIG intend to implement. Generally, impact determinations discussed in the EIS represent anticipated Project effects without implementation of these measures except in instances where such measures are identified in the discussion. If any mitigation, monitoring, or adaptive management measures are required by USACE as part of its approval of the Project, such measures would be required as special conditions of the Department of the Army (DA) Section 10/404 permit and would be listed in the permit, if one is issued. Implementation of specific measures contained in either Plan, but not included in the Section 10/404 permit as special conditions, would not be required by USACE. USACE does not know whether any particular measure that is not a DA permit condition would be implemented. Measures that USACE currently contemplates as conditions of a DA Section 10/404 permit, if one is issued, are provided in Chapter 4, Section 4.27 Mitigation Summary of the EIS.

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Concern ID: 61936

**Environmental Justice Executive Order 12898 (1994) addresses environmental justice in minority and low-income populations. The order acknowledges the disproportionate adverse impacts that federal actions have historically had on certain communities.**

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**It also commits the federal government to promoting nondiscrimination in future federal actions that may impact environmental quality. As most of the funds that are suggested for this Project would come from the federal funding streams this issue should be addressed. The Draft EIS cites federal policies mandating that issues of environmental justice be given full consideration, in particular the long standing Executive Order (12898) on Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations and comparable Department of Defense directives. Attention must be paid to communities such as the Native Americans in Grand Bayou, Vietnamese fishermen, and low-income resident fishers of Plaquemines, Jefferson, and Lafourche who may be negatively impacted by this Project. In the parishes closest to the Project site, Plaquemines and Jefferson, minority populations respectively constitute 36 and 60 percent of the overall population.**

**Response ID: 16293**

The EIS Chapter 4, Section 4.15 Environmental Justice acknowledges that disproportionately high and adverse impacts on low-income and minority populations could occur in some communities where reductions in abundance of oysters, brown shrimp, and certain fish species are anticipated as a result of the proposed Project. These impacts would depend in part on the extent to which affected populations engage in or are heavily reliant on commercial and subsistence fishing for these species. The EIS Chapter 4, Section 4.15, Environmental Justice recognizes the presence of low-income and minority populations in communities that depend on shrimp and oyster fishing in Barataria Bay, including Grand Isle, Galliano, the Lafitte area, Barataria, Belle Chasse, Live Oak, West Pointe à la Hache, Ironton, Grand Bayou, and Port Sulphur. However, as discussed in the EIS, there are insufficient data to correlate fisheries harvests with specific low-income and minority populations. Consequently, the precise extent to which impacts on shrimp and oyster fisheries would affect specific low-income and minority populations cannot be determined.

CPRA has expanded and refined its Mitigation and Stewardship Plan, Appendix R1 to the Final EIS, since publication of the Draft EIS and LA TIG's Draft Restoration Plan based on community and resource agency input. CPRA's mitigation and stewardship measures now provide additional detail regarding specific efforts targeted at assisting low-income and minority populations in addressing the potential impacts of the Project.

The Mitigation and Stewardship Plan and the Monitoring and Adaptive Management (MAM) Plan provided in the Draft EIS Appendix R were submitted by CPRA and represent a range of potential mitigation, stewardship, monitoring and adaptive management measures

(collectively, measures). At the time of publication of the Draft EIS for public review, Appendix R contained draft Plans and CPRA had not identified which of the measures contained in those Plans it intended to implement. The Final EIS Appendix R contains the final Plans and specifies which measures CPRA and the LA TIG intend to implement. Generally, impact determinations discussed in the EIS represent anticipated Project effects without implementation of these measures except in instances where such measures are identified in the discussion. If any mitigation, monitoring, or adaptive management measures are required by USACE as part of its approval of the Project, such measures would be required as special conditions of the Department of the Army (DA) Section 10/404 permit and would be listed in the permit, if one is issued. Implementation of specific measures contained in either Plan, but not included in the Section 10/404 permit as special conditions, would not be required by USACE. USACE does not know whether any particular measure that is not a DA permit condition would be implemented. Measures that USACE currently contemplates as conditions of a DA Section 10/404 permit, if one is issued, are provided in Chapter 4, Section 4.27 Mitigation Summary of the EIS.

The LA TIG explains in Section 1.5 of the Final Restoration Plan that it anticipates requiring implementation of the Mitigation and Stewardship Plan, MAM Plan, and Marine Mammal Intervention Plan as components of the proposed Project, if the Project is approved by the LA TIG for funding. Decisions regarding which measures would be required as part of the LA TIG's funding decision would be set forth in the LA TIG Record of Decision related to the proposed Project.

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**Concern ID: 61938**

**The EIS identifies and acknowledges that there are low-income and minority communities that might experience disproportionately high and adverse economic impacts as a result of the proposed Project, particularly as such impacts relate to commercial and subsistence fishing.**

**Response ID: 16296**

The EIS Chapter 4, Section 4.15 Environmental Justice acknowledges that disproportionately high and adverse impacts on low-income and minority populations could occur in some communities where reductions in abundance of oysters, brown shrimp, and certain fish species are anticipated as a result of the proposed Project. These impacts would depend in part on the extent to which affected populations engage in or are heavily reliant on commercial and subsistence fishing for these species. The EIS Chapter 4, Section 4.15 Environmental Justice recognizes the presence of low-income and minority populations in communities that depend on shrimp and oyster fishing in Barataria Bay, including Grand Isle, Galliano, the Lafitte area, Barataria, Belle Chasse, Live Oak, West Pointe à la Hache, Ironton, Grand Bayou, and Port Sulphur. However, as discussed in the EIS,

there are insufficient data to correlate fisheries harvests with specific low-income and minority populations. Consequently, the precise extent to which impacts on shrimp and oyster fisheries would affect specific low-income and minority populations cannot be determined.

CPRA has expanded and refined the Mitigation and Stewardship Plan, Appendix R1 to the Final EIS, since issuance of the Draft EIS and LA TIG's Restoration Plan based on community and resource agency input. The mitigation and stewardship measures now provide additional detail regarding specific efforts targeted at assisting low-income and minority populations in addressing the potential impacts of the Project.

The Mitigation and Stewardship Plan and the Monitoring and Adaptive Management (MAM) Plan provided in the Draft EIS Appendix R were submitted by CPRA and represent a range of potential mitigation, stewardship, monitoring and adaptive management measures (collectively, measures). At the time of publication of the Draft EIS for public review, Appendix R contained draft Plans and CPRA had not identified which of the measures contained in those Plans it intended to implement. The Final EIS Appendix R contains the final Plans and specifies which measures CPRA and the LA TIG intend to implement. Generally, impact determinations discussed in the EIS represent anticipated Project effects without implementation of these measures except in instances where such measures are identified in the discussion. If any mitigation, monitoring, or adaptive management measures are required by USACE as part of its approval of the Project, such measures would be required as special conditions of the Department of the Army (DA) Section 10/404 permit and would be listed in the permit, if one is issued. Implementation of specific measures contained in either Plan, but not included in the Section 10/404 permit as special conditions, would not be required by USACE. USACE does not know whether any particular measure that is not a DA permit condition would be implemented. Measures that USACE currently contemplates as conditions of a DA Section 10/404 permit, if one is issued, are provided in Chapter 4, Section 4.27 Mitigation Summary of the EIS.

The LA TIG explains in Section 1.5 of the Final Restoration Plan that it anticipates requiring implementation of the Mitigation and Stewardship Plan, MAM Plan, and Marine Mammal Intervention Plan as components of the proposed Project, if the Project is approved by the LA TIG for funding. Decisions regarding which measures would be required as part of the LA TIG's funding decision would be set forth in the LA TIG Record of Decision related to the proposed Project.

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**Concern ID: 61940**

**Commenters found it unclear whether the Draft EIS discussion of impacted fishermen, including low-income and persons of color, is limited to those living in the Barataria Basin. For example, there**



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**may be Vietnamese fishermen or other fishers who reside outside the Barataria Basin but travel to the Barataria Basin to fish. Clearly these fishermen would be impacted by the Project. The State must clarify the inclusion of fishermen residing within and outside the Project boundary in both its impacts analysis and its discussion of potential mitigation for impacts to fisheries.**

**Response ID: 16299**

Fishermen who travel to Barataria Basin to fish for species that would be adversely affected, particularly shrimp and oysters, could also be adversely affected by the proposed Project. Chapter 4, Section 4.14.4 Operational Impacts in Commercial Fisheries of the Final EIS has been revised to acknowledge this.

The Mitigation and Stewardship Plan (Appendix R1 to the EIS) provides a suite of mitigation and stewardship measures applicable to fishers that may be impacted by the Project. Those measures would be available to any impacted fisher who relies on fisheries in the Barataria Basin, regardless of whether or not they reside in the basin.

The Mitigation and Stewardship Plan and the Monitoring and Adaptive Management (MAM) Plan provided in the Draft EIS Appendix R were submitted by CPRA and represent a range of potential mitigation, stewardship, monitoring and adaptive management measures (collectively, measures). At the time of publication of the Draft EIS for public review, Appendix R contained draft Plans and CPRA had not identified which of the measures contained in those Plans it intended to implement. The Final EIS Appendix R contains the final Plans and specifies which measures CPRA and the LA TIG intend to implement. Generally, impact determinations discussed in the EIS represent anticipated Project effects without implementation of these measures except in instances where such measures are identified in the discussion. If any mitigation, monitoring, or adaptive management measures are required by USACE as part of its approval of the Project, such measures would be required as special conditions of the Department of the Army (DA) Section 10/404 permit and would be listed in the permit, if one is issued. Implementation of specific measures contained in either Plan, but not included in the Section 10/404 permit as special conditions, would not be required by USACE. USACE does not know whether any particular measure that is not a DA permit condition would be implemented. Measures that USACE currently contemplates as conditions of a DA Section 10/404 permit, if one is issued, are provided in Chapter 4, Section 4.27 Mitigation Summary of the EIS.

The LA TIG explains in Section 1.5 of the Final Restoration Plan that it anticipates requiring implementation of the Mitigation and Stewardship Plan, MAM Plan, and Marine Mammal Intervention Plan as components of the proposed Project, if the Project is approved by the LA TIG for

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funding. Decisions regarding which measures would be required as part of the LA TIG's funding decision would be set forth in the LA TIG Record of Decision related to the proposed Project.

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**Concern ID: 64130**

**Commenters suggested the Draft EIS is insufficient in terms of its definition and analysis of affected communities, particularly low-income and communities of color. The analysis would be improved by a discussion of historical context and systemic inequities to describe the existing barriers (that is, economic hardships, educational background, language barriers) these communities, particularly Ironton, must deal with.**

**Response ID: 16301**

The issues raised by the commenters were considered in the Draft EIS. The EIS Chapter 3, Section 3.15 Environmental Justice and Chapter 2 of Appendix H1 Socioeconomics Technical Report discusses existing barriers faced by populations in the Project area affected by the proposed Project, including economic hardships, and describes specific communities with low-income and minority populations. Chapter 2 of Appendix H1 Socioeconomics Technical Report, also provides information regarding historical context and systemic inequities affecting these communities. Chapter 4, Section 4.15 in Environmental Justice describes potential impacts on low-income and minority populations from construction and operation of the proposed Project. In the Final EIS, Chapter 4 Section 4.15.5.1 Environmental Justice, a summary of impacts to the Ironton community has been added to facilitate access to that information. Information concerning additional outreach to communities with environmental justice concerns has also been added.

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**Concern ID: 61934**

**Commenters asked that the EIS provide details about the in-person meetings that CPRA held in the low-income and minority communities potentially impacted by the Project.**

**Response ID: 16287**

CPRA has engaged in public outreach meetings with the communities projected to be impacted by the MBSD to solicit input on mitigation strategies, including reaching out to local non-profits to assist with and facilitate meetings with the impacted communities. Outreach efforts were undertaken to better understand and address potential impacts on communities impacted by the MBSD, including those with environmental justice concerns, such as low-income and minority populations, that may be disproportionately impacted by the Project; these are discussed in Chapter 7 of the Final EIS. CPRA has expanded and refined its Mitigation and Stewardship Plan, Appendix R1 to the Final EIS, since publication of the Draft EIS and the LA TIG Draft Restoration Plan based on community and resource agency input. The updated mitigation and stewardship measures now provide additional detail regarding specific efforts targeted at assisting low-

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income and minority populations in addressing the potential impacts of the Project.

The Mitigation and Stewardship Plan and the Monitoring and Adaptive Management (MAM) Plan provided in the Draft EIS Appendix R were submitted by CPRA and represent a range of potential mitigation, stewardship, monitoring and adaptive management measures (collectively, measures). At the time of publication of the Draft EIS for public review, Appendix R contained draft Plans and CPRA had not identified which of the measures contained in those Plans it intended to implement. The Final EIS Appendix R contains the final Plans and specifies which measures CPRA and the LA TIG intend to implement. Generally, impact determinations discussed in the EIS represent anticipated Project effects without implementation of these measures except in instances where such measures are identified in the discussion. If any mitigation, monitoring, or adaptive management measures are required by USACE as part of its approval of the Project, such measures would be required as special conditions of the Department of the Army (DA) Section 10/404 permit and would be listed in the permit, if one is issued. Implementation of specific measures contained in either Plan, but not included in the Section 10/404 permit as special conditions, would not be required by USACE. USACE does not know whether any particular measure that is not a DA permit condition would be implemented. Measures that USACE currently contemplates as conditions of a DA Section 10/404 permit, if one is issued, are provided in Chapter 4, Section 4.27 Mitigation Summary of the EIS.

The LA TIG explains in Section 1.5 of the Final Restoration Plan that it anticipates requiring implementation of the Mitigation and Stewardship Plan, MAM Plan, and Marine Mammal Intervention Plan as components of the proposed Project, if the Project is approved by the LA TIG for funding. Decisions regarding which measures would be required as part of the LA TIG's funding decision would be set forth in the LA TIG Record of Decision related to the proposed Project.

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**Concern ID: 61935**

**Commenters noted that the MBSD Project would have positive environmental justice outcomes, as the Project goes forward, over time. The proposed MBSD Project is actually part of the larger suite of projects outlined in the Coastal Master Plan. In concert, these projects will provide very significant long-term storm surge and sustainability benefits for communities in Plaquemines and Jefferson parishes, whether within or without structural storm risk reduction systems. Each of these benefits would be particularly helpful over time to those who depend on subsistence fishing and those who live in particularly flood prone areas that, because of**

**Response ID: 16290****historic discriminatory settlement patterns, is made up of disproportionately poor members of minority groups.**

The EIS evaluated anticipated impacts of the action alternatives and a No Action Alternative over a 50-year analysis period. The Delft3D model production runs also projected conditions over a 50-year period. Anticipated impacts beyond that timeframe were not evaluated in the EIS.

As discussed in Chapter 4, Section 4.15 Environmental Justice, the EIS acknowledges that low-income and minority populations in areas north of the diversion and inside of federal risk reduction levees would experience some beneficial impacts related to additional protection from storm hazards due to reduced storm surge and wave heights as a result of the Project's land building. Low-income and minority populations within 10 miles to the north and 20 miles to the south of the diversion outside federal risk reduction levees would experience increased tidal flooding relative to the No Action Alternative, particularly in the first 2 decades of operations. Low-income and minority populations south of the diversion and outside federal risk reduction levees would experience increased risk of storm surge. In addition, negligible to minor, adverse impacts related to increased risk of levee overtopping during certain 1 percent storm events south of the immediate outfall area may occur, which may impact the community of Ironton.

Low-income and minority populations that depend on subsistence fishing activities may experience both beneficial and adverse impacts depending on the specific resources and areas where subsistence activities are practiced, as discussed in Chapter 4, Section 4.15.4.2. With regards to other restoration and flood risk reduction projects, Chapter 4, Section 4.25 Cumulative Impacts discusses other restoration and flood risk reduction projects in concert with the proposed Project. The operations of those reasonably foreseeable projects combined with the MBSD Project have the potential to result in minor to moderate, adverse and minor, long-term or permanent, beneficial impacts on low-income and minority communities in the Barataria Basin.

**Concern ID: 61939**

**The EIS meets the minimum requirements of Executive Order No. 12898, Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations by identifying disproportionately high and adverse human health or environmental impacts of the proposed Mid-Barataria Sediment Diversion on minority, low-income, and Tribal populations in the relevant Project area.**

**Response ID: 16308**

Acknowledged.

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**Concern ID: 64152**

**The conclusion that the proposed Project would adversely affect subsistence fisheries fails to acknowledge that there are subsistence fisheries based on freshwater fish and shellfish, which would benefit from the proposed MBSD Project. Therefore, these conclusions are erroneous, or exaggerated.**

**Response ID: 16303**

The impacts raised by the commenters were considered in the Draft EIS in Chapter 4, Section 4.15 Environmental Justice. For clarity, Section 4.15.4.2.5 Subsistence Fishing and Hunting in the Final EIS has been revised to acknowledge that subsistence fisheries based on certain freshwater fish and shellfish may benefit from the proposed Project.

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## EC61500 – Recreation/Tourism

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**Concern ID: 61905**

**Commenters expressed that residents' way of life including living off of and recreating in the water would be impacted by an influx of fresh water due to the MBSD Project.**

**Response ID: 16235**

The issues raised by the commenters were considered in the Draft EIS. As described in the Existing Conditions in Chapter 3, Section 3.16 Recreation and Tourism, as well as Appendix H1 Socioeconomics Technical Report, the Draft EIS acknowledges the importance of recreational use in the region, describing many types of outdoor recreational activities, including fishing, hunting, boating, wildlife viewing, and general shoreline use, among others. The EIS further acknowledges that extensive estuarine and freshwater wetlands provide habitat for many kinds of fish, birds, reptiles, and mammals that are an integral component of recreation in the region. The evaluation of environmental changes in the basin under the No Action Alternative shows that the abundance of target recreational species, including spotted seatrout and red drum, would decline over time. Access to recreational boating sites would also increase from negligible impacts in the early decades to major, adverse impacts in the later decades, leading to decreases in recreational use in the southern portions of the basin even without the Project. Chapter 4, Sections 4.16.4.2 and 4.16.5.2 in Recreation and Tourism describe how changes in the amount of fresh water due to the MBSD Project would impact recreation and tourism. As noted, there would be adverse impacts on-site accessibility, recreational boating, and boat-based recreational fishing due to tidal flooding, sedimentation, and invasive plants. There would be adverse impacts on recreational fishing for spotted seatrout and beneficial impacts on recreational fishing for red drum.

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CPRA has developed a suite of mitigation and stewardship measures to help address and offset Project impacts (see the Draft Mitigation and Stewardship Plan in Appendix R1 to the Draft EIS). In response to comments, CPRA has expanded and refined this Mitigation and Stewardship Plan in the Final EIS (Appendix R1). The Final Mitigation and Stewardship Plan includes the following measures aimed at supporting and sustaining the fishing industry:

- Providing financial and technical assistance for alternate business ventures and job training for alternate jobs (Workforce/Business training -- \$2 million allocation)
- Funding for shrimp vessel improvements, including, potentially, larger boats, and improving docks (shrimp Vessel/Facility improvements -- \$15 million allocation)
- Establishing new oyster seed grounds (\$4 million allocation)
- Enhancing public and private oyster grounds (\$15 million allocation)
- Enhancing oyster broodstock reefs (\$4 million allocation)
- R&D for collaboration with fishers to innovate and change the way their operations work (Alternative Oyster Culture techniques -- \$8 million allocation)
- Marketing and outreach support (\$5 million allocation including oysters, brown shrimp, finfish, and crab).

The Mitigation and Stewardship Plan and the Monitoring and Adaptive Management (MAM) Plan provided in the Draft EIS Appendix R were submitted by CPRA and represent a range of potential mitigation, stewardship, monitoring and adaptive management measures (collectively, measures). At the time of publication of the Draft EIS for public review, Appendix R contained draft Plans and CPRA had not identified which of the measures contained in those Plans it intended to implement. The Final EIS Appendix R contains the final Plans and specifies which measures CPRA and the LA TIG intend to implement. Generally, impact determinations discussed in the EIS represent anticipated Project effects without implementation of these measures except in instances where such measures are identified in the discussion. If any mitigation, monitoring, or adaptive management measures are required by USACE as part of its approval of the Project, such measures would be required as special conditions of the Department of the Army (DA) Section 10/404 permit and would be listed in the permit, if one is issued. Implementation of specific measures contained in either Plan, but not included in the Section 10/404 permit as special conditions, would not be required by USACE. USACE does not know whether any particular measure that is not a DA

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**Concern ID: 61906****The MBSD Project would cause loss and detrimental impacts on the recreational and sport fishing industry in the Barataria Basin.****Response ID: 16236**

The issues raised by the commenters were considered in the Draft EIS. EIS Chapter 4, Section 4.16.5.2 in Recreation and Tourism acknowledges that the proposed Project would impact recreational and sport fishing in the Barataria Basin. Relative to the No Action Alternative, the proposed Project would cause minor, permanent, adverse impacts on recreational fishing for spotted seatrout and moderate, permanent, beneficial impacts on recreational fishing for red drum, which are the most targeted species by recreational anglers in the basin (targeted in 87 percent of angler trips between 2014 and 2018). Other species that are targeted include southern flounder, largemouth bass, sheepshead, black drum, sand seatrout, gafftopsail catfish, and blue crab. Both adverse and beneficial impacts on these species are anticipated over time relative to the No Action Alternative, but are anticipated to have negligible effects on angling effort in the basin, as these species are targeted in less than 2 percent of angling trips.

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**Concern ID: 61907****Commenters suggested that recreational activities would need to be limited to protect the area as it is recovering. In addition, water activities can cause changes to the outflow of sediments.****Response ID: 16237**

The issues raised by the commenters were considered in the Draft EIS. EIS Chapter 4, Section 4.16.5.2 in Recreation and Tourism describes how the proposed Project would impact recreational and sport fishing in the Barataria Basin, including the potential for the Project to affect site accessibility due to sedimentation in some navigation channels. Permanent, moderate, adverse impacts on boat-based recreation may occur where sedimentation from proposed Project operations accumulates to the extent that water depths decrease and restrict access to deeper draft vessels.

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**Concern ID: 61908****Commenters suggested that there will be detrimental impacts on the tourism economy and on restaurants, which are partly**



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**dependent on fisheries in the Barataria Basin. Commenters express concerns about adverse effects on Louisiana's attractiveness as a fishing area and place for swamp tours and authentic seafood.**

**Response ID: 16238**

EIS Chapter 4, Section 4.16.5.2 in Recreation and Tourism describes how the MBSD Project would impact the tourism economy that is dependent on fisheries. Relative to the No Action Alternative, the proposed Project would cause minor, permanent, adverse impacts on recreational fishing for spotted seatrout and moderate, permanent, beneficial impacts on recreational fishing for red drum, which are the most targeted species by recreational anglers in the basin (targeted in 87 percent of angler trips between 2014 and 2018). Other species that are targeted include southern flounder, largemouth bass, sheepshead, black drum, sand seatrout, gafftopsail catfish, and blue crab. Both adverse and beneficial impacts on these species are anticipated over time relative to the No Action Alternative, but are anticipated to have negligible effects on angling effort in the basin, as these species are targeted in less than 2 percent of angling trips. As described in the EIS, these changes would not substantially impact the broad tourism economy, which includes more than fisheries.

While availability of shrimp and oysters from the basin would decrease with the Project, shrimp and oysters from Louisiana would continue to be available to restaurants, potentially at higher prices. Restaurants willing to pay a premium for local seafood would likely do so, and additional importing would likely also occur. Under both the Applicant's Preferred Alternative and the No Action Alternative, consumers in Louisiana would experience higher prices for locally caught seafood, or would consume additional imported shrimp over time. However, impacts would occur decades sooner under the Applicant's Preferred Alternative than under the No Action Alternative.

This discussion has been added to Section 4.14 Commercial Fisheries in the Final EIS.

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**Concern ID: 61909**

**The MBSD diversion structure and any newly built land should be open to the public for access and enjoyment.**

**Response ID: 16239**

According to CPRA, due to concerns about safety of the public and security for the Project facilities, there is not a plan to make the diversion structure or immediate outfall area accessible for public use. CPRA is, however, planning to provide signage and other public space near the Project to educate the public regarding the purpose and functioning of the Project. CPRA also states that ownership of any lands created by operation of the Project will be determined in accord with current state law, including mineral rights pursuant to La. R.S. 31:149 and La. R.S. 49:214.5.5(E) and that pursuant to La. R.S.



49:214.5.5(B), the Project will not create any rights to the public in or on private property.

Chapter 4, Section 4.16.5.2 in the EIS describes how an increase in wetland habitat from the MBSD relative to the No Action Alternative may result in increased opportunities for bird nesting and bird watching in some areas of the Barataria Basin. However, the MBSD Project would accelerate wetland loss in other areas such as the birdfoot delta.

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**Concern ID: 61910****The MBSD Project would help wildlife, fisherman, recreationalists, and hunters who depend on a healthy coast in the long term.****Response ID: 16240**

EIS Chapter 4, Sections 4.16.4.2 and 4.16.5.2 in Recreation and Tourism describe anticipated effects of the MBSD Project on wildlife viewing, recreational fishing, hunting, and other recreational activities that utilize the Project area. As compared to the No Action Alternative, long term minor to moderate adverse impacts on-site accessibility, recreational boating, and boat-based recreational fishing due to increased tidal flooding at access points at Lafitte, Myrtle Grove, and Grand Bayou, as well as introduction and spread of invasive species, are anticipated. The proposed Project would also cause minor, permanent, adverse impacts on recreational fishing for spotted seatrout and moderate, permanent, beneficial impacts on recreational fishing for red drum throughout the basin. Beneficial impacts on hunting and wildlife watching due to an increase in wetland habitat in some areas of the Barataria Basin are also anticipated.

CPRA has developed a suite of mitigation and stewardship measures to help address and offset Project impacts, including those related to recreation (see the Draft Mitigation and Stewardship Plan in Appendix R1 to the Draft EIS). In response to comments, CPRA has expanded and refined this Mitigation and Stewardship Plan in the Final EIS (Appendix R1).

The Mitigation and Stewardship Plan and the Monitoring and Adaptive Management (MAM) Plan provided in the Draft EIS Appendix R were submitted by CPRA and represent a range of potential mitigation, stewardship, monitoring and adaptive management measures (collectively, measures). At the time of publication of the Draft EIS for public review, Appendix R contained draft Plans and CPRA had not identified which of the measures contained in those Plans it intended to implement. The Final EIS Appendix R contains the final Plans and specifies which measures CPRA and the LA TIG intend to implement. Generally, impact determinations discussed in the EIS represent anticipated Project effects without implementation of these measures except in instances where such measures are identified in the discussion. If any mitigation, monitoring, or adaptive management measures are required by USACE as part of its approval of the Project, such measures would be required as special conditions of the

Department of the Army (DA) Section 10/404 permit and would be listed in the permit, if one is issued. Implementation of specific measures contained in either Plan, but not included in the Section 10/404 permit as special conditions, would not be required by USACE. USACE does not know whether any particular measure that is not a DA permit condition would be implemented. Measures that USACE currently contemplates as conditions of a DA Section 10/404 permit, if one is issued, are provided in Chapter 4, Section 4.27 Mitigation Summary of the EIS.

The LA TIG explains in Section 1.5 of the Final Restoration Plan that it anticipates requiring implementation of the Mitigation and Stewardship Plan, MAM Plan, and Marine Mammal Intervention Plan as components of the proposed Project, if the Project is approved by the LA TIG for funding. Decisions regarding which measures would be required as part of the LA TIG's funding decision would be set forth in the LA TIG Record of Decision related to the proposed Project.

## EC61600 – Public Lands

<b>Concern ID: 62269</b>	<b>The commenter stated that the Public Lands section of the Draft EIS Executive Summary did not provide details on how public lands in the proposed Project area would be impacted by the proposed Project.</b>
<b>Response ID: 16441</b>	Chapter 4, Section 4.17 Public Lands in the EIS provides a detailed discussion of potential impacts on public lands in the Project area.
<b>Concern ID: 62267</b>	<b>The commenter expressed concern that the proposed MBSD Project's adverse impacts on wetland loss in the birdfoot delta would cause a loss of public lands in the Delta National Wildlife Refuge (NWR) and in the Pass A Loutre Wildlife Management Area (WMA). The commenter recommended that these adverse impacts on public lands be mitigated by creating state and federal public lands in the Project outfall area.</b>
<b>Response ID: 16439</b>	The commenter's concern that the proposed Project would cause a loss of wetlands in the Delta NWR and in the Pass A Loutre WMA, both of which are located in the birdfoot delta, was addressed in the Draft EIS in Chapter 4, Section 4.17.4 Operational Impacts in Public Lands. As part of its responsibilities under the Fish and Wildlife Coordination Act and as operator of the Delta NWR, the USFWS recommended the creation of crevasses to build land in the birdfoot delta to offset MBSD Project-induced wetland losses of 926 acres in the Delta NWR and 37 acres in the Pass A Loutre WMA (see Appendix T, USFWS Coordination Act Report (CAR), of the Final EIS). In response to

USFWS' CAR Recommendation, CPRA agreed that, "Within 5 years of the commencement of Project operations, CPRA or the LA TIG will provide \$10,000,000 of additional funding for wetland preservation and restoration work in the Delta NWR and the [Pass A Loutre] PAL WMA to offset modeled acres of indirect wetland losses in those areas. That funding may be accomplished through additional funding through the CWPPRA program, through additional restoration work sponsored by the LA TIG (for example, construction of the Engineering and Design work discussed in the DWH LA TIG's Restoration Plan and Environmental Assessment #7), or through a direct contribution for additional work. The funding will be proportioned between the Delta NWR and the PAL WMA based on the magnitude of the predicted wetland loss in each area" (Final EIS, Appendix R1 Mitigation and Stewardship Plan, Section 4.6 Fish and Wildlife Coordination Act).

This information was updated in the Final EIS, Chapter 4, Section 4.27.1 in Mitigation Summary and in the Final EIS, Section 4.17.4.2.2 Birdfoot Delta in Public Lands.

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**Concern ID: 62268**

**The Barataria Basin is home to the Delta National Wildlife Refuge and the Pass A Loutre Wildlife Management Area. The proposed MBSD Project is expected to result in the loss of 2,000 to 3,000 acres of wetlands by 2070 in these areas. The EIS should discuss the expected land loss in these wildlife areas and the effects on the wildlife that rely upon this natural habitat.**

**Response ID: 16440**

The projected loss of wetlands in the Delta NWR and the Pass A Loutre WMA is discussed in Chapter 4, Section 4.17.4 Operational Impacts in Public Lands. Information about the effects of this loss on wildlife that rely on the wetland habitat in these public lands has been added to Section 4.17.4.2 in Public Lands in response to this comment. As part of its responsibilities under the Fish and Wildlife Coordination Act and as operator of the Delta NWR, the USFWS recommended the creation of crevasses to build land in the birdfoot delta to offset MBSD Project-induced wetland losses of 926 acres in the Delta NWR and 37 acres in the Pass A Loutre WMA (see Appendix T USFWS Coordination Act Report (CAR) of the Final EIS). In response to USFWS' CAR Recommendation, CPRA agreed that "Within 5 years of the commencement of Project operations, CPRA or the LA TIG will provide \$10,000,000 of additional funding for wetland preservation and restoration work in the Delta NWR and the [Pass A Loutre] PAL WMA to offset modeled acres of indirect wetland losses in those areas. That funding may be accomplished through additional funding through the CWPPRA program, through additional restoration work sponsored by the LA TIG (for example, construction of the Engineering and Design work discussed in the DWH LA TIG's Restoration Plan and Environmental Assessment #7), or through a direct contribution for additional work. The funding will be proportioned between the Delta

NWR and the PAL WMA based on the magnitude of the predicted wetland loss in each area” (Final EIS, Appendix R1 Mitigation and Stewardship Plan, Section 4.6 Fish and Wildlife Coordination Act).

This information was updated in the Final EIS, Chapter 4, Section 4.27.1 in Mitigation Summary and in the Final EIS, Section 4.17.4.2.2 Birdfoot Delta in Public Lands.

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**Concern ID: 62271**

**The proposed Project would have permanent and detrimental impacts on Plaquemines Parish as a whole because it would starve the birdfoot delta, including the Delta NWR and Pass A Loutre WMA, of needed sediment.**

**Response ID: 16442**

The commenter’s concern that the proposed Project would cause a loss of wetlands in the Delta NWR and in the Pass A Loutre WMA, both of which are located in the birdfoot delta, was addressed in the Draft EIS in Chapter 4, Section 4.17.4 Operational Impacts in Public Lands. As part of its responsibilities under the Fish and Wildlife Coordination Act and as operator of the Delta NWR, the USFWS recommended the creation of crevasses to build land in the birdfoot delta to offset MBSD Project-induced wetland losses of 926 acres in the Delta NWR and 37 acres in the Pass A Loutre WMA (see Appendix T USFWS Coordination Act Report (CAR) of the Final EIS). In response to USFWS’ CAR Recommendation, CPRA agreed that “Within 5 years of the commencement of Project operations, CPRA or the LA TIG will provide \$10,000,000 of additional funding for wetland preservation and restoration work in the Delta NWR and the [Pass A Loutre] PAL WMA to offset modeled acres of indirect wetland losses in those areas. That funding may be accomplished through additional funding through the CWPPRA program, through additional restoration work sponsored by the LA TIG (for example, construction of the Engineering and Design work discussed in the DWH LA TIG’s Restoration Plan and Environmental Assessment #7), or through a direct contribution for additional work. The funding will be proportioned between the Delta NWR and the PAL WMA based on the magnitude of the predicted wetland loss in each area” (Final EIS, Appendix R1 Mitigation and Stewardship Plan, Section 4.6 Fish and Wildlife Coordination Act).

This information was updated in the Final EIS, Chapter 4, Section 4.27.1 in Mitigation Summary and in the Final EIS, Section 4.17.4.2.2 Birdfoot Delta in Public Lands.

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EC61700 - Land Use/Cover

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<b>Concern ID: 63129</b>	<b>The proposed Project would have no land gain in the first 20 years.</b>
<b>Response ID: 16277</b>	Land gains and losses are discussed in Chapter 4, Section 4.2.3 in Geology and Soils of the EIS. As reported in this section, the proposed Project would introduce significant volumes of sediment into the Barataria Basin, most of which is expected to be retained. Further, as discussed, the Delft3D Basinwide Model suggests that an expected net addition of 53 mcy of sediment would be retained in the proposed Project area (Barataria Basin and birdfoot delta) by 2030 and 310 mcy by 2070, which would result in the net creation of 4,980 acres (7.8 square miles) of land by 2030, and 17,300 acres (27.0 square miles) by 2050. The Executive Summary and Section 4.2.3.2.2.1 Geology of the Final EIS have been revised to clarify ongoing and future projected land loss and the amount of land that would be created, sustained, or lost due to proposed Project operations.
<b>Concern ID: 63130</b>	<b>Commenters noted that the Draft EIS classified Midway’s property as a mix of “barren” and “pasture/hay” (see Figure 4.18-1). They believe that this classification is incorrect as Midway is currently operating a borrow site on approximately 250 acres of the property. For the remaining acreage, Midway has an application pending with the Louisiana Department of Natural Resources, Office of Coastal Management for a coastal use permit to operate this acreage as a borrow site. However, elsewhere in the Draft EIS (see Chapter 4, Section 4.2.4.1 in Geology and Soils), the Midway borrow site is referenced by name. Thus, Midway’s property should be classified and assessed as “developed” in Section 4.18 Land Use and Land Cover.</b>
<b>Response ID: 16279</b>	As discussed in Chapter 3, Section 3.18.2 in Land Use and Land Cover and referenced in Chapter 4, Section 4.18 Land Use and Land Cover, Figure 4.18-1 of the EIS, the existing land use types within the construction footprint are based on the 2016 National Land Cover Dataset (NLCD) (Multi-Resolution Land Characteristics Consortium 2016). The construction footprint shown in Figure 4.18-1 includes the proposed site of the diversion structure. None of the permitted or developed borrow pits owned by Midway Cattle are located in the construction footprint of the diversion structure and therefore they are not included in the land use acreages shown in Table 4.18-1 or land use types shown in Figure 4.18-1. Note, the NLCD is based on land cover including water, vegetation, or tree canopy; therefore, it may not reflect current use of land. The Myrtle Grove USACE-approved borrow site referred to in Section 3.2.3.1 Non-Fuel Mineral Resources and in Section 4.2.3.4 in Mineral Resources of the Draft EIS is located near the proposed construction footprint. For clarity, its name has been revised to the Midway Cattle Ranch borrow pit in the Final EIS.

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**Concern ID: 63128****The impacts on land use and land cover should be discussed with reference to the delta cycle.****Response ID: 16275**

The commenter's request regarding the evaluation of impacts on land use and land cover is acknowledged. To help address these concerns, additional discussions of the delta cycle, and the role that the diversion may play in this cycle, has been added to the Final EIS in Chapter 3, Sections 3.1.4.2 Barataria Basin and 3.2.1.1 Historic Context, and Chapter 4, Section 4.2.3.2.2.3 Geomorphology. However, it is important to note that, as identified in Chapter 2, Section 2.9 Summary of Environmental Consequences Under Each Alternative and discussed throughout Chapter 4 Environmental Consequences of the EIS, the No Action Alternative is compared to existing conditions to understand the anticipated changes in the environment that would occur irrespective of the proposed Project. Thereafter, the anticipated environmental consequences of the proposed Project action alternatives are compared to the results of the No Action Alternative analysis. Section ES.1 Introduction and Authority of the Executive Summary has been revised in the Final EIS to include this clarification.

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## EC61800 - Aesthetic and Visual Resources

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**Concern ID: 63125****The commenter's home is on a bayou off of the Bay of St. Louis on the beautiful Mississippi Gulf Coast. According to the commenter, in 2019 when the Bonnet Carré Spillway was opened, it caused swarms of flies, algae, and disgusting odors in the beautiful community that took months to return to normal. The flies that swarmed homes, cars, and boats permanently stained anything they sat on.****Response ID: 16283**

The proposed Project is not anticipated to have discernable effects on aquatic life outside of the Project area, which is limited to Louisiana, and particularly the Barataria Basin and the Mississippi River birdfoot delta, as defined in Chapter 3, Section 3.1.1 in Introduction of the EIS; therefore, negligible to no impacts on the Mississippi Sound are anticipated from the construction and operation of the proposed MBSD Project. It is important to note that the Bonnet Carré Spillway is an emergency flood control structure that is not operated for ecological purposes. However, a summary of select natural and man-made diversions in southeastern Louisiana, including the Bonnet Carré Spillway, has been developed to compare the purpose and/or characteristics of these diversions to the proposed MBSD Project, and their recorded impacts on the natural environment. This summary is available in Appendix U Summary of Select Natural and Man-made

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Diversions in Southeastern Louisiana of the Final EIS and discusses conditions that might have led to stagnant waters and/or odors after the Bonnet Carré Spillway openings.

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## EC61900 – Public Health & Safety/Storm Hazard Risk Reduction

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**Concern ID: 62220**

**The Project would inundate access roads and properties, some of which are newly built infrastructure projects.**

**Response ID: 15755**

Draft EIS Chapter 4, Section 4.13.5.1 (Socioeconomics, Economy, Employment, Business, and Industrial Activity, Flooding and Storm Hazards) and 4.20.4.2 Public Health and Safety, Operational Impacts, Floodplains and Tidal Flooding discussed the increased flooding impacts outside of federal levee systems, including road inundation and infrastructure damage, potentially caused by the operation of the diversion. CPRA has developed a comprehensive inventory of potentially affected properties and CPRA's land services planning is progressing to enable CPRA to mitigate for increased water levels caused by the proposed Project. CPRA's mitigation and stewardship measures would take the form of: (1) monitoring and adaptive management of operations, (2) structural mitigation (for example, elevating public roadways, utility upgrades, water control structures, or other structural measures to partially offset additional inundation), (3) paying landowners for a Project servitude, and/or (4) providing landowners with funds to elevate their homes and other structures on private properties. These mitigation and stewardship measures are described in the Final Mitigation and Stewardship Plan, Appendix R1 to the Final EIS.

Structural measures in the Mitigation and Stewardship Plan are not included in CPRA's MBSD DA permit application, and if a permit is approved, would not be authorized under the DA permit. Many of these structural measures would require DA and/or other permits prior to installation. Such permits are not guaranteed and would take time for USACE and other regulating agencies to process.

A DA permit does not convey any property rights and does not authorize any injury to property or invasion of rights or any infringement of Federal, state or local laws or regulations. The applicant's signature on an application is an affirmation that the applicant possesses or will possess the requisite property interest to undertake the activity proposed in the application.

The Mitigation and Stewardship Plan and the Monitoring and Adaptive Management (MAM) Plan provided in the Draft EIS Appendix R were submitted by CPRA and represent a range of potential mitigation,

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stewardship, monitoring and adaptive management measures (collectively, measures). At the time of publication of the Draft EIS for public review, Appendix R contained draft Plans and CPRA had not identified which of the measures contained in those Plans it intended to implement. CPRA expanded and refined the Final Mitigation and Stewardship Plan in response to community and resource agency input. The Final EIS Appendix R contains the final Plans and specifies which measures CPRA and the LA TIG intend to implement. Generally, impact determinations discussed in the EIS represent anticipated Project effects without implementation of these measures except in instances where such measures are identified in the discussion. If any mitigation, monitoring, or adaptive management measures are required by USACE as part of its approval of the proposed Project, such measures would be required as special conditions of the Department of the Army (DA) Section 10/404 permit and would be listed in the permit, if one is issued. Implementation of specific measures contained in either Plan, but not included in the Section 10/404 permit as special conditions, would not be required by USACE. The USACE does not know whether any particular measure that is not a DA permit condition would be implemented. Measures that USACE currently contemplates as conditions of a DA Section 10/404 permit, if one is issued, are provided in Chapter 4, Section 4.27 Mitigation Summary of the EIS.

The LA TIG explains in Section 1.5 of the Final Restoration Plan that it anticipates requiring implementation of the Mitigation and Stewardship Plan, MAM Plan, and Marine Mammal Intervention Plan as components of the proposed Project, if the Project is approved by the LA TIG for funding. Decisions regarding which measures would be required as part of the LA TIG's funding decision would be set forth in the LA TIG Record of Decision related to the proposed Project.

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**Concern ID: 62221**

**The Project would not provide substantial protection from hurricanes or storm surge, nor would storm surge protection be provided in a timely manner. The area most likely to experience some increase in protection would be subject to increased water levels from diversion operations. The current diversion Project needs to be reengineered to create meaningful storm surge protection. The Project is a misuse of funds based on what the diversion would do versus what it purports to do, in part due to the Mississippi River not having enough sediment to build substantial land.**

**Response ID: 15756**

While the proposed Project would impact storm surge, the purpose and need of the Project is not storm surge protection. As described in the Draft EIS in Chapter 1, Section 1.4 Purpose and Need, the purpose of the Project is to restore injuries caused by the DWH oil spill and help restore habitat and ecosystem services injured by the spill by reestablishing deltaic processes. However, as described in the Draft

EIS in Chapter 4, Section 4.20.4 Public Health and Safety, the Project would have the ancillary benefit of storm damage risk reduction on communities north of the diversion due to the creation and maintenance of wetland habitat within the delta formation area; the increase in topography and land acreage would induce greater hydraulic friction and resistance, reducing the inland extent of storm surge and limiting wave heights in some communities north of the diversion, as compared to the No Action Alternative. The EIS acknowledges that storm surge and wave height reduction benefits for some communities north of the diversion would not be instantaneous, but that these benefits would increase over time as more land is created and maintained within the delta formation area. The EIS also acknowledges that some of the same communities that would experience storm surge reduction benefits, such as Lafitte, would experience an increase in non-storm inundation frequency due to increased water levels from diversion operations. At the same time, operation of the Project would have permanent, minor to moderate, adverse impacts on storm hazards in communities south of the diversion, with anticipated increases in storm surge of up to 1.7 feet near Myrtle Grove (as compared to the No Action Alternative). Section 4.20.4.2.2.2 in Public Health and Safety of the Final EIS has been revised to include additional information and figures further explaining the impacts of the Project on storm surge and wave height.

The EIS recognizes the role of sediment load in land building. The river still carries a massive sediment load, but not as massive as it historically carried. As explained in Chapter 3, Section 3.4.2.5 in Surface Water and Coastal Processes, the river formerly carried over 400 million tons of sediment annually, but a more than 50 percent reduction in annual sediment load has occurred since the early 1900s. Studies show that from 1968 through 2007 the overall annual sediment reduction has been more gradual, with the rate estimated as a loss of 1.1 million metric tons per year. The possible causes of the diminished sediment load include trapping by dams, hardening of banklines, improved farming practices, and other processes as described in Section 3.4.2.5 Sediment Transport. The Delft3D Basinwide Model used Mississippi River sediment loads when computing the sediment load that would be delivered to the Barataria Basin. This is described in detail in the EIS, Appendix E Delft3D Modeling, Section 5.2.2.

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**Concern ID: 62223**

**The alteration of Mississippi River flows and/or MRL could cause erosion or collapse of the MRL and result in catastrophic flooding.**

**Response ID: 15749**

Section 14 of the Rivers and Harbors Act of 1899 (33 USC 408), referred to as Section 408, authorizes the Secretary of the Army, through the Chief of Engineers, to grant permission for the alteration, occupation, or use of a USACE Civil Works project if the Secretary determines that the activity will not be injurious to the public interest

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and will not impair the usefulness of the project. Because the proposed Project has the potential to directly and/or indirectly impact the Mississippi River Levee, New Orleans to Venice Levee, and the Mississippi River Navigation Channel, which are USACE Civil Works projects, CPRA has requested Section 408 permission to construct and operate the Project. The USACE 408 Review process includes a review of the technical adequacy of the Project design, including all appropriate technical analyses, including geotechnical, structural, hydraulic and hydrologic, construction, safety and operations and maintenance requirements. A Section 408 permission would not be granted unless the proposed modifications to the civil works projects would not limit the ability of the USACE Project to function as authorized and would not compromise or change any authorized Project conditions or purposes. The USACE Section 408 review is ongoing and the findings of this review will be disclosed in the Record of Decision.

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**Concern ID: 62224**

**Communities like Happy Jack, Lake Hermitage and Myrtle Grove, some of which have homes that are not above the new base flood elevation, already experience some degree of flooding which would be made worse by the diversion. This would affect the ability of residents to access and enjoy their homes and communities.**

**Response ID: 15757**

Draft EIS Chapter 4, Section 4.13.5 in Socioeconomics and 4.20.4 in Public Health and Safety discuss the anticipated increased flooding impacts outside of federal levee systems to be caused by the operation of the diversion. Final EIS Appendix R1 Mitigation and Stewardship Plan describes mitigation and stewardship measures planned by CPRA for areas exposed to Project-related inundation. CPRA has developed a comprehensive inventory of potentially affected properties and CPRA's land services planning is progressing to enable CPRA to mitigate for increased water levels caused by the proposed Project. CPRA's mitigation and stewardship measures would take the form of: (1) monitoring and adaptive management of operations, (2) structural mitigation (for example, elevating public roadways, utility upgrades, water control structures, or other structural measures to partially offset additional inundation), (3) paying landowners for a Project servitude, and/or (4) providing landowners with funds to elevate their homes and other structures on private properties. In the communities south of the diversion starting at Woodpark and continuing south to Grand Bayou and Happy Jack, CPRA would acquire Project servitudes, which would allow CPRA to flow water over the landowner's property at heights and duration that are greater than would be the case in the future without the Project. CPRA would compensate those landowners for the value of the Project servitude, which would be recorded against title to the property and would run with the land. CPRA would attempt to negotiate

with the affected landowner to acquire the Project servitude. If CPRA and the landowner were unable to reach a negotiated agreement, CPRA would exercise its eminent domain authority to purchase the Project servitude. Property owners would be able to use the funds from the Project servitude to implement additional flood mitigation and stewardship measures. These mitigation and stewardship measures are described in the Final Mitigation and Stewardship Plan, Appendix R1 to the Final EIS.

Structural measures in the Mitigation and Stewardship Plan are not included in CPRA's MBSD DA permit application, and if a permit is approved, would not be authorized under the DA permit. Many of these structural measures would require DA and other permits prior to installation; such permits are not guaranteed and would take time for USACE and other agencies to process.

A DA permit does not convey any property rights and does not authorize any injury to property or invasion of rights or any infringement of Federal, state or local laws or regulations. The applicant's signature on an application is an affirmation that the applicant possesses or will possess the requisite property interest to undertake the activity proposed in the application.

The Mitigation and Stewardship Plan and the Monitoring and Adaptive Management (MAM) Plan provided in the Draft EIS Appendix R were submitted by CPRA and represent a range of potential mitigation, stewardship, monitoring and adaptive management measures (collectively, measures). At the time of publication of the Draft EIS for public review, Appendix R contained draft Plans and CPRA had not identified which of the measures contained in those Plans it intended to implement. CPRA expanded and refined the Final Mitigation and Stewardship Plan in response to community and resource agency input. The Final EIS Appendix R contains the final Plans and specifies which measures CPRA and the LA TIG intend to implement. Generally, impact determinations discussed in the EIS represent anticipated Project effects without implementation of these measures except in instances where such measures are identified in the discussion. If any mitigation, monitoring, or adaptive management measures are required by USACE as part of its approval of the Project, such measures would be required as special conditions of the Department of the Army (DA) Section 10/404 permit and would be listed in the permit, if one is issued. Implementation of specific measures contained in either Plan, but not included in the Section 10/404 permit as special conditions, would not be required by USACE. USACE does not know whether any particular measure that is not a DA permit condition would be implemented. Measures that USACE currently contemplates as

conditions of a DA Section 10/404 permit, if one is issued, are provided in Chapter 4, Section 4.27 Mitigation Summary of the EIS.

The LA TIG explains in Section 1.5 of the Final Restoration Plan that it anticipates requiring implementation of the Mitigation and Stewardship Plan, MAM Plan, and Marine Mammal Intervention Plan as components of the proposed Project, if the Project is approved by the LA TIG for funding. Decisions regarding which measures would be required as part of the LA TIG's funding decision would be set forth in the LA TIG Record of Decision related to the proposed Project.

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**Concern ID: 62225**

**Plaquemines Parish could experience flooding from the diversion similar to flooding due to the Mississippi River Gulf Outlet. Commenter asked if the diversion would be closed if it causes such flooding.**

**Response ID: 15758**

As described in Draft EIS Chapter 2, Section 2.8 Action Alternatives Carried Forward for Detailed Analysis, the proposed Project design includes earthen guide levees that would be constructed along both sides of the diversion conveyance channel. The portion of the guide levees on the protected side of the New Orleans to Venice Levee system (NOV-NF-W-05a.1) would be designed and built as hurricane and storm damage risk reduction levees against storm surges that may enter the diversion channel. A gated control structure would also be built on the Mississippi River side of the conveyance channel, and the gate would be closed prior to and during storm events. Draft EIS Chapter 4, Section 4.13.5 in Socioeconomics and 4.20.4 in Public Health and Safety discusses the increased flooding impacts potentially caused by the operation of the diversion.

CPRA has developed a comprehensive inventory of potentially affected properties and CPRA's land services planning is progressing to enable CPRA to mitigate for increased water levels caused by the proposed Project. CPRA's mitigation and stewardship measures would take the form of: (1) monitoring and adaptive management of operations, (2) structural mitigation (for example, elevating public roadways, utility upgrades, water control structures, or other structural measures to partially offset additional inundation), (3) paying landowners for a Project servitude, and/or (4) providing landowners with funds to elevate their homes and other structures on private properties. In the communities south of the diversion starting at Woodpark and continuing south to Grand Bayou and Happy Jack, CPRA would acquire Project servitudes. A Project servitude would allow CPRA to flow water over the landowner's property at heights and duration that are greater than would be the case in the future without the Project. CPRA would compensate those landowners for the value of the Project servitude, which would be recorded against title to the property and would run with the land. CPRA would attempt to negotiate with the affected landowner

to acquire the Project servitude. If CPRA and the landowner were unable to reach a negotiated agreement, CPRA would exercise its eminent domain authority to purchase the Project servitude. Property owners would be able to use the funds from the Project servitude to implement additional flood mitigation and stewardship measures. These mitigation and stewardship measures are described in the Final Mitigation and Stewardship Plan, Appendix R1 to the Final EIS.

Structural measures in the Mitigation and Stewardship Plan are not included in CPRA's MBSD DA permit application, and if a permit is approved, would not be authorized under the DA permit. Many of these structural measures would require DA and other permits prior to installation; such permits are not guaranteed and would take time for USACE and other agencies to process.

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The Mitigation and Stewardship Plan and the Monitoring and Adaptive Management (MAM) Plan provided in the Draft EIS Appendix R were submitted by CPRA and represent a range of potential mitigation, stewardship, monitoring and adaptive management measures (collectively, measures). At the time of publication of the Draft EIS for public review, Appendix R contained draft Plans and CPRA had not identified which of the measures contained in those Plans it intended to implement. CPRA expanded and refined the Final Mitigation and Stewardship Plan in response to community and resource agency input. The Final EIS Appendix R contains the final Plans and specifies which measures CPRA and the LA TIG intend to implement. Generally, impact determinations discussed in the EIS represent anticipated Project effects without implementation of these measures except in instances where such measures are identified in the discussion. If any mitigation, monitoring, or adaptive management measures are required by USACE as part of its approval of the Project, such measures would be required as special conditions of the Department of the Army (DA) Section 10/404 permit and would be listed in the permit, if one is issued. Implementation of specific measures contained in either Plan, but not included in the Section 10/404 permit as special conditions, would not be required by USACE. USACE does not know whether any particular measure that is not a DA permit condition would be implemented. Measures that USACE currently contemplates as conditions of a DA Section 10/404 permit, if one is issued, are provided in Chapter 4, Section 4.27 Mitigation Summary of the EIS.



The LA TIG explains in Section 1.5 of the Final Restoration Plan that it anticipates requiring implementation of the Mitigation and Stewardship Plan, MAM Plan, and Marine Mammal Intervention Plan as components of the proposed Project, if the Project is approved by the LA TIG for funding. Decisions regarding which measures would be required as part of the LA TIG's funding decision would be set forth in the LA TIG Record of Decision related to the proposed Project.

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**Concern ID: 62226****The diversion would destroy the property in which commenters have made substantial investment.****Response ID: 15750**

Draft EIS Chapter 4 Section 4.13.5.3 in Socioeconomics discussed impacts of the proposed Project on property values. Final EIS Appendix R1 Mitigation and Stewardship Plan describes mitigation and stewardship measures planned by CPRA for areas exposed to Project-related inundation. CPRA has developed a comprehensive inventory of potentially affected properties and CPRA's land services planning is progressing to enable CPRA to mitigate for increased water levels caused by the proposed Project. CPRA's mitigation and stewardship measures would take the form of: (1) monitoring and adaptive management of operations, (2) structural mitigation (for example, elevating public roadways, utility upgrades, water control structures, or other structural measures to partially offset additional inundation), (3) paying landowners for a Project servitude, and/or (4) providing landowners with funds to elevate their homes and other structures on private properties.

In the communities south of the diversion starting at Woodpark and continuing south to Grand Bayou and Happy Jack, CPRA would acquire Project servitude. A Project servitude would allow CPRA to flow water over the landowner's property at heights and duration that are greater than would be the case in the future without the Project. CPRA would compensate those landowners for the value of the Project servitude, which would be recorded against title to the property and would run with the land. CPRA would attempt to negotiate with the affected landowner to acquire the Project servitude. If CPRA and the landowner were unable to reach a negotiated agreement, CPRA would exercise its eminent domain authority to purchase the Project servitude. Property owners would be able to use the funds from the Project servitude to implement additional flood mitigation and stewardship measures. These mitigation and stewardship measures are described in the Final Mitigation and Stewardship Plan, Appendix R1 to the Final EIS.

Structural measures in the Mitigation and Stewardship Plan are not included in CPRA's MBSD DA permit application, and if a permit is approved, would not be authorized under the DA permit. Many of these structural measures would require DA and other permits prior to



installation; such permits are not guaranteed and would take time for USACE and other agencies to process.

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The Mitigation and Stewardship Plan and the Monitoring and Adaptive Management (MAM) Plan provided in the Draft EIS Appendix R were submitted by CPRA and represent a range of potential mitigation, stewardship, monitoring and adaptive management measures (collectively, measures). At the time of publication of the Draft EIS for public review, Appendix R contained draft Plans and CPRA had not identified which of the measures contained in those Plans it intended to implement. CPRA expanded and refined the Final Mitigation and Stewardship Plan in response to community and resource agency input. The Final EIS Appendix R contains the final Plans and specifies which measures CPRA and the LA TIG intend to implement. Generally, impact determinations discussed in the EIS represent anticipated Project effects without implementation of these measures except in instances where such measures are identified in the discussion. If any mitigation, monitoring, or adaptive management measures are required by USACE as part of its approval of the Project, such measures would be required as special conditions of the Department of the Army (DA) Section 10/404 permit and would be listed in the permit, if one is issued. Implementation of specific measures contained in either Plan, but not included in the Section 10/404 permit as special conditions, would not be required by USACE. USACE does not know whether any particular measure that is not a DA permit condition would be implemented. Measures that USACE currently contemplates as conditions of a DA Section 10/404 permit, if one is issued, are provided in Chapter 4, Section 4.27 Mitigation Summary of the EIS.

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**Concern ID: 62227**

**The diversion would flood access roads, damage vehicles, cause siltation/sludge, cause cancellation of flood insurance, inundate cemeteries, stress levees, impact provision of emergency**

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**services, and increase the cost to raise homes, slabs and wharves.****Response ID: 15820**

Draft EIS Chapter 4, Section 4.13.5 in Socioeconomics and 4.20.4 in Public Health and Safety discusses the increased flooding impacts outside of federal levee systems, including road inundation and infrastructure damage, anticipated to be caused by the operation of the diversion. Sections 4.13.5.1.2.1 and 4.13.5.3.2.1 in Socioeconomics of the Final EIS has been updated to include potential impacts such as vehicle damage, accumulation of siltation and sludge, cemetery inundation and interruption of emergency services. Recognizing the potential for these impacts, CPRA has developed a comprehensive inventory of potentially affected properties and CPRA's land services planning is progressing to enable CPRA to mitigate for increased water levels caused by the proposed Project. CPRA's mitigation and stewardship measures would take the form of: (1) monitoring and adaptive management of operations, (2) structural mitigation (for example, elevating public roadways, utility upgrades, water control structures, or other structural measures to partially offset additional inundation), (3) paying landowners for a Project servitude, and/or (4) providing landowners with funds to elevate their homes and other structures on private properties.

In the communities south of the diversion starting at Woodpark and continuing south to Grand Bayou and Happy Jack, CPRA would acquire Project servitudes. A Project servitude would allow CPRA to flow water over the landowner's property at heights and duration that are greater than would be the case in the future without the Project. CPRA would compensate those landowners for the value of the Project servitude, which would be recorded against title to the property and would run with the land. CPRA would attempt to negotiate with the affected landowner to acquire the Project servitude. If CPRA and the landowner were unable to reach a negotiated agreement, CPRA would exercise its eminent domain authority to purchase the Project servitude. Property owners would be able to use the funds from the Project servitude to implement additional flood mitigation and stewardship measures. These mitigation and stewardship measures are described in the Final Mitigation and Stewardship Plan, Appendix R1 to the Final EIS.

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The Final EIS concludes that the proposed Project would not have impact on the availability of flood insurance, but may cause an increase in flood insurance premium for some properties. See Section 4.13.5.3.2.1 in Socioeconomics and Section 4.15.4.2.3 and 4.15.5.1.2 in Environmental Justice of the Final EIS for further discussion of the potential effect of the Project on the cost of flood insurance. Due to the evolving implementation of FEMA's Risk Rating 2.0, it is difficult to predict whether or by how much premiums may change.

The Mitigation and Stewardship Plan and the Monitoring and Adaptive Management (MAM) Plan provided in the Draft EIS Appendix R were submitted by CPRA and represent a range of potential mitigation, stewardship, monitoring and adaptive management measures (collectively, measures). At the time of publication of the Draft EIS for public review, Appendix R contained draft Plans and CPRA had not identified which of the measures contained in those Plans it intended to implement. CPRA expanded and refined the Final Mitigation and Stewardship Plan in response to community and resource agency input. The Final EIS Appendix R contains the final Plans and specifies which measures CPRA and the LA TIG intend to implement. Generally, impact determinations discussed in the EIS represent anticipated Project effects without implementation of these measures except in instances where such measures are identified in the discussion. If any mitigation, monitoring, or adaptive management measures are required by USACE as part of its approval of the Project, such measures would be required as special conditions of the Department of the Army (DA) Section 10/404 permit and would be listed in the permit, if one is issued. Implementation of specific measures contained in either Plan, but not included in the Section 10/404 permit as special conditions, would not be required by USACE. USACE does not know whether any particular measure that is not a DA permit condition would be implemented. Measures that USACE currently contemplates as conditions of a DA Section 10/404 permit, if one is issued, are provided in Chapter 4, Section 4.27 Mitigation Summary of the EIS.

The LA TIG explains in Section 1.5 of the Final Restoration Plan that it anticipates requiring implementation of the Mitigation and Stewardship Plan, MAM Plan, and Marine Mammal Intervention Plan as components of the proposed Project, if the Project is approved by the LA TIG for funding. Decisions regarding which measures would be required as

part of the LA TIG's funding decision would be set forth in the LA TIG Record of Decision related to the proposed Project.

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**Concern ID: 62228**

**The commenter feels that the hydrology study is outdated, and the proposed diversion would have a more significant impact on the commenter's property than projected, due to current environmental conditions.**

**Response ID: 15796**

The Delft3D Basinwide Model represents the best tool currently available to inform impact analysis for the EIS. Section 4.1.3 Overview of Delft3D Basinwide Model for Impact Analysis of the Draft EIS acknowledged that the outputs of the model are projections generated using defined inputs, often based on historical conditions. Because it is not possible to precisely predict future conditions such as weather patterns and degree of sea-level rise, the model inputs are necessarily based on trends, averages, and best professional judgment as well as reasonable assumptions about future behaviors. Readers of the EIS should not consider the model outputs as absolute values or predictions of actual future conditions. The outputs are instead used to compare the degree of difference between the impacts projected for each alternative as compared to the No Action Alternative. CPRA has developed a comprehensive inventory of potentially affected properties and CPRA's land services planning is progressing to enable CPRA to mitigate for increased water levels caused by the proposed Project. CPRA's mitigation and stewardship measures would take the form of: (1) monitoring and adaptive management of operations, (2) structural mitigation (for example, elevating public roadways, utility upgrades, water control structures, or other structural measures to partially offset additional inundation), (3) paying landowners for a Project servitude, and/or (4) providing landowners with funds to elevate their homes and other structures on private properties.

These mitigation and stewardship measures are described in the Final Mitigation and Stewardship Plan, Appendix R1 to the Final EIS.

Structural measures such as raising roads or improving bulkheads in the Mitigation and Stewardship Plan are not included in CPRA's MBSD DA permit application, and if this permit is approved, would not be authorized under the DA permit. Many of these structural measures would require additional DA and other permits prior to installation. Such permits are not guaranteed and would take time for USACE and other regulating agencies to process.

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possess the requisite property interest to undertake the activity proposed in the application.

The Mitigation and Stewardship Plan and the Monitoring and Adaptive Management (MAM) Plan provided in the Draft EIS Appendix R were submitted by CPRA and represent a range of potential mitigation, stewardship, monitoring and adaptive management measures (collectively, measures). At the time of publication of the Draft EIS for public review, Appendix R contained draft Plans and CPRA had not identified which of the measures contained in those Plans it intended to implement. CPRA expanded and refined the Final Mitigation and Stewardship Plan in response to community and resource agency input. The Final EIS Appendix R contains the final Plans and specifies which measures CPRA and the LA TIG intend to implement. Generally, impact determinations discussed in the EIS represent anticipated Project effects without implementation of these measures except in instances where such measures are identified in the discussion. If any mitigation, monitoring, or adaptive management measures are required by USACE as part of its approval of the Project, such measures would be required as special conditions of the Department of the Army (DA) Section 10/404 permit and would be listed in the permit, if one is issued. Implementation of specific measures contained in either Plan, but not included in the Section 10/404 permit as special conditions, would not be required by USACE. USACE does not know whether any particular measure that is not a DA permit condition would be implemented. Measures that USACE currently contemplates as conditions of a DA Section 10/404 permit, if one is issued, are provided in Chapter 4, Section 4.27 Mitigation Summary of the EIS.

The LA TIG explains in Section 1.5 of the Final Restoration Plan that it anticipates requiring implementation of the Mitigation and Stewardship Plan, MAM Plan, and Marine Mammal Intervention Plan as components of the proposed Project, if the Project is approved by the LA TIG for funding. Decisions regarding which measures would be required as part of the LA TIG's funding decision would be set forth in the LA TIG Record of Decision related to the proposed Project.

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**Concern ID: 62229**

**The storm surge could back up into the diversion and cause flooding in Plaquemines Parish.**

**Response ID: 15751**

As described in the Draft EIS Chapter 2, Section 2.8 Action Alternatives Carried Forward for Detailed Analysis, the proposed Project design includes earthen guide levees that would be constructed along both sides of the diversion conveyance channel. The portion of the guide levees on the protected side of the New Orleans to Venice Levee system (NOV-NF-W-05a.1) would be designed and built as hurricane and storm damage risk reduction levee to reduce risk against storm surges that may enter the diversion channel. A gated control structure

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would also be built on the Mississippi River side of the conveyance channel, and the gate would be closed prior to and during storm events.

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**Concern ID: 62230**

**Commenter states that the EIS incorrectly characterizes an increase in water surface elevation as an increase in tidal flooding. Commenter notes that, in any case, increases in flooding are not due solely to the diversion, but instead are due to many factors.**

**Response ID: 15753**

In the context of this EIS, the term “tidal flooding” is used to distinguish non-storm related coastal flooding from coastal flooding caused by storm surge and/or waves. The Draft EIS acknowledged that changes in water levels within the Barataria Basin are influenced by a number of factors, including winds, tides, sea-level rise, and subsidence. The Draft EIS also noted that floodplains within the Project area would continue to be subject to hydrological changes associated with relative sea-level rise, leading to increased water levels throughout the basin, regardless of the implementation of the proposed Project (see Section 4.20.4.2 Operational Impacts, Floodplains and Tidal Flooding). As described in the introduction of Chapter 4 Environmental Consequences the potential impacts of the proposed Project are projected by comparing the anticipated environmental consequences of the proposed Project to the anticipated consequences of No Action in order to isolate the potential impacts of the proposed Project. Therefore, the EIS acknowledges the role of other factors in increased water levels in the basin while recognizing the proposed Project as one of these factors.

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**Concern ID: 62232**

**Flooding risk due to operation of the diversion should be estimated based on an assumption that predictable flooding risk would result in closing of the structure temporarily, reducing such risk attributable to operation of the diversion.**

**Response ID: 15759**

For the purposes of the impact assessment in the Draft EIS, it was assumed that the proposed Project would be operated according to CPRA’s Preliminary Operations Plan, Draft EIS Appendix F MBSD Design and Operations Information. This Plan indicates that the diversion gates would be opened fully (above base flow) when flow in the Mississippi River at Belle Chasse exceeds the “trigger” of 450,000 cfs. The Plan includes criteria for modifying or ceasing operations, including damage to the diversion structure, spills of other hazardous discharges, severe impediments to navigation, tropical storm activity, or threats to public safety. Final EIS Appendix R1 Mitigation and Stewardship Plan describes mitigation and stewardship measures planned by CPRA for areas exposed to Project-related inundation.

The Mitigation and Stewardship Plan and the Monitoring and Adaptive Management (MAM) Plan provided in the Draft EIS Appendix R were submitted by CPRA and represent a range of potential mitigation, stewardship, monitoring and adaptive management measures



(collectively, measures). At the time of publication of the Draft EIS for public review, Appendix R contained draft Plans and CPRA had not identified which of the measures contained in those Plans it intended to implement. CPRA expanded and refined the Final Mitigation and Stewardship Plan in response to community and resource agency input. The Final EIS Appendix R contains the final Plans and specifies which measures CPRA and the LA TIG intend to implement. Generally, impact determinations discussed in the EIS represent anticipated Project effects without implementation of these measures except in instances where such measures are identified in the discussion. If any mitigation, monitoring, or adaptive management measures are required by USACE as part of its approval of the Project, such measures would be required as special conditions of the Department of the Army (DA) Section 10/404 permit and would be listed in the permit, if one is issued. Implementation of specific measures contained in either Plan, but not included in the Section 10/404 permit as special conditions, would not be required by USACE. USACE does not know whether any particular measure that is not a DA permit condition would be implemented. Measures that USACE currently contemplates as conditions of a DA Section 10/404 permit, if one is issued, are provided in Chapter 4, Section 4.27 Mitigation Summary of the EIS.

The LA TIG explains in Section 1.5 of the Final Restoration Plan that it anticipates requiring implementation of the Mitigation and Stewardship Plan, MAM Plan, and Marine Mammal Intervention Plan as components of the proposed Project, if the Project is approved by the LA TIG for funding. Decisions regarding which measures would be required as part of the LA TIG's funding decision would be set forth in the LA TIG Record of Decision related to the proposed Project.

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**Concern ID: 62233**

**Restoration of coastal habitat and the delta would provide protection from storm damage.**

**Response ID: 15752**

While the intent of the proposed Project is to reestablish deltaic processes to restore resources injured by the DWH oil spill, the Draft EIS Chapter 4, Section 4.20.4.2 Public Health and Safety described the ancillary benefit of storm damage risk reduction on communities north of the proposed diversion due to the creation and maintenance of wetland habitat and increases in topography and land acreage within the delta formation area. At the same time, operation of the Project would have permanent, minor to moderate, adverse impacts on storm hazards in communities south of the diversion, with anticipated increases in storm surge of up to 1.7 feet near Myrtle Grove (as compared to the No Action Alternative). Section 4.20.4.2.2.2 in Public Health and Safety of the Final EIS has been revised to include additional information and figures further explaining the impacts of the Project on storm surge and wave height



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<b>Concern ID: 62234</b>	<b>There was not a hydrology report in the Draft EIS showing the impact upon the water levels.</b>
<b>Response ID: 15760</b>	The EIS does not include a separate, stand-alone hydrology report; however, hydrology is one of the outputs provided by the Delft3D Basinwide Model. The results of this modeling are included in Appendix E, Delft3D Modeling. Based on these results, several sections of the Draft EIS discussed the projected impacts on water levels throughout the basin for all Project alternatives, including in the vicinity of Myrtle Grove. These sections include Section 4.4 Surface Water and Coastal Processes and Section 4.20 Public Health and Safety. These sections are supplemented by additional information in Appendix P Flood & Storm Hazards Evaluation.
<b>Concern ID: 62236</b>	<b>The commenter asserts that information provided in several sections of the Draft EIS and in presentations are inconsistent and would like to know what the actual impact to Myrtle Grove would be.</b>
<b>Response ID: 15822</b>	The USACE acknowledges the commenters' concerns regarding the consistency and accuracy of the reported projections. USACE is the lead agency for development of this EIS, which contains the results from the Delft3D Basinwide Model regarding the projected effects of the Project on water levels in Barataria Basin, including areas close to the diversion outfall (within a 20-mile radius). The estimated flooding impacts in Myrtle Grove are described in Chapter 4, Sections 4.20.4.2.1.2 and 4.20.4.2.2.2 in Public Health and Safety. USACE is not familiar with other numbers that may have been reported by CPRA. Readers of the EIS should not consider the model outputs as absolute values or predictions of actual future conditions. Section 4.1.3 Overview of Delft3D Basinwide Model for Impact Analysis of the Draft EIS acknowledged that the outputs of the model are projections generated using defined inputs, often based on historical conditions. Because it is not possible to precisely predict future conditions such as weather patterns and degree of sea-level rise, the model inputs are necessarily based on trends, averages, and best professional judgment as well as reasonable assumptions about future conditions. Uncertainties are briefly summarized in the Draft EIS in Chapter 4, Section 4.1.3.3 (Model Limitations and Uncertainty), and in detail in Appendix E Delft3D Modeling, Section 8.0 Model Limitations and Uncertainties.
<b>Concern ID: 62282</b>	<b>Diversion impacts, including land loss in the birdfoot delta, would make lower Plaquemines more vulnerable to storms.</b>
<b>Response ID: 15805</b>	Draft EIS Chapter 4, Section 4.6.5 in Wetlands and Waters of the U.S. described the projected acceleration of wetland loss in the birdfoot delta caused by the proposed Project and Section 4.20.4.2 in Public Health and Safety acknowledged lower Plaquemines' increased vulnerability to

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storm hazards that would result from operation of the proposed Project. While the Draft EIS acknowledged the role that land loss plays in increased storm hazards, it did not explicitly acknowledge the role this accelerated land loss in the birdfoot delta could play in increased storm hazards. Section 4.20.4.2.2.2 in Public Health and Safety has been edited in the Final EIS to include acknowledgement that this accelerated loss of wetlands in the birdfoot could increase storm hazard vulnerability depending on the storm path and intensity.

In the LA TIG's Draft Restoration Plan, the LA TIG recognized the potential collateral injuries associated with the Project, including potential land loss in the birdfoot delta. In selecting the Applicant's Preferred Alternative, the LA TIG evaluated a reasonable range of alternatives under the factors outlined in 15 CFR §990.54. The LA TIG strove to identify an alternative that would provide what it believed to be the right balance in terms of being cost-appropriate, meeting LA TIG goals, having a high likelihood of success, avoiding collateral injury, benefiting multiple resources, and protecting public health and safety. See Sections 3.2.4.7, 3.2.1.5, and 3.2.2.5 of the Final Restoration Plan for more information about the LA TIG's selection of the Applicant's Preferred Alternative.

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**Concern ID: 62284**

**Projections for increased water levels seem lower than what would be expected because the river water levels quoted are much lower than the river has averaged in recent years, and showing the "average" water level increases means that there would be higher peak water levels that are most damaging.**

**Response ID: 15812**

The Delft3D Basinwide Model represents the best tool currently available to inform the impact analysis for the EIS. Draft EIS Chapter 4, Section 4.1.3 Overview of Delft3D Basinwide Model for Impact Analysis of the EIS acknowledged that the outputs of the model are projections generated using defined inputs, often based on historical conditions. Because it is not possible to precisely predict future conditions such as weather patterns and degree of sea-level rise, the model inputs are necessarily based on trends, averages, and best professional judgment as well as reasonable assumptions about future behaviors. Readers of the EIS should not consider the model outputs as absolute values or predictions of actual future conditions. The outputs are instead used to compare the degree of difference between the impacts projected for each alternative as compared to the No Action Alternative.

While Draft EIS Section 4.4.4.2 in Surface Water and Coastal Processes referenced average water levels to generally illustrate impacts to water levels for each alternative, Section 4.20.4.2 in Public Health and Safety used daily projected peak water surface elevations to estimate potential tidal (non-storm) flooding in communities outside federal levee systems. This analysis of daily peak water surface

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elevations utilized model outputs that were based on the 2011 Mississippi River Hydrograph, which was a “high flow” year when the diversion was projected to be operating at or near maximum capacity for several months.

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**Concern ID: 62287**

**Individuals who chose to invest money outside of the levee protection did so accepting responsibility for impacts from storms, but not man-made damage.**

**Response ID: 15809**

The USACE acknowledges the commenter’s concern regarding increased flooding from the proposed Project. Final EIS Appendix R1 Mitigation and Stewardship Plan describes mitigation and stewardship measures planned by CPRA for areas exposed to Project-related inundation. CPRA has developed a comprehensive inventory of potentially affected properties and CPRA’s land services planning is progressing to enable CPRA to mitigate for increased water levels caused by the proposed Project. CPRA’s mitigation and stewardship measures would take the form of: (1) monitoring and adaptive management of operations, (2) structural mitigation (for example, elevating public roadways, utility upgrades, water control structures, or other structural measures to partially offset additional inundation), (3) paying landowners for a Project servitude, and/or (4) providing landowners with funds to elevate their homes and other structures on private properties.

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**Concern ID: 62289**

**Hurricanes could potentially delay the timeline of the Project.**

**Response ID: 15799**

It is not clear whether the commenter is referring to a delay in the timeline for construction of the Project or in the rate of land building over 50 years, so this response addresses both. As for construction,

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there are contingencies built into the Project schedule to account for weather delays. In regard to the rate of land building over 50 years, the Delft3D Basinwide Model projections do not account for wetland erosion from hurricanes. However, it should be noted that if one or more hurricanes were to cause wetland loss during the 50-year analysis period, land building from the proposed Project would still result in a greater acreage of remaining wetlands than under the No Action Alternative. Additional analysis regarding the potential impact of hurricanes and saltwater inundation on the extent of wetlands in the Project area has been added to Chapter 4, Section 4.6.5.1 Wetland Types and Extent of the Final EIS.

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**Concern ID: 62291**

**A commenter expressed concern that the amount of land building would be inefficient given increased water level and flood risk.**

**Response ID: 15807**

One objective of the Project is the delivery of fresh water, nutrients and sediment beyond the outfall area. The ability of a large-scale diversion to deliver sufficient amounts of sediment and nutrients to sustain existing and created marsh was a factor that led to its selection as the Applicant's Preferred Alternative. The EIS's evaluation of alternatives, which includes the potential impact of sea-level rise, is discussed in Chapter 2. As part of its decision, USACE will conduct a public interest review, which weighs the probable harms that would be caused by a project against its prospective benefits.

See Sections 3.2.4.7, 3.2.1.5 and 3.2.2.5, of the LA TIG's Restoration Plan for a discussion regarding the LA TIG's evaluation of the range of alternatives and identification of the LA TIG's Preferred Alternative (sediment diversion with variable flow up to 75,000 cfs). The LA TIG evaluated a reasonable range of alternatives under the factors outlined in 15 CFR §990.54 and strove to identify an alternative that would provide the right balance in terms of being cost-appropriate, meeting LA TIG goals, having a high likelihood of success, avoiding collateral injury, benefiting multiple resources, and protecting public health and safety.

The LA TIG recognizes that there are clear tradeoffs among the alternatives in terms of the likely benefits achieved and risks related to collateral injury and public health and safety. Given these tradeoffs, the LA TIG selected Alternative 1 as the Preferred Alternative.

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**Concern ID: 62292**

**Ironton will be at risk from storm surge which would be made worse by the diversion.**

**Response ID: 15810**

As described in the Draft EIS Chapter 2, Section 2.8 Action Alternatives Carried Forward for Detailed Analysis, the proposed Project design includes earthen guide levees that would be constructed along both sides of the diversion conveyance channel. The portion of the guide levees on the protected side of the New Orleans to Venice Levee

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system (NOV-NF-W-05a.1) would be designed and built as hurricane and storm damage risk reduction against storm surges that may enter the diversion channel. A gated control structure would also be built on the Mississippi River side of the conveyance channel, and the gate would be closed prior to and during storm events.

Draft EIS Chapter 4, Section 4.20.4.2 in Public Health and Safety provided projected changes in storm surge elevation due to the proposed Project, including increased storm surge elevation in the vicinity of the portion of the NOV-NFL Levee system which provides risk reduction to Ironton. Depending upon the strength and path of a given storm, storm surge could overtop the NOV-NFL Levee, both with or without the proposed Project; however, as described in Section 4.20.4.2, the proposed Project would increase the risk and volume of potential overtopping.

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**Concern ID: 62297**

**The Draft EIS does not specifically quantify the storm surge increase in the Midway Cattle Ranch area and therefore does not adequately address the impacts of storm surge on Midway's property. However, it is clear that such impacts would be significant.**

**Response ID: 15804**

While the EIS does not describe storm surge impacts at the parcel level, it does provide an analysis of impacts to storm surge elevations and wave heights in comparison to the levee heights which provide storm risk reduction to such parcels. For example, Figure 4.20-24 in Chapter 4, Section 4.20.4.2 Public Health and Safety of the Draft EIS showed projected storm surge and wave height in comparison to levee heights in the vicinity of Midway's property. As shown in the figure and described elsewhere in Section 4.20.4.2, the proposed Project would decrease storm surge elevation north of the diversion, decreasing the risk associated with overtopping of the levee in the vicinity of Midway's property. However, it should be noted that, as described in Section 4.20.4.2, some storms are projected to overtop this reach of the NOV-NFL Levee, both with or without the proposed Project.

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**Concern ID: 62299**

**The commenter asserts that they do not intend to grant a flowage easement to allow USACE to flood their property and deny them access to their property at USACE's discretion.**

**Response ID: 15801**

The proposed Project would be a CPRA project, not a USACE project; therefore, CPRA would seek any flowage easements not USACE. Additional detail on the CPRA's proposed flowage easements, referred to as Project servitudes, can be found in Final EIS Appendix R1, Mitigation and Stewardship Plan.

CPRA plans to acquire Project servitudes in the communities south of the diversion outside of levee projection beginning at Woodpark and continuing south to Grand Bayou and Happy Jack. A Project servitude

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would allow CPRA to flow water over the landowner's property at heights and duration that are greater than would be the case in the future without the Project. CPRA would compensate those landowners for the value of the Project servitude, which would be recorded against title to the property and would run with the land. CPRA would attempt to negotiate with the affected landowner to acquire the Project servitude. If CPRA and the landowner were unable to reach a negotiated agreement, CPRA would exercise its eminent domain authority to purchase the Project servitude. Property owners would be able to use the funds from the Project servitude to implement additional flood mitigation and stewardship measures. These mitigation and stewardship measures are described in the Final Mitigation and Stewardship Plan, Appendix R1 to the Final EIS.

A DA permit does not convey any property rights and does not authorize any injury to property or invasion of rights or any infringement of Federal, state or local laws or regulations. The applicant's signature on an application is an affirmation that the applicant possesses or will possess the requisite property interest to undertake the activity proposed in the application.

The Mitigation and Stewardship Plan and the Monitoring and Adaptive Management (MAM) Plan provided in the Draft EIS Appendix R were submitted by CPRA and represent a range of potential mitigation, stewardship, monitoring and adaptive management measures (collectively, measures). At the time of publication of the Draft EIS for public review, Appendix R contained draft Plans and CPRA had not identified which of the measures contained in those Plans it intended to implement. CPRA expanded and refined the Final Mitigation and Stewardship Plan in response to community and resource agency input. The Final EIS Appendix R contains the final Plans and specifies which measures CPRA and the LA TIG intend to implement. Generally, impact determinations discussed in the EIS represent anticipated Project effects without implementation of these measures except in instances where such measures are identified in the discussion. If any mitigation, monitoring, or adaptive management measures are required by USACE as part of its approval of the proposed Project, such measures would be required as special conditions of the Department of the Army (DA) Section 10/404 permit and would be listed in the permit, if one is issued. Implementation of specific measures contained in either Plan, but not included in the Section 10/404 permit as special conditions, would not be required by USACE. The USACE does not know whether any particular measure that is not a DA permit condition would be implemented. Measures that USACE currently contemplates as conditions of a DA Section 10/404 permit, if one is issued, are provided in Chapter 4, Section 4.27 Mitigation Summary of the EIS.



The LA TIG explains in Section 1.5 of the Final Restoration Plan that it anticipates requiring implementation of the Mitigation and Stewardship Plan, MAM Plan, and Marine Mammal Intervention Plan as components of the proposed Project, if the Project is approved by the LA TIG for funding. Decisions regarding which measures would be required as part of the LA TIG's funding decision would be set forth in the LA TIG Record of Decision related to the proposed Project.

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**Concern ID: 62300**

**The diversion would cause harmful algal blooms which have unforeseen risks to human health, including Amnesic Shellfish Poisoning (ASP), Neurotoxic Shellfish Poisoning (NSP), Paralytic Shellfish Poisoning (PSP), Diarrhetic Shellfish Poisoning (DSP) and Ciguatera Fish Poisoning (CFP).**

**Response ID: 15813**

The impacts raised by the commenters have been considered in the Draft EIS. As discussed in the EIS, Chapter 4, Sections 4.5.5.3 and 4.5.5.4 in Surface Water and Sediment Quality, increases in both nitrogen and phosphorus concentrations in the Barataria Basin are projected by the Delft3D Basinwide Model to occur as a result of proposed Project operations. Vegetative growth projected by the Delft3D Basinwide Model to occur due to Project operations is expected to utilize the nutrients diverted from the Mississippi River, resulting in lower concentrations of nutrients occurring in the Barataria Basin than in the river and reaching the Gulf through Barataria Bay.

Section 4.10.4.4 in Aquatic Resources notes that an increased potential and frequency of phytoplankton blooms would be likely within the Project area, but whether or not these blooms would become harmful algal blooms cannot be definitely determined. A reference to Section 4.10 is included in Section 4.5.5.3 in Surface Water and Sediment Quality of the Draft EIS. A reference to Section 4.10 Aquatic Resources has been added to Section 4.5.5.4 (Phosphorus) of the Final EIS. Clarifying language has been added to Sections 4.5.5.3, 4.5.5.4, and 4.25.5.4 in Cumulative Impacts.

Section 4.14 Commercial Fisheries has been updated in the Final EIS to discuss the National Shellfish Sanitation Program and the Louisiana Department of Health's oversight of shellfish harvesting in order to prevent harvest of oysters that may contain unsuitable levels of fecal coliform or toxins harmful to human health. Additionally, Appendix R2 in the Final EIS includes a Monitoring and Adaptive Management (MAM) Plan that describes monthly fecal coliform monitoring (Section 3.7.5.1) and periodic sampling for Contaminants of Concern in fish, shellfish, and wildlife (Section 3.7.3.23).

Additionally, as described in Appendix R2 CPRA's MAM Plan of the EIS, Section 3.7.3.11, CPRA is proposing to monitor for Harmful Cyanobacterial/Algal Bloom Toxins in Barataria Surface Waters. Samples will be collected monthly and additional discrete sampling will

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be done as needed in response to observations of presence of cyanobacterial and/or eukaryotic algal species associated with harmful algal bloom. Filter feeding fish may also be analyzed for toxins in fish tissue.

The Mitigation and Stewardship Plan and the MAM Plan provided in Draft EIS Appendix R were submitted by CPRA and represent a range of potential mitigation, stewardship, monitoring and adaptive management measures (collectively, measures). At the time of publication of the Draft EIS for public review, Appendix R contained draft Plans and CPRA had not identified which of the measures contained in those Plans it intended to implement. CPRA expanded and refined the Final Mitigation and Stewardship Plan in response to community and resource agency input. The Final EIS Appendix R contains the final Plans and specifies which measures CPRA and the LA TIG intend to implement. Generally, impact determinations discussed in the EIS represent anticipated Project effects without implementation of these measures except in instances where such measures are identified in the discussion. If any mitigation, monitoring or adaptive management measures are required by USACE as part of its approval of the proposed Project, such measures would be required as special conditions of the Department of the Army (DA) Section 10/404 permit and would be listed in the permit, if one is issued. Implementation of specific measures contained in either Plan, but not included in the Section 10/404 permit as special conditions, would not be required by USACE. USACE does not know whether any particular measure that is not a DA permit condition would be implemented. Measures that USACE currently contemplates as conditions of a DA Section 10/404 permit, if one is issued, are provided in Chapter 4, Section 4.27 Mitigation Summary of the EIS.

The LA TIG explains in Section 1.5 of the Final Restoration Plan that it anticipates requiring implementation of the Mitigation and Stewardship Plan, MAM Plan, and Marine Mammal Intervention Plan as components of the proposed Project, if the Project is approved by the LA TIG for funding. Decisions regarding which measures would be required as part of the LA TIG's funding decision would be set forth in the LA TIG Record of Decision related to the proposed Project.

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**Concern ID: 62308**

**The Draft EIS mentions a reduction in storm surge of 0.5 to one foot north of the Project but could say more about the consequence and benefits of that decrease.**

**Response ID: 15803**

Additional information on the consequence and benefits of decreased storm surge north of the delta formation area was provided in Draft EIS Chapter 4, Section 4.13 Socioeconomics, 4.13.5 Operational Impacts. These benefits include reduced pressure of outmigration from affected

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coastal communities and beneficial impacts on housing, property values, and property tax revenue.

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**Concern ID: 62309**

**Operation of the MBSD has the capacity to reduce MR flood stage, reduce the tendency of the Lower MR to re-meander through bank caving, with attendant benefits for the structural integrity of the levee system and the navigation channel. The EIS could be improved by providing quantitative estimates of these stage reductions and attendant benefits in terms of preventing damage to the navigation and flood control levees.**

**Response ID: 15816**

Section 4.4 Surface Water and Coastal Processes of the Final EIS has been updated to include additional information regarding the effects of the proposed Project on river stage. The average predicted water level drop at Belle Chasse, caused by operation of proposed Project, is approximately 0.7 foot, when the river was flowing at 1.00 million cfs.

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**Concern ID: 62310**

**The 150k Alternative would roughly double the wetland creation benefits without doubling adverse impacts such as induced flooding.**

**Response ID: 15818**

CPRA submitted a joint Section 10/404 permit application and Section 408 permission request to USACE for the construction, operation, and maintenance of a 75,000 cfs sediment diversion (LA TIG's Preferred Alternative). The EIS evaluates the Applicant's Preferred Alternative and five additional action alternatives as well as the No Action Alternative in order to inform USACE's permit and permission decisions and the LA TIG's NRDA decision in compliance with the statutes, orders, and policies outlined in EIS Chapter 5 Consultation and Coordination.

Although the 150,000 cfs Alternative would result in the greatest degree of benefits (including the most land building), it also would result in the greatest degree of adverse impacts, particularly to dolphins (see Draft EIS Chapter 4, Section 4.11.5, Operational Impacts), shrimp and oysters (see Draft EIS Section 4.10.4.5, Key Species), and public health and safety (through tidal flooding in areas closer to the immediate outfall, see Draft EIS Section 4.20.4.2, Operational Impacts).

See Sections 3.2.4.7, 3.2.1.5, and 3.2.2.5 of the LA TIG's Restoration Plan for a discussion regarding the LA TIG's evaluation of the range of alternatives and identification of the LA TIG's Preferred Alternative (sediment diversion with variable flow up to 75,000 cfs). The LA TIG evaluated a reasonable range of alternatives under the factors outlined in 15 CFR §990.54 and it strove to identify an alternative that would provide the right balance in terms of being cost-appropriate, meeting LA TIG goals, having a high likelihood of success, avoiding collateral injury, benefiting multiple resources, and protecting public health and safety.

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<b>Concern ID: 62311</b>	<b>Weather is a major factor in how the diversion impacts communities, and the weather cannot be predicted.</b>
<b>Response ID: 15817</b>	<p>The Delft3D Basinwide Model projections of future conditions include uncertainties. Uncertainties were incorporated into the EIS impact conclusions and are briefly summarized in the Draft EIS in Chapter 4, Section 4.1.3.3 Model Limitations and Uncertainty, and in detail in Appendix E Delft3D Modeling, Section 8.0 Model Limitations and Uncertainties.</p> <p>Section 4.1.3 Overview of Delft3D Basinwide Model for Impact Analysis of the Draft EIS acknowledged that the outputs of the model are projections generated using defined inputs, often based on historical conditions. Because it is not possible to precisely predict future conditions such as weather patterns and degree of sea-level rise, the model inputs are necessarily based on trends, averages, and best professional judgment as well as reasonable assumptions about future behaviors. Readers of the EIS should not consider the model outputs as absolute values or as predictions of actual future conditions. The outputs are instead used to compare the degree of difference between the impacts projected for each alternative as compared to the model outputs projecting the changes that would occur for the No Action Alternative.</p>
<b>Concern ID: 62312</b>	<b>Investment in this type of resilient storm and flood protection infrastructure is critical.</b>
<b>Response ID: 15798</b>	Draft EIS Chapter 4, Section 4.20.4.2 Public Health and Safety described the potential storm and flood protection benefits to some communities in the Project area and the adverse impacts and increased risks to other communities from the proposed Project.
<b>Concern ID: 62313</b>	<b>The wetlands to the south of Morgan City/Berwick are an example of where sediment contributes to storm surge protection as the Atchafalaya and Wax Lake Delta are accreting sediment.</b>
<b>Response ID: 15806</b>	Wetlands south of Morgan City/Berwick are outside of the scope of this EIS, which includes the Barataria Basin and the Mississippi River birdfoot delta. However, a summary of select diversions and diversion-like features in southeastern Louisiana was developed in response to public comments regarding how various diversions and diversion-like constructed or natural features have affected their receiving environments and their recorded impacts on the natural environment. This summary is available in Appendix U Summary of Select Natural and Man-made Diversions in Southeastern Louisiana of the Final EIS.
<b>Concern ID: 62984</b>	<b>Man-made decisions and actions have caused climate changes, which has increased both frequency and destruction [of storms].</b>

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<b>Response ID: 15797</b>	<p><b>The loss of wetlands has greatly reduced the coast and allowed for more intense storm surges reaching further into the state.</b></p> <p>Draft EIS Section 3.6 Wetland Resources and Waters of the U.S. acknowledged the role that wetlands play in attenuating waves and storm surge, noting that communities sheltered by wetlands may sustain less damage from storm surge. This section also acknowledged that threats to wetland habitat include increased storm frequency and intensity associated with climate change. Draft EIS Chapter 4, Section 4.20.4.2 Public Health and Safety acknowledged that coastal wetland loss can lead to increased storm surge.</p>
<b>Concern ID: 63008</b>	<p><b>The commenter states that all the communities living close to that region are suffering from loss, and the communities are dissolving into the Gulf as they are battered by hurricanes and sea-level rise.</b></p>
<b>Response ID: 15762</b>	<p>Draft EIS Section 3.20 Public Health and Safety recognized ongoing flooding impacts caused by the combination of multiple forces, including land loss, hurricanes, and sea-level rise, within the Project area.</p>
<b>Concern ID: 62294</b>	<p><b>The EIS needs to include explicit detail on the status of levees and analysis of impacts to nearby residents' home insurance and flood insurance costs.</b></p>
<b>Response ID: 15800</b>	<p>EIS Chapter 3, Section 3.20.3.1 Federal Risk Reduction Levees, provides information on the level of risk reduction or elevation to which each levee system was designed. EIS Chapter 4, Section 4.20.4.2 Public Health and Safety, provides an analysis of projected water levels through the 50-year analysis period as compared to the levee design heights throughout the Project area. Section 4.20.4.2 also explains that all permanent Project features such as guide levees that would be subject to storm surge and waves would be designed and built to provide a 50-year level of hurricane and storm damage risk reduction. Section 4.13.5.3 Housing and Property Values in Socioeconomics has been revised in the Final EIS to provide additional discussion of flood insurance due to MBSD impacts.</p>
<b>Concern ID: 62301</b>	<p><b>The commenter asked what the impacts to the base flood elevations would be for Plaquemines Parish West Bank residents. The commenter also asked how such changes would impact flood insurance rates, home elevation programs, and existing homes elevated in the past 10 years.</b></p>
<b>Response ID: 15814</b>	<p>Because both the existing level of drainage and federal flood risk reduction would be maintained, there would be no anticipated change to the FEMA FIRM designation or base flood elevations due to the construction of the diversion. Chapter 4, Section 4.13.5.3 Housing and Property Values in Socioeconomics has been</p>

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revised in the Final EIS to provide additional discussion of the provision of flood insurance and other programs due to MBSD impacts.

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**Concern ID: 62302**

**The diversion would cause land loss, then create freshwater marshes which are more susceptible to saltwater impacts of storm surge and increasing future storm surge impacts.**

**Response ID: 15815**

Additional analysis regarding the potential impacts of conversion from saline marsh and brackish marsh to fresh and intermediate marsh and on susceptibility to hurricanes and saltwater inundation in the Project area during operations has been added to Chapter 4, Section 4.6.5.1 Wetland Types and Extent of the Final EIS.

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**Concern ID: 62303**

**The commenter asked what the impacts to the Plaquemines Parish's forced drainage pump stations on the West Bank of the Mississippi River would be.**

**Response ID: 15819**

As described in Draft EIS Section 4.4.5 Stormwater Management and Drainage, impacts on stormwater management and drainage between the MR&T- Levee and NOV-NFL Levee would be negligible. The proposed conveyance channel would bisect the existing drainage area served by the Wilkinson Canal Pump Station. To address this, the proposed Project would connect the bisected area by a siphon routed beneath the proposed conveyance channel. To maintain siphon flow, water levels within drainage canals within this drainage area south of the proposed diversion, including Timber Canal, would need to be lowered through operation of the Wilkinson Canal Pump Station.

USACE will consider whether this alteration of the Wilkinson Canal Pump Station operations meet 33 U.S.C. Section 408 standards as part of its Section 408 evaluation.

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**Concern ID: 62304**

**Computer modeling from various studies looking at predicted increases in water levels caused by diversion operations have shown wildly varying results.**

**Response ID: 15802**

USACE and the LA TIG acknowledge that various modeling efforts may produce different water level projections in the Barataria Basin depending on the model boundary conditions (for example, diversion discharge, tide and sea level) and geometric data (bathymetry/topography and boundaries); however, we are not aware of any unexplainable large differences in water level predictions among the other various models used. Production-level models, such the Delft3D used for the Draft EIS, produce very similar projections when using the same boundary conditions and geometric data.

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**Concern ID: 62305**

**The threat of community flooding obviously increases with diversion discharge and proximity to the area of outfall. Additionally, some models suggest that outfall areas would be**



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**Response ID: 15824**

**more prone to flooding in the early years of operations, and would need time for channels to evolve in order to expand capacity.**

Water level impacts in the basin were projected by the Delft3D Basinwide Model, as explained in Chapter 4, Section 4.1.3 Overview of Delft3D Basinwide Model for Impact Analysis and Section 4.4.4.2 Surface Water and Coastal Processes, Operational Impacts, Water Levels of the Draft EIS. Draft EIS Sections 4.4.4.2 Surface Water and Coastal Processes and Section 4.20.4.2 Public Health and Safety, Operational Impacts, Floodplains and Tidal Flooding both acknowledged that higher water levels and the risk of community flooding increase with proximity to the diversion outfall. As stated in Section 4.4.4.2, maximum monthly average water levels nearest to the diversion outfall are projected to be highest in the first three modeled decades as compared to the No Action Alternative in the first three modeled decades. Additionally, in Section 4.2.3.2 Geomorphology in Geology and Soils, the Draft EIS discussed previous studies and modeling which indicate development of channel networks early (within 5 to 10 years) have occurred for other diversions in south Louisiana. These other diversions have both similarities and differences with the proposed MBSD Project but help inform potential impacts of the Project on geomorphology. MBSD Project diversion operations may result in a different land building and morphologic evolution than these examples.

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**Concern ID: 62307**

**Operating the diversion in the spring could cause increased water levels in the Terrebonne Basin through the GIWW, directly conflicting with flood fight efforts in Terrebonne. Real-time monitoring would be necessary.**

**Response ID: 15808**

The Terrebonne Basin was not included in the Project area because no impacts are anticipated in that basin from the Project operations. As a result, Delft3D Basinwide Model water level projections were not modeled for this area. However, as shown in Figure 4.4-11 in Section 4.4 Surface Water and Coastal Processes of the Draft EIS, water levels were projected to increase less than one foot in the GIWW during spring operation of the proposed Project. As part of CPRA's Monitoring and Adaptive Management (MAM) Plan (Appendix R2 to the Final EIS), the existing USGS water level gage near Larose would be used for monitoring of water levels during diversion operation. However, the MAM Plan explains that this monitoring data would be used to inform Project partners as to whether, and to what extent, Project operations result in marsh inundation patterns that could potentially cause inundation stress on wetland vegetation. The MAM Plan does not include real-time monitoring for water levels within the GIWW for the purpose of diversion operational adjustments.

The Mitigation and Stewardship Plan and the MAM Plan provided in the Draft EIS Appendix R were submitted by CPRA and represent a range



of potential mitigation, stewardship, monitoring and adaptive management measures (collectively, measures). At the time of publication of the Draft EIS for public review, Appendix R contained draft Plans and CPRA had not identified which of the measures contained in those Plans it intended to implement. CPRA expanded and refined the Final Mitigation and Stewardship Plan in response to community and resource agency input. The Final EIS Appendix R contains the final Plans and specifies which measures CPRA and the LA TIG intend to implement. Generally, impact determinations discussed in the EIS represent anticipated Project effects without implementation of these measures except in instances where such measures are identified in the discussion. If any mitigation, monitoring, or adaptive management measures are required by USACE as part of its approval of the proposed Project, such measures would be required as special conditions of the Department of the Army (DA) Section 10/404 permit and would be listed in the permit, if one is issued. Implementation of specific measures contained in either Plan, but not included in the Section 10/404 permit as special conditions, would not be required by USACE. The USACE does not know whether any particular measure that is not a DA permit condition would be implemented. Measures that USACE currently contemplates as conditions of a DA Section 10/404 permit, if one is issued, are provided in Chapter 4, Section 4.27 Mitigation Summary of the EIS.

The LA TIG explains in Section 1.5 of the Final Restoration Plan that it anticipates requiring implementation of the Mitigation and Stewardship Plan, MAM Plan, and Marine Mammal Intervention Plan as components of the proposed Project, if the Project is approved by the LA TIG for funding. Decisions regarding which measures would be required as part of the LA TIG's funding decision would be set forth in the LA TIG Record of Decision related to the proposed Project.

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**Concern ID: 63002**

**The commenter states that residents of southeast Louisiana had 40 years between Hurricane Betsy in 1965 and Hurricane Katrina in 2005 to learn how to live with nature on a disappearing coast, and have squandered those 40 years, increasing the area's vulnerability and the number of people exposed to danger by expanding the footprint of development and doubling down on levees and pumps, paying the price as storm after storm devastates community after community.**

**Response ID: 15754**

Comment noted. EIS Section 3.20 (Public Health and Safety, Including Flood and Storm Hazard Risk Reduction) provides the historical context of storm surge impacts.

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**Concern ID: 63006**

**The commenter suggests that southerly winds begin in spring and often last through fall, causing higher water levels and coastal flooding issues regardless of river stage. The commenter asserts**

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**that it will be difficult, from both a physical standpoint of high basin-side water levels as well as a sociopolitical standpoint of the perception of flood risk, to operate large-scale diversions during these months, noting that real-time monitoring will be a necessity.**

**Response ID: 15763**

The Delft3D Basinwide Model simulations, which were used in the Draft EIS to project flood risk, included wind as one input as described in the EIS Appendix E Delft3D Modeling, Section 3.2.2 Atmospheric Forcing and summarized in Chapter 4, Section 4.1.3 Overview of Delft3D Basinwide Model for Impact Analysis. Meteorological data recorded throughout 2014, including windspeed and direction recorded at 6-hour intervals in the basin over the course of the year, was used in the model. That data reflects the seasonal variation in wind speed and direction that occurred in the basin in 2014 and was factored into model outputs with respect to water levels. Appendix E Delft3D Modeling, Section 3.2.2 Atmospheric Forcing has been edited in the Final EIS to clarify this. Further, as part of CPRA's proposed Monitoring and Adaptive Management (MAM) Plan, Appendix R2 to the Final EIS, real-time monitoring of water levels during diversion operation would be collected at stations in the Mississippi River and Barataria Basin. However, the MAM Plan explains that this monitoring data would be used to inform Project partners as to whether, and to what extent, Project operations result in marsh inundation patterns that could potentially cause inundation stress on wetland vegetation. The MAM Plan does not include real-time monitoring for water levels for the purpose of diversion operational adjustments. CPRA's operation of the diversion based on Mississippi River flows is described in Chapter 2, Section 2.8.1.4 Project Operations of the EIS.

The Mitigation and Stewardship Plan and the MAM Plan provided in the Draft EIS Appendix R were submitted by CPRA and represent a range of potential mitigation, stewardship, monitoring and adaptive management measures (collectively, measures). At the time of publication of the Draft EIS for public review, Appendix R contained draft Plans and CPRA had not identified which of the measures contained in those Plans it intended to implement. CPRA expanded and refined the Final Mitigation and Stewardship Plan in response to community and resource agency input. The Final EIS Appendix R contains the final Plans and specifies which measures CPRA and the LA TIG intend to implement. Generally, impact determinations discussed in the EIS represent anticipated Project effects without implementation of these measures except in instances where such measures are identified in the discussion. If any mitigation, monitoring, or adaptive management measures are required by USACE as part of its approval of the proposed Project, such measures would be required as special conditions of the Department of the Army (DA) Section 10/404 permit and would be listed in the permit, if one is issued.

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Implementation of specific measures contained in either Plan, but not included in the Section 10/404 permit as special conditions, would not be required by USACE. The USACE does not know whether any particular measure that is not a DA permit condition would be implemented. Measures that USACE currently contemplates as conditions of a DA Section 10/404 permit, if one is issued, are provided in Chapter 4, Section 4.27 Mitigation Summary of the EIS.

The LA TIG explains in Section 1.5 of the Final Restoration Plan that it anticipates requiring implementation of the Mitigation and Stewardship Plan, MAM Plan, and Marine Mammal Intervention Plan as components of the proposed Project, if the Project is approved by the LA TIG for funding. Decisions regarding which measures would be required as part of the LA TIG's funding decision would be set forth in the LA TIG Record of Decision related to the proposed Project.

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**Concern ID: 64508**

**The proposed Project would introduce contamination that could potentially make fish and shellfish more harmful for public consumption.**

**Response ID: 15825**

Chapter 4, Sections 4.5.5.3 through 4.5.5.9 of the EIS discuss anticipated changes in chemical concentrations in the Barataria Basin due to the proposed Project. The general impacts of these chemical compounds/nutrients on aquatic resources are discussed in Section 4.10.4.4 General Impacts on Habitat and the Environment. Potential contaminants, including sulfate, atrazine, and fecal coliform were also modeled and discussed in Sections 4.5.5.7 Sulfate and 4.5.5.9 Atrazine. The Delft3D Basinwide Model projects that the proposed Project would result in beneficial decreases in sulfate and would have negligible impacts on atrazine levels and they are therefore not specifically discussed in Section 4.10. A discussion of fecal coliform has been added to Section 4.10.4.4.2.5 Dissolved Oxygen of the Final EIS; however, it is not harmful to fish and shellfish themselves. Chapter 4, Section 4.10.4.4 General Impacts on Habitat and the Environment has also been supplemented in the Final EIS to discuss the potential for bioaccumulation of river water contaminants in biota of the Barataria Basin.

Section 4.14.4.2.3 in Commercial Fisheries has been updated in the Final EIS to discuss the National Shellfish Sanitation Program and the Louisiana Department of Health's oversight of shellfish harvesting in order to prevent harvest of oysters that may contain unsuitable levels of fecal coliform or toxins harmful to human health. Additionally, Appendix R2 in the Final EIS includes CPRA's Monitoring and Adaptive Management (MAM) Plan that describes monthly fecal coliform monitoring (Section 3.7.5.1) and periodic sampling for Contaminants of Concern in fish, shellfish, and wildlife (Section 3.7.3.23).

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**Concern ID: 64507**

**The assertion that the proposed Project impacts “tidal flooding” is an improper use of the term. Additionally, effects of increased surface water elevation can be minimized by proper operation of the diversion, such as by closing the structure when tropical storms are predicted, or when wind speeds and directions conducive to higher water surface elevations are predicted.**

**Response ID: 15827**

In the context of this EIS, the term “tidal flooding” is used to distinguish non-storm related coastal flooding from coastal flooding caused by storm surge and/or waves. For the purposes of the impact assessment in the Draft EIS, it was assumed that the proposed Project would be operated according to CPRA’s Preliminary Operations (Water Control) Plan (see Draft EIS Appendix F MBSD Design and Operations Information). This Plan indicates that the diversion gates would be opened fully (above base flow) when flow in the Mississippi River at Belle Chasse exceeds the “trigger” of 450,000 cfs. The Plan includes criteria for modifying or ceasing diversion operations, including threats to public safety. The Plan also requires closure of the diversion gates and cessation of all diversion flows when tropical depressions or named storms are forecasted to impact the Barataria and Mississippi River Basins.

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**Concern ID: 62298**

**Flood management decisions throughout the basin are piecemeal by varied agencies.**

**Response ID: 15811**

Draft EIS Section 3.20 Public Health and Safety acknowledged the varied entities responsible for federal and non-federal storm and flood risk reduction infrastructure, as well as state and local government roles in emergency response and evacuations, and local land use decisions (such as zoning) that affect flooding risks faced by homeowners and businesses.

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## EC62000 – Navigation

<b>Concern ID: 61765</b>	<b>Keep the Port of New Orleans open and navigable.</b>
<b>Response ID: 16443</b>	The issue raised by the commenter was considered in the development of the Draft EIS. The construction and operation of the proposed Project would have negligible impacts on the Port of New Orleans, including, but not limited to, negligible impacts on dredging and operations at the Port. Chapter 4, Section 4.21.4.1.2.1 Maintenance Dredging has been updated in the Final EIS to include a discussion of negligible impacts on the Port of New Orleans as a result of construction and operation of the proposed Project. Impacts to navigation are also discussed in that section.
<b>Concern ID: 61766</b>	<b>The commenter expressed concern that a lack of a strong consistent flow in the Mississippi River has made the river more treacherous due to silting. Diverting more water from the river via the proposed MBSD diversion during low-water periods would further reduce the flow/velocity despite what the Draft EIS states, thereby eventually making the river too shallow to pass.</b>
<b>Response ID: 16444</b>	The commenter's concern about the proposed Project's impacts on the safety and efficiency of vessel traffic was addressed in the Draft EIS. Operation of the proposed Project above 5,000 cfs would be limited to periods of higher flows in the river, as stated in Draft EIS Chapter 2, Section 2.8.1.4 in Action Alternatives Carried Forward for Detailed Analysis, when water depth and vessel clearance is less of an issue. However, the EIS recognizes that changes to sedimentation rates might persist into the low-water season, as the commenter correctly notes. The several modeling efforts described in the EIS Chapter 4, Section 4.4 Surface Water and Coastal Processes and 4.21 Navigation, as well as in Appendix E Delft3D Modeling and in Appendix Q Navigation/Dredging Analysis, include projections of channel sedimentation impacts resulting from operation of the proposed diversion. The conclusion stated in those sections is that operation of the Applicant's Preferred Alternative is projected to cause "moderate, permanent, adverse impacts on dredging operations from Venice to the Gulf of Mexico."
<b>Concern ID: 62283</b>	<b>The commenter questioned who would be responsible for maintaining/dredging the navigation channels in the areas impacted by proposed diversion operations.</b>
<b>Response ID: 16445</b>	As stated in the Draft EIS in Chapter 4, Section 4.21 Navigation, the USACE would continue to maintain federal navigation channels in the Project area during Project operations. Other non-federal channels and facilities (for example, marinas, anchorages) near these channels

would be expected to also experience increased sedimentation (see Section 4.21.5.2 in Navigation).

CPRA plans to mitigate the effects of the Project on boat access from Myrtle Grove and Woodpark to the basin as explained in Appendix R1 Mitigation & Stewardship Plan.

The Mitigation and Stewardship Plan and the Monitoring and Adaptive Management (MAM) Plan provided in the Draft EIS Appendix R were submitted by CPRA and represent a range of potential mitigation, stewardship, monitoring and adaptive management measures (collectively, measures). At the time of publication of the Draft EIS for public review, Appendix R contained draft Plans and CPRA had not identified which of the measures contained in those Plans it intended to implement. CPRA expanded and refined the Final Mitigation and Stewardship Plan in response to community and resource agency input. The Final EIS Appendix R contains the Final Mitigation and Stewardship Plan and specifies which measures CPRA intends to implement. Generally, impact determinations discussed in the EIS represent anticipated Project effects without implementation of these measures except in instances where such measures are identified in the discussion. If any mitigation, monitoring, or adaptive management measures are required by USACE as part of its approval of the Project, such measures would be required as special conditions of the Department of the Army (DA) Section 10/404 permit and would be listed in the permit, if one is issued. Implementation of specific measures contained in either Plan, but not included in the Section 10/404 permit as special conditions, would not be required by USACE. USACE does not know whether any particular measure that is not a DA permit condition would be implemented. Measures that USACE currently contemplates as conditions of a DA Section 10/404 permit, if one is issued, are provided in Chapter 4, Section 4.27 Mitigation Summary of the EIS.

The LA TIG explains in Section 1.5 of the Final Restoration Plan that it anticipates requiring implementation of the Mitigation and Stewardship Plan, MAM Plan, and Marine Mammal Intervention Plan as components of the proposed Project, if the Project is approved by the LA TIG for funding. Decisions regarding which measures would be required as part of the LA TIG's funding decision would be set forth in the LA TIG Record of Decision related to the proposed Project.

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**Concern ID: 62286**

**The commenter requested that the sediment delivery function of the Mississippi River be separated from the navigation function of the Mississippi River and requested that the USACE review the article:**



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**Harley S. Winer, 2007. A New Paradigm for Managing the Lower Mississippi River, Coastal Engineering 2006, World Scientific Publishing Co., Inc. Hackensack, NJ. pp. 2000-2011.**

**Response ID: 16446**

The USACE has reviewed the Winer (2007) article and agrees that reengineering the Mississippi River's water and sediment delivery system to allow more land and marsh building in Atchafalaya Bay is an innovative concept. However, the proposed Project would not have more than negligible impacts on the Atchafalaya Bay, and the EIS analysis is centered on the Project area (where more than negligible impacts of the Project would occur), particularly on the Barataria Basin and the birdfoot delta, as described in Chapter 1, Purpose and Need of the EIS. Therefore, the recommendation in the article is outside the scope of the MBSD Project. No related edits have been made to the Final EIS.

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**Concern ID: 62290**

**The commenter expressed concern that if multiple diversions are to be operated simultaneously, or if the river experiences a period of very low stages, sufficient draft for shipping could be threatened. The Port of Baton Rouge, Port of New Orleans, and the Port of South Louisiana are three of the ten largest shipping ports in the nation. These shipping and associated transportation industries could be impacted unless careful planning assures that critical water volumes and navigation channels are maintained.**

**Response ID: 16447**

The Draft EIS considered the commenter's concern about the importance of the safety and efficiency of vessel traffic. Operation of the proposed diversion above 5,000 cfs would be limited to periods of higher flows in the river, as stated in Draft EIS Chapter 2, Section 2.8.1.4 Project Operations, when water levels, water depth, and vessel clearance are less of an issue. However, the EIS recognizes that changes to sedimentation rates might persist into the low-water season, as the commenter correctly notes. The several modeling efforts described in the EIS Chapter 4, Section 4.4 Surface Water and Coastal Processes and 4.21 Navigation, as well as in Appendix E Delft3D Modeling and Appendix Q Navigation/Dredging analysis, include projections of water levels, adequate navigation draft, and channel sedimentation impacts resulting from operation of the proposed diversion. The models showed no navigation draft impacts from Venice to New Orleans and above, including at the Port of Baton Rouge, the Port of South Louisiana, and the Port of New Orleans. The conclusion stated in those sections is that operation of the Applicant's Preferred Alternative is projected to cause "moderate, permanent, adverse impacts on dredging operations from Venice to the Gulf of Mexico."

Potential future projects, including the Mid-Breton Sediment Diversion and other diversions, considered for Cumulative Impacts, were modeled and are listed in the Draft EIS Table 4.25.1-1. Cumulative



effects on navigation are discussed in Section 4.25.21 Cumulative Impacts - Navigation. The conclusion is that there will be no navigation draft impacts from Venice to New Orleans and above, but “The combined cumulative impacts on dredging ... in the Mississippi River from Venice to the Gulf will be moderate to major, adverse and permanent.”

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**Concern ID: 62293**

**The commenter noted that the vessel simulation model in the Draft EIS Appendix Q Navigation/Dredging Analysis includes pilot cards that are inconsistent with vessel drafts listed for the vessel simulations.**

**Response ID: 16448**

Suezmax, Panamax and VLCC vessels were used in the navigation simulations as described in the Draft EIS, Appendix Q2 Navigation Study Reports were correctly identified in the text. “Suezmax” and “Panamax” are dimension classifications and “VLCC” is a tonnage classification. The ship simulator operator, Maritime Institute of Technology & Graduate Studies (MITAGS) indicated that what was listed as a “pilot card” was actually a filename for the model simulation, which was meant for internal use. To avoid confusion, the USACE has added the following note to page 25 of Appendix A of Appendix Q2 Navigation Study Reports of the Final EIS: “NOTE: The ‘Ship Name’ on the following Pilot Cards is an internal file name to the ship simulation computer and does not necessarily correspond to the vessel nomenclature used in the descriptive text. In all cases, the main body text description of vessel characteristics is correct.”

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**Concern ID: 63407**

**The MBSD Project would cause sediment deposition in the ship channel and, unlike the West Bay Diversion, it is not in an area where the USACE performs channel maintenance dredging. Therefore, any shoaling in the channel and within the Wills Point Anchorage should be removed by the Applicant (the Coastal Protection and Restoration Authority). Commenter requests that the USACE lead an effort to properly model the impact of the hydrology changes and shoaling in the vicinity of the proposed diversion structure before approving the permit application. According to recent surveys of the Pilottown Anchorage done by the USACE and CPRA, there are over 60 million cubic yards of material within the Pilottown Anchorage.**

**Response ID: 16450**

The issue raised by the commenter was considered in the Draft EIS in Chapter 4, Section 4.4.3 Hydrology and in Appendix Q1 Dredging Analysis, Section 5.1. With regard to the Wills Point Anchorage Area, about 6 miles above the proposed diversion, it is in the area of which paragraph 5.1 of the Draft EIS Appendix Q1 Dredging Analysis says, “... the models agree ... may experience negligible net erosion.” Therefore, the USACE believes no deposition would occur and no further detailed modeling of that area is required. While increased

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deposition below the diversion is anticipated, HEC-6T modeling predicts that accumulation would primarily occur in the lateral bars. Because the navigation channel (above Venice) is naturally much deeper than navigation depth, any increased deposition within the channel would not threaten the authorized navigation depth and no dredging would be needed to maintain the navigation channel.

With regard to the channel below Venice, including the Pilottown Anchorage, paragraph 5.4 of the Draft EIS Appendix Q1 Dredging Analysis notes that the HEC-6T model, considered the most reliable of those applied to the Mississippi River above Head of Passes, showed a small decrease in channel dredging between Venice and Head of Passes for the first 44 years of the proposed Project with a small increase possible after that time. The AdH model showed that the presence of multiple upstream sediment diversions resulted in a net reduction in sediment deposition, and an upstream shift in the location of deposition in the vicinity of Head of Passes (similar to the No Action Alternative). The modeling indicated a risk of some additional deposition at or upstream of Venice, but did not indicate such a risk for the Pilottown Anchorage. These results are consistent with the 1D HEC-6T model results. The USACE considers these results for the channel to be applicable to the adjacent anchorages and channels. No additional modeling for this issue has been conducted for the Final EIS.

USACE acknowledges that the West Bay Diversion increased the amount of shoaling that was occurring in the Pilottown Anchorage. However, the applicability of the West Bay Diversion to the MBSD Project is limited since the West Bay Diversion was essentially adjacent to the dredged area instead of approximately 60 miles upstream.

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**Concern ID: 63408**

**Additional ship modeling should be required because the ship simulation in the Draft EIS, Appendix Q Navigation/Dredging Analysis was based on 15-percent design. The details and information should also be peer reviewed with navigation industry representatives and the USACE.**

**Response ID: 16449**

The USACE's independent team of reviewers reviewed the ship simulation in Appendix Q Navigation/Dredging Analysis and determined it is sufficient for USACE's evaluation of impacts for the EIS. CPRA's 60 percent designs for the proposed Project have decreased the extent to which the Project's intake structure (including the temporary construction cofferdam and the permanent protection cells) would extend into the Mississippi River. Therefore, although the simulation was based on 15 percent designs, those designs represent a worse-case scenario of potential impacts on vessels transiting past the diversion when it is in operation. No related revisions were made to the Final EIS.

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## EC62100 – Land-based Transportation

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**Concern ID: 65169**

**The commenter expressed concern that construction of the proposed Project would impact the construction of the Belle Chasse Bridge. Commenter questioned whether and how the proposed MBSD Project would impact transportation systems, for example traffic counts, tolling, etc.**

**Response ID: 16493**

The impacts on area traffic from the proposed Project were considered in the Draft EIS. During the 5-year construction period of the Project, CPRA estimates that construction truck deliveries would generate up to 100,100 roundtrips to the diversion complex via LA 23 during the construction period, with the majority of truck deliveries (approximately 94,000) occurring during the first 42 months (3.5 years) of proposed Project construction. This equates to an estimated 515 truck deliveries per week over this duration, or about 103 roundtrips each day based on a 5-day workweek. This would represent less than a 2 percent increase in the existing daily traffic of 9,300 vehicles. Much of the truck traffic may travel across the Belle Chasse Bridge en route to the proposed MBSD Project site on LA 23. Because proposed MBSD Project-induced increased traffic would only increase LA 23 traffic by 2 percent above existing traffic levels on LA 23, the proposed Project is not expected to cause more than a minor increase in traffic on the bridge, and therefore is not expected to impact the construction timeframe or future tolling system of the Belle Chasse Bridge. Chapter 4, Section 4.22 (Land-Based Transportation) and Section 4.25.22 Cumulative Impacts, Land-Based Transportation provide more details on traffic studies and traffic impact analyses conducted for the proposed MBSD Project.

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## EC62200 – Cultural Resources

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**Concern ID: 62493**

**The proposed Project operations will flood two cemeteries in the towns of Lake Hermitage and Deer Range, Louisiana.**

**Response ID: 16451**

The potential flooding impacts raised by the commenters were considered in the Draft EIS. According to the Louisiana State Historic Preservation Office (LA SHPO) database, the Lake Hermitage cemetery is identified as the Bieber Cemetery and the Deer Range Cemetery in Suzy Bayou is identified as the Deer Range Cemetery. As compared to the No Action Alternative, operation of the proposed Project would increase tidal flooding and storm surge in communities outside of federal levees within 20 miles of the outfall area, including

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the towns of Lake Hermitage and Suzie Bayou South (Deer Range) in which these cemeteries are located. Such events may result in sediment deposition (burial) and/or erosion of soils at each of these cemeteries. Chapter 4, Section 4.4.4 in Surface Water and Coastal Processes and Section 4.13.3.1 in Socioeconomics detail these impacts.

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**Concern ID: 62494**

**The commenter expressed concern that the undetermined National Register of Historic Places (NRHP) eligibility of some sites in the Project area is being equated with ineligibility. For example, 21 of the 31 sites, or 2/3, are presumed to be inundated or destroyed and are consequently ineligible.**

**Response ID: 16452**

As indicated in Chapter 4, Section 4.24 Cultural Resources of the Draft EIS, the National Register eligibility of all identified historic properties within the Operational Area of Potential Effects (APE) was considered by the USACE with comments from the LA SHPO. The USACE determined that the intensity and duration of potential Project-induced impacts on submerged archaeological sites in the Operational Impacts APE cannot be separated from ongoing sea-level rise, subsidence, and other processes not caused by the proposed Project. The USACE, LA SHPO, ACHP, CPRA, and other consulting parties have developed a Programmatic Agreement (PA) for the long-term monitoring and management of cultural resources in the Operational Impacts APE. The PA is available in Appendix K Cultural Resources Information of the Draft EIS.

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**Concern ID: 62495**

**The commenter expressed concern that the lack of archaeological integrity makes individual sites ineligible, but overlooks the fact that sites regarded as ineligible together might contribute information from a regional programmatic approach. The piecemeal approach used is not the right way to approach a regional-scale project.**

**Response ID: 16453**

As indicated in Section 4.24 Cultural Resources of the Draft EIS, all archival research regarding potential sites containing historic properties and completed field surveys were reviewed by the Section 106 Consulting Parties. To address the potential for adverse effects of the proposed Project on cultural resources, including archaeological sites, within the Operational Impacts APE, the USACE, LA SHPO, and other consulting parties developed an alternative mitigation plan for the proposed Project that includes an ethnohistoric overview regarding Tribal Nations in the Barataria Basin and larger Mississippi River Delta region.

In addition, unrelated to the proposed Project, the National Park Service's Mississippi River Delta Archaeological Mitigation Project (MRDAM) is collecting data from archaeological sites in the Mississippi River Delta region, including the Barataria Basin and birdfoot delta, to

develop a database of sites under threat from sea-level rise and subsidence in Louisiana's coastal zone.

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**Concern ID: 62496**

**The commenters requested that state and federal officials work with residents of Ironton for Project impacts on the St. Rosalie cemeteries. These are sacred sites to the people of Ironton because the graves of their ancestors are buried there. The Final EIS should include a discussion about the fact that the proposed MBSD Project would impact community visitation to these sacred sites at St. Rosalie by creating a large physical separation between the community of Ironton and the St. Rosalie sites.**

**Response ID: 16454**

As indicated in Chapter 4, Section 4.24 Cultural Resources of the Draft EIS, with input from the Section 106 consulting parties, the USACE and LA SHPO have determined that the St. Rosalie Plantation Cemetery (identified as Site 16PL280) and Ironton Cemetery would not be impacted by construction or operation of the proposed MBSD Project. The cemeteries are currently and would continue to be on private property. Residents of Ironton currently have access to the cemeteries via LA 23 and would continue to have access to the St. Rosalie cemeteries via LA 23 during and after the proposed Project is constructed. During the 5-year construction phase of the proposed Project, two-way traffic on LA 23 would be maintained. Northbound traffic would utilize the two existing southbound lanes, maintaining the existing two-lane capacity. Southbound traffic would utilize the shoulder, reducing southbound roadway capacity from two lanes to one. This reduction in capacity may cause delays for southbound traffic over a 1.5-year period during the duration of construction (see the Draft EIS, Chapter 4, Section 4.22.3.1 Construction Impacts).

To clarify potential impacts on Ironton, Section 4.15 Environmental Justice has been revised to highlight information about potential impacts on the community of Ironton in the Final EIS. For a summary of public outreach efforts related to the EIS refer to Chapter 7 of the Final EIS and for restoration planning see Section 1.8 of the LA TIG's Draft Restoration Plan.

CPRA held a public meeting in the community of Ironton. CPRA states that it would provide additional opportunities for public engagement if the proposed Project moves forward. A summary of these public engagement meetings can be found in Chapter 7 of the Final EIS. Refer to the Final Mitigation and Stewardship Plan in Appendix R1 for mitigation and stewardship measures that would be implemented as a result of the public involvement and engagement efforts.

The Mitigation and Stewardship Plan and the Monitoring and Adaptive Management Plan provided in the Draft EIS Appendix R were submitted by CPRA and represent a range of potential mitigation, stewardship, monitoring and adaptive management measures

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(collectively, measures). At the time of publication of the Draft EIS for public review, Appendix R contained draft Plans and CPRA had not identified which of the measures contained in those Plans it intended to implement. CPRA expanded and refined the Final Mitigation and Stewardship Plan in response to community and resource agency input. The Final EIS Appendix R contains the Final Mitigation and Stewardship Plan and specifies which measures CPRA intends to implement. Generally, impact determinations discussed in the EIS represent anticipated Project effects without implementation of these measures except in instances where such measures are identified in the discussion. If any mitigation, monitoring, or adaptive management measures are required by USACE as part of its approval of the Project, such measures would be required as special conditions of the Section 10/404 permit and would be listed in the permit, if one is issued. Implementation of specific measures contained in either Plan, but not included in the Section 10/404 permit as special conditions, would not be required by USACE. USACE does not know whether any particular measure that is not a Section 10/404 permit condition would be implemented. Measures that USACE currently contemplates as conditions of a DA Section 10/404 permit, if one is issued, are provided in Chapter 4, Section 4.27 Mitigation Summary of the EIS.

The LA TIG explains in Section 1.5 of the Final Restoration Plan that it anticipates requiring implementation of the Mitigation and Stewardship Plan, MAM Plan, and Marine Mammal Intervention Plan as components of the proposed Project, if the Project is approved by the LA TIG for funding. Decisions regarding which measures would be required as part of the LA TIG's funding decision would be set forth in the LA TIG Record of Decision related to the proposed Project.

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**Concern ID: 62498**

**The commenter owns waterfront property near Port Sulphur and has a family cemetery that is an historic landmark. The commenter has owned and enjoyed this property for many generations and planned to have future generations enjoy this as well. The commenter wants to know what impacts the Project would have on the family cemetery that is an historic landmark.**

**Response ID: 16456**

The potential impacts raised by the commenter were considered in the Draft EIS. According to the LA SHPO database of historic sites, the Lake Hermitage cemetery located near the address provided by the commenter is identified as the Bieber Cemetery. As compared to the No Action Alternative, operation of the proposed Project would increase tidal flooding and storm surge in communities outside of federal levees within 20 miles of the outfall area, including the town of Lake Hermitage in which this cemetery is located. Such events may result in impacts from sediment deposition (burial) and/or erosion. Chapter 4, Section

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4.4.4 in Surface Water and Coastal Processes and Section 4.13.3.1 in Socioeconomics detail these impacts.

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**Concern ID: 62499**

**Several Indigenous Peoples of the State of Louisiana are already experiencing losses of important cultural sites and historic territories due to erosion. They should have been consulted. The commenter understands there is no legal obligation, but state-recognized Tribal Nations like the United Houma Nation, Pointe Aux Chien Indians, and the Isle de Jean Charles Band of the Biloxi-Chitimacha-Choctaw-Muskogee Creek Indians would be MOST affected by this sediment diversion; so it stands to reason that there is an ethical obligation to invite and collaborate with their council. The fact that the state has recognized many of these Native Nations even if the federal government does not implies an obligation to consult with all Indigenous Peoples in an area that would be impacted by a state-sponsored project.**

**Response ID: 16457**

The USACE acknowledges the commenter's concern about ensuring that all potentially affected Tribal Nations be invited to participate in the Section 106 consultation process. As indicated in Chapter 4, Section 4.24 Cultural Resources of the Draft EIS, cultural resources consultations have been conducted in accordance with Section 106 of the NHPA. Appendix K Cultural Resources Information of the EIS includes the PA negotiated between the Section 106 consulting parties regarding the proposed Project. The PA explains the outreach conducted by the USACE to Tribal communities, identifies the Tribal Nations that decided to participate in the Section 106 Process, and explains that the USACE has and would continue to consult with any interested Tribal Nation who may have not yet requested to consult.

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**Concern ID: 62497**

**The commenters request that state and federal officials work with the residents of Ironton to respect the rights of these people to make decisions about what happens to sacred places (like St. Rosalie cemeteries) and how to best preserve and protect this local black community that is an important part of black history.**

**Response ID: 16455**

Information regarding the effects of the Project on the St. Rosalie cemetery has been added to the Executive Summary and to Chapter 4, Section 4.24.2.2 Applicant's Preferred Alternative in Cultural Resources of the Final EIS. To clarify potential impacts on Ironton, Section 4.15 Environmental Justice has been revised to highlight information about potential impacts on the community of Ironton in the Final EIS. For a summary of public outreach efforts related to the EIS and the Draft Restoration Plan, including outreach to Ironton residents, refer to Chapter 7 of the Final EIS. Similar information specific to the restoration planning is included in Section 1.8 of the LA TIG's Draft Restoration Plan.



CPRA held a public meeting in the community of Ironton. CPRA states that it would provide additional opportunities for public engagement if the proposed Project moves forward. A summary of these public engagement meetings can be found in Chapter 7 of the Final EIS. Refer to the Final Mitigation and Stewardship Plan in Appendix R1 for mitigation and stewardship measures that would be implemented as a result of the public involvement and engagement efforts.

The Mitigation and Stewardship Plan and the Monitoring and Adaptive Management (MAM) Plan provided in the Draft EIS Appendix R were submitted by CPRA and represent a range of potential mitigation, stewardship, monitoring and adaptive management measures (collectively, measures). At the time of publication of the Draft EIS for public review, Appendix R contained draft Plans and CPRA had not identified which of the measures contained in those Plans it intended to implement. CPRA expanded and refined the Final Mitigation and Stewardship Plan in response to community and resource agency input. The Final EIS Appendix R contains the Final Mitigation and Stewardship Plan and specifies which measures CPRA intends to implement. Generally, impact determinations discussed in the EIS represent anticipated Project effects without implementation of these measures except in instances where such measures are identified in the discussion. If any mitigation, monitoring, or adaptive management measures are required by USACE as part of its approval of the Project, such measures would be required as special conditions of the Department of the Army (DA) Section 10/404 permit and would be listed in the permit, if one is issued. Implementation of specific measures contained in either Plan, but not included in the Section 10/404 permit as special conditions, would not be required by USACE. USACE does not know whether any particular measure that is not a DA permit condition would be implemented. Measures that USACE currently contemplates as conditions of a DA Section 10/404 permit, if one is issued, are provided in Chapter 4, Section 4.27 Mitigation Summary of the EIS.

The LA TIG explains in Section 1.5 of the Final Restoration Plan that it anticipates requiring implementation of the Mitigation and Stewardship Plan, MAM Plan, and Marine Mammal Intervention Plan as components of the proposed Project, if the Project is approved by the LA TIG for funding. Decisions regarding which measures would be required as part of the LA TIG's funding decision would be set forth in the LA TIG Record of Decision related to the proposed Project.

## EC62300 – HTRW Assessment

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<b>Concern ID: 61864</b>	<b>USACE and the Project sponsors have a responsibility to do a formal, limited Phase I Assessment of the Hazardous, Toxic, and Radioactive Waste risk. Firm conclusions must only be provided when a formal, appropriately detailed assessment stand behind them.</b>
<b>Response ID: 15931</b>	The issues raised by the commenters were considered in the Draft EIS; therefore, no related edits have been made to the Final EIS. As indicated in EIS Chapter 3, Section 3.23 Hazardous, Toxic, and Radioactive Waste, a Phase I Environmental Site Assessment was conducted in January 2020 to identify any potential recognized environmental conditions (RECs) located in or adjacent to the Project area that have, or may have in the past, adversely impacted environmental conditions. The conclusions in Chapter 4 of the EIS are based on this assessment.

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<b>Concern ID: 62953</b>	<b>Many or most of the ongoing environmental harms to the Barataria Basin are not mentioned in the Draft EIS. Pipelines and wells present a significant present risk to the natural resources of Barataria Basin. Ongoing releases do indeed impact the health of the natural resources of the Barataria Basin, including marine mammals, fisheries, and endangered species. The Draft EIS discusses these releases in the context of its discussion of the potential impact of the continuing releases on the affected environment or in terms of their potential impact on the proposed MBSD Project.</b>
<b>Response ID: 15930</b>	The issues raised by the commenters were considered in the Draft EIS; therefore, no related edits have been made to the Final EIS. The EIS notes in Chapter 3, Sections 3.2 Geology and Soils and 3.23 Hazardous, Toxic, and Radioactive Waste and Chapter 4, Sections 4.2 and 4.23, the existing presence of oil and gas pipelines and wells within the Project area. The EIS determined that increased water flow and sedimentation due to operation of the proposed Project could potentially create exposure to existing contaminated sites and inadvertent releases of contaminants resulting in minor to major, short to long term, adverse impacts over time. However, as noted in Section 4.2 Geology and Soils, burial of pipelines due to sedimentation from the proposed Project may be beneficial in that it would reduce the exposure of these pipelines to wave energy or collision damage and resulting risk of petroleum spills.

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## ES70000 – Cumulative Impacts

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<b>Concern ID: 61846</b>	<b>The commenter requested that the Final EIS, Chapter 4, Section 4.25 Cumulative Impacts be updated to include recent information about IGP Methanol, LLC, Venture Global/Gator Express, Pointe LNG, Castleton Commodities Incorporated, and Formosa Plastics moving forward with construction in the proposed Project area.</b>
<b>Response ID: 16460</b>	<p>Each of these projects was considered in the cumulative impacts analysis of the Draft EIS (Chapter 4, Section 4.25) with the exception of the Formosa Plastics project, which was not included in the cumulative impacts analysis because that project would be located in St. James Parish, far north of the Mid-Barataria Sediment Diversion Project impact area. In Section 4.25 Cumulative Impacts, the Castleton Commodities Inc. project is called “Braithwaite Methanol Plant/CCI Port Nickel LLC.”</p> <p>Reasonably foreseeable projects and information about them was based on the stage of development that the actions and facilities had reached at the time the Draft EIS was being prepared. The cumulative impacts analysis in the Draft EIS was based on the status of projects in May 2020. No related edits have been made for the Final EIS for these facilities.</p> <p>In May 2022 after publication of the Draft EIS, the USACE conducted a search to identify any new/additional reasonably foreseeable projects that, cumulatively with the proposed MBSD Project, have the potential to significantly alter the environmental landscape from what was assessed in the Draft EIS. After identifying new, reasonably foreseeable projects, USACE evaluated those projects for their potential to significantly affect the environmental landscape that was presented in the Draft EIS and concluded that none would significantly change the MBSD cumulative impacts as described in the Draft EIS. Nevertheless, USACE determined that five newly-identified projects would have more than negligible cumulative impacts. To provide a complete picture of MBSD cumulative effects to the decision maker(s) and the public, these five projects have been added to the Final EIS in Chapter 4, Section 4.25.25 Cumulative Impacts Analysis 2022 Update.</p>
<b>Concern ID: 61847</b>	<b>The commenter requested that the Draft EIS include analyses of several river diversions that are included in CPRA’s Master Plan that would have impacts on proposed Project-area resources associated with reduced salinity and lower water turbidity, including the Lower Breton Diversion (50,000 cfs), Central Wetlands Diversion (5,000 cfs), East Maurepas Diversion (2,000 cfs), Manchac Landbridge Diversion (2,000 cfs), Union Freshwater Diversion (25,000 cfs), Mid-Breton Sound Diversion (35,000 cfs), and Mid-Barataria Diversion (75,000 cfs).</b>

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**Response ID: 16461**

Although the Lower Breton Diversion (50,000 cfs), Central Wetlands Diversion (5,000 cfs), Manchac Landbridge Diversion (2,000 cfs), and Union Freshwater Diversion (25,000 cfs) are included in CPRA's 2017 Master Plan, they are not included in the cumulative impacts analysis of the EIS because they do not meet the definition of reasonably foreseeable as defined and agreed to by the consulting agencies in Section 4.25.1 Methodology for Assessing Cumulative Impacts. This section states, "Projects that would require a Department of the Army permit application, including but not limited to projects proposed for the Project area in CPRA's 2017 Coastal Master Plan, were considered reasonably foreseeable if a permit application had been submitted to the USACE by May 2020." Additionally, as further stated in that section, the cumulative impacts analysis was restricted to projects and actions that would contribute impacts on resources within the same geographic area as the Mid-Barataria Sediment Diversion Project. That geographic area is illustrated in Chapter 3, Section 3.1.1 Project Area.

The proposed Maurepas Diversion is being studied by USACE and a Draft EIS for that project will be published in 2022. Due to its small scale (2,000 cfs) and its location outside of the Mid-Barataria Sediment Diversion Project area of impact, anticipated cumulative effects with that diversion in place would be negligible.

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**Concern ID: 61848**

**Commenters expressed the opinion that the Mid-Barataria Sediment Diversion Project would help support and enhance the lifespan of other coastal restoration and protection projects.**

**Response ID: 16462**

The commenters correctly note that, as discussed in Chapter 4, Section 4.25.6 Cumulative Impacts, Wetland Resources and Waters of the U.S., "Cumulative impacts on wetland accretion from operation of the reasonably foreseeable future projects combined with operation of the MBSD Project action alternatives would likely result in fewer losses in wetlands in both the Barataria Basin and birdfoot delta, but most notably in the Barataria Basin, where implementation of the MBSD Project action alternatives would prevent the loss of an additional 26,000 acres."

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**Concern ID: 61849**

**The commenter questioned to what degree the proposed MBSD Project would adversely impact Mississippi Sound aquatic life and commercial fisheries. The commenter expressed concern that these resources are already adversely impacted by Bonnet Carré Spillway openings.**

**Response ID: 16463**

The commenter's concerns about freshwater impacts on Mississippi Sound aquatic life and fisheries are acknowledged. However, the proposed Project is not anticipated to have more than negligible impacts on aquatic life outside of the proposed Project area, particularly in the Barataria Basin and the Mississippi River birdfoot delta, as defined in Chapter 3, Section 3.1.1 (Project Area) of the EIS; therefore,

negligible to no impacts on aquatic life in the Mississippi Sound are anticipated from the construction and operation of the proposed MBSD Project.

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**Concern ID: 61850**

**Commenters expressed concern that reasonably foreseeable industrial facilities like the Plaquemines Liquids Terminal and pipelines that may be built near the proposed MBSD Project structure or in the Barataria Basin would cause adverse impacts on the marsh ecosystem restored by the MBSD Project operations. One commenter expressed the opinion that industrial facilities that may be constructed near the proposed MBSD Project should be denied permit because they would be inconsistent with the objectives of the proposed MBSD Project.**

**Response ID: 16464**

The commenters' concern about the potential impact of future industrial development and activity on the habitat that would be created by the proposed Project was considered in Chapter 4, Sections 4.25.4 and 4.25.6 in the Cumulative Impacts section of the Draft EIS. These sections explain that reasonably foreseeable industrial facilities and infrastructure that may be constructed in the proposed MBSD Project area are expected to have negligible impacts on proposed Project-area resources because the facilities would be required to adhere to permit conditions imposed by regulating agencies such as wetland mitigation, SWPPP, and SPCC plans in order to be constructed and operated.

Furthermore, CPRA entered into a Memorandum of Understanding with the Plaquemines Port Harbor & Terminal District (PPHTD) and the Plaquemines Liquid Terminal, LLC (PLT) requiring PPHTD and PLT to perform sediment transport modeling and a navigation study to determine the impact, if any, that the PLT Project may have on the proposed MBSD Project, and to agree to certain terms and conditions, as needed, to ensure that the PLT, once constructed and operated, does not have unreasonable adverse impacts on the design, construction, or operation of the proposed MBSD Project. These steps would help ensure that the PLT Project remains consistent with the Louisiana Coastal Master Plan.

Since publication of the Draft EIS, the Tallgrass/PLT facility's sponsors PPHTD/PLT have withdrawn their Joint Permit application (Louisiana Department of Natural Resources Coastal Use Permit [CUP] number P20180379 and DA Permit number MVN-2012-0123-EPP), and terminated the Memorandum of Understanding (MOU) (originally dated April 24, 2019) between CPRA and PPHTD/PLT pertaining to the facility. A footnote has been added in Section 4.25.1.3.2 Reasonably Foreseeable Future Projects of the Final EIS to reflect the withdrawal of the PLT Project.

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**Concern ID: 62437**

**Commenters expressed concerns about potential increases in carbon dioxide emissions of the reasonably foreseeable industrial**

**Response ID: 16465**

**facilities that may be constructed and operated in the Project area of the proposed MBSD Project. One commenter requested that the Final EIS include an analysis of the scale of carbon dioxide emissions of reasonably foreseeable petrochemical facilities and their associated infrastructure in the proposed Project area.**

The commenters' concerns about the air quality impacts of reasonably foreseeable petrochemical facilities in the Project area were considered in the air quality cumulative impacts analysis (see Section 4.25.7 Cumulative Impacts, Air quality).

Chapter 4, Section 4.25.7 Cumulative Impacts, Air Quality of the EIS addresses the air quality impacts of reasonably foreseeable future petrochemical facilities in the Project area. As noted in Section 4.25.1.1 Cumulative Impacts, air quality would only be negligibly impacted by operation of the MBSD Project action alternatives and therefore none would measurably contribute to cumulative air quality effects. While petrochemical and industrial facilities in the Project area may result in more than negligible individual or cumulative impacts on air quality during their operations, the Project alternatives would not contribute measurable impacts. Further, other petrochemical and industrial facilities in the Project area would be required to comply with applicable regulations and permitting requirements pertaining to air quality. Finally, the Project would result in permanent, indirect, minor, beneficial impacts on carbon sequestration and atmospheric GHG concentrations due to wetland creation and restoration within the Barataria Basin (see Chapter 4, Section 4.7.4.2 in Air Quality of the EIS).

**Concern ID: 62440**

**The commenter expressed concern that in the Draft EIS, Chapter 4, Section 4.25.5.4 Cumulative Impacts - Surface Water and Sediment Quality, the PLT facility is among three reasonably foreseeable industrial projects (along with NOLA Oil Terminal and Plaquemines LNG/Gator Express Pipeline) with potential impacts that were not considered in the Delft3D Basinwide Modeling for the EIS. However, this EIS section acknowledges that the PLT facility would have the potential for oil spills that could enter the MBSD intake and be conveyed into Barataria Basin sediments, waters, and wetlands.**

**Response ID: 16466**

The commenter's concern about oil spills potentially contaminating water diverted into the basin by the proposed Project was considered in the Draft EIS in Chapter 2, Section 2.8.1.4 (Project Operations) and Appendix F (MBSD Design and Operations Information). This section and appendix explain that in the event of oil spills and other hazardous discharges into the Mississippi River upstream of the proposed MBSD intake structure, the diversion structure would be closed. Information regarding closing the diversion structure in the event of hazardous spills



has been added to the Cumulative Impacts section, Chapter 4, Section 4.25.5.4 in the Final EIS.

Since publication of the Draft EIS, the Tallgrass/PLT facility's sponsors PPHTD/PLT have withdrawn their Joint Permit application (Louisiana Department of Natural Resources Coastal Use Permit [CUP] number P20180379 and DA Permit number MVN-2012-0123-EPP), and terminated the Memorandum of Understanding (MOU) (originally dated April 24, 2019) between CPRA and PPHTD/PLT pertaining to the facility. A footnote has been added in Section 4.25.1.3.2 Reasonably Foreseeable Future Projects of the Final EIS to reflect the withdrawal of the PLT Project.

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**Concern ID: 62442**

**Commenters requested that additional information about the reasonably foreseeable Plaquemines Liquids Terminal be added to the Final EIS, Chapter 4, Section 4.25 (Cumulative Impacts), such as the potential for the project to affect sediment transport capabilities of the proposed MBSD Project.**

**Response ID: 16467**

Furthermore, CPRA entered into a Memorandum of Understanding with the Plaquemines Port Harbor & Terminal District (PPHTD) and the Plaquemines Liquid Terminal, LLC (PLT) requiring PPHTD and PLT to perform sediment transport modeling and a navigation study to determine the impact, if any, that the PLT Project may have on the proposed MBSD Project, and to agree to certain terms and conditions, as needed, to ensure that the PLT, once constructed and operated, does not have unreasonable adverse impacts on the design, construction, or operation of the proposed MBSD Project. These steps would help ensure that the PLT Project remains consistent with the Louisiana Coastal Master Plan.

Since publication of the Draft EIS, the Tallgrass/PLT facility's sponsors PPHTD/PLT have withdrawn their Joint Permit application (Louisiana Department of Natural Resources Coastal Use Permit [CUP] number P20180379 and DA Permit number MVN-2012-0123-EPP), and terminated the Memorandum of Understanding (MOU) (originally dated April 24, 2019) between CPRA and PPHTD/PLT pertaining to the facility. A footnote has been added in Section 4.25.1.3.2 Reasonably Foreseeable Future Projects of the Final EIS to reflect the withdrawal of the PLT Project.

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**Concern ID: 62449**

**The commenter expressed concern that the Draft EIS Section 4.25.4.4 Cumulative Impacts - Surface Water and Coastal Processes, does not disclose the potential impacts of projected flooding in the "Polder B" area on Midway's property, which is a developed borrow site.**

**Response ID: 16468**

The potential impacts of flooding in "Polder B" were considered in the Draft EIS in Chapter 4, Section 4.25.4.4 Cumulative Impacts - Surface

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Water and Coastal Processes. In response to this comment, Section 4.25.13.4 Cumulative Impacts - Socioeconomics of the Final EIS has been revised to include a statement about the potential socioeconomic impact on the Polder B area and the Midway property due to the flooding associated with the reasonably foreseeable NOV-NF-W-05a.1 Project.

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**Concern ID: 62450**

**The commenter expressed concern about potential combined adverse impacts from both the raising of the proposed NOV-NFL Federal levee near the Myrtle Grove Marina Estates and construction and operation of the proposed MBSD Project.**

**Response ID: 16469**

The commenter's concern about the combined impacts of the reasonably foreseeable NOV-NFL Levee project near Myrtle Grove and the proposed MBSD Project was considered in the Draft EIS in Chapter 4, Section 4.25.4.4 Cumulative Impacts - Stormwater Management and Drainage.

CPRA has developed a Mitigation and Stewardship Plan with measures to minimize and/or offset some impacts of the proposed MBSD Project on the communities outside of flood protection. This plan, which was included in the Draft EIS Appendix R (Mitigation and Stewardship Plan and the Monitoring and Adaptive Management [MAM] Plan), has been revised in the Final EIS in response to public input. For Myrtle Grove, the Final Mitigation and Stewardship Plan includes improvements to the bulkhead around the Myrtle Grove Marina Estates Subdivision, docks, and boat houses, as well as other infrastructure improvements (sewer system). See Appendix R1 of the Final EIS for details regarding this plan.

Structural measures such as raising roads or improving bulkheads in the Mitigation and Stewardship Plan were not included in CPRA's MBSD DA permit application and are not part of the currently-proposed MBSD Project. Many of these structural measures would require USACE and other permits prior to installation. Such permits are not guaranteed and would take time for USACE and other regulating agencies to process.

The Mitigation and Stewardship Plan and the MAM Plan provided in the Draft EIS Appendix R were submitted by CPRA and represent a range of potential mitigation, stewardship, monitoring and adaptive management measures (collectively, measures). At the time of publication of the Draft EIS for public review, Appendix R contained draft Plans and CPRA had not identified which of the measures contained in those Plans it intended to implement. CPRA expanded and refined the Final Mitigation and Stewardship Plan in response to community and resource agency input. The Final EIS Appendix R contains the final Plans and specifies which measures CPRA and the LA TIG intend to implement. Generally, impact determinations

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discussed in the EIS represent anticipated Project effects without implementation of these measures except in instances where such measures are identified in the discussion. If any mitigation, monitoring, or adaptive management measures are required by USACE as part of its approval of the Project, such measures would be required as special conditions of the Department of the Army (DA) Section 10/404 permit and would be listed in the permit, if one is issued. Implementation of specific measures contained in either Plan, but not included in the Section 10/404 permit as special conditions, would not be required by USACE. USACE does not know whether any particular measure that is not a DA permit condition would be implemented. Measures that USACE currently contemplates as conditions of a DA Section 10/404 permit, if one is issued, are provided in Chapter 4, Section 4.27 Mitigation Summary of the EIS.

The LA TIG explains in Section 1.5 of the Final Restoration Plan that it anticipates requiring implementation of the Mitigation and Stewardship Plan, MAM Plan, and Marine Mammal Intervention Plan as components of the proposed Project, if the Project is approved by the LA TIG for funding. Decisions regarding which measures would be required as part of the LA TIG's funding decision would be set forth in the LA TIG Record of Decision related to the proposed Project.

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**Concern ID: 62460**

**The commenter expressed concern that with the possible storage of 20 million barrels on the reasonably foreseeable Plaquemines Liquids Terminal and the transfer of that oil through pipelines regularly connected and disconnected from large, river-borne vessels would cause frequent oil spillage into the proposed MBSD diversion, as well as potentially catastrophic impacts resulting from accidents or hurricanes. Any of those could have serious impacts on the operation of the proposed MBSD Project.**

**Response ID: 16470**

Potential impacts of the reasonably foreseeable Plaquemines Liquids Terminal were considered in the Draft EIS in the Sediment Transport subsection of Chapter 4, Section 4.25.4.4 Cumulative Impacts. Since publication of the Draft EIS, the Tallgrass/PLT facility's sponsors PPHTD/PLT have withdrawn their Joint Permit application (Louisiana Department of Natural Resources Coastal Use Permit [CUP] number P20180379 and DA Permit number MVN-2012-0123-EPP), and terminated the Memorandum of Understanding (MOU) (originally dated April 24, 2019) between CPRA and PPHTD/PLT pertaining to the facility. A footnote has been added in Section 4.25.1.3.2 Reasonably Foreseeable Future Projects of the Final EIS to reflect the withdrawal of the PLT Project.

Potential oil spills from the terminal were also assessed in the Permitted Discharges Section of 4.25.5.4 Cumulative Impacts of the Draft EIS. As described in the Draft EIS in Chapter 2, Section 2.8.1.4

Project Operations and in Appendix F MBSD Design and Operations Information, in the event of oil spills and other hazardous discharges into the Mississippi River upstream of the proposed MBSD intake structure, the diversion structure would be closed. Information regarding closing the structure in the event of hazardous spills has been added to the Cumulative Impacts section, Section 4.25.5.4 of the Final EIS.

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**Concern ID: 62461**

**The commenter identified a number of facilities applying for new or renewed LPDES permits in Louisiana during the years 2020 to 2021.**

**Response ID: 16471**

The potential impacts of the proposed projects noted by the commenter were considered in the Draft EIS in Chapter 4, Section 4.25 Cumulative Impacts with the exception of those projects the commenter listed that are outside of the proposed MBSD Project impact area as described in the Draft EIS Chapter 4, Section 4.25.1.3 Cumulative Impacts, Step 3: Identify the Projects and Actions to be Considered. Reasonably foreseeable projects and information about them was based on the stage of development that the actions and facilities had reached at the time the Draft EIS was being prepared. To be considered a “reasonably foreseeable project” to be included in the evaluation of cumulative effects in the EIS, a proposed project needed to be sufficiently advanced in the planning process that it was no longer speculative. In this case, proposed projects that had been submitted to relevant agencies for permitting (including USACE) by May 2020 were considered reasonably foreseeable and were included the cumulative impacts analysis. No related edits have been made for the Final EIS.

In May 2022 after publication of the Draft EIS, the USACE conducted a search to identify any new/additional reasonably foreseeable projects that, cumulatively with the proposed MBSD Project, have the potential to significantly alter the environmental landscape from what was assessed in the Draft EIS. After identifying new, reasonably foreseeable projects, USACE evaluated those projects for their potential to significantly affect the environmental landscape that was presented in the Draft EIS and concluded that none would significantly change the MBSD cumulative impacts as described in the Draft EIS. Nevertheless, USACE determined that five newly-identified projects would have more than negligible cumulative impacts. To provide a complete picture of MBSD cumulative effects to the decision maker(s) and the public, these five projects have been added to the Final EIS in Chapter 4, Section 4.25.25 Cumulative Impacts Analysis 2022 Update.

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**Concern ID: 62463**

**The commenter stated concern that because Ironton is the closest community to the MBSD Project site and to the proposed Plaquemines Port Harbor & Terminal District/Plaquemines Liquids Terminal (PPHTD/PLT) site and the existing Alliance Refinery,**

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**Ironton would be particularly vulnerable to impacts from all three in terms of potential flood and/or health effects.****Response ID: 16472**

The concerns raised by the commenters were considered in the Draft EIS in Chapter 3, Section 3.7.2 Air Quality, Existing Conditions; and Chapter 4, Sections 4.8 Noise, 4.13 Socioeconomics, 4.15 Environmental Justice, 4.22 Land-Based Transportation and 4.25 Cumulative Impacts. Chapter 3, Section 3.7.2 Air Quality - Existing Conditions identifies the existing air quality in the proposed Project area and provides that Plaquemines Parish is designated as "unclassifiable/in attainment" for all criteria pollutants. The resource sections in Chapter 4 address potential air quality, noise, transportation, and flooding impacts specifically concerning the community of Ironton. In addition, Chapter 2 of Appendix H1 Socioeconomics Technical Report to the EIS provides contextual information about the Ironton community. As stated in the EIS in Chapter 4, Section 4.15 Environmental Justice, populations in Ironton would experience minor to moderate, temporary adverse, impacts due to increased noise levels, dust, and transportation delays during the approximately 5-year construction period. However, as previously described in the Land-Based Transportation section of Section 4.25.22 Cumulative Impacts of the Draft EIS, cumulative impacts on traffic from construction of the reasonably foreseeable future actions combined with construction of the proposed MBSD Project action alternatives would likely be major, adverse, and temporary and could cause substantial traffic delays on LA 23. Ironton would experience these major, adverse impacts because of its proximity to LA 23 and the proposed MBSD Project. To make this clearer, Section 4.25.22.3 in Cumulative Impacts of the Final EIS has been revised to state that Ironton would experience major, adverse impacts during the 5-year construction period of the proposed Project due to cumulative impacts of the proposed MBSD Project and reasonably foreseeable projects on LA 23 traffic volumes and congestion.

Beyond the near-term impacts of construction, operation of the Applicant's Preferred Alternative may have impacts on Ironton. Because it is within the New Orleans to Venice (NOV) Non-Federal Levee (NFL) W-05a.1 (La Reussite to Myrtle Grove levee reach) levee system, Ironton is not expected to be impacted by increases in frequency and duration of tidal flooding due to Project operations (see Section 4.15.4.2.2 Storm Hazards and 4.20.4.2 Public Health and Safety). However, negligible to minor increases in risk of overtopping of the NOV-NFL Levee south of the immediate outfall area following the delta formation in the outfall area that may affect storm surge during certain 1 percent storms may impact low-income and minority populations within Ironton.

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Also, in the Final EIS, Section 4.15.5.1 Environmental Justice has been added to provide a summary of impacts on the majority-Black community of Ironton, which is the closest community to the diversion, to assist understanding the projected impacts of the proposed Project on that community.

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**Concern ID: 62469**

**The commenter stated concern that the assessment in the Draft EIS of potential impacts of the reasonably foreseeable project Plaquemines Port Harbor & Terminal District/Plaquemines Liquids Terminal (PPHTD/PLT) on the proposed MBSD Project operations cannot be accurate without including results of the previously conducted assessment of PPHTD/PLT's potential impact on sediment capture of the proposed MBSD Project intake structure.**

**Response ID: 16474**

The Sediment Transport section in Chapter 4, Section 4.25.4.4 Cumulative Impacts in the Draft EIS acknowledged that, based on a sediment transport study conducted by AECOM (2019), the reasonably foreseeable PPHTD/PLT facility may have moderate, adverse, permanent impacts on the sediment transport capability of the proposed MBSD Project. Since publication of the Draft EIS, the Tallgrass/PLT facility's sponsors PPHTD/PLT have withdrawn their Joint Permit application (Louisiana Department of Natural Resources Coastal Use Permit [CUP] number P20180379 and DA Permit number MVN-2012-0123-EPP), and terminated the Memorandum of Understanding (MOU) (originally dated April 24, 2019) between CPRA and PPHTD/PLT pertaining to the facility. A footnote has been added in Section 4.25.1.3.2 Reasonably Foreseeable Future Projects of the Final EIS to reflect the withdrawal of the PLT Project.

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**Concern ID: 63241**

**The commenter questioned what other projects are in place to help retain land created by the proposed MBSD Project.**

**Response ID: 16475**

Other reasonably foreseeable projects that would retain the land created by the proposed MBSD Project include, but would not be limited to, the Large-Scale Marsh Creation and Component E- Planning Project, the Grand Bayou Ridge and Marsh Restoration Project, the Bayou L'Ours Marsh Terracing Project, and others. These projects were considered in the Draft EIS in Chapter 4, Sections 4.25.2 and 4.25.6 in Cumulative Impacts, which discusses the beneficial and adverse impacts of other projects in the proposed MBSD Project area on sustaining wetlands and retaining land created by the proposed MBSD Project. While the restoration projects described in these sections are not specifically designed to retain the land created by the proposed MBSD Project, these restoration projects would contribute to land retention.

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**Concern ID: 62464**

**The commenter expressed concern that models have not yet examined the cumulative impacts on flooding from multiple proposed diversions operating simultaneously.**

**Response ID: 16473**

The Draft EIS considered the potential flooding impacts of multiple proposed diversions operating simultaneously. Potential flooding impacts of the proposed MBSD Project combined with impacts of *existing* Mississippi River diversions on the west bank including the Davis Pond Freshwater Diversion, and the West Pointe A La Hache Siphon and on the east bank (Bonnet Carré Spillway, Caernarvon Freshwater Diversion, and Mardi Gras Pass) were projected by the Delft3D Basinwide Model baseline conditions and 50-year projections for the MBSD No Action and action alternatives for hydrology, flooding, hydrodynamics, water quality, vegetation/wetlands, and other resources in the Project area. The added impacts of the MBSD Project action alternatives in combination with these existing freshwater influences are discussed by resource topic in Chapter 4, Sections 4.2 through 4.24.

The added flooding impacts of the proposed MBSD Project action alternatives on existing diversion operations were qualitatively or quantitatively analyzed and discussed in the Draft EIS in Chapter 4, Section 4.4.3 in Surface Water and Coastal Processes, Section 4.13 Socioeconomics, and Section 4.20 Public Health and Safety, Including Flood and Storm Hazard Risk Reduction. The Draft EIS Section 4.20.4 Storm Surge and Flooding concluded that in conjunction with the operation of existing diversions, the proposed Project would have negligible impacts on flooding in Project area communities within federal levee systems and minor to major, adverse, long-term impacts on flooding in Barataria Basin communities not protected by federal levees (for example, Lafitte, Myrtle Grove, and Grand Bayou).

Operational impacts, including risk for increased flooding, of reasonably foreseeable future projects including diversions such as the Mid-Breton Sediment Diversion combined with proposed MBSD Project operations were assessed by the Delft3D Basinwide Model and discussed in Section 4.25.1 Methodology for Assessing Cumulative Impacts and in Section 4.25.20 Cumulative Impacts - Public Health and Safety, Including Flood and Storm Hazard Risk Reduction. As described in Section 4.25.20, Delft 3D Basinwide modeling projected that the reasonable foreseeable projects modeled would have a negligible impact on water levels during non-storm conditions in the birdfoot delta and Barataria Basin. Also see EIS, Appendix E Delft3D Modeling for information on the setup of the Delft 3D Basinwide Modeling for the impact analysis of the EIS alternatives. No related edits have been made to the Final EIS.



## ES81000 – Delft3D Modeling

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<b>Concern ID: 61829</b>	<b>The Delft3D Basinwide Modeling conducted for the Draft EIS is flawed because its validation process was based on the West Bay Sediment Diversion, which is not a valid comparison because the footprint of that project received several lifts via sediment dredged and pumped from the Mississippi River, which would not occur for the proposed MBSD Project.</b>
<b>Response ID: 16476</b>	<p>Validating the Delft3D Basinwide Model to a large sediment diversion in the Barataria Basin would have been ideal; however, there are no other large-scale sediment diversions on the landscape at this time. Because the other existing diversions (Davis Pond and Caernarvon Diversions) are freshwater diversions designed to extract water from the top of the river and discharge primarily water, not sediment, they are not applicable for validating the Delft3D Model for the MBSD Project. The West Bay Sediment Diversion, in contrast, is useful for validating the physical processes of erosion and deposition of sediment because although some dredging occurs for that project, it, like the proposed MBSD Project, is a sediment diversion that extracts sediment from deeper in the river. The modelers used standard professional practice by validating the Delft3D Basinwide Model (a well-proved, public-domain, physics-based model) with the West Bay Sediment Diversion to properly reproduce the primary physical processes of sediment erosion and deposition. In that manner, the modelers were able to examine how diversion flows would affect the process of sediment erosion and deposition separate from dredged material disposal.</p> <p>As part of developing the Draft EIS, the USACE, together with the members of the LA TIG, reviewed the Delft3D Basinwide Model, including its parameters, methods of validation and calibration, inputs for the alternative production runs used in the EIS, and outputs, and concluded that the Delft3D Basinwide Model production runs and outputs were adequate and sufficient to inform the MBSD EIS impacts analysis of the alternatives.</p>
<b>Concern ID: 61830</b>	<b>The commenter stated that information regarding how the proposed Project would impact the velocity of the Mississippi River upstream of the proposed diversion is not clear in Appendix E (Delft3D Modeling) and Appendix F (MBSD Design and Operations Information).</b>
<b>Response ID: 16477</b>	<p>The Project's impacts on the velocity of the Mississippi River upstream of the diversion intake was considered in the Draft EIS in Appendix E Delft3D Modeling, Attachment B (Velocity Contour Maps and Velocity Direction Figures), Figures VEL 1 - VEL 6 (No Action Alternative) and Figures VEL 25 - VEL 30 (Applicant's Preferred Alternative). These</p>

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figures display no discernable differences in velocity contours in the Mississippi River upstream of the proposed diversion structure. In Chapter 4 of the Draft EIS, Section 4.4 (Surface Water and Coastal Processes), Figure 4.4-37 shows that cross-channel velocities immediately adjacent to the diversion structure would increase by up to 0.3 m/sec (1 foot per second) and by less than 0.03 m/sec (0.1 foot per second) a short distance away. Although these model data are not high-resolution, the USACE concludes that river velocities upstream of the diversion would change by less than 1 foot per second. For greater clarity, a sentence summarizing this has been added to the Final EIS in Section 4.4.4.2.3.2 Applicant's Preferred Alternative in Surface Water and Coastal Processes and in Appendix E Delft 3D Modeling, Section 7.2 Water Velocity Outputs.

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**Concern ID: 61831**

**The commenter questioned the level of certainty of land-loss estimates under the No Action Alternative over the 50-year period of analysis. Commenter further questioned how that level of certainty compares to the level of certainty of some of the adverse impacts that are projected to occur from the proposed Project.**

**Response ID: 16478**

It is correct that the Delft3D Basinwide Model projections of future conditions include uncertainties. Uncertainties were incorporated into the Draft EIS impact conclusions and are briefly summarized in the Draft EIS in Chapter 4, Section 4.1.3.3 in (Model Limitations and Uncertainty), and in detail in Appendix E (Delft3D Modeling, Section 8.0 Model Limitations and Uncertainties). Hurricanes were not modeled as part of the Delft3D Basinwide Model; they were, however, modeled as part of the ADCIRC modeling conducted for the Draft EIS, Chapter 4, Section 4.20 Public Health and Safety, Including Storm and Flooding Risk Reduction. The rationale for that omission and explanation of how it was accounted for are provided in Appendix E Delft3D Modeling, Section 8.1. The land-change uncertainty bounds were not included in the summary in Section 4.1.3.3. In response to this comment, a summary of land-change uncertainty has been added to that section in the Final EIS. The USACE and LA TIG agree that the model uncertainties should be clearly stated in the EIS with respect to the Model's quantitative results. A footnote has been added to the Executive Summary and to Table 4.2-6 in Section 4.2 Geology and Soils of the Final EIS providing the uncertainty bounds for land-change projections. Uncertainties related to the Marine Mammals impact analysis are summarized in detail in Chapter 4, 4.11.3.1 (Marine Mammals, General Caveats to Impact Analysis Approach).

As part of developing the EIS, the USACE, together with the members of the LA TIG, reviewed the Delft3D Basinwide Model, including its parameters, methods of validation and calibration, inputs for the alternative production runs used in the EIS, and outputs, and concluded that the Delft3D Basinwide Model production runs and outputs were

adequate and sufficient to inform the MBSD EIS impacts analysis of the alternatives.

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**Concern ID: 61832**

**Commenters expressed concern that the uncertainties of the model were not quantified or identified in the model results. For example, with respect to the projections of land change, the ranges of potential acres to be created/lost along with a confidence level that each range is accurate were not provided. Commenters noted that the model predicted a net land gain of only 2 - 4 percent of the total land area within the Project area over the 50-year analysis period and questioned whether the model is sensitive enough and accurate enough to predict such a slight change.**

**Response ID: 16479**

The Delft3D Basinwide Model projections of future conditions include uncertainties. Uncertainties are briefly summarized in the Draft EIS in Chapter 4, Section 4.1.3.3 in Approach to Evaluation of Environmental Consequences, and in detail in Appendix E Delft3D Modeling, Section 8.0 Model Limitations and Uncertainties. The land-change uncertainty bounds were not included in the summary in Section 4.1.3.3. In response to this comment, the USACE has added a summary of land-change uncertainty to that section in the Final EIS. Where the model's quantitative results are presented, the EIS identified the model uncertainties. A footnote has been added to the Executive Summary and to Table 4.2-6 in Section 4.2 Geology and Soils of the Final EIS providing the uncertainty bounds for land-change projections.

As part of developing the EIS, the USACE, together with the members of the LA TIG, reviewed the Delft3D Basinwide Model, including its parameters, methods of validation and calibration, inputs for the alternative production runs used in the EIS, and outputs, and concluded that the Delft3D Basinwide Model production runs and outputs were adequate and sufficient to inform the MBSD EIS impacts analysis of the alternatives.

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**Concern ID: 61842**

**Commenter is concerned about the accuracy of the sea-level rise projections used in the Delft3D Basinwide Model to predict land changes. In particular, the commenter suggests that if updated sea-level rise rates (as provided in Sweet et al. 2017 and Church et al. 2014) were applied, the modeling would project no land-gain benefits from the diversion.**

**Response ID: 16480**

Large variability in projected relative sea-level rise does introduce corresponding uncertainty into land-loss and land-gain projections. The literature provided by the commenters has been reviewed. Measured and projected relative sea-level rise rates vary substantially by location, and using projections at a station in Florida, such as Cedar Key, are not useful for projections in the central Gulf Coast. Citing the USACE and NOAA sea-level projection tool (USACE 2019d), the MBSD Project

Modeling Work Group chose a sea-level rise scenario based on the 2017 Coastal Master Plan “moderate” scenario, which is slightly higher than the USACE’s “Intermediate” rate for the Barataria Basin water level station at Grand Isle, LA, as shown in Chapter 4, Figure 4.1.3 of the Draft EIS. The USACE rate reflects sea-level rise data collected at Grand Isle over the period 1947 to 2007. The MBSD Project Modeling Work Group determined that the use of that 2017 Coastal Master Plan Intermediate Sea-Level Rise curve was an appropriate choice at the time the modeling was conducted in 2019.

The sea-level rise value used in the Delft3D Basinwide Model simulation for the Draft EIS considered “intermediate” at the time of the modeling, is close to the low projection (0.3 m Global Mean Sea Level) given by Sweet et al. (2017) for Grande Isle. The commenter’s suggestion of the Church et al. 2014 reference, which provides useful information, has been added as a reference in the Final EIS in Chapter 4, Section 4.1.3.2 Sea-Level Rise. Use of a different sea-level rise rate would affect the impact projections of all the alternatives considered in the EIS, including the No Action Alternative. If the relative sea-level rise rate used in the model is an underestimate, the effect on model results was mitigated, but not eliminated, by the use of a “No Action Alternative compared to Action Alternatives” comparison method. (In other words, if sea-level rise was underestimated, it was underestimated for all alternatives, including No Action Alternative. The impacts of the proposed Project presented in the Draft EIS are the net difference in impact magnitude between the No Action Alternative and the proposed Action Alternatives). Chapter 4, Section 4.1.3.2 Sea-level Rise states that higher sea-level rise rates would reduce anticipated land creation. However, in light of the commenters’ concern, the USACE has amended the last sentence of the next to last paragraph of that section in the Final EIS to say, “If actual sea-level rise is higher (as is predicted by Sweet et al. 2017) than the value used in the Delft3D Basinwide Model, water levels would be higher and loss rates and land gains would be different than what the Delft3D Basinwide Model projects.”

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**Concern ID: 61843**

**The Delft3D Basinwide Model results are flawed because the model was not calibrated to data from the Fort St. Philip, Davis Pond, and Caernarvon Diversions. Instead the model was calibrated to the unsuccessful West Bay Diversion, which has not produced any land in 20 years of operation (other than that created by the deposit of dredged material). Calibration to West Bay is not appropriate because the West Bay Diversion outfall area is comprised of deeper water and mineral soils, while the outfall area of the proposed MBSD Project diversion is comprised of shallow water covered with emergent vegetation inhabiting organic soils.**

**Response ID: 16481**

The Delft3D Basinwide Model was not calibrated to Fort St. Philip because it is a naturally-occurring crevasse rather than an engineered diversion. The Davis Pond and Caernarvon Diversions are freshwater diversions intended to reduce salinity through the introduction of fresh water and were not designed to channel sediments from deep in the river.

The West Bay Sediment Diversion is a large, uncontrolled diversion with a discharge of 20,000 to 50,000 cfs. Constructed in 2003, the goals for the project included: 1) increase land:water ratio; 2) increase mean elevation in the wetland; and 3) promote marsh habitat. To date, the restoration actions have successfully restored a portion of the land and habitat previously present in West Bay. (McQueen et al., 2020). Because the modelers considered the West Bay Sediment Diversion to be a reasonable analog to the proposed Project and in accordance with professional standards, they validated the Delft3D Basinwide Model to the West Bay Sediment Diversion. The accretion rate of inorganic sediment was also validated using data from the Big Mar Lake adjacent to the Caernarvon Diversion. The Delft3D Basinwide Model is a public-domain, physics-based model in which water depth and consolidation of underlying soils are accounted for by appropriate equations. The consolidation feature of the model is described in the below reference, which was included in Chapter 10 (References) and cited in Chapter 2 (Alternatives) of the Draft EIS. Therefore, differences in water depth and underlying soils are accounted for in the model's physics-based calculations.

Uncertainties associated with the validation using West Bay were assessed using sensitivity tests and were considered in the analysis by the use of a Base-to-Plan (No Action Alternative compared to Action Alternatives) comparison method as described in Appendix E (Delft3D Modeling) and incorporated into the Draft EIS conclusions throughout Chapter 4 Environmental Consequences.

CPRA. 2011. Myrtle Grove Delta Building Diversion Modeling Effort in Support of the LCA Medium Diversion at Myrtle Grove with Dedicated Dredging Project: Data Collection, Preliminary Design, and Modeling Initiative. Available online at:  
<https://www.lacoast.gov/reports/project/4900753~1.pdf>.

As part of developing the EIS, the USACE, together with the members of the LA TIG (including cooperating agencies and CPRA), reviewed the Delft3D Basinwide Model, including its parameters, methods of validation and calibration, inputs for the alternative production runs used in the EIS, and outputs, and concluded that the Delft3D Basinwide Model production runs and outputs were adequate and sufficient to inform the MBSD EIS impacts analysis of the alternatives.

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**Concern ID: 61844**

**The Delft3D Basinwide Modeling used for the EIS is flawed because it was not calibrated against empirical results from three diversions that, like the proposed MBSD Project diversion, include an outfall area comprised of shallow water with organic soils: Fort St. Philip natural crevasse, Davis Pond Diversion, Caernarvon Diversion (see Zedler 2017, Suir 2012, and Turner 2017). Further, there is no evidence of a net land gain or conservation within those sites after the diversions began. There was sometimes a dramatic land loss after diversion implementation/start that has not reversed (Couvillion 2017, USACE 2004, Suir et al. 2014, Kearney et al. 2011, Underwood 1994).**

**Response ID: 16482**

The Delft3D Basinwide Model was not calibrated to Fort St. Philip because that is a naturally-occurring crevasse rather than an engineered diversion. The Davis Pond and Caernarvon Diversions were designed to primarily divert fresh water in order to lower salinities in the receiving basins. Unlike the MBSD, they were not designed to divert sand-sized sediment, which is needed to build land.

The West Bay Diversion has successfully deposited large amounts of sediment in the system and, in concert with beneficial uses of dredged material, built land. Kolker et al. (2012) reported, "A majority of the sediment transported through the West Bay Diversion apparently was deposited in the bay, and contributed to sub-aerial land formation, which contrasts with the view presented by Kearney et al. (2011) and Turner et al. (2007) that diversions do not lead to appreciable sediment accumulation." (Depositional dynamics in a river diversion receiving basin: The case of the West Bay Mississippi River Diversion, Estuarine, Coastal and Shelf Science, 2012, <http://dx.doi.org/10.1016/j.ecss.2012.04.005>).

The Zedler (2017) reference cited by the commenter is useful. Zedler wrote approvingly of the application of integrated habitat and hydrodynamic models in an adaptive management framework for restoration of coastal Louisiana. That is the same approach described in the Draft EIS in Chapter 4, Section 4.27 Mitigation Summary.

The Turner (2017) reference about using a correct mineral sediment supply baseline for coastal restoration is also useful. The Delft3D Basinwide Model results used in the EIS confirm the conclusion in Turner (2017) that Mississippi River diversions upstream of the birdfoot delta increase deterioration of the birdfoot delta, as noted in Chapter 4, Section 4.2.3.3 in Geology and Soils of the Draft EIS.

The references provided by the commenter were considered and incorporated into the EIS. Couvillion et al. 2017 is included in Chapter 3, Section 3.2 Geology and Soils and Section 3.6 Wetlands and Waters of the U.S., Kearney et al. 2011 is cited in Chapter 2, Section 2.4.1.3.3 Lower Barataria Basin, and Underwood 1994 is cited in Appendix R2

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Monitoring and Adaptive Management Plan of the EIS Suir et al. 2014 was added to Chapter 2 Alternatives, Table 2.3-1 of the Final EIS.

Couvillion, B.R., H. Beck, D. Schoolmaster, and M. Fischer. 2017. Land area change in coastal Louisiana 1932 to 2016: U.S. Geological Survey Scientific Investigations Map 3381, 16 p. pamphlet. Available online at: <https://doi.org/10.3133/sim3381>.

Kearney, MS, JCA Riter, and RE Turner. 2011. Freshwater river diversions for marsh restoration in Louisiana: Twenty-six years of changing vegetative cover and marsh area. Geophysical Research Letters, Vol. 38, L16405, doi:10.1029/2011GL047847m August 26, 2011.

Suir, GM, WR Jones, AL Garber, JA Barras. 2014. Pictorial account and landscape evolution of the crevasses near Fort St. Philip, Louisiana. Mississippi River Geomorphology and Potamology Program, MRG&P Report 2. U.S. Army Corps of Engineers, Mississippi Valley Division, Vicksburg, Mississippi.

Underwood, AJ. 1994. On beyond BACI: sampling designs that might readily detect environmental disturbances. Ecological Applications 4: 3–15.

As part of developing the EIS, the USACE, together with the members of the LA TIG (including cooperating agencies and CPRA), reviewed the Delft3D Basinwide Model, including its parameters, methods of validation and calibration, inputs for the alternative production runs used in the EIS, and outputs, and concluded that the Delft3D Basinwide Model production runs and outputs were adequate and sufficient to inform the MBSD EIS impacts analysis of the alternatives. No related edits have been made to the Final EIS.

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**Concern ID: 61845**

**The Delft3D Basinwide Modeling for the EIS projects positive results when existing evidence from nearby sites in Louisiana show the opposite results. Commenter stated that the model does not incorporate important biological drivers such as the effects of flooding, nutrients, and resistance to erosion, and consequently questioned the accuracy of the model.**

**Response ID: 16483**

Comparing observed effects of various diversions has limited value, since diversions and receiving environments often exhibit unique attributes or behaviors that correlations do not account for. For that reason, the Delft3D Basinwide Model, even with its limitations and uncertainties, is a better predictor than anecdotal comparison to Fort St. Phillip or other sites where diversions were designed to divert primarily water, not land-building sediment.

The Delft3D modeling did incorporate flooding, nutrients, and resistance to erosion in its results. Flooding, nutrients, and resistance to erosion are described in Appendix E Delft3D Modeling. See



generally Figure 5-1 regarding model module interaction, Section 5.2 Morphodynamics Module and 5.4 Vegetation Module in Appendix E Delft3D Modeling for additional information.

Uncertainties associated with the validation using West Bay were assessed using sensitivity tests and were considered in the analysis by the use of a Base-to-Plan (No Action Alternative compared to Action Alternatives) comparison method as described in Appendix E Delft3D Modeling and incorporated into the Draft EIS conclusions throughout Chapter 4 Environmental Consequences.

The references provided by the commenter were considered and incorporated into the EIS. Couvillion et al. 2017 is included in Chapter 3, Section 3.2 Geology and Soils and Section 3.6 Wetlands and Waters of the U.S., Kearney et al. 2011 is cited in Chapter 2, Section 2.4.1.3.3 Lower Barataria Basin, and Underwood 1994 is cited in Appendix R2 Monitoring and Adaptive Management Plan of the EIS. Suir et al. 2014 was added to Chapter 2 Alternatives, Table 2.3-1 of the Final EIS.

Couvillion, B.R., H. Beck, D. Schoolmaster, and M. Fischer. 2017. Land area change in coastal Louisiana 1932 to 2016: U.S. Geological Survey Scientific Investigations Map 3381, 16 p. pamphlet. Available online at: <https://doi.org/10.3133/sim3381>.

Kearney, MS, JCA Riter, and RE Turner. 2011. Freshwater river diversions for marsh restoration in Louisiana: Twenty-six years of changing vegetative cover and marsh area. *Geophysical Research Letters*, Vol. 38, L16405, doi:10.1029/2011GL047847m August 26, 2011.

Suir, GM, WR Jones, AL Garber, JA Barras. 2014. Pictorial account and landscape evolution of the crevasses near Fort St. Philip, Louisiana. Mississippi River Geomorphology and Potamology Program, MRG&P Report 2. U.S. Army Corps of Engineers, Mississippi Valley Division, Vicksburg, Mississippi

Underwood, AJ. 1994. On beyond BACI: sampling designs that might readily detect environmental disturbances. *Ecological Applications* 4: 3–15

As part of developing the EIS, the USACE, together with the members of the LA TIG, reviewed the Delft3D Basinwide Model, including its parameters, methods of validation and calibration, inputs for the alternative production runs used in the EIS, and outputs, and concluded that the Delft3D Basinwide Model production runs and outputs were adequate and sufficient to inform the MBSD EIS impacts analysis of the alternatives.

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Concern ID: 62277

**Many of the impacts of the proposed Project are more dramatic in the first decade of the proposed Project operations; after 2030, the discussion of benefits and impacts in the Draft EIS is based**



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**largely on a few model years. However, those model years do not acknowledge the increasing rainfall and river flooding of the past few years that can be expected to increase due to climate change. For example, it is foreseeable that a flood year like 2019 could become more normal over the next decade.**

**Response ID: 16484**

Climate change has altered rainfall and river flow patterns and may further do so in the future. Uncertainties regarding future conditions were summarized in the Draft EIS in Chapter 4, Section 4.1.3.3 in Approach to Evaluation of Environmental Consequences, and in detail in Appendix E (Delft3D Modeling, Section 8.0 Model Limitations and Uncertainties). Uncertainties regarding climate change were considered and incorporated into the Draft EIS conclusions throughout Chapter 4 Environmental Consequences. No related edits have been made to the Final EIS.

The USACE, together with the members of the LA TIG (including cooperating agencies and CPRA), reviewed the Delft3D Basinwide Model, including its parameters, methods of validation and calibration, inputs for the alternative production runs used in the EIS, and outputs, and concluded that the Delft3D Basinwide Model production runs and outputs were adequate and sufficient to inform the MBSD EIS impacts analysis of the alternatives.

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**Concern ID: 62278**

**Models have not taken into account the influence of wind, which is a significant driver of water levels in the estuary. In winter, storm fronts generally move north to south and water levels in the basins are typically lower, providing an opportunity for seasonal diversion operations. This is particularly true in the Barataria Basin, where backwater flooding from a high river has not been a significant concern.**

**Response ID: 16485**

Wind is an important factor in the estuary. The Delft3D Basinwide Model simulations included wind as described in the Draft EIS Appendix E (Delft3D Modeling, Section 3.2.2 Atmospheric Forcing) and summarized in Chapter 4, Section 4.1.3 Overview of Delft3D Basinwide Model for Impact Analysis. Meteorological data recorded throughout 2014, including wind speed and direction recorded at 6-hour intervals in the basin over the course of the year, was used in the model. That data reflects the seasonal variation in wind speed and direction that occurred in the basin in 2014 and was factored into model outputs with respect to water levels. Appendix E Delft3D Modeling, Section 3.2.2 Atmospheric Forcing has been edited in the Final EIS to clarify this.

As part of developing the EIS, the USACE, together with the members of the LA TIG, reviewed the Delft3D Basinwide Model, including its parameters, methods of validation and calibration, inputs for the alternative production runs used in the EIS, and outputs, and concluded that the Delft3D Basinwide Model production runs and outputs were

adequate and sufficient to inform the MBSD EIS impacts analysis of the alternatives.

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**Concern ID: 62280**

**The Draft EIS outlines uncertainties in the modeling that tend to underestimate salinity by 1ppt, water level by 0.1 m, and temperature by 1.5°C. The level of uncertainty reported in the Draft EIS varies spatially throughout the basin. Section 8.0 (Model Limitations and Uncertainties) of Appendix E (Delft3D Modeling) mentions that the dilution factor is uncertain as well as the effect of barrier islands on tidal exchange over time. The Draft EIS also describes uncertainty around other restoration efforts. For instance, the model assumes that the barrier islands are drowned by relative sea-level rise. However, the State of Louisiana has been committed to maintaining these important features, and that commitment is likely to continue, therefore reducing salinity increases. The Mississippi River birdfoot delta passes, however, are likely to deepen, enlarge, and increase salinity influences. Taken all together, these factors may underestimate salinity enough that the biological impacts forecasted may be a worst-case scenario for saltwater species, such as oysters and dolphins.**

**Response ID: 16486**

The Delft3D Basinwide Model results should be interpreted in light of the uncertainties discussed in the EIS. As discussed in the Draft EIS in Chapter 4, Section 4.1.3.3 in Approach to Evaluation of Environmental Consequences, and in detail in Appendix E Delft3D Modeling, Section 8.0 Model Limitations and Uncertainties, those uncertainties were examined through sensitivity tests and by the use of a Base-to-Plan (No Action Alternative compared to Action Alternatives) comparison method and incorporated into the Draft EIS conclusions throughout Chapter 4 (Environmental Consequences). No related edits have been made to the Final EIS.

As part of developing the EIS, the USACE, together with the members of the LA TIG, reviewed the Delft3D Basinwide Model, including its parameters, methods of validation and calibration, inputs for the alternative production runs used in the EIS, and outputs, and concluded that the Delft3D Basinwide Model production runs and outputs were adequate and sufficient to inform the MBSD EIS impacts analysis of the alternatives.

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## ES82000 – ADCIRC Modeling

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<b>Concern ID: 62181</b>	<b>The commenter believes the units on the storm hydrographs in Draft EIS Appendix P are incorrect.</b>
<b>Response ID: 15764</b>	Figures 3-24 through 3-39 and 3-62 through 3-77 in Draft EIS Appendix P1 Surge and Wave Conditions Report (ADCIRC Model) are correctly plotted in feet. No changes were made to the Final EIS.

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## GEN1000 - General Support for Project/RP

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<b>Concern ID: 63332</b>	<b>A large number of commenters expressed general support for the proposed Project.</b>
<b>Response ID: 16288</b>	The commenter's support for the proposed Project is noted. The USACE is evaluating the projected impacts of the Project in the EIS. As part of its Section 10/404 permitting decision-making process, USACE also conducts a public interest review, which weighs the probable harms of the proposed action against its potential benefits. In making its NRDA decision, the LA TIG will evaluate Project alternatives using the OPA evaluation criteria in 15 CFR §990.54 and the NEPA analysis of the Final EIS, consider public input, and review proposed Project mitigation, stewardship, and monitoring and adaptive management actions.

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<b>Concern ID: 63333</b>	<b>Although the proposed MBSD Project would have adverse impacts the benefits described in the EIS outweigh those impacts.</b>
<b>Response ID: 16289</b>	The commenters' support for the proposed Project, even considering the projected adverse impacts, is noted. The USACE is evaluating the projected impacts of the Project in the EIS. As part of its Section 10/404 permitting decision-making process, USACE also conducts a public interest review, which weighs the probable harms of the proposed action against its potential benefits. In making its NRDA decision, the LA TIG will evaluate Project alternatives using the OPA evaluation criteria in 15 CFR §990.54 and NEPA evaluation from the Final EIS, consider public input, and review proposed Project mitigation, stewardship, and monitoring and adaptive management actions.

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<b>Concern ID: 63334</b>	<b>The proposed MBSD Project would maintain and restore coastal lands and should move forward.</b>
<b>Response ID: 16291</b>	The commenter's statement of support is acknowledged. The USACE is evaluating the projected impacts of the Project in the EIS. As part of its Section 10/404 permitting decision-making process, USACE also

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conducts a public interest review, which weighs the probable harms of the proposed action against its potential benefits. In making its NRDA decision, the LA TIG will evaluate Project alternatives using the OPA evaluation criteria in 15 CFR §990.54 and NEPA evaluation from the Final EIS, consider public input, and review proposed Project mitigation, stewardship, and monitoring and adaptive management actions.

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**Concern ID: 63336**

**This proposed Project is absolutely crucial for the future of our coast and the safety and livelihoods of our coastal communities.**

**Response ID: 16292**

The commenter's support for the proposed Project is noted. The proposed Project, by reestablishing deltaic processes, is intended to build coastal resiliency and protection for the coastal communities behind Barataria Basin. As explained in the Draft EIS, the proposed Project would result in both beneficial and adverse impacts on the extent of wetlands, protection from storm events, and the economy, depending on the wetland area, community, and industry considered; see Chapter 4, Sections 4.6 Wetland Resources and Waters of the U.S., 4.20 Public Health and Safety, Including Flood and Storm Hazard Risk Reduction, 4.13 Socioeconomics, and 4.14 Commercial Fisheries. See Sections 3.2.1.6 (Benefits Multiple Resources) and 3.2.1.7 (Public Health and Safety) of the LA TIG's Restoration Plan for a detailed discussion of the proposed Project's potential benefits and public health and safety impacts, respectively.

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**Concern ID: 63337**

**A large number of commenters expressed support for the Applicant's Preferred Alternative, as outlined in the Draft EIS, and the use of funds from the DWH settlement fund, as outlined in the LA TIG's Draft Restoration Plan, to protect and restore coastal resources in the proposed Project area that were affected by the DWH oil spill.**

**Response ID: 16294**

The USACE and LA TIG acknowledge the commenter's support for the Applicant's Preferred Alternative. The USACE is evaluating the projected impacts of the proposed Project in the EIS. As part of its Section 10/404 permitting decision-making process, USACE also conducts a public interest review, which weighs the probable harms of the proposed action against its potential benefits. The LA TIG further acknowledges the commenters' support for using DWH restoration dollars to fund construction of the proposed Project. If approved, the proposed Project would be largely funded through funds provided by the DWH oil spill settlement as determined by the LA TIG. In making its NRDA decision, the LA TIG will evaluate Project alternatives using the OPA evaluation criteria in 15 CFR §990.54 and NEPA evaluation from the Final EIS, consider public input, and review proposed Project

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mitigation, stewardship, and monitoring and adaptive management actions.

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<b>Concern ID: 63338</b>	<b>The proposed Project would bring back vital habitat along the Gulf Coast, including wetlands that would support a huge variety of birds and other wildlife.</b>
<b>Response ID: 16295</b>	The commenter's support for the proposed Project is noted. Chapter 4, Section 4.9 Terrestrial Wildlife and Habitat of the Draft EIS explained the beneficial (and adverse) impacts of the proposed Project on various avian and terrestrial species. As also explained in the LA TIG's Restoration Plan in Section 3.2.1.6, the proposed Project is intended to improve habitat for birds and other coastal and living marine resources.
<b>Concern ID: 63339</b>	<b>The Mid-Barataria Sediment Diversion is the largest individual ecosystem restoration project in our country's history, which is fitting since the Barataria Basin is experiencing one of the highest rates of land loss on the planet. Large-scale projects like the Mid-Barataria Sediment Diversion are just the kind of bold actions that are needed if there is to be any hope of a truly sustainable coast.</b>
<b>Response ID: 16297</b>	The commenters' support for the proposed Project is noted. Land and wetland loss along coastal Louisiana is described in EIS Chapter 3, Sections 3.1.4.1 and 3.1.4.2 in Introduction.
<b>Concern ID: 63340</b>	<b>The proposed Project would restore the natural processes of the previous river inputs into the Barataria Basin, which would result in wide-ranging benefits, including the creation of wetlands (important wildlife habitat and carbon sequestration), protecting coastal communities from storm events, and economic benefits from the general protection and maintenance of the proposed Project area.</b>
<b>Response ID: 16298</b>	The commenter's support for the proposed Project is noted. As explained in the Draft EIS, the proposed Project would result in both beneficial and adverse impacts on the extent of wetlands, protection from storm events, and the economy, depending on the wetland area, community, and industry considered; see Chapter 4, Sections 4.6 Wetland Resources and Waters of the U.S., 4.20 Public Health and Safety, Including Flood and Storm Hazard Risk Reduction, 4.13 Socioeconomics, and 4.14 Commercial Fisheries.
<b>Concern ID: 63340a</b>	<b>Coastal preservation and restoration activities are essential in order to continue providing habitat for fish and wildlife, to protect communities, and to provide a source of recreation to residents and visitors.</b>
<b>Response ID: 16298a</b>	The commenter's support for coastal restoration is noted. As discussed in Chapter 1, Section 1.4 Purpose and Need, the purpose of the proposed Project is to implement a large-scale diversion that would

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provide and support the long-term viability of existing and planned coastal restoration efforts. As discussed in Chapter 2 Alternatives of the Draft EIS, an alternatives analysis was conducted to identify viable alternatives for the proposed action that would meet the proposed Project's stated purpose and need. The impacts (both beneficial and adverse) of the proposed Project on the extent of wetlands (including as fish and wildlife habitat), protection from storm events, and the economy, depending on the wetland area, community, and industry are considered in the EIS; see Chapter 4, Sections 4.6 Wetland Resources and Waters of the U.S., 4.9 Terrestrial Wildlife and Habitat, 4.10 Aquatic Resources, 4.20 Public Health and Safety, Including Flood and Storm Hazard Risk Reduction, 4.13 Socioeconomics, and 4.14 Commercial Fisheries.

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**Concern ID: 63341**

**The coastal wetland system creates multiple lines of natural defense from hurricanes and storm surge, and the ongoing wetland loss resulting from the lack of riverine input into the basin has resulted in increased storm risks to local communities (including decreases in property values and impacts to the electrical grid).**

**Response ID: 16300**

The commenter's support for the proposed Project is noted. The commenter correctly notes that coastal wetlands are natural defense against hurricanes and storm surge, and the damage they cause to local communities and infrastructure, as discussed in Chapter 3, Section 3.6 Wetland Resources and Waters of the U.S. of the Draft EIS. The causes of wetland loss in the proposed Project area were discussed in Section 3.6.2 of the Draft EIS, and included subsidence, levees, storms, canals/spoil banks, herbivory, and the DWH oil spill. Chapter 4, Sections 4.6 Wetland Waters and Resources of the U.S. and 4.20 Public Health and Safety, Including Flood and Storm Hazard Risk Reduction of the Draft EIS explained how the proposed Project would create and maintain wetlands in the Barataria Basin, and discuss the corresponding impacts on storm surge and flooding.

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**Concern ID: 63342**

**Other natural or man-made diversions have successfully built land, such that the proposed MBSD Project would also be expected to build land.**

**Response ID: 16302**

The commenter's support for the proposed Project is noted. Consistent with the comment, Chapter 4, Section 4.2.3.2 in Geology and Soils indicates that the proposed Project is anticipated to build land in the Barataria Basin (with smaller amounts of land loss projected in the birdfoot delta). To facilitate comparisons between the proposed Project and other natural or man-made diversions, a summary of select natural and man-made diversions in southeastern Louisiana has been developed to compare the purpose and/or characteristics of these diversions to the proposed MBSD Project, and their recorded impacts

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on the natural environment. This summary is available in Appendix U Summary of Select Natural and Man-made Diversions in Southeastern Louisiana of the Final EIS.

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**Concern ID: 63343**

**The diversion would result in a return to a more natural state in which a delta existed in the Barataria Basin and the saltier waters required by many important fishery species were naturally further south.**

**Response ID: 16304**

The concerns raised by the commenter related to the proposed Project's role in connecting the Barataria Basin to the Mississippi River were considered in the Draft EIS. As discussed in Chapter 4, Section 4.10.4.5 in Aquatic Resources, the proposed Project would impact salinity in the Barataria Basin, with salinity impacts benefiting some fishery species, such as bass and Gulf menhaden, and adversely impacting others, such as oysters and brown shrimp. Section 4.2 in Geology and Soils of the Draft EIS discussed the proposed Project's impacts on creating a delta in the basin. As identified in Chapter 2, Section 2.9 Summary of Environmental Consequences Under Each Alternative and discussed throughout Chapter 4 Environmental Consequences of the EIS, the No Action Alternative is compared to existing conditions to understand the anticipated changes in the environment that would occur irrespective of the proposed Project. Thereafter, the anticipated environmental consequences of the proposed Project action alternatives are compared to the results of the No Action Alternative analysis. Section ES.1 Introduction and Authority of the Executive Summary has been revised to include this clarification. In addition, Chapter 3, Sections 3.1.4.2 and 3.2.1.1 Historical Content, have been supplemented in the Final EIS to further discuss historic conditions and the role that the diversion may play in the Mississippi River Delta cycle.

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**Concern ID: 63345**

**Local communities are being afforded the opportunity to capitalize on well over \$1 billion in economic impact through the construction of the proposed Project, adding hundreds of higher wage jobs to their communities. These jobs also would allow these communities to build a workforce pipeline of talent to continue to perform civil construction, earthworks, environmental restoration, and surveying work in complex and challenging environments, each of which would provide stable, lucrative incomes for workers and their families and that benefit would flow to the vibrant communities and add a stable tax base for local governments.**

**Response ID: 16306**

The commenter's support for the proposed Project is noted. The comment is consistent with the content of Chapter 4, Section 4.13.4.2 in Socioeconomics of the Draft EIS, which identified up to major

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economic benefits within the proposed Project area during construction of the proposed Project.

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**Concern ID: 63346**

**Through a long history of coastal restoration, it has become clear that funding sources will deplete, and dredged sediments pumped and shaped into land subside often within a few decades; however, the river will continue to flow for generations and the sediments, nutrients, and fresh water will continue to build land as long as it is allowed it to flow.**

**Response ID: 16307**

The commenter's support for the proposed Project is noted. Consistent with the comment, Chapter 4, Section 4.2.3.2 in Geology and Soils of the Draft EIS discussed the long-term and sustained source of sediment that would be provided by the proposed Project for the replenishment and restoration of lands (including wetlands) within the outfall area.

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**Concern ID: 63347**

**The commenter strongly urges that the proposed Project be approved without delay, and that CPRA continue to work in collaboration with communities, residents, and impacted commercial and charter fishermen to develop additional granularity around mitigation and stewardship measures proposed.**

**Response ID: 16309**

The commenter's support for the proposed Project is noted. The USACE is evaluating the projected impacts of the Project in the EIS. As part of its Section 10/404 permitting decision-making process, USACE also conducts a public interest review, which weighs the probable harms of the proposed action against its potential benefits. In making its NRDA decision, the LA TIG will evaluate Project alternatives using the OPA evaluation criteria in 15 CFR §990.54 and NEPA evaluation from the Final EIS, consider public input, and review proposed Project mitigation, stewardship, and monitoring and adaptive management actions.

CPRA engaged the fishing community potentially impacted by the Project through public meetings to solicit input on mitigation and stewardship strategies and engaged community-based organizations to assist in soliciting additional feedback on the proposed mitigation and stewardship measures from affected fishers. A summary of these public engagement meetings and other outreach efforts is in Chapter 7 Public Involvement of the Final EIS. In response to comments, CPRA has expanded and refined the Final Mitigation and Stewardship Plan in the Final EIS (Appendix R1).

The Mitigation and Stewardship Plan and the Monitoring and Adaptive Management (MAM) Plan provided in the Draft EIS Appendix R were submitted by CPRA and represent a range of potential mitigation, stewardship, monitoring and adaptive management measures

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(collectively, measures). At the time of publication of the Draft EIS for public review, Appendix R contained draft Plans and CPRA had not identified which of the measures contained in those Plans it intended to implement. CPRA expanded and refined the Final Mitigation and Stewardship Plan in response to community and resource agency input. The Final EIS Appendix R contains the final Plans and specifies which measures CPRA and the LA TIG intend to implement. Generally, impact determinations discussed in the EIS represent anticipated proposed Project effects without implementation of these measures except in instances where such measures are identified in the discussion. If any mitigation, monitoring, or adaptive management measures are required by USACE as part of its approval of the proposed Project, such measures would be required as special conditions of the Department of the Army (DA) Section 10/404 permit and would be listed in the permit, if one is issued. Implementation of specific measures contained in either Plan, but not included in the Section 10/404 permit as special conditions, would not be required by USACE. USACE does not know whether any particular measure that is not a DA permit condition would be implemented. Measures that USACE currently contemplates as conditions of a DA Section 10/404 permit, if one is issued, are provided in Chapter 4, Section 4.27 Mitigation Summary of the EIS.

The LA TIG explains in Section 1.5 of the Final Restoration Plan that it anticipates requiring implementation of the Mitigation and Stewardship Plan, MAM Plan, and Marine Mammal Intervention Plan as components of the proposed Project, if the Project is approved by the LA TIG for funding. Decisions regarding which measures would be required as part of the LA TIG's funding decision would be set forth in the LA TIG Record of Decision related to the proposed Project.

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**Concern ID: 63348**

**The proposed MBSD Project is not a panacea for all of Louisiana's land loss, but it is a first step in using the full suite of tools on hand, including the most important tool, the Mississippi River, which actually built this landscape.**

**Response ID: 16310**

The commenter's support for the proposed Project is noted. Chapter 2, Section 2.2.1 in Steps Taken to Identify and Evaluate Reasonable Alternatives of the Draft EIS explained how the proposed Project is designed to reconnect and reestablish sustainable deltaic processes between the Mississippi River and the Barataria Basin. This is also discussed in Chapter 3, Section 3.2.1.1 in Geology and Soils of the LA TIG's Restoration Plan.

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**Concern ID: 63349**

**Commenters noted that it is clear that only nature can build a delta, and that nature should be allowed to begin to replace the one that was allowed to die. In order for that to happen without massive dislocation of human communities, some combination of**

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<b>Response ID: 16311</b>	<p><b>a diversion the approximate size of the Wax Lake Outlet, combined with some level of control at the point of outflow, would be necessary.</b></p> <p>The commenter's support for the proposed Project is noted. Chapter 2, Section 2.2.1 in Steps Taken to Identify and Evaluate Reasonable Alternatives of the Draft EIS explained how the proposed Project is designed to reconnect and reestablish sustainable deltaic processes between the Mississippi River and the Barataria Basin. Although the proposed Project is not designed to divert the maximum capacity of water diverted by the Wax Lake Outlet (about 440,000 cfs), its operation is projected to build maximum of 17,300 acres of land in the Barataria Basin by 2050, as discussed in Chapter 4, Section 4.2.3.2 in Geology and Soils. The capacity and operational triggers considered for the proposed Project are discussed in Chapter 2, Section 2.4 Step 2: Evaluation of Operational Alternatives - Location, Operational Triggers, Capacity, and Base Flow. The purpose of the proposed Project is also discussed in Chapter 3, Section 3.2.1.1 (Alternative 1 Description) of the LA TIG's Restoration Plan.</p>
<b>Concern ID: 63351</b>	<p><b>Before the river was engineered in response to the 1927 flood, Louisiana used to grow every spring and New Orleans enjoyed an immense buffer protecting it from storms. Restoring this wetland buffer is key to the city's survival. Southeast Louisiana is already an engineered space, but one that is not working for us. Let us engineer it for longevity. Please approve this diversion.</b></p>
<b>Response ID: 16313</b>	<p>The commenter's support for the proposed Project is noted. Chapter 2, Section 2.2.1 Define Project Objectives of the Draft EIS explained that the proposed Project is intended to reconnect and reestablish sustainable deltaic processes between the Mississippi River and the Barataria Basin. This is also discussed in Chapter 3, Section 3.2.1.1 (Alternative 1 Description) of the LA TIG's Restoration Plan.</p>
<b>Concern ID: 63352</b>	<p><b>The Mid-Barataria Sediment Diversion is the cornerstone of Louisiana's Coastal Master Plan and would help support and enhance the lifespan of other coastal restoration and protection projects. Combined with other proposed restoration projects, the Mid-Barataria Sediment Diversion would build and preserve more than 17,000 acres of wetlands over the next 30 years to restore critical wetland habitat injured by the DWH oil spill.</b></p>
<b>Response ID: 16314</b>	<p>The commenter's support for the proposed Project is noted. The cumulative impacts of the proposed Project and other restoration projects were discussed in Chapter 4, Section 4.25.6.4 in Cumulative Impacts of the Draft EIS. This section identified that, although sea-level rise and saltwater intrusion would generally offset the wetland gains of individual projects by 2070, there would be substantial interim benefits of these other past, present, and reasonably foreseeable restoration</p>

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projects in the Barataria Basin, including benefits related to fisheries production and storm surge risk.

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**Concern ID: 63353**

**The commenter strongly supports the Applicant's Preferred Alternative, but would prefer something larger. The commenter further notes that south Louisiana cannot afford to wait longer or accept lesser solutions because the coastline is sinking and local fisheries and wildlife habitat is washing into the Gulf. Fortunately, the Mississippi River offers a chance at salvation if the river is used correctly.**

**Response ID: 16315**

The commenter's support for the proposed Project is noted. The relative impacts, both beneficial and adverse, for the various capacity alternatives is explained throughout Chapter 4 Environmental Consequences of the EIS. Although the 150,000 cfs Alternative would result in the greatest degree of benefits (including the most land building), it also would result in the greatest degree of adverse impacts, particularly to marine mammals (see Section 4.11.5 in Marine Mammals), shrimp and oysters (see Section 4.10.4.5 in Aquatic Resources), and public health and safety (through increased water levels and inundation in areas closer to the immediate outfall, see Section 4.20.4.2 in Public Health and Safety, Including Flood and Storm Hazard Risk Reduction). The USACE has supplemented Section 4.10.4.5.3 in the Final EIS to further discuss the impacts of the 150,000 cfs Alternative to brown shrimp and oysters. The USACE is evaluating the projected impacts of the Project in the EIS. As part of its Section 10/404 permitting decision-making process, USACE also conducts a public interest review, which weighs the probable harms of the proposed action against its potential benefits.

The LA TIG's Restoration Plan evaluated each alternative against a variety of factors, including those outlined in 15 CFR §990.54 and strove to identify an alternative that would provide the right balance in terms of being cost-appropriate, meeting LA TIG goals, having a high likelihood of success, and avoiding collateral injury. While 150,000 cfs diversion would be expected to deliver more ecological benefits in terms of land creation and marsh building than the LA TIG's Preferred Alternative, it would also incur more collateral injuries and pose a greater risk to human health and safety; thus, it was not selected as the LA TIG's Preferred Alternative. See Section 3.2.4 (Overall OPA Evaluation Conclusions) of the Final Restoration Plan for a discussion of how the LA TIG came to its decision. In making its NRDA decision, the LA TIG will evaluate Project alternatives using the OPA evaluation criteria in 15 CFR §990.54, consider public input, and review proposed Project mitigation, stewardship, and monitoring and adaptive management actions.

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<b>Concern ID: 63354</b>	<b>The proposed MBSD Project is the most cost-effective way to address the current problems in a sustainable way.</b>
<b>Response ID: 16316</b>	The USACE and LA TIG acknowledge the commenter's support for the proposed Project. The LA TIG further notes that it strove to identify a preferred alternative that meets OPA's cost criteria and achieves the LA TIG's goals of comprehensive, integrated ecosystem restoration, through the creation of deltaic processes that supports an ecosystem that would be sustained over decades even in the face of rising sea levels and coastal erosion.
<b>Concern ID: 63355</b>	<b>The proposed Project needs to be built, but in the meantime, there is also a need to dredge and pump river sediment to build marsh, then put rocks around to maintain those results.</b>
<b>Response ID: 16317</b>	The commenter's support for the proposed Project is noted. The action being considered in the EIS is described in Chapter 1, Section 1.4 Purpose and Need and Chapter 2, Sections 2.2.1 in Steps Taken to Identify and Evaluate Reasonable Alternatives and 2.8 Action Alternatives Carried Forward for Detailed Analysis. Because these issues were addressed in the Draft EIS, no related edits have been made to the Final EIS. Other coastal restoration strategies are being considered for implementation by CPRA in its Coastal Master Plan and the LA TIG through NRDA restoration planning.
<b>Concern ID: 63357</b>	<b>The commenter indicates that the proposed Project would represent a major economic development project for the region and urges that this Project be approved and constructed with all urgency given the land-loss emergency along the Louisiana coast.</b>
<b>Response ID: 16319</b>	The commenter's support for the proposed Project is noted. Consistent with the comment, Chapter 4, Section 4.13 Socioeconomics of the Draft EIS indicated that construction of the proposed Project would result in a major economic benefit within the Project area. The USACE is evaluating the projected impacts of the Project in the EIS. As part of its Section 10/404 permitting decision-making process, USACE also conducts a public interest review, which weighs the probable harms of the proposed action against its potential benefits. In making its NRDA decision, the LA TIG will evaluate Project alternatives using the OPA evaluation criteria in 15 CFR §990.54 and NEPA evaluation from the Final EIS, consider public input, and review proposed Project mitigation, stewardship, and monitoring and adaptive management actions.
<b>Concern ID: 63358</b>	<b>The commenter supports constructing the Mid-Barataria Sediment Diversion before more Louisiana heritage is lost, and references a recent notice about native Indians who are being relocated by the government because their land is going to be under water.</b>

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**Response ID: 16320**

The commenter's support for the proposed Project is noted. Chapter 4, Sections 4.2 Geology and Soils and 4.6 Wetland Resources and Waters of the U.S. of the Draft EIS discussed the land building/marsh creation projected to result from the proposed Project, and Section 4.20 Public Health and Safety, Including Flood and Storm Hazard Risk Reduction discussed the projected impacts of the Project on flooding and storm hazards in Barataria Basin. Any ongoing actions regarding the relocation of Tribal Nations in coastal Louisiana is not associated with the proposed MBSD Project.

As indicated in Chapter 4, Section 4.24 Cultural Resources of the Draft EIS, historic resources consultations have been conducted in accordance with Section 106 of the NHPA. Appendix K Cultural Resources Information of the Final EIS includes the PA negotiated between the NHPA Section 106 consulting parties regarding the proposed Project. The PA explains the outreach conducted by the CEMVN to Tribal communities, identifies the Tribal Nations that decided to participate in the Section 106 Process, and explains that the CEMVN has and would continue to consult with any interested Tribal Nation who may have not yet requested to consult.

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**Concern ID: 63359**

**More diversions (size notwithstanding) are needed up and down the Mississippi River to build more marsh.**

**Response ID: 16321**

The commenter's support for the proposed Project is noted. Chapter 2, Section 2.3.7 in Step 1: Evaluation of Functional Alternatives of the EIS includes an analysis of multiple, smaller (5,000-10,000 cfs) diversions up and down the Mississippi River; this discussion indicated that the smaller-scale diversions would not reestablish sustainable deltaic processes because the appropriate volume and range of sediment needed to meet Project objectives would not be captured and/or transported into the basin. Further, assessment of locational alternatives for the larger-sized project indicated that locations in the upper and lower basins would not meet the purpose and need of the proposed Project, and that other locations in the middle basin would not be as effective in meeting the purpose and need (see Section 2.4.1 in Step 2: Evaluation of Operational Alternatives - Location, Operational Trigger, Capacity, and Base Flow). However, the Louisiana Coastal Master Plan contemplates additional sediment diversions to help restore the marsh and estuaries; those diversions that are reasonably foreseeable are discussed in Chapter 4, Section 4.25 Cumulative Impacts of the EIS. Because this issue was addressed in the Draft EIS, no related edits have been made to the Final EIS. Other projects outside Barataria Basin or that are not yet reasonably foreseeable (as defined in Section 4.25.1.3 in Cumulative Impacts) are beyond the scope of this EIS.



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<b>Concern ID: 63360</b>	<b>The USACE is not naive enough to believe that the use of fossil fuels is not directly or indirectly ruining the habitat of local wildlife and notes that USACE has it in its power to protect what cannot be replaced.</b>
<b>Response ID: 16322</b>	The commenter's input is noted. Chapter 3, Section 3.6.2.2 in Wetland Resources and Waters of the U.S. of the Draft EIS discussed the direct and indirect causes of wetland loss in the Barataria Basin, including wetland loss related to exploration, production and use of fossil fuels.
<b>Concern ID: 63362</b>	<b>This is a necessary step toward correcting environmental damage done to Louisiana by artificially directing water down the Mississippi River. Information about the necessity of healthy coastal marsh systems wasn't available when those decisions were made. It is especially necessary that the coastline is restored in preparation for climate change, which would hit Louisiana harder than most states.</b>
<b>Response ID: 16324</b>	The commenter's support for the proposed Project is noted. The impacts of climate change and sea-level rise in Louisiana were discussed in Chapter 3, Sections 3.1.3 in Introduction and 3.4.1.1 in Surface Water and Coastal Processes of the Draft EIS and were factored into the Delft3D Basinwide model results discussed throughout Chapter 4 Environmental Consequences. Impacts to marsh and to flood risk for various communities are discussed for both the No Action Alternative and the Applicant's Preferred Alternative.
<b>Concern ID: 63363</b>	<b>The commenter expressed support for the thorough analysis in the EIS, with the acknowledgement that modifications would be present in the Final EIS to account for ongoing communications about the proposed Project.</b>
<b>Response ID: 16325</b>	The commenter's support for the proposed Project is noted. Revisions have been made to the Final EIS based on public comments received on the Draft EIS, input from cooperating agencies, and continued Project evaluation. Changes between Draft and Final EIS are identified through markings along the margins on the applicable pages, as described in Chapter 1, Section 1.7 Public Involvement Summary.
<b>Concern ID: 63365</b>	<b>The proposed Project is necessary to stop land loss and mitigate storm impacts; however, impacts on the local populations should be mitigated.</b>
<b>Response ID: 16327</b>	The commenter's support for the proposed Project is noted. CPRA expanded and refined its Mitigation and Stewardship Plan (Appendix R1) for the Final EIS in response to community and resource agency input. If the proposed Project is approved and funded, CPRA states that it would implement the mitigation and stewardship measures as set forth in Appendix R1. CPRA's coordination with the affected communities and industries is described in Chapter 7 Public

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Involvement and Appendix R1, both of which have been revised for the Final EIS, in response to public comments.

The Mitigation and Stewardship Plan and the Monitoring and Adaptive Management (MAM) Plan provided in the Draft EIS Appendix R were submitted by CPRA and represent a range of potential mitigation, stewardship, monitoring and adaptive management measures (collectively, measures). At the time of publication of the Draft EIS for public review, Appendix R contained draft Plans and CPRA had not identified which of the measures contained in those Plans it intended to implement. CPRA expanded and refined the Final Mitigation and Stewardship Plan in response to community and resource agency input. The Final EIS Appendix R contains the final Plans and specifies which measures CPRA and the LA TIG intend to implement. Generally, impact determinations discussed in the EIS represent anticipated Project effects without implementation of these measures except in instances where such measures are identified in the discussion. If any mitigation, monitoring, or adaptive management measures are required by USACE as part of its approval of the proposed Project, such measures would be required as special conditions of the Department of the Army (DA) Section 10/404 permit and would be listed in the permit, if one is issued. Implementation of specific measures contained in either Plan, but not included in the Section 10/404 permit as special conditions, would not be required by USACE. USACE does not know whether any particular measure that is not a DA permit condition would be implemented. Measures that USACE currently contemplates as conditions of a DA Section 10/404 permit, if one is issued, are provided in Chapter 4, Section 4.27 Mitigation Summary of the EIS.

The LA TIG explains in Section 1.5 of the Final Restoration Plan that it anticipates requiring implementation of the Mitigation and Stewardship Plan, MAM Plan, and Marine Mammal Intervention Plan as components of the proposed Project, if the Project is approved by the LA TIG for funding. Decisions regarding which measures would be required as part of the LA TIG's funding decision would be set forth in the LA TIG Record of Decision related to the proposed Project.

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**Concern ID: 63366**

**The commenter supports centering community needs in planned mitigation and stewardship efforts.**

**Response ID: 16328**

CPRA has conducted meetings in communities that would be affected by the proposed Project. CPRA's coordination with the affected communities and industries is described in Chapter 7 Public Involvement and Appendix R1 (Mitigation and Stewardship Plan) of the EIS, which have been revised in response to public comments in the Final EIS.

The Mitigation and Stewardship Plan and the Monitoring and Adaptive Management (MAM) Plan provided in the Draft EIS Appendix R were

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submitted by CPRA and represent a range of potential mitigation, stewardship, monitoring and adaptive management measures (collectively, measures). At the time of publication of the Draft EIS for public review, Appendix R contained draft Plans and CPRA had not identified which of the measures contained in those Plans it intended to implement. CPRA expanded and refined the Final Mitigation and Stewardship Plan in response to community and resource agency input. The Final EIS Appendix R contains the final Plans and specifies which measures CPRA and the LA TIG intend to implement. Generally, impact determinations discussed in the EIS represent anticipated Project effects without implementation of these measures except in instances where such measures are identified in the discussion. If any mitigation, monitoring, or adaptive management measures are required by USACE as part of its approval of the proposed Project, such measures would be required as special conditions of the Department of the Army (DA) Section 10/404 permit and would be listed in the permit, if one is issued. Implementation of specific measures contained in either Plan, but not included in the Section 10/404 permit as special conditions, would not be required by USACE. USACE does not know whether any particular measure that is not a DA permit condition would be implemented. Measures that USACE currently contemplates as conditions of a DA Section 10/404 permit, if one is issued, are provided in Chapter 4, Section 4.27 Mitigation Summary of the EIS.

The LA TIG explains in Section 1.5 of the Final Restoration Plan that it anticipates requiring implementation of the Mitigation and Stewardship Plan, MAM Plan, and Marine Mammal Intervention Plan as components of the proposed Project, if the Project is approved by the LA TIG for funding. Decisions regarding which measures would be required as part of the LA TIG's funding decision would be set forth in the LA TIG Record of Decision related to the proposed Project.

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**Concern ID: 63367**

**Commenters noted that there is criticism from impacted communities and industries; however, the proposed Project proponent addresses these criticisms and has mechanisms to mitigate the impacts.**

**Response ID: 16329**

CPRA's coordination with the affected communities and industries is described in Chapter 7 Public Involvement and Appendix R1 (Mitigation and Stewardship Plan) of the EIS, which have been revised in response to public comments in the Final EIS.

The Mitigation and Stewardship Plan and the Monitoring and Adaptive Management (MAM) Plan provided in the Draft EIS Appendix R were submitted by CPRA and represent a range of potential mitigation, stewardship, monitoring and adaptive management measures (collectively, measures). At the time of publication of the Draft EIS for public review, Appendix R contained draft Plans and CPRA had not

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identified which of the measures contained in those Plans it intended to implement. CPRA expanded and refined the Final Mitigation and Stewardship Plan in response to community and resource agency input. The Final EIS Appendix R contains the final Plans and specifies which measures CPRA and the LA TIG intend to implement. Generally, impact determinations discussed in the EIS represent anticipated Project effects without implementation of these measures except in instances where such measures are identified in the discussion. If any mitigation, monitoring, or adaptive management measures are required by USACE as part of its approval of the proposed Project, such measures would be required as special conditions of the Department of the Army (DA) Section 10/404 permit and would be listed in the permit, if one is issued. Implementation of specific measures contained in either Plan, but not included in the Section 10/404 permit as special conditions, would not be required by USACE. USACE does not know whether any particular measure that is not a DA permit condition would be implemented. Measures that USACE currently contemplates as conditions of a DA Section 10/404 permit, if one is issued, are provided in Chapter 4, Section 4.27 Mitigation Summary of the EIS.

The LA TIG explains in Section 1.5 of the Final Restoration Plan that it anticipates requiring implementation of the Mitigation and Stewardship Plan, MAM Plan, and Marine Mammal Intervention Plan as components of the proposed Project, if the Project is approved by the LA TIG for funding. Decisions regarding which measures would be required as part of the LA TIG's funding decision would be set forth in the LA TIG Record of Decision related to the proposed Project.

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**Concern ID: 63368**

**CPRA has used the best available information and data to plan and design the proposed Project, and has committed to careful adaptive management and funding for mitigation to aide in the transition for the most impacted stakeholders.**

**Response ID: 16330**

The commenter's support for the proposed Project is noted, including support for the analysis that has been undertaken to understand the potential impacts of the Project. Appendix R1 (Mitigation and Stewardship Plan) of the EIS describes CPRA's mitigation and stewardship measures and Appendix R2 (Monitoring and Adaptive Management [MAM] Plan), describes CPRA's proposed monitoring metrics to adaptively manage operations to meet Project objectives; both of these documents have been revised for the Final EIS in response to public comments.

The Mitigation and Stewardship Plan and the Monitoring and Adaptive Management (MAM) Plan provided in the Draft EIS Appendix R were submitted by CPRA and represent a range of potential mitigation, stewardship, monitoring and adaptive management measures (collectively, measures). At the time of publication of the Draft EIS for

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public review, Appendix R contained draft Plans and CPRA had not identified which of the measures contained in those Plans it intended to implement. CPRA expanded and refined the Final Mitigation and Stewardship Plan in response to community and resource agency input. The Final EIS Appendix R contains the final Plans and specifies which measures CPRA and the LA TIG intend to implement. Generally, impact determinations discussed in the EIS represent anticipated Project effects without implementation of these measures except in instances where such measures are identified in the discussion. If any mitigation, monitoring, or adaptive management measures are required by USACE as part of its approval of the proposed Project, such measures would be required as special conditions of the Department of the Army (DA) Section 10/404 permit and would be listed in the permit, if one is issued. Implementation of specific measures contained in either Plan, but not included in the Section 10/404 permit as special conditions, would not be required by USACE. USACE does not know whether any particular measure that is not a DA permit condition would be implemented. Measures that USACE currently contemplates as conditions of a DA Section 10/404 permit, if one is issued, are provided in Chapter 4, Section 4.27 Mitigation Summary of the EIS.

The LA TIG explains in Section 1.5 of the Final Restoration Plan that it anticipates requiring implementation of the Mitigation and Stewardship Plan, MAM Plan, and Marine Mammal Intervention Plan as components of the proposed Project, if the Project is approved by the LA TIG for funding. Decisions regarding which measures would be required as part of the LA TIG's funding decision would be set forth in the LA TIG Record of Decision related to the proposed Project.

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**Concern ID: 63369**

**The commenter indicates that the Mid-Barataria Sediment Diversion presents the best chance to combat the impacts of climate change on Louisiana's communities and culture, with the best possible information and data backing it. However, the commenter notes that there is no such thing as a perfect model and even in the easiest to measure hydrological systems, models are the first point of failure and mistakes get made. Therefore, the commenter urges that the planning process involve the communities who have the deepest levels of experience, including the people who live close to the diversion, directly in the design, measuring, monitoring, evaluation, and stewardship of the proposed Project.**

**Response ID: 16332**

The commenter's support for the proposed Project is noted, including the substantial analysis that has been undertaken regarding the Project. CPRA's coordination with the affected communities and industries is described in Chapter 7 Public Involvement and Appendix

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R1 (Mitigation and Stewardship Plan), which have been revised for the Final EIS in response to public comments.

The Delft3D Basinwide Model projections of future conditions include uncertainties, as detailed in Appendix E Delft3D Modeling, Section 8.0 Model Limitations and Uncertainties of the Draft EIS. As part of developing the EIS, the USACE, together with the members of the LA TIG, reviewed the Delft3D Basinwide Model, including its parameters, methods of validation and calibration, inputs for the alternative production runs used in the EIS, and outputs, and concluded that the Delft3D Basinwide Model production runs and outputs were adequate and sufficient to inform the MBSD EIS impacts analysis of the alternatives.

Appendix R2 for the Monitoring and Adaptive Management (MAM) Plan of the Final EIS includes details regarding operational and adaptive management governance for the proposed Project. In the context of the proposed Project, governance refers to how CPRA, with input from other stakeholders, would make decisions over the life of the Project. Decisions would include, but not be limited to, continuation of and changes to Project operations, riverside management, monitoring, maintenance, and adaptive management actions. CPRA would provide annual operations plans, annual operations performance reports, annual monitoring reports, and multi-year monitoring and adaptive management reports (at five-year intervals) on CPRA's CIMS website (<https://cims.coastal.louisiana.gov/default.aspx>), as well as, on NOAA's Data Integration, Visualization, Exploration, and Reporting (DIVER) Explorer tool and Trustee Council websites. These plans would be available to stakeholders and the public. The stakeholders and the public would have an opportunity to participate in public meetings held to solicit comments, perspectives, and insights on the annual operations plans.

The Mitigation and Stewardship Plan and the MAM Plan provided in the Draft EIS Appendix R were submitted by CPRA and represent a range of potential mitigation, stewardship, monitoring and adaptive management measures (collectively, measures). At the time of publication of the Draft EIS for public review, Appendix R contained draft Plans and CPRA had not identified which of the measures contained in those Plans it intended to implement. CPRA expanded and refined the Final Mitigation and Stewardship Plan in response to community and resource agency input. The Final EIS Appendix R contains the final Plans and specifies which measures CPRA and the LA TIG intend to implement. Generally, impact determinations discussed in the EIS represent anticipated Project effects without implementation of these measures except in instances where such measures are identified in the discussion. If any mitigation, monitoring, or adaptive management measures are required by USACE as part of

its approval of the proposed Project, such measures would be required as special conditions of the Department of the Army (DA) Section 10/404 permit and would be listed in the permit, if one is issued. Implementation of specific measures contained in either Plan, but not included in the Section 10/404 permit as special conditions, would not be required by USACE. USACE does not know whether any particular measure that is not a DA permit condition would be implemented. Measures that USACE currently contemplates as conditions of a DA Section 10/404 permit, if one is issued, are provided in Chapter 4, Section 4.27 Mitigation Summary of the EIS.

The LA TIG explains in Section 1.5 of the Final Restoration Plan that it anticipates requiring implementation of the Mitigation and Stewardship Plan, MAM Plan, and Marine Mammal Intervention Plan as components of the proposed Project, if the Project is approved by the LA TIG for funding. Decisions regarding which measures would be required as part of the LA TIG's funding decision would be set forth in the LA TIG Record of Decision related to the proposed Project.

<b>Concern ID: 63370</b>	<b>The commenter indicated that, with or without the diversion, the coastal situation is not encouraging, and action must be taken.</b>
<b>Response ID: 16333</b>	The commenter's input is noted. The impacts of both the action alternatives and the No Action Alternative were discussed throughout Chapter 4 Environmental Consequences of the Draft EIS.
<b>Concern ID: 63371</b>	<b>Some of the proposed Project impacts (in particular to oysters) could be minimized with proper management of the diversion. It is a sediment diversion and therefore should only be operated when sediment content is high in the river and in the water column, which just happens to be in the springtime when the water temperatures are low and oysters can handle the increase in the fresh water.</b>
<b>Response ID: 16334</b>	As discussed in Chapter 2, Sections 2.2.1 Define Project Objectives and 2.4.3.2 Application of Additional Considerations to Capacity Alternatives of the EIS, the intake channel was modeled and designed to divert a relatively high sediment-to-water ratio (SWR) (greater than 1.0 on average) to be as efficient as possible in transporting sediment to reestablish deltaic processes; an SWR greater than 1.0 indicates that the proposed Project would divert more sediment per unit volume of diverted fresh water than concentrations in the Mississippi River. As identified in Chapter 4, Table 4.1-3, intermediate to maximum flows through the diversion structure are projected to occur predominantly in winter, spring, and early summer months. However, as discussed in Chapter 4, Section 4.10.4.5 in Aquatic Species of the EIS, operation of the proposed Project would result in a permanent, major adverse impact on oysters, due in large part to decreases in salinity.



CPRA plans to operate the proposed MBSD Project in accordance with the Operations Plan which can be found in Appendix F (MBSD Design and Operations Information) of the EIS. CPRA would adaptively manage the diversion for performance (see Monitoring and Adaptive Management [MAM] Plan in EIS, Appendix R2), if the Project is approved and funded. The MAM Plan does not currently include a requirement to adjust operations based on SWR; however, it does include the parameters that will be monitored to evaluate Project objectives, including SWR, observations that will trigger consideration of adaptive management, and examples of potential adaptive management actions related to SWR (see Section 4.1.1 and Table 4.1-1). Because these issues were addressed in the Draft EIS, no related edits have been made to the Final EIS.

The Mitigation and Stewardship Plan and the MAM Plan provided in the Draft EIS Appendix R were submitted by CPRA and represent a range of potential mitigation, stewardship, monitoring and adaptive management measures (collectively, measures). At the time of publication of the Draft EIS for public review, Appendix R contained draft Plans and CPRA had not identified which of the measures contained in those Plans it intended to implement. The Final EIS Appendix R contains the final Plans and specifies which measures CPRA and the LA TIG intend to implement. CPRA expanded and refined the Final Mitigation and Stewardship Plan in response to community and resource agency input. Generally, impact determinations discussed in the EIS represent anticipated Project effects without implementation of these measures except in instances where such measures are identified in the discussion. If any mitigation, monitoring, or adaptive management measures are required by USACE as part of its approval of the proposed Project, such measures would be required as special conditions of the Department of the Army (DA) Section 10/404 permit and would be listed in the permit, if one is issued. Implementation of specific measures contained in either Plan, but not included in the Section 10/404 permit as special conditions, would not be required by USACE. USACE does not know whether any particular measure that is not a DA permit condition would be implemented. Measures that USACE currently contemplates as conditions of a DA Section 10/404 permit, if one is issued, are provided in Chapter 4, Section 4.27 Mitigation Summary of the EIS.

The LA TIG explains in Section 1.5 of the Final Restoration Plan that it anticipates requiring implementation of the Mitigation and Stewardship Plan, MAM Plan, and Marine Mammal Intervention Plan as components of the proposed Project, if the Project is approved by the LA TIG for funding. Decisions regarding which measures would be required as part of the LA TIG's funding decision would be set forth in the LA TIG Record of Decision related to the proposed Project.



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<b>Concern ID: 63372</b>	<b>New Orleans and Louisiana are high in the list of at-risk cities/states for sea-level rise and hurricanes, and New Orleans has already seen too much devastation. The commenter urged for quick action to protect the country and its citizens.</b>
<b>Response ID: 16335</b>	The commenter's support for the proposed Project is noted. The impacts of climate change and sea-level rise in Louisiana were discussed in Chapter 3, Sections 3.1.3 in Introduction and 3.4.1.1 in Surface Water and Coastal Processes of the Draft EIS.
<b>Concern ID: 63373</b>	<b>The commenter supports one of the alternative action plans of the Mid-Barataria Sediment Diversion proposal and the use of DWH settlement/ restoration monies for implementing the plan.</b>
<b>Response ID: 16336</b>	The USACE and LA TIG acknowledge the commenter's support for the proposed Project. The LA TIG further acknowledges the commenter's support for using DWH restoration dollars to fund construction of the Project. If approved, the proposed Project would be largely funded through funds provided by the DWH oil spill settlement and determined by the LA TIG. The USACE is evaluating the projected impacts of the Project in the EIS. As part of its Section 10/404 permitting decision-making process, USACE also conducts a public interest review, which weighs the probable harms of the proposed action against its potential benefits. In making its NRDA decision, the LA TIG will evaluate Project alternatives using the OPA evaluation criteria in 15 CFR §990.54, consider public input, and review proposed Project mitigation, stewardship, and monitoring and adaptive management actions.
<b>Concern ID: 63374</b>	<b>Construction of the Mid-Barataria Sediment Diversion Project would have a massive positive economic impact, bringing thousands of jobs and billions of dollars in regional economic sales.</b>
<b>Response ID: 16337</b>	The commenter's support for the proposed Project is noted. Chapter 4, Section 4.13.4.2 in Socioeconomics of the Draft EIS discussed major economic benefits projected to occur within the Project area during construction of the proposed Project from increased jobs and regional sales.
<b>Concern ID: 63376</b>	<b>The State of Louisiana does not have the funding to implement its Coastal Master Plan in full. The State must utilize its best natural asset (the Mississippi River) to protect its communities, infrastructure, and natural resources, to compete for federal restoration funds in the future.</b>
<b>Response ID: 16339</b>	The commenter's input is noted. Implementation of Louisiana's Coastal Master Plan in full is outside of the scope of this EIS and the LA TIG's Restoration Plan.

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<b>Concern ID: 63378</b>	<b>The diversion would result in a return to a more natural state in which a delta existed in the Barataria Basin and the saltier waters required by many important fishery species were naturally further south.</b>
<b>Response ID: 16304</b>	The concerns raised by the commenter related to the proposed Project's role in connecting the Barataria Basin to the Mississippi River were considered in the Draft EIS. As discussed in Chapter 4, Section 4.10.4.5 in Aquatic Resources, the proposed Project would impact salinity in the Barataria Basin, with salinity impacts benefiting some fishery species, such as bass and Gulf menhaden, and adversely impacting others, such as oysters and brown shrimp. Section 4.2 in Geology and Soils of the Draft EIS discussed the proposed Project's impacts on creating a delta in the basin. As identified in Chapter 2, Section 2.9 Summary of Environmental Consequences Under Each Alternative and discussed throughout Chapter 4 Environmental Consequences of the EIS, the No Action Alternative is compared to existing conditions to understand the anticipated changes in the environment that would occur irrespective of the proposed Project. Thereafter, the anticipated environmental consequences of the proposed Project action alternatives are compared to the results of the No Action Alternative analysis. Section ES.1 Introduction and Authority of the Executive Summary has been revised to include this clarification. In addition, Chapter 3, Sections 3.1.4.2 Barataria Basin and 3.2.1.1 Historical Content have been supplemented in the Final EIS to further discuss historic conditions and the role that the diversion may play in the Mississippi River Delta cycle.
<b>Concern ID: 63379</b>	<b>After many years of study, with great investment of resources, it is time to implement the Mid-Barataria Sediment Diversion. Comments from opponents, primarily in St. Bernard and Plaquemines Parishes, are worthy of consideration but insufficient to delay further action on this keystone project of the Coastal Master Plan.</b>
<b>Response ID: 16341</b>	The commenter's statement of support is noted. The evaluation of the impacts of the Project in the EIS was developed using the best information and data available to USACE and the LA TIG. As part of its Section 10/404 permitting decision-making process, USACE also conducts a public interest review, which weighs the probable harms of the proposed action against its potential benefits. Revisions have been made to the Final EIS based on public comments received on the Draft EIS, input from cooperating agencies, and continued Project communications. Changes between the Draft and Final EIS are identified through markings along the margins on the applicable pages, as described in Chapter 1, Section 1.7 Public Involvement Summary. In making its NRDA decision, the LA TIG will evaluate Project

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alternatives using the OPA evaluation criteria in 15 CFR §990.54 and the NEPA analysis of the Final EIS, consider public input, and review proposed Project mitigation, stewardship, and monitoring and adaptive management actions.

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**Concern ID: 63380**

**Though there might be a less hard, more green diversion channel one could design, the time has already been expended and the permit has almost been granted, such that now is time to move forward with the Mid-Barataria Sediment Diversion.**

**Response ID: 16342**

The commenter's support for the proposed Project is noted. USACE is neither a proponent nor an opponent of the proposed Project and has not made any decision with respect to the proposed Project.

Several design alternatives were considered as discussed in Chapter 2, Section 2.4.4 in Step 2: Evaluation of Operational Alternatives - Location, Operational Trigger, Capacity, and Base Flow of the Draft EIS. The proposed design, with the hardened, open diversion channel, was designed as the most effective structure to meet the purpose and need of the action. As noted in Chapter 7, Section 7.6 Record of Decision of the EIS, the Final EIS is not a decision document. The USACE will issue its Record of Decision for the proposed Project after the close of the Final EIS public review period. Because this issue was addressed in the Draft EIS, no related edits have been made to the Final EIS.

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**Concern ID: 63381**

**The proposed Project would have fewer detrimental effects than those opposed to it understandably believe it would.**

**Response ID: 16343**

The commenter's input is noted. The beneficial and adverse impacts of the proposed Project were explained throughout Chapter 4 Environmental Consequences of the Draft EIS. The LA TIG's Restoration Plan evaluated the proposed Project against a variety of factors, including those outlined in 15 CFR §990.54, and strove to identify an alternative that would provide what the LA TIG believes is the right balance in terms of being cost-appropriate, meeting LA TIG goals, having a high likelihood of success, and avoiding collateral injury. See Section 3.2.4 in OPA Evaluation of the Alternatives of the LA TIG's Final Restoration Plan for a discussion of how the LA TIG came to its decision on the proposed Project.

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**Concern ID: 63382**

**The Mid-Barataria Sediment Diversion is a linchpin project from the plan that is critical to building a more climate resilient future for Louisiana. For decades, scientists and engineers have considered all the tools available and overwhelmingly agree that this proposed Project, and projects like it, are the best long-term solution and necessary to match the challenges faced from land loss due to sea-level rise and other climate change impacts. The proposed Project would build and maintain thousands of acres of**

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<b>Response ID: 16344</b>	<b>vital wetlands to protect people from flooding from more intense hurricanes and sea-level rise. Without action, some communities would see increased vulnerability to floods, continued loss of wetlands, and a collapse of key fisheries. Finally, the proposed Project would work in concert with nearby marsh creation projects and would extend the lifespan of the millions of dollars that have been invested in nearby marsh creation projects.</b>
	The commenter's support for the proposed Project is noted. The No Action and proposed Project alternatives' impacts on flooding potentials, wetland extent, and key fisheries were discussed in Chapter 4, Sections 4.20 Public Health and Safety, Including Flood and Storm Hazard Risk, 4.6 Wetland Resources and Waters of the U.S., and 4.10 Aquatic Resources of the Draft EIS, respectively. Similarly, the cumulative impacts of the proposed Project and other restoration projects were discussed in Section 4.25 Cumulative Impacts of the Draft EIS, as applicable.
<b>Concern ID: 63383</b>	<b>The commenter is a firm believer in the power of adaptive management and looks forward to seeing the development and implementation of a robust and inclusive adaptive management plan. Done well, the commenter notes that a plan of this nature would build trust and gain knowledge to share this innovative technology with deltas all over the world.</b>
<b>Response ID: 16345</b>	The commenter's input is noted. Appendix R2 (Monitoring and Adaptive Management [MAM] Plan) of the EIS reflects CPRA's proposed adaptive management strategies, which were refined for the Final EIS based on public input received during the Draft EIS comment period.  The Mitigation and Stewardship Plan and the MAM Plan provided in the Draft EIS Appendix R were submitted by CPRA and represent a range of potential mitigation, stewardship, monitoring and adaptive management measures (collectively, measures). At the time of publication of the Draft EIS for public review, Appendix R contained draft Plans and CPRA had not identified which of the measures contained in those Plans it intended to implement. The Final EIS Appendix R contains the final Plans and specifies which measures CPRA and the LA TIG intend to implement. Generally, impact determinations discussed in the EIS represent anticipated Project effects without implementation of these measures except in instances where such measures are identified in the discussion. If any mitigation, monitoring, or adaptive management measures are required by USACE as part of its approval of the proposed Project, such measures would be required as special conditions of the Department of the Army (DA) Section 10/404 permit and would be listed in the permit, if one is issued. Implementation of specific measures contained in either Plan,

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but not included in the Section 10/404 permit as special conditions, would not be required by USACE. USACE does not know whether any particular measure that is not a DA permit condition would be implemented. Measures that USACE currently contemplates as conditions of a DA Section 10/404 permit, if one is issued, are provided in Chapter 4, Section 4.27 Mitigation Summary of the EIS.

The LA TIG explains in Section 1.5 of the Final Restoration Plan that it anticipates requiring implementation of the Mitigation and Stewardship Plan, MAM Plan, and Marine Mammal Intervention Plan as components of the proposed Project, if the Project is approved by the LA TIG for funding. Decisions regarding which measures would be required as part of the LA TIG's funding decision would be set forth in the LA TIG Record of Decision related to the proposed Project.

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**Concern ID: 63384**

**Orleans Parish is on the frontlines of climate change and has a vested interest in the implementation of large-scale coastal restoration projects such as the proposed MBSD Project, and particularly those that mimic or restore the Mississippi River's natural processes. The City of New Orleans supports the "multiple lines of defense" approach to risk reduction across coastal Louisiana. While projects like dredging for marsh creation and barrier island creation are vital components of that approach, they do not possess the land-building power that the proposed MBSD Project does and are unable to keep pace with sea-level rise.**

**Response ID: 16346**

The commenter's support for the proposed Project is noted. The commenter correctly notes that the proposed Project is intended to reestablish the Mississippi River's natural deltaic processes, and that many alternatives considered in Chapter 2 Alternatives of the Draft EIS (such as marsh or barrier island creation) would not reestablish those processes. If approved, the proposed Project, in conjunction with the range of restoration projects across the Louisiana coastline, would reflect a multiple lines of defense approach to protecting Louisiana's resources, including New Orleans and Orleans Parish. Also, Chapter 4, Section 4.25 Cumulative Impacts considers other past, present and reasonably foreseeable projects together with the action alternatives, including the proposed Project.

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**Concern ID: 63385**

**A commenter noted that some opposed to the proposed Project compare it to freshwater diversions, like the Caernarvon Diversion, which introduce fresh water to combat rising salinity levels due to saltwater intrusion. The proposed MBSD Project is a sediment diversion, which is designed to shunt sediment from the river into a desired area, much like the river is designed to do by nature.**

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**Response ID: 16347**

The commenter is correct that a sediment diversion would have different goals and impacts from freshwater diversion projects that have been previously implemented. A summary of select natural and man-made diversions in southeastern Louisiana, including the Caernarvon Diversion, has been developed to compare the purpose and/or characteristics of these diversions to the proposed MBSD Project, and their recorded impacts on the natural environment. This summary is available in Appendix U Summary of Select Natural and Man-made Diversions in Southeastern Louisiana of the Final EIS.

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**Concern ID: 63386**

**LA Highway 1 (LA 1) is the only roadway supporting Port Fourchon and the significant industry that it supports, and is the sole evacuation route for area residents. The highway also provides access to seafood production areas, eco-tourism destinations, coastal marshes for restoration and protection projects, and a critical route for oil spill response. The proposed Project would help deliver the sediment and fresh water to protect our basin, furthering the protection of LA 1, and those who travel on it, from storms.**

**Response ID: 16348**

The commenter's support for the proposed Project is noted. The effects of the proposed Project on weather and storm surge events, including the areas in which the impacts of storm events are projected to decrease, were discussed in Chapter 4, Section 4.20.4.2 in Public Health and Safety, Including Flood and Storm Hazard Risk Reduction of the Draft EIS. As discussed, storm surge in the western and middle basin would increase up to 0.2 feet by 2040 under the Applicant's Preferred Alternative. Although the wetlands projected to be created or maintained by the proposed Project would not directly benefit LA 1, the cumulative impacts of the proposed Project and other restoration projects, as discussed in Chapter 4, Section 4.25.6.4 in Cumulative Impacts, would allow for substantial interim (before 2070) benefits of these other past, present, and reasonably foreseeable restoration projects in the Barataria Basin, including those related to storm surge risk.

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**Concern ID: 63387**

**The central purpose of the proposed MBSD Project based on its Natural Resource Damage funding source is to offset damage caused to the Barataria Basin as a result of the DWH oil spill in 2010. However, the Draft EIS also noted that an associated purpose is building and protecting wetlands with a view to restoration of parts of the basin. A central goal of the CWA, the Section 404 regulations, and NEPA is the restoration and maintenance of the chemical, physical, and biological integrity of the nation's waters, including the Barataria Basin. The MMPA states as a key policy that the primary objective of the management of marine mammal species should be to maintain the**



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<b>Response ID: 16349</b>	<p><b>health and stability of the marine ecosystem. The proposed MBSD Project is designed to further these goals.</b></p> <p>The commenter's support for the proposed Project is noted. The burden to comply with NEPA is on the federal decision-making agencies, not on the project itself. USACE will evaluate the proposed Project for its compliance with the CWA Section 404(b)(1) guidelines; that evaluation is underway and is not complete. The LA TIG also intends to rely on the Draft EIS to inform its decision under OPA and to fulfill the requirements of the federal Trustees under NEPA. A discussion of the MMPA can be found in Chapter 3, Section 3.11.1 Marine Mammals in the Northern Gulf of Mexico of the Final EIS.</p> <p>As described in Chapter 1, Section 1.4 Purpose and Need of the EIS, the purpose of the proposed MBSD Project is to restore for injuries caused by the DWH oil spill and to reconnect and reestablish sustainable deltaic processes between the Mississippi River and the Barataria Basin through the delivery of sediment, fresh water, and nutrients to support the long-term viability of existing and planned coastal restoration efforts.</p>
<b>Concern ID: 63388</b>	<p><b>Commenters noted that the time for planning and studying has run out and the river must be put to work. The Mid-Barataria Sediment Diversion would do just that. It would work in concert with nearby marsh creation projects to extend their longevity, which optimizes our investments. In addition, there would be a massive economic boon coming from the construction and sales related to the development of the proposed Project.</b></p>
<b>Response ID: 16350</b>	<p>The commenter's support for the proposed Project is noted. The cumulative impacts of the proposed Project and other restoration projects were discussed in Chapter 4, Section 4.25 Cumulative Impacts of the Draft EIS, as applicable. Further, the comment is consistent with Chapter 4, Section 4.13.4.2 in Socioeconomics of the Draft EIS, which identified major economic benefits within the Project area during construction of the proposed Project.</p>
<b>Concern ID: 63390</b>	<p><b>The proposed Project would be beneficial as long it is run as designed and is not altered by special interests, and would help maintain wetlands that would minimize flood risks to the commenter's generational home, outside the levee system.</b></p>
<b>Response ID: 16352</b>	<p>The commenter's support for the proposed Project is noted. Chapter 4, Section 4.6 Wetlands and Waters of the U.S. of the EIS discusses the extent of wetland maintenance and restoration that would be expected from the proposed Project, although Section 4.20 Public Health and Safety, Including Flood and Storm Hazard Risk Reduction acknowledges the increased potential for flooding impacts outside of federal levee systems. Recognizing the potential for these impacts,</p>

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CPRA has developed a number of mitigation and stewardship measures for infrastructure impacts, such as elevating public roadways. These measures, which have been revised in response to public comments since the release of the Draft EIS, are described in Appendix R1 (Mitigation and Stewardship Plan) of the Final EIS.

Structural measures such as raising roads or improving bulkheads in the Mitigation and Stewardship Plan are not included in CPRA's MBSD DA permit application and if the permit is approved, would not be authorized under the DA permit. Many of these structural measures would require additional DA and other permits prior to installation. Such permits are not guaranteed and would take time for USACE and other regulating agencies to process.

A DA permit does not convey any property rights and does not authorize any injury to property or invasion of rights or any infringement of Federal, state or local laws or regulations. The applicant's signature on an application is an affirmation that the applicant possesses or will possess the requisite property interest to undertake the activity proposed in the application.

The Mitigation and Stewardship Plan and the Monitoring and Adaptive Management (MAM) Plan provided in the Draft EIS Appendix R were submitted by CPRA and represent a range of potential mitigation, stewardship, monitoring and adaptive management measures (collectively, measures). At the time of publication of the D EIS for public review, Appendix R contained draft Plans and CPRA had not identified which of the measures contained in those Plans it intended to implement. The Final EIS Appendix R contains the final Plans and specifies which measures CPRA and the LA TIG intend to implement. Generally, impact determinations discussed in the EIS represent anticipated Project effects without implementation of these measures except in instances where such measures are identified in the discussion. If any mitigation, monitoring, or adaptive management measures are required by USACE as part of its approval of the proposed Project, such measures would be required as special conditions of the Department of the Army (DA) Section 10/404 permit and would be listed in the permit, if one is issued. Implementation of specific measures contained in either Plan, but not included in the Section 10/404 permit as special conditions, would not be required by USACE. The USACE does not know whether any particular measure that is not a DA permit condition would be implemented. Measures that USACE currently contemplates as conditions of a DA Section 10/404 permit, if one is issued, are provided in Chapter 4, Section 4.27 (Mitigation Summary) of the EIS.

The LA TIG explains in Section 1.5 of the Final Restoration Plan that it anticipates requiring implementation of the Mitigation and Stewardship

Plan, MAM Plan, and Marine Mammal Intervention Plan as components of the proposed Project, if the Project is approved by the LA TIG for funding. Decisions regarding which measures would be required as part of the LA TIG's funding decision would be set forth in the LA TIG Record of Decision related to the proposed Project.

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**Concern ID: 63392**

**The proposed Project would also enhance and extend the life span of other nearby restoration projects, maximizing our coastal restoration efforts and limited funding.**

**Response ID: 16354**

The commenter's input is noted. The cumulative impacts of the proposed Project and other restoration projects were discussed in Chapter 4, Section 4.25 Cumulative Impacts of the Draft EIS, as applicable.

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**Concern ID: 63394**

**The Mid-Barataria Sediment Diversion would rebuild wetlands, protect the coast, and help reduce the Gulf of Mexico Dead Zone through diversion of nutrients into the Barataria Basin to increase area productivity.**

**Response ID: 16356**

The commenter correctly notes that the proposed Project would build and maintain wetlands within the Barataria Basin that would provide some storm surge reduction to some portions of the basin, as discussed in Chapter 4, Sections 4.6.5.1 in Wetland Resources and Waters of the U.S. and 4.20.4.2 in Public Health and Safety, Including Flood and Storm Hazard Risk Reduction of the EIS. As discussed in Section 4.10.4.4 in Aquatic Resources, nutrient load would increase in the Barataria Basin from the input of water from the Mississippi River; however, the birdfoot delta is projected to have negligible changes in nutrient loads. Section 4.25.5.4.4 and 4.25.5.4.5 in Cumulative Impacts, Surface Water and Sediment Quality of the Final EIS has been revised to discuss the Gulf Hypoxia Action Plan, which highlights the important role that river diversions could play in reducing nutrient loads; however, the Gulf hypoxic zone is not expected to be impacted by operation of the proposed Project.

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**Concern ID: 63396**

**There is an opportunity in Louisiana to invest in restoration to build a more climate resilient future for Louisiana's coast. With annual inputs of sediment and fresh water, river deltas can continue to provide valuable habitats and other benefits in the face of environmental changes. However, human activity has altered many deltas around the world and the Mississippi River Delta is no exception as levees and canals have caused a series of other direct and indirect impacts. The idea of a river diversion at Myrtle Grove is not new and has undergone extensive study since it was first explored more than 35 years ago in a 1984 feasibility study by the USACE. With the diversion there would be changes in the basin; changes in water levels, sediment accumulation, and the distribution of salinity and some species of fish and wildlife.**

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**Efforts to mitigate for these changes should be as transparent and inclusive as possible. But without the diversion, major changes are also expected to occur and the ecosystem would continue to degrade with continued sea-level rise and wetland loss.**

**Response ID: 16358**

The commenter's support for the proposed Project is noted. The analyses in the EIS were developed using the best information and data available to USACE and the LA TIG at the time of writing. The impacts of both the proposed Project and the No Action Alternative are discussed throughout Chapter 4 Environmental Consequences. Appendix R of the Final EIS reflects CPRA's mitigation and stewardship strategies, which were refined based on public input received during the Draft EIS comment period.

The Mitigation and Stewardship Plan and the Monitoring and Adaptive Management (MAM) Plan provided in the Draft EIS Appendix R were submitted by CPRA and represent a range of potential mitigation, stewardship, monitoring and adaptive management measures (collectively, measures). At the time of publication of the Draft EIS for public review, Appendix R contained draft Plans and CPRA had not identified which of the measures contained in those Plans it intended to implement. The Final EIS Appendix R contains the final Plans and specifies which measures CPRA and the LA TIG intend to implement. Generally, impact determinations discussed in the EIS represent anticipated Project effects without implementation of these measures except in instances where such measures are identified in the discussion. If any mitigation, monitoring, or adaptive management measures are required by USACE as part of its approval of the proposed Project, such measures would be required as special conditions of the Department of the Army (DA) Section 10/404 permit and would be listed in the permit, if one is issued. Implementation of specific measures contained in either Plan, but not included in the Section 10/404 permit as special conditions, would not be required by USACE. USACE does not know whether any particular measure that is not a DA permit condition would be implemented. Measures that USACE currently contemplates as conditions of a DA Section 10/404 permit, if one is issued, are provided in Chapter 4, Section 4.27 Mitigation Summary of the EIS.

The LA TIG explains in Section 1.5 of the Final Restoration Plan that it anticipates requiring implementation of the Mitigation and Stewardship Plan, MAM Plan, and Marine Mammal Intervention Plan as components of the proposed Project, if the Project is approved by the LA TIG for funding. Decisions regarding which measures would be required as part of the LA TIG's funding decision would be set forth in the LA TIG Record of Decision related to the proposed Project.

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<b>Concern ID: 63350</b>	<b>The Mid-Barataria Sediment Diversion is the first project-level attempt at systemic ecosystem restoration to one of the world's treasures, the Mississippi River Delta. The future of the Gulf Coast depends on the modeling and permitting decisions in projects like the proposed Project.</b>
<b>Response ID: 16312</b>	<p>The commenter's support for the proposed Project is noted. Chapter 2, Section 2.2.1 in Steps Taken to Identify and Evaluate Reasonable Alternatives of the Draft EIS explained how the proposed Project is designed to reconnect and reestablish sustainable deltaic processes between the Mississippi River and the Barataria Basin. The USACE is evaluating the projected impacts of the Project in the EIS. As part of its Section 10/404 permitting decision-making process, USACE also conducts a public interest review, which weighs the probable harms of the proposed action against its potential benefits.</p> <p>The purpose of the proposed Project is also discussed in Chapter 3, Section 3.2.1.1 (Alternative 1 Description) of the LA TIG's Restoration Plan. In making its NRDA decision, the LA TIG will evaluate proposed Project alternatives using the OPA evaluation criteria in 15 CFR §990.54, consider public input, and review proposed Project mitigation, stewardship, and monitoring and adaptive management actions.</p>
<b>Concern ID: 63356</b>	<b>All the amazing natural habitats that exist today are because they were protected by citizens and conservation organizations who stopped the USACE's plans to drain and ditch. The USACE should change its focus to conservation and restoration.</b>
<b>Response ID: 16318</b>	The commenter's input is noted. The mission of the USACE is outside the scope of this EIS.
<b>Concern ID: 63344</b>	<b>The proposed Project must be moved forward to naturally reverse the impacts of levees and oil and gas activities, as well as to combat sea-level rise and climate change.</b>
<b>Response ID: 16305</b>	The commenter's support for the proposed Project is noted. The comment is consistent with Chapter 4, Section 4.2.3.2 in Geology and Soils of the Draft EIS, which identified the projected land gains over time from operation of the proposed Project; these land gains take into account anticipated sea-level rise.
<b>Concern ID: 63361</b>	<b>Move this proposed Project forward and prohibit the oil companies from endangering the local people and their way of life.</b>
<b>Response ID: 16323</b>	The commenter's support for the proposed Project is noted. The regulation of oil companies and their activities is outside the scope of the EIS, as described in Chapter 1, Section 1.6 of the EIS; however, past, present, and reasonably foreseeable activities in the Project area (including oil and gas activities) are included in the Cumulative Impacts assessment (Chapter 4, Section 4.25 Cumulative Impacts of the EIS), where their contribution to impacts on resources within the proposed

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Project area are considered. Because this issue was addressed in the Draft EIS, no related edits have been made to the Final EIS.

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## GEN2000 - General Critique of Project/RP

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**Concern ID: 62777**

**Implementation of the proposed MBSD Project would result in unacceptable adverse impacts on the biota of the Barataria Basin (including but not limited to endangered species, dolphins, shrimp, crab, oysters, and finfish).**

**Response ID: 16359**

The commenter's opposition to the proposed Project is noted. As discussed throughout Chapter 4 Environmental Consequences of the Draft EIS, the proposed Project would result in impacts on the general character of the Barataria Basin, including, but not limited to, salinity, temperature, land accretion, and water quality. These impacts would generally be either adverse or beneficial on a given species depending on habitat tolerances of area plants and animals, with moderate to major adverse impacts anticipated for those plants and animals that are unable to tolerate the modified habitat. In many cases, impacts in the Barataria Basin resources would be higher near the diversion outfall, where land building/sedimentation, salinity, and water level impacts would be greatest, and would decrease with distance from the outfall. The USACE is evaluating the projected impacts of the Project in the EIS. As part of its Section 10/404 permitting decision-making process, USACE also conducts a public interest review, which weighs the probable harms of the proposed action against its potential benefits. In making its NRDA decision, the LA TIG will evaluate proposed Project alternatives using the OPA evaluation criteria in 15 CFR §990.54 and NEPA evaluation from the Final EIS, consider public input, and review proposed Project mitigation, stewardship, and monitoring and adaptive management actions.

The Mitigation and Stewardship Plan and the Monitoring and Adaptive Management (MAM) Plan provided in the Draft EIS Appendix R were submitted by CPRA and represent a range of potential mitigation, stewardship, monitoring and adaptive management measures (collectively, measures). At the time of publication of the Draft EIS for public review, Appendix R contained draft Plans and CPRA had not identified which of the measures contained in those Plans it intended to implement. The Final EIS Appendix R contains the final Plans and specifies which measures CPRA and the LA TIG intend to implement. Generally, impact determinations discussed in the EIS represent anticipated Project effects without implementation of these measures except in instances where such measures are identified in the discussion. If any mitigation, monitoring, or adaptive management

measures are required by USACE as part of its approval of the proposed Project, such measures would be required as special conditions of the Department of the Army (DA) Section 10/404 permit and would be listed in the permit, if one is issued. Implementation of specific measures contained in either Plan, but not included in the Section 10/404 permit as special conditions, would not be required by USACE. USACE does not know whether any particular measure that is not a DA permit condition would be implemented. Measures that USACE currently contemplates as conditions of a DA Section 10/404 permit, if one is issued, are provided in Chapter 4, Section 4.27 Mitigation Summary of the EIS.

The LA TIG explains in Section 1.5 of the Final Restoration Plan that it anticipates requiring implementation of the Mitigation and Stewardship Plan, MAM Plan, and Marine Mammal Intervention Plan as components of the proposed Project, if the Project is approved by the LA TIG for funding. Decisions regarding which measures would be required as part of the LA TIG's funding decision would be set forth in the LA TIG Record of Decision related to the proposed Project.

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**Concern ID: 62778**

**Implementation of the proposed MBSD Project would result in unacceptable adverse impacts on affected communities from flooding impacts, access issues, and cultural changes.**

**Response ID: 16360**

The commenter's opposition to the proposed Project is noted. The Draft EIS discussed impacts to the local communities from the proposed Project in Chapter 4, Section 4.13 Socioeconomics including Community Cohesion in Section 4.13.5.6. Consistent with the concern of the commenter, the Draft EIS did find potential minor to moderate, long-term adverse impacts on community cohesion from the proposed Project compared to the No Action Alternative. In addition, Sections 4.13 Socioeconomics and 4.20 Public Health and Safety, Including Flood and Storm Hazard Risk Reduction discuss the increased flooding impacts, including potential flooding of homes outside of federal levee systems potentially caused by the operation of the diversion.

In Myrtle Grove, CPRA would improve the bulkhead around the Myrtle Grove Marina Estates Subdivision to reduce the incidence of tidal flooding in that community. In other communities from Woodpark to Happy Jack south of the Project site outside levee protection, CPRA would elevate the roadways and make other infrastructure improvements to maintain access and utilities within those communities. In addition, CPRA plans to acquire Project servitudes from landowners in these communities (Woodpark, Deer Range, Suzie Bayou, Hermitage, Happy Jack and Grand Bayou) whose property is projected to be impacted by increased water levels due to Project operations. The Project servitude would allow CPRA to flow water over the landowner's property at heights and durations that are greater than

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would be in the case in the future without the Project. The Project servitude would be recorded against title to the property and would run with the land. CPRA would compensate those landowners for the Project servitude. CPRA would attempt to negotiate with the affected landowner to acquire this servitude. If the CPRA and the landowner were unable to reach a negotiated agreement, CPRA would exercise its eminent domain authority to purchase the servitude. These property owners would be able to use the funds received in exchange for the servitude to implement flood mitigation and stewardship measures.

The USACE is evaluating the projected impacts of the Project in the EIS. As part of its Section 10/404 permitting decision-making process, USACE also conducts a public interest review, which weighs the probable harms of the proposed action against its potential benefits. In making its NRDA decision, the LA TIG will evaluate Project alternatives using the OPA evaluation criteria in 15 CFR §990.54, consider public input, and review proposed Project mitigation, stewardship, and monitoring and adaptive management actions.

The Mitigation and Stewardship Plan and the Monitoring and Adaptive Management (MAM) Plan provided in the Draft EIS Appendix R were submitted by CPRA and represent a range of potential mitigation, stewardship, monitoring and adaptive management measures (collectively, measures). At the time of publication of the Draft EIS for public review, Appendix R contained draft Plans and CPRA had not identified which of the measures contained in those Plans it intended to implement. The Final EIS Appendix R contains the final Plans and specifies which measures CPRA and the LA TIG intend to implement. Generally, impact determinations discussed in the EIS represent anticipated Project effects without implementation of these measures except in instances where such measures are identified in the discussion. If any mitigation, monitoring, or adaptive management measures are required by USACE as part of its approval of the proposed Project, such measures would be required as special conditions of the Department of the Army (DA) Section 10/404 permit and would be listed in the permit, if one is issued. Implementation of specific measures contained in either Plan, but not included in the Section 10/404 permit as special conditions, would not be required by USACE. USACE does not know whether any particular measure that is not a DA permit condition would be implemented. Measures that USACE currently contemplates as conditions of a DA Section 10/404 permit, if one is issued, are provided in Chapter 4, Section 4.27 Mitigation Summary of the EIS.

A DA permit does not convey any property rights and does not authorize any injury to property or invasion of rights or any infringement of Federal, state or local laws or regulations. The applicant's signature on an application is an affirmation that the applicant possesses or will



possess the requisite property interest to undertake the activity proposed in the application.

The LA TIG explains in Section 1.5 of the Final Restoration Plan that it anticipates requiring implementation of the Mitigation and Stewardship Plan, MAM Plan, and Marine Mammal Intervention Plan as components of the proposed Project, if the Project is approved by the LA TIG for funding. Decisions regarding which measures would be required as part of the LA TIG's funding decision would be set forth in the LA TIG Record of Decision related to the proposed Project.

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**Concern ID: 62779****Implementation of the proposed MBSD Project would result in unacceptable adverse impacts on the fishing industry.****Response ID: 16361**

The commenter's opposition to the proposed Project is noted. Chapter 4, Section 4.14.4.2 in Commercial Fisheries of the Draft EIS discussed impacts of the proposed MBSD Project on commercial fisheries. As summarized in Section 4.14.5 in Commercial Fisheries, moderate to major adverse impacts on shrimp and oyster fisheries in the Project area are anticipated from the proposed Project, primarily by accelerating the decline of species abundance that is also anticipated under the No Action Alternative after the year 2050. Benefits to the blue crab fishery and some finfish are also anticipated.

CPRA would implement a fishery mitigation plan, which has been revised for the Final EIS in response to public comments (see the Mitigation and Stewardship Plan, Appendix R1 of the Final EIS). The USACE is evaluating the projected impacts of the Project in the EIS. As part of its Section 10/404 permitting decision-making process, USACE also conducts a public interest review, which weighs the probable harms of the proposed action against its potential benefits. In making its NRDA decision, the LA TIG will evaluate Project alternatives using the OPA evaluation criteria in 15 CFR §990.54 and NEPA evaluation from the Final EIS, consider public input, and review proposed Project mitigation, stewardship, and monitoring and adaptive management actions.

The Mitigation and Stewardship Plan and the Monitoring and Adaptive Management (MAM) Plan provided in the Draft EIS Appendix R were submitted by CPRA and represent a range of potential mitigation, stewardship, monitoring and adaptive management measures (collectively, measures). At the time of publication of the Draft EIS for public review, Appendix R contained draft Plans and CPRA had not identified which of the measures contained in those Plans it intended to implement. The Final EIS Appendix R contains the final Plans and specifies which measures CPRA and the LA TIG intend to implement. Generally, impact determinations discussed in the EIS represent anticipated Project effects without implementation of these measures except in instances where such measures are identified in the

discussion. If any mitigation, monitoring, or adaptive management measures are required by USACE as part of its approval of the proposed Project, such measures would be required as special conditions of the Department of the Army (DA) Section 10/404 permit and would be listed in the permit, if one is issued. Implementation of specific measures contained in either Plan, but not included in the Section 10/404 permit as special conditions, would not be required by USACE. USACE does not know whether any particular measure that is not a DA permit condition would be implemented. Measures that USACE currently contemplates as conditions of a DA Section 10/404 permit, if one is issued, are provided in Chapter 4, Section 4.27 Mitigation Summary of the EIS.

The LA TIG explains in Section 1.5 of the Final Restoration Plan that it anticipates requiring implementation of the Mitigation and Stewardship Plan, MAM Plan, and Marine Mammal Intervention Plan as components of the proposed Project, if the Project is approved by the LA TIG for funding. Decisions regarding which measures would be required as part of the LA TIG's funding decision would be set forth in the LA TIG Record of Decision related to the proposed Project.

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**Concern ID: 62780**

**Although the proposed MBSD Project would provide some benefits, the adverse impacts described in the EIS outweigh those benefits.**

**Response ID: 16362**

The commenter's opposition to the proposed Project, even considering the projected beneficial impacts, is noted. The beneficial and adverse effects of the proposed Project were discussed throughout Chapter 4 Environmental Consequences. The USACE is evaluating the projected impacts of the Project in the EIS. As part of its Section 10/404 permitting decision-making process, USACE also conducts a public interest review, which weighs the probable harms of the proposed action against its potential benefits. In making its NRDA decision, the LA TIG will evaluate Project alternatives using the OPA evaluation criteria in 15 CFR §990.54 and NEPA evaluation from the Final EIS, consider public input, and review proposed Project mitigation, stewardship, and monitoring and adaptive management actions.

To address adverse Project impacts, CPRA would implement a series of mitigation and adaptive management measures if the proposed Project is approved and funded.

The Mitigation and Stewardship Plan and the Monitoring and Adaptive Management (MAM) Plan provided in the Draft EIS Appendix R were submitted by CPRA and represent a range of potential mitigation, stewardship, monitoring and adaptive management measures (collectively, measures). At the time of publication of the Draft EIS for public review, Appendix R contained draft Plans and CPRA had not identified which of the measures contained in those Plans it intended to

implement. The Final EIS Appendix R contains the final Plans and specifies which measures CPRA and the LA TIG intend to implement. Generally, impact determinations discussed in the EIS represent anticipated Project effects without implementation of these measures except in instances where such measures are identified in the discussion. If any mitigation, monitoring, or adaptive management measures are required by USACE as part of its approval of the proposed Project, such measures would be required as special conditions of the Department of the Army (DA) Section 10/404 permit and would be listed in the permit, if one is issued. Implementation of specific measures contained in either Plan, but not included in the Section 10/404 permit as special conditions, would not be required by USACE. USACE does not know whether any particular measure that is not a DA permit condition would be implemented. Measures that USACE currently contemplates as conditions of a DA Section 10/404 permit, if one is issued, are provided in Chapter 4, Section 4.27 Mitigation Summary of the EIS.

The LA TIG explains in Section 1.5 of the Final Restoration Plan that it anticipates requiring implementation of the Mitigation and Stewardship Plan, MAM Plan, and Marine Mammal Intervention Plan as components of the proposed Project, if the Project is approved by the LA TIG for funding. Decisions regarding which measures would be required as part of the LA TIG's funding decision would be set forth in the LA TIG Record of Decision related to the proposed Project.

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**Concern ID: 62781**

**Although some form of coastal restoration is warranted and necessary for the long-term health of the Barataria Basin, the proposed Project is not the solution.**

**Response ID: 16363**

The commenter's opposition to the proposed Project is noted. As discussed in Chapter 2 Alternatives of the Draft EIS, an alternatives analysis was conducted to identify viable alternatives for the proposed action that would meet the proposed Project's stated purpose and need, as identified in Chapter 1, Section 1.4 Purpose and Need. Alternatives considered, but eliminated from consideration were summarized in Table 2.6-1. The USACE is evaluating the projected impacts of the Project in the EIS. As part of its Section 10/404 permitting decision-making process, USACE also conducts a public interest review, which weighs the probable harms of the proposed action against its potential benefits. In making its NRDA decision, the LA TIG will evaluate Project alternatives using the OPA evaluation criteria in 15 CFR §990.54 and NEPA evaluation from the Final EIS, consider public input, and review proposed Project mitigation, stewardship, and monitoring and adaptive management actions.

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**Concern ID: 62782**

**A large number of commenters expressed general opposition to the proposed Project.**

**Response ID: 16364**

The commenter's opposition to the proposed Project is noted. The USACE is evaluating the projected impacts of the Project in the EIS. As part of its Section 10/404 permitting decision-making process, USACE also conducts a public interest review, which weighs the probable harms of the proposed action against its potential benefits. In making its NRDA decision, the LA TIG will evaluate Project alternatives using the OPA evaluation criteria in 15 CFR §990.54 and NEPA evaluation from the Final EIS, consider public input, and review proposed Project mitigation, stewardship, and monitoring and adaptive management actions.

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**Concern ID: 62783**

**Commenters noted that the cost of designing and building the proposed MBSD Project is too high for the small amount of land anticipated to be built.**

**Response ID: 16365**

The commenter's opposition to the cost of the proposed Project is noted. Under NEPA, a cost-benefit analysis is not required for the EIS unless such an analysis is relevant to the agency's decision. USACE generally assumes that the permit applicant has conducted its own economic evaluation of a proposed project. Consequently, a cost-benefit analysis is not relevant to USACE's permitting decisions. As part of evaluating the proposed Project, the LA TIG considered the costs associated with developing, constructing, and managing the Applicant's Preferred Alternative consistent with the Restoration Plan alternatives evaluation criteria in 15 CFR §990.54. This discussion is in Chapter 3, Section 3.2.1.2 in OPA Evaluation of the Alternatives of the LA TIG's Final Restoration Plan.

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**Concern ID: 62784**

**Prior or proposed diversions and diversion-like projects (including the Caernarvon Diversion, MRGO, Mardi Gras Pass, Maurepas Bonnet Carré Spillway openings) did not work or caused adverse impacts on area resources.**

**Response ID: 16366**

The commenter's concern regarding the effectiveness and adverse impacts of existing diversions and diversion-like structures is noted. A summary of select natural and man-made diversions (and diversion-like structures) in southeastern Louisiana has been developed to compare the purpose and/or characteristics of these diversions to the proposed MBSD Project, and their recorded impacts on the natural environment. This summary, which includes discussions on the Caernarvon Diversion, MRGO, Mardi Gras Pass, and Bonnet Carré Spillway, is available in Appendix U Summary of Select Natural and Man-made Diversions in Southeastern Louisiana of the Final EIS. The Maurepas Diversion is subject to an ongoing NEPA analysis, which is anticipated to be finalized in 2022.

Chapter 3, Sections 3.2.1.4 and 3.2.2.4 in OPA Evaluation of the Alternatives of the LA TIG's Final Restoration Plan address the likelihood of success of the proposed Project and other action

alternatives. The referenced projects all had unique goals, and, where goals existed, each of those projects have achieved their goals. Those achievements increase confidence in the ability of the LA TIG to set goals and select approaches appropriate for achieving those goals. The proposed Project's goal is ecosystem restoration through the reestablishment of sustainable deltaic processes, only one of which is land building. The computer and physical models used to analyze Project benefits consider the current geomorphological features of the Lower Mississippi River, as well as data and knowledge gained from the referenced projects.

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**Concern ID: 62785**

**This type of freshwater and sediment diversion project is unproven and there are uncertainties with respect to what the diversion would do (that is, if it would work and, if so, to what extent).**

**Response ID: 16367**

The Delft3D Basinwide Model projections of future conditions include uncertainties. Uncertainties have been incorporated into the EIS impact conclusions and were briefly summarized in the Draft EIS in Chapter 4, Section 4.1.3.3 in Approach to Evaluation of Environmental Consequences, and in detail in Appendix E Delft3D Modeling, Section 8.0 Model Limitations and Uncertainties.

Section 4.1.3 Overview of Delft3D Basinwide Model for Impact Analysis of the Draft EIS acknowledged that the outputs of the model are projections generated using defined inputs, often based on historical conditions. Because it is not possible to precisely predict future conditions such as weather patterns and degree of sea-level rise, the model inputs are necessarily based on trends, averages, and best professional judgment as well as reasonable assumptions about future behaviors. Readers of the EIS should not consider the model outputs as absolute values or as predictions of actual future conditions. The outputs are instead used to compare the degree of difference between the impacts projected for each alternative as compared to the projected changes for the No Action Alternative.

In addition to the modeled data, Chapter 4 Environmental Consequences of the EIS includes additional analyses based on published literature and empirical data. USACE and the LA TIG considered the best information and data available to them in drafting the EIS. In response to public comments, a summary of select natural and man-made diversions in southeastern Louisiana has been developed to compare the purpose and/or characteristics of these diversions to the proposed MBSD Project, and their recorded impacts on the natural environment. This summary is available in Appendix U Summary of Select Natural and Man-made Diversions in Southeastern Louisiana of the Final EIS.

Chapter 3, Sections 3.2.1.4 and 3.2.2.4 in OPA Evaluation of the Alternatives of the LA TIG's Final Restoration Plan address the likelihood of success of the proposed Project and other action alternatives. The LA TIG recognizes and acknowledges that a controlled sediment diversion of this scale has not been constructed in Louisiana previously. However, a sediment diversion at this location has been extensively studied over several decades with the objective of designing and operating the proposed Project to provide a combination of land building and ecosystem benefits (see Chapter 3, Section 3.2.1.4 in OPA Evaluation of the Alternatives of the LA TIG's Final Restoration Plan). The proposed Project would be monitored and adaptively managed to meet its objectives (see the Monitoring and Adaptive Management [MAM] Plan, Appendix R2 of the EIS).

The Mitigation and Stewardship Plan and the MAM Plan provided in the Draft EIS Appendix R were submitted by CPRA and represent a range of potential mitigation, stewardship, monitoring and adaptive management measures (collectively, measures). At the time of publication of the Draft EIS for public review, Appendix R contained draft Plans and CPRA had not identified which of the measures contained in those Plans it intended to implement. The Final EIS Appendix R contains the final Plans and specifies which measures CPRA and the LA TIG intend to implement. Generally, impact determinations discussed in the EIS represent anticipated Project effects without implementation of these measures except in instances where such measures are identified in the discussion. If any mitigation, monitoring, or adaptive management measures are required by USACE as part of its approval of the proposed Project, such measures would be required as special conditions of the Department of the Army (DA) Section 10/404 permit and would be listed in the permit, if one is issued. Implementation of specific measures contained in either Plan, but not included in the Section 10/404 permit as special conditions, would not be required by USACE. USACE does not know whether any particular measure that is not a DA permit condition would be implemented. Measures that USACE currently contemplates as conditions of a DA Section 10/404 permit, if one is issued, are provided in Chapter 4, Section 4.27 Mitigation Summary of the EIS.

The LA TIG explains in Section 1.5 of the Final Restoration Plan that it anticipates requiring implementation of the Mitigation and Stewardship Plan, MAM Plan, and Marine Mammal Intervention Plan as components of the proposed Project, if the Project is approved by the LA TIG for funding. Decisions regarding which measures would be required as part of the LA TIG's funding decision would be set forth in the LA TIG Record of Decision related to the proposed Project.



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**Concern ID: 62786****Multiple commenters expressed concern with the impacts of diverted waters on the economy and natural environment of the State of Mississippi.****Response ID: 16368**

The proposed Project is not anticipated to have discernable effects on resources outside of the Project area, which is limited to Louisiana, and particularly the Barataria Basin and the Mississippi River birdfoot delta (as defined in Chapter 3, Section 3.1.1 in Introduction and the subsections entitled Area of Potential Effects for each resource heading in Chapter 4 Environmental Consequences). Because these resource-specific areas of potential effects were determined based on the anticipated limits of discernable impacts, negligible to no impacts on the natural or human environment are anticipated in the State of Mississippi from the construction and operation of the proposed MBSD Project.

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**Concern ID: 62788****The proposed Project would result in quick or immediate adverse impacts on resources in order to produce potential benefits in the future.****Response ID: 16369**

As discussed throughout Chapter 4 Environmental Consequences of the Draft EIS, the proposed Project would cause both beneficial and adverse impacts on the assessed resources upon commencement of operation, as well as both beneficial and adverse impacts on the assessed resources in the future. For example, the decrease in salinity that would occur upon initial operation of the proposed Project would result in major adverse impacts on various species (oysters, brown shrimp, bottlenose dolphins) over a relatively short period of time; however, the accumulating fresh water and sediments would create or maintain wetlands over long term or permanent basis, (that is, extending through the remainder of the 50-year period of analysis) which would benefit other commercially or recreationally important aquatic species, such as white shrimp, blue crab, and Gulf menhaden, and would increase storm protection for communities north of the immediate outfall area the Delft3D Basinwide Model projects these benefits to increase over time and to be greatest in the 2060s (see Chapter 4, Sections 4.6.5.1 in Wetland Resources and Waters of the U.S., 4.10.4.5 in Aquatic Resources, 4.11.5.2 in Marine Mammals, and 4.20.4.2 in Public Health and Safety, Including Flood and Storm Hazard Risk Reduction). The USACE is evaluating the projected impacts of the Project in the EIS. As part of its Section 10/404 permitting decision-making process, USACE also conducts a public interest review, which weighs the probable harms of the proposed action against its potential benefits. In making its NRDA decision, the LA TIG will evaluate Project alternatives using the OPA evaluation criteria in 15 CFR §990.54, consider public input, and review proposed Project mitigation, stewardship, and monitoring and adaptive management actions.



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<b>Concern ID: 62789</b>	<b>The cost of designing and building the proposed MBSD Project is too high for a project that has undependable results.</b>
<b>Response ID: 16370</b>	<p>The commenter's opposition to the proposed Project is noted. With respect to the dependability of the future benefits of the proposed Project, the Draft EIS acknowledged that the Delft3D Basinwide Model projections of future conditions includes uncertainties, which are incorporated into the EIS impact conclusions. These uncertainties are briefly summarized in the EIS in Chapter 4, Section 4.1.3.3 in Approach to Evaluation of Environmental Consequences, and in detail in Appendix E Delft3D Modeling, Section 8.0 Model Limitations and Uncertainties. However, in addition to the modeled data, Chapter 4 - Environmental Consequences -includes analyses based on published literature and empirical data. USACE and the LA TIG considered the best information and data available to them in preparing the EIS. As part of developing the EIS, the USACE, together with the LA TIG, reviewed the Delft3D Basinwide Model, including its parameters, methods of validation and calibration, inputs for the alternative production runs used in the EIS, and outputs, and concluded that the Delft3D Basinwide Model production runs and outputs were adequate and sufficient to inform the EIS impacts analysis of the alternatives.</p> <p>Consistent with OPA regulations (15 CFR §990.54), the LA TIG's Restoration Plan evaluated multiple alternatives based on a number of criteria, including the cost of the alternative. For more information see Section 3 of the LA TIG's Final Restoration Plan. The costs associated with developing, constructing, and managing the Applicant's Preferred Alternative are discussed in Chapter 3, Section 3.2.1.2 in OPA Evaluation of the Alternatives of the LA TIG's Final Restoration Plan.</p>
<b>Concern ID: 62790</b>	<b>Diversion of polluted and nutrient-laden waters into the Barataria Basin would result in harmful algal blooms (HABs) and expansion of the dead zone.</b>
<b>Response ID: 16371</b>	<p>The impacts raised by the commenters were considered in the Draft EIS. As discussed in the EIS, Chapter 4, Section 4.5 Surface Water and Sediment Quality, while increases in both nitrogen and phosphorus concentrations in the Barataria Basin are projected by the Delft3D Basinwide Model to occur as a result of proposed Project operations, monthly dissolved oxygen concentrations are not projected to fall below the water quality criterion of 5 mg/L at the six stations evaluated in the basin over the 50-year analysis period.</p> <p>According to USEPA's Mississippi River/Gulf of Mexico Hypoxia Task Force "Hypoxia 101" webpage, hypoxic waters have dissolved oxygen concentrations of less than 2 to 3 mg/L. Hypoxia can be caused by a variety of factors, including excess nutrients and waterbody stratification (layering) due to saline or temperature gradients. The hypoxic zone in the Gulf of Mexico is a result of excess nutrients from</p>

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the Mississippi/Atchafalaya River and seasonal stratification (layering) of waters in the Gulf. As nutrient-laden water from the Mississippi flows into the Gulf, this fresh water is less dense and remains above the denser saline seawater. In addition to the saline gradient caused where the fresh water and saline water meet, the fresh water is warmer than the deeper ocean water, further contributing to the stratification. This stratification prevents the mixing of oxygen-rich surface water with oxygen-poor water on the bottom of the Gulf. Without mixing, oxygen in the bottom water is limited and the hypoxic condition remains. In the Gulf hypoxic zone “water near the bottom of the Gulf contains less than two parts per million of dissolved oxygen” (<https://www.epa.gov/ms-hrf/northern-gulf-mexico-hypoxic-zone#:~:text=The%20hypoxic%20zone%20in%20the.condition%20referred%20to%20as%20hypoxia.>)

Dissolved oxygen concentrations associated with the Applicant’s Preferred Alternative are projected to generally increase in the Barataria Basin during the modeled period as compared to the No Action Alternative, which would decrease the potential for hypoxia to occur. Further, vegetative growth projected by the Delft3D Basinwide Model to occur due to Project operations is expected to utilize the nutrients diverted from the Mississippi River, resulting in lower concentrations of nutrients occurring in the Barataria Basin and reaching the Gulf through Barataria Bay than would reach the Gulf through the Mississippi River. As mentioned in Section 4.5.5.1 in Surface Water and Sediment Quality of the EIS, the majority of the Barataria Basin is shallow and not typically prone to stratification that promotes hypoxic conditions. The shallow nature of the Barataria Basin allows for full water column mixing by wind and tidal action, reducing the opportunity for algae to establish to the extent that would cause hypoxia. The Delft3D Basinwide Model’s dissolved oxygen results do not suggest that Project implementation would result in oxygen concentrations below the 5 mg/L water quality criterion in Barataria Basin. To make this clearer in the Final EIS, language indicating that the Delft 3D Basinwide Model results do not suggest that a significant hypoxic zone will form in Barataria Basin due to project implementation has been added to Section 4.5.5.5.2 in Dissolved Oxygen of the Final EIS. Furthermore, as explained in Section 4.25.5.2 of the Cumulative Impacts section of the EIS, if the Mid-Breton Sediment Diversion is permitted, the combined impact of Mississippi River diversions operating simultaneously may reduce nutrient flow from the river to the Gulf, having a beneficial impact on the Gulf of Mexico hypoxic zone.

Aquatic resource impacts associated with algal blooms (caused by excess nutrients such as nitrate and phosphate) are addressed in Chapter 4, Section 4.10.4.4 in Aquatic Resources of the EIS. A

reference to this section has been added to Sections 4.5.5.3.2 and 4.5.5.4.2 of the Final EIS. Finally, the EIS acknowledges the potential for up to major adverse Project impacts from harmful algal blooms to occur, and that the formation of these blooms is not well understood by the scientific community (see Section 4.26.4 in Additional Considerations in Planning).

Appendix R2 Monitoring and Adaptive Management (MAM) Plan of the EIS includes monitoring of nutrients, as well as phytoplankton species composition (including harmful cyanobacterial/algal bloom species) in the Barataria Basin during Project operations to guide CPRA's management actions.

The Mitigation and Stewardship Plan and the MAM Plan provided in the Draft EIS Appendix R were submitted by CPRA and represent a range of potential mitigation, stewardship, monitoring and adaptive management measures (collectively, measures). At the time of publication of the Draft EIS for public review, Appendix R contained draft Plans and CPRA had not identified which of the measures contained in those Plans it intended to implement. The Final EIS Appendix R contains the final Plans and specifies which measures CPRA and the LA TIG intend to implement. Generally, impact determinations discussed in the EIS represent anticipated Project effects without implementation of these measures except in instances where such measures are identified in the discussion. If any mitigation, monitoring, or adaptive management measures are required by USACE as part of its approval of the proposed Project, such measures would be required as special conditions of the Department of the Army (DA) Section 10/404 permit and would be listed in the permit, if one is issued. Implementation of specific measures contained in either Plan, but not included in the Section 10/404 permit as special conditions, would not be required by USACE. USACE does not know whether any particular measure that is not a DA permit condition would be implemented. Measures that USACE currently contemplates as conditions of a DA Section 10/404 permit, if one is issued, are provided in Chapter 4, Section 4.27 Mitigation Summary of the EIS.

The LA TIG explains in Section 1.5 of the Final Restoration Plan that it anticipates requiring implementation of the Mitigation and Stewardship Plan, MAM Plan, and Marine Mammal Intervention Plan as components of the proposed Project, if the Project is approved by the LA TIG for funding. Decisions regarding which measures would be required as part of the LA TIG's funding decision would be set forth in the LA TIG Record of Decision related to the proposed Project.

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**Concern ID: 62791**

**Thus far, CPRA has not done anything to lower storm surge or slow the rate of wetland loss.**

**Response ID: 16372**

CPRA was formed in 2005 to address Louisiana's coastal crisis by implementing projects for a sustainable coast and reducing hurricane surge risks for its residents. Since 2007, CPRA has partnered on the implementation of hundreds of miles of levees to protect residents, visitors, and property; created tens of thousands of acres of marshes; and rebuilt Louisiana's barrier island system. Louisiana's Coastal Master Plan for a Sustainable Coast provides the roadmap for coastal restoration and every year the public can review the CPRA Annual Plan to understand the progress. Several of these past and current projects were considered as part of the cumulative impact analysis in Chapter 4, Section 4.25 Cumulative Impacts of the Draft EIS. CPRA's actions to address storm surge and wetland loss outside of the proposed Project area (defined in Chapter 3 Affected Environment to include the Barataria Basin and the Mississippi River birdfoot delta), are outside the scope of this EIS.

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**Concern ID: 62792**

**CPRA is using soundbites and marketing to convince the Louisiana public and legislature to allow them to dole out contracts for over \$2 billion in limited coastal restoration dollars on these projects. In reality, Barataria Bay is already connected to the river with existing diversions at Davis Pond, West Pointe á la Hache, and Naomi.**

**Response ID: 16373**

The commenter's opposition to the proposed Project is noted. As discussed in Chapter 1, Section 1.6 Scope of the EIS, the Draft EIS assesses the environmental and socioeconomic impacts of the proposed Project. To the extent construction spending would serve as an economic driver, those anticipated impacts are discussed in Chapter 4, Section 4.13.4.2 Economy, Employment, Business, and Industrial Activity. The USACE is evaluating the projected impacts of the Project in the EIS. As part of its Section 10/404 permitting decision-making process, USACE also conducts a public interest review, which weighs the probable harms of the proposed action against its potential benefits. In making its NRDA decision, the LA TIG will evaluate Project alternatives using the OPA evaluation criteria in 15 CFR §990.54 and NEPA evaluation from the Final EIS, consider public input, and review proposed Project mitigation, stewardship, and monitoring and adaptive management actions.

The Delft3D Basinwide Model, which was used in developing the proposed MBSD Project EIS, accounts for the existing diversions at Davis Pond, West Pointe a la Hache, and Naomi (see Appendix E [Delft3D Modeling], Section 5.1.1 of the EIS).

The USACE is neither a proponent nor an opponent of the proposed Project. It will make its decisions regarding the proposed Project based on the evaluations in the EIS and considering public comments and its determinations with respect to the public interest review, compliance

with the CWA Section 404(b)(1) guidelines, compliance with other laws and Executive Orders, whether the Project would affect the ability of Corps projects to meet their authorized purposes and whether the project is injurious to the public interest. USACE's decisions will not be based in any respect on CPRA's public communications regarding the proposed Project.

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**Concern ID: 62793**

**The proposed Project is only being built to save New Orleans from being waterfront property.**

**Response ID: 16374**

The commenter's opposition to the proposed Project is noted. As stated in Chapter 1, Section 1.4 Purpose and Need of the EIS, the purpose of the proposed Project is to reconnect and reestablish sustainable deltaic processes between the Mississippi River and the Barataria Basin through the delivery of sediment, fresh water, and nutrients to support the long-term viability of existing and planned coastal restoration efforts. As discussed throughout Chapter 4 Environmental Consequences of the EIS, operation of the proposed Project would have various beneficial (and adverse) impacts throughout the Barataria Basin that would not be restricted to those experienced by the greater New Orleans area. Fifty years after the start of operations, the proposed Project is projected to have built or maintained 20.9 square miles of land in the vicinity of Myrtle Grove and Ironton. Communities to the north of that area are projected to benefit from reduced hurricane and storm surge. Because this issue was addressed in the Draft EIS, no related edits have been made to the Final EIS.

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**Concern ID: 62794**

**This poorly planned and executed proposed Project is being pushed forward for the financial gain of politicians and contractors because taxpayer dollars are being used. Private investment dollars would entail more deliberation and a full impact study, including more natural options with less risk and more overall benefits.**

**Response ID: 16375**

The commenter's opposition to the proposed Project is noted. As discussed in Chapter 1, Section 1.6 Scope of the EIS, this EIS has been developed in accordance with applicable NEPA, CEQ, and USACE regulations and guidance and constitutes a full impact analysis. A variety of alternatives assessed in the EIS are identified in Chapter 2 Alternatives. Because this issue was addressed in the Draft EIS, no related edits have been made to the Final EIS.

If the proposed Project is permitted by USACE and approved by the LA TIG, construction would be funded from funds received from the DWH NRDA settlement, of which approximately \$4 billion was allocated for the restoration of wetlands, coastal, and nearshore habitat, as described in Section 1.1 Background and Summary of the Settlement of the LA TIG's Restoration Plan.

The LA TIG's Restoration Plan evaluated a reasonable range of alternatives under the factors outlined in 15 CFR §990.54. The LA TIG strove to identify an alternative that would provide the right balance in terms of being cost-appropriate, meeting LA TIG goals, having a high likelihood of success, avoiding collateral injury, benefiting multiple resources, and protecting public health and safety. See Chapter 3, Sections 3.2.4.7, 3.2.1.5 and 3.2.2.5 in OPA Evaluation of the Alternatives of the LA TIG's Restoration Plan. The LA TIG recognizes that there are clear tradeoffs among the alternatives in terms of the likely benefits achieved and risks related to collateral injury and public health and safety. Given these tradeoffs, the LA TIG has selected Alternative 1 as the LA TIG's Preferred Alternative.

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**Concern ID: 62803**

**The proposed Project provides essentially zero benefit to anything in the Barataria Basin south of Lafitte.**

**Response ID: 16377**

There would be both adverse and beneficial impacts on the wider Barataria Basin, including beneficial impacts on areas south of Lafitte, Louisiana. These adverse and beneficial impacts are discussed throughout Chapter 4 Environmental Consequences. Although the EIS recognizes the specific adverse impacts in the Lafitte area from increased tidal flooding (see Section 4.20.4.2 in Public Health and Safety, Including Flood and Storm Hazard Risk Reduction), the benefits south of Lafitte include (but are not limited to) regional economic benefits from the job creation and expenditures associated with construction of the diversion (see Section 4.13.4 in Socioeconomics), as well as the maintenance or restoration of wetlands in the immediate outfall area (see Figures 4.6-9 through 4.6-14 in Wetland Resources and Waters of the U.S.), which would result in benefits to various aquatic species in the Barataria Basin (such as white shrimp, blue crab, and red drum; see Table 4.10-6 in Aquatic Resources). Because this issue was addressed in the Draft EIS, no related edits have been made to the Final EIS.

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**Concern ID: 62805**

**Great questions have been raised at the public meetings; however not many good responses were provided.**

**Response ID: 16379**

Public input is an integral part of the NEPA process, the OPA process, and the DWH oil spill restoration planning effort. The USACE and LA TIG undertook a coordinated and concurrent public review process for the Draft EIS and the LA TIG's Draft Restoration Plan. Allowing submission of comments on either document to the same locations provided commenters a "one-stop shop" and was done to reduce confusion by commenters about where to direct their comments regarding the MBSD Project. Additionally, this ensured the LA TIG reviewed and considered all relevant comments to both the Restoration Plan and the Draft EIS in its decision-making process. All public questions and comments received during the comment period are

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addressed in this Response to Comment Appendix. Revisions have been made to the Final EIS based on public comments received on the Draft EIS, input from the cooperating agencies, and continued Project evaluation. Changes between the Draft and Final EIS are identified through markings along the margins on the applicable pages, as described in Chapter 1, Section 1.7 Public Involvement Summary of the Final EIS. All public comments received have been reviewed by both USACE and the LA TIG and will be considered as appropriate under relevant regulations by USACE and by the LA TIG, respectively, as each makes its decision on the proposed MBSD Project.

For a summary of public outreach efforts related to the Draft EIS refer to Chapter 7 Public Involvement of the Final EIS and for restoration planning see Section 1.8 of the LA TIG's Final Restoration Plan.

Independent of the joint Draft EIS and Draft Restoration Plan public meetings, CPRA held additional meetings with communities potentially affected to receive their input on how best to mitigate Project effects on water levels. Based in part on that feedback, CPRA updated the Mitigation and Stewardship Plan (Appendix R1, revised for the Final EIS) to specify the measures that would be implemented to partially offset some of the projected effects of the proposed Project on water levels in the communities south of the outfall outside of levee protection. This mitigation includes a combination of structural measures (for example, raising roads, boat houses, docks and utilities) and non-structural measures (for example, Project servitudes). The mitigation and stewardship measures vary based on the community, taking into consideration the degree of effect from the proposed Project, as well as the characteristics of the community.

Structural measures in CPRA's Mitigation and Stewardship Plan are not included in CPRA's DA permit application and if the permit is approved, would not be authorized under the DA permit. Many of these structural measures would require DA and other permits prior to installation. Such permits are not guaranteed and would take time for USACE and other regulating agencies to process.

A DA permit does not convey any property rights and does not authorize any injury to property or invasion of rights or any infringement of Federal, state or local laws or regulations. The applicant's signature on an application is an affirmation that the applicant possesses or will possess the requisite property interest to undertake the activity proposed in the application.

The Mitigation and Stewardship Plan and the Monitoring and Adaptive Management (MAM) Plan provided in the Draft EIS Appendix R were submitted by CPRA and represent a range of potential mitigation, stewardship, monitoring and adaptive management measures (collectively, measures). At the time of publication of the Draft EIS for



public review, Appendix R contained draft Plans and CPRA had not identified which of the measures contained in those Plans it intended to implement. The Final EIS Appendix R contains the final Plans and specifies which measures CPRA and the LA TIG intend to implement. Generally, impact determinations discussed in the EIS represent anticipated Project effects without implementation of these measures except in instances where such measures are identified in the discussion. If any mitigation, monitoring, or adaptive management measures are required by USACE as part of its approval of the proposed Project, such measures would be required as special conditions of the Department of the Army (DA) Section 10/404 permit and would be listed in the permit, if one is issued. Implementation of specific measures contained in either Plan, but not included in the Section 10/404 permit as special conditions, would not be required by USACE. USACE does not know whether any particular measure that is not a DA permit condition would be implemented. Measures that USACE currently contemplates as conditions of a DA Section 10/404 permit, if one is issued, are provided in Chapter 4, Section 4.27 Mitigation Summary of the EIS.

The LA TIG explains in Section 1.5 of the Final Restoration Plan that it anticipates requiring implementation of the Mitigation and Stewardship Plan, MAM Plan, and Marine Mammal Intervention Plan as components of the proposed Project, if the Project is approved by the LA TIG for funding. Decisions regarding which measures would be required as part of the LA TIG's funding decision would be set forth in the LA TIG Record of Decision related to the proposed Project.

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**Concern ID: 62806**

**Some commenters suggested that the data used for the proposed Project are flawed.**

**Response ID: 16380**

The EIS was developed considering the best information and data available to USACE and the LA TIG at the time of writing. Where commenters have identified specific data used in the EIS as being potentially flawed, those concerns have been assessed and responded to. In addition, additional data and publications recommended for review by the public during the Draft EIS comment period have been reviewed and incorporated into the Final EIS where appropriate.

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**Concern ID: 62807**

**The local population is not being kept up-to-date on the mitigation that would be done for their communities.**

**Response ID: 16381**

CPRA has conducted outreach associated with its Sediment Diversion Program, including Coastal Connections meetings throughout the proposed MBSD Project area over the past several years. In addition, since the release of the Draft EIS, CPRA has engaged the public through meetings with the communities projected to be impacted by the proposed MBSD Project to solicit input on mitigation and stewardship strategies. A summary of these public engagement meetings can be

found in Chapter 7 Public Involvement of the Final EIS. Refer to the Final Mitigation and Stewardship Plan in Appendix R1 for mitigation and stewardship measures, which were informed by CPRA's public involvement and engagement efforts.

The Mitigation and Stewardship Plan and the Monitoring and Adaptive Management (MAM) Plan provided in the Draft EIS Appendix R were submitted by CPRA and represent a range of potential mitigation, stewardship, monitoring and adaptive management measures (collectively, measures). At the time of publication of the Draft EIS for public review, Appendix R contained draft Plans and CPRA had not identified which of the measures contained in those Plans it intended to implement. The Final EIS Appendix R contains the final Plans and specifies which measures CPRA and the LA TIG intend to implement. Generally, impact determinations discussed in the EIS represent anticipated Project effects without implementation of these measures except in instances where such measures are identified in the discussion. If any mitigation, monitoring, or adaptive management measures are required by USACE as part of its approval of the proposed Project, such measures would be required as special conditions of the Department of the Army (DA) Section 10/404 permit and would be listed in the permit, if one is issued. Implementation of specific measures contained in either Plan, but not included in the Section 10/404 permit as special conditions, would not be required by USACE. USACE does not know whether any particular measure that is not a DA permit condition would be implemented. Measures that USACE currently contemplates as conditions of a DA Section 10/404 permit, if one is issued, are provided in Chapter 4, Section 4.27 Mitigation Summary of the EIS.

The LA TIG explains in Section 1.5 of the Final Restoration Plan that it anticipates requiring implementation of the Mitigation and Stewardship Plan, MAM Plan, and Marine Mammal Intervention Plan as components of the proposed Project, if the Project is approved by the LA TIG for funding. Decisions regarding which measures would be required as part of the LA TIG's funding decision would be set forth in the LA TIG Record of Decision related to the proposed Project.

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**Concern ID: 62809**

**If CPRA were truly interested in preserving the integrity of the land and water, it would employ some of the real science applied by Viktor Schauburger to revolutionize the field of hydrodynamics, reduce coastal erosion, and increase the efficiency of vessel transport.**

**Response ID: 16382**

Although the ideas of Viktor Schauburger (and the books later developed from his ideas) were not reviewed during the development of the EIS, the EIS analysis was developed using the best information and data available to USACE and the LA TIG at the time of writing and the

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EIS considers the beneficial and adverse impacts of the proposed Project. As noted in Chapter 2, Section 2.2 Steps Taken to Identify and Evaluate Reasonable Alternatives of the EIS, the proposed Project was identified in the 2017 Coastal Master Plan.

According to CPRA, the Coastal Master Plan used best information, data, and engineering available to it to work to achieve long-term sustainability of Louisiana's coast and ecosystem, relying where possible on natural processes and cycles. The projects identified in the Coastal Master Plan were the result of extensive public input, review, and vetting. The EIS and Coastal Master Plan generally incorporated more recent studies and publications than those ideas developed Viktor Schauburger during his life (1885-1958); therefore, no related edits to the Final EIS have been made.

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**Concern ID: 62810**

**The Draft EIS exhibited bias by listing negative impacts in a scientifically sound manner, then softening the negative information through use of semantics or alternative information that is always highlighted by the Applicant in its public statements and meetings about the proposed Project. This is totally unacceptable and would require extreme diligence on the part of the reviewing lead agency.**

**Response ID: 16383**

The analyses in the Draft EIS acknowledged the potential impacts of the proposed Project and indicated the anticipated overall results based on a given analysis. The USACE has developed the EIS, together with the members of the LA TIG (including cooperating agencies and CPRA), considering the best information and data available to them and based on best professional judgment with respect to the potential impacts of the proposed Project. Additionally, the third-party contractor supporting preparation of the EIS was required to execute an Organizational Conflict of Interest Certification specifying that the contractor does not have financial or other interest in the outcome of the permit application process.

With specific regard to the concerns regarding former CPRA Board Chairman Johnny Bradberry, who is now President of Gulf Engineers and Consultants ("GEC"), the third-party contractor supporting preparation of the EIS, the Louisiana Board of Ethics, in an opinion dated February 18, 2019, Docket No. 2019-136, recognized the Conflict Mitigation Plan GEC has in place to avoid any conflict of interests, including prohibiting Mr. Bradberry from any involvement in the preparation of this EIS or in deriving any compensation from the preparation of the EIS. The prohibitions in that Conflict Mitigation Plan have been adhered to by GEC throughout this process.

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**Concern ID: 62811**

**CPRA is sacrificing the economic and environmental welfare of Plaquemines Parish citizens and resources for the implementation of the proposed Project. The commenter suggests that trucking in**

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**sediment to build up land, while expensive, is an option. The commenter questions at what cost the government would be responsible for the damage caused to the region.**

**Response ID: 16384**

As discussed in Chapter 1, Section 1.4 Purpose and Need of the EIS, the proposed Project is intended to reestablish sustainable deltaic processes between the Mississippi River and the Barataria Basin through the input of sediment, fresh water, and nutrients, which would create wetlands, sustain existing wetlands, and support the long-term viability of existing and planned coastal restoration efforts, including dredging projects being built now and in the future. One such project is the Large-scale Marsh Creation and Component E Planning discussed in Chapter 4, Section 4.25 Cumulative Impacts of the EIS. This is all with the goal to provide for the long-term sustainability of the Barataria Basin (including Plaquemines Parish), not at its expense. However, the potential socioeconomic impacts of the proposed Project are described in 4.13 Socioeconomics of the EIS. Because these issues were addressed in the Draft EIS, no related edits have been made to the Final EIS.

The Mitigation and Stewardship Plan (Appendix R1), revised for the Final EIS in response to public comment, includes mitigation and stewardship measures to partially offset some of the projected effects of the proposed Project, including impacts on fisheries and on water levels in the communities south of the outfall outside of levee protection. For fisheries related impacts, the Plan includes job training, vessel and dock improvements, fisheries innovation support (for example, alternative oyster culture), and marketing support. For increased water levels and tidal flooding in communities south of the diversion outside federal levee protection, the Plan includes structural measures (for example, raising roads, boat houses, docks, and utilities) and non-structural measures. See Appendix R1 to the Final EIS for more details.

Structural measures in CPRA's Mitigation and Stewardship Plan are not included in CPRA's DA permit application and if the permit is approved, would not be authorized under the DA permit. Many of these structural measures would require DA and other permits prior to installation. Such permits are not guaranteed and would take time for USACE and other regulating agencies to process.

A DA permit does not convey any property rights and does not authorize any injury to property or invasion of rights or any infringement of Federal, state or local laws or regulations. The applicant's signature on an application is an affirmation that the applicant possesses or will possess the requisite property interest to undertake the activity proposed in the application.

The Mitigation and Stewardship Plan and the Monitoring and Adaptive Management (MAM) Plan provided in Draft EIS Appendix R were submitted by CPRA and represent a range of potential mitigation, stewardship, monitoring and adaptive management measures (collectively, measures). At the time of publication of the Draft EIS for public review, Appendix R contained draft Plans and CPRA had not identified which of the measures contained in those Plans it intended to implement. The Final EIS Appendix R contains the final Plans and specifies which measures CPRA and the LA TIG intend to implement. Generally, impact determinations discussed in the EIS represent anticipated Project effects without implementation of these measures except in instances where such measures are identified in the discussion. If any mitigation, monitoring or adaptive management measures are required by USACE as part of its approval of the proposed Project, such measures would be required as special conditions of the Department of the Army (DA) Section 10/404 permit and would be listed in the permit, if one is issued. Implementation of specific measures contained in either Plan, but not included in the Section 10/404 permit as special conditions, would not be required by USACE. USACE does not know whether any particular measure that is not a DA permit condition would be implemented. Measures that USACE currently contemplates as conditions of a DA Section 10/404 permit, if one is issued, are provided in Chapter 4, Section 4.27 Mitigation Summary of the EIS.

The LA TIG explains in Section 1.5 of the Final Restoration Plan that it anticipates requiring implementation of the Mitigation and Stewardship Plan, MAM Plan, and Marine Mammal Intervention Plan as components of the proposed Project, if the Project is approved by the LA TIG for funding. Decisions regarding which measures would be required as part of the LA TIG's funding decision would be set forth in the LA TIG Record of Decision related to the proposed Project.

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**Concern ID: 62812**

**The permit application notes the proposed Project would destroy or alter 7,530 acres of essential fish habitat. The commenter expressed concern that this acreage excludes oyster habitat, as well as crab, shrimp, and sport fishing habitats which, in total, is several times larger than 7,530 acres.**

**Response ID: 16385**

As discussed in Appendix N2 Essential Fish Habitat Assessment of the EIS, operation of the proposed Project is projected to convert EFH from one EFH habitat type to another, rather than result in habitat loss of EFH. The habitat conversion generally would result in a conversion of the more ubiquitous soft bottom habitats (19,545 acres) to more structured habitats (see the Executive Summary, Table ES-1). The adverse (and beneficial, as applicable) impacts on the habitats for specific species, including blue crab, brown and white shrimp, oysters, and select sport fish, are discussed in Chapter 4, Section 4.10.4.5 in

Aquatic Resources. Because these issues were addressed in the Draft EIS, no related edits have been made to the Final EIS.

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**Concern ID: 62816**

**BTNEP has long supported the idea of sediment diversion, but the scale of the diversions continues to grow and correspondingly, the scale of adverse impacts grows with it; it must be acknowledged that besides the benefit this diversion may bring, there are numerous potentially important adverse impacts that must be considered throughout the planning and evaluation process.**

**Response ID: 16389**

The commenter's input is noted. As discussed throughout Chapter 4 Environmental Consequences, there are both beneficial and adverse effects of each of the alternatives carried forward, which include 50,000, 75,000, and 150,000 cfs alternatives (with and without terraces). The USACE is evaluating the projected impacts of the Project in the EIS. As part of its Section 10/404 permitting decision-making process, USACE also conducts a public interest review, which weighs the probable harms of the proposed action against its potential benefits. In making its NRDA decision, the LA TIG will evaluate Project alternatives using the OPA evaluation criteria in 15 CFR §990.54, consider public input, and review proposed Project mitigation, stewardship, and monitoring and adaptive management actions.

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**Concern ID: 62817**

**One commenter requested an individual discussion.**

**Response ID: 16390**

USACE NEPA practice is to respond to public comments in writing. However, the USACE was able to discuss the commenter's concern, which was based on impacts of the MRGO rock closure on salinity in Lake Pontchartrain, and pass those concerns on to the appropriate USACE staff. A summary of select natural and man-made diversions (and diversion-like structures) in southeastern Louisiana has been developed to compare the purpose and/or characteristics of these diversions to the proposed MBSD Project, and their recorded impacts on the natural environment. This summary, which includes discussions on the MRGO is available in Appendix U Summary of Select Natural and Man-made Diversions in Southeastern Louisiana of the Final EIS.

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**Concern ID: 62818**

**The people of Plaquemines Parish, Lafitte, and Grand Isle will certainly be opposing the diversions and will be requesting more and immediate storm surge protection for their families, which could be provided by dredging projects.**

**Response ID: 16391**

The commenter's opposition to the proposed Project is noted. As discussed throughout Chapter 2 Alternatives of the EIS, an alternatives analysis was conducted to identify viable alternatives for the proposed action that would meet the proposed Project's stated purpose and need, as identified in Chapter 1, Section 1.4 Purpose and Need. As discussed in Chapter 2, Section 2.3.5 Large-Scale Marsh Creation,



without periodic maintenance, dredging to create large-scale marsh in the Barataria Basin would not be expected to have long-lasting results. After 50 years without nourishment through additional dredge events, approximately half of the dredged material placed for one of these projects in the basin would be lost by the end of a 50-year Project life. The EIS does evaluate reasonably foreseeable large-scale marsh creation projects working in tandem with the sediment diversion alternatives in the cumulative impacts section of the EIS (see Chapter 4, Section 4.25 Cumulative Impacts). Because this issue was addressed in the Draft EIS, no related edits have been made to the Final EIS.

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**Concern ID: 62819**

**A commenter expressed that the State of Louisiana collected money for every dead dolphin and pelican but now has a “so-called waiver from the laws of the land (NEPA and the MMPA) to kill three times as many Barataria Bay dolphins that would cause their functional extinction”. The State of Louisiana would far surpass the rate of dead wildlife by another unproven type of project.**

**Response ID: 16392**

Chapter 3, Section 3.11.1 Marine Mammals in the Northern Gulf of Mexico of the Final EIS has been revised to discuss the Marine Mammal Protection Act waiver.

The MMPA waiver does not alter USACE’s or the LA TIG’s NEPA responsibility to evaluate anticipated impacts of the proposed Project on marine mammals. The EIS analyzes and discloses the environmental and economic impacts of the proposed Project, including anticipated effects on marine mammals. (See Chapter 4, Section 4.11 Marine Mammals).

Section 2020(1)(b) of the Bipartisan Budget Act of 2018 also requires the State of Louisiana, in consultation with the Secretary of Commerce (delegated to NMFS), to the extent practicable and consistent with the purposes of the proposed Project, to minimize impacts on marine mammal species and population stocks, and monitor and evaluate the impacts of the proposed Project on such species and population stocks.

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**Concern ID: 62823**

**The commenter notes that the State got a waiver from the MMPA, which normally prohibits an operation that will kill marine mammals.**

**Response ID: 16393**

Chapter 3, Section 3.11.1 Marine Mammals in the Northern Gulf of Mexico of the Final EIS has been revised to discuss the Marine Mammal Protection Act waiver that was issued for the proposed Project.

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**Concern ID: 62850**

**The commenter questions how the government can pick and choose which communities they decide no longer need to exist and indicates that is what the government would be doing to the**

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**citizens of Myrtle Grove Estates, as well as other communities, if the proposed Project were approved.****Response ID: 16396**

The commenter's concern regarding the projected effect of the proposed Project on several communities near the diversion outfall outside of flood protection is noted. The EIS analysis considers the beneficial and adverse impacts of the proposed Project. The USACE is evaluating the projected impacts of the Project in the EIS. As part of its Section 10/404 permitting decision-making process, USACE also conducts a public interest review, which weighs the probable harms of the proposed action against its potential benefits. In making its NRDA decision, the LA TIG will evaluate Project alternatives using the OPA evaluation criteria in 15 CFR §990.54 and NEPA evaluation from the Final EIS, consider public input, and review proposed Project mitigation, stewardship, and monitoring and adaptive management actions.

Independent of the joint Draft EIS and Draft Restoration Plan public meetings, CPRA held meetings with communities potentially affected to receive their input on how best to mitigate Project effects on water levels. Based in part on that feedback, the revised Mitigation and Stewardship Plan (Appendix R1 of the Final EIS) includes mitigation to partially offset some of the the projected effects of the proposed Project on water levels in the communities south of the outfall outside of levee protection. This mitigation includes a combination of structural measures (for example, raising roads, boat houses, docks and utilities) and non-structural measures (for example, Project servitudes). The mitigation and stewardship measures vary based on the community, taking into consideration the degree of effect from the proposed Project, as well as the characteristics of the community.

Structural measures in CPRA's Mitigation and Stewardship Plan are not included in CPRA's DA permit application and if the permit is approved, would not be authorized under the DA permit. Many of these structural measures would require DA and other permits prior to installation. Such permits are not guaranteed and would take time for USACE and other regulating agencies to process.

A DA permit does not convey any property rights and does not authorize any injury to property or invasion of rights or any infringement of Federal, state or local laws or regulations. The applicant's signature on an application is an affirmation that the applicant possesses or will possess the requisite property interest to undertake the activity proposed in the application.

The Mitigation and Stewardship Plan and the Monitoring and Adaptive Management (MAM) Plan provided in the Draft EIS Appendix R were submitted by CPRA and represent a range of potential mitigation, stewardship, monitoring and adaptive management measures

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(collectively, measures). At the time of publication of the Draft EIS for public review, Appendix R contained draft Plans and CPRA had not identified which of the measures contained in those Plans it intended to implement. The Final EIS Appendix R contains the final Plans and specifies which measures CPRA and the LA TIG intend to implement. Generally, impact determinations discussed in the EIS represent anticipated Project effects without implementation of these measures except in instances where such measures are identified in the discussion. If any mitigation, monitoring, or adaptive management measures are required by USACE as part of its approval of the proposed Project, such measures would be required as special conditions of the Department of the Army (DA) Section 10/404 permit and would be listed in the permit, if one is issued. Implementation of specific measures contained in either Plan, but not included in the Section 10/404 permit as special conditions, would not be required by USACE. USACE does not know whether any particular measure that is not a DA permit condition would be implemented. Measures that USACE currently contemplates as conditions of a DA Section 10/404 permit, if one is issued, are provided in Chapter 4, Section 4.27 Mitigation Summary of the EIS.

The LA TIG explains in Section 1.5 of the Final Restoration Plan that it anticipates requiring implementation of the Mitigation and Stewardship Plan, MAM Plan, and Marine Mammal Intervention Plan as components of the proposed Project, if the Project is approved by the LA TIG for funding. Decisions regarding which measures would be required as part of the LA TIG's funding decision would be set forth in the LA TIG Record of Decision related to the proposed Project.

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**Concern ID: 62851**

**Destroying an ecosystem or place in order to sustain another is not only unfair and unjust but morally wrong.**

**Response ID: 16397**

Comment noted. Chapter 4 Environmental Consequences of the Draft EIS acknowledged the range of potential adverse and beneficial impacts on the assessed resources, including transition of portions of the ecosystem to different salinity regimes (see Chapter 4, Section 4.10 Aquatic Resources) and changes in the potential for tidal flooding in certain areas (see Chapter 4, Section 4.20.4.2 in Public Health and Safety, Including Flood and Storm Hazard Risk Reduction).

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**Concern ID: 64183**

**The stated purpose and need for the proposed Project is to restore for injuries caused by the DWH oil spill; however, if the damages this proposed Project would cause, as outlined by the Draft EIS and stakeholders scoping comments opposing the Project, are compared to the damages caused by the DWH oil spill, the impacts are utterly alike, to include the devastation of shrimp, oysters, and dolphins and the destruction of the brackish/saline habitat that is naturally occurring in the Barataria Basin.**

**Response ID: 16400**

As stated in Chapter 1, Section 1.4 Purpose and Need of the EIS, the purpose of the proposed Project is to reconnect and reestablish sustainable deltaic processes between the Mississippi River and the Barataria Basin through the delivery of sediment, fresh water, and nutrients to support the long-term viability of existing and planned coastal restoration efforts. As described throughout Chapter 4, Section 4.10 Aquatic Resources of the EIS, operation of the proposed Project would affect the existing flora and fauna of the Barataria Basin in both beneficial and adverse ways, with the overall impacts to a given species being dependent on that species habitat preferences and tolerances. Because this issue was addressed in the Draft EIS, no related edits have been made to the Final EIS.

The LA TIG's Restoration Plan discusses how the DWH oil spill resulted in the oiling of more than 1,100 kilometers of wetlands, nearly all of which were located in coastal Louisiana (DWH NRDA Trustees 2016). The heaviest oiling occurred in the Barataria Basin, resulting in substantial injuries to natural resources in the basin (DWH NRDA Trustees 2016). Recognizing that the resulting loss of marsh productivity affected resources throughout the northern Gulf of Mexico ecosystem, the State of Louisiana and the federal Trustees that negotiated the DWH Natural Resource Damages settlement allocated \$4 billion, almost half of the total settlement amount, to restoring Louisiana's wetland, coastal, and nearshore habitats.

The LA TIG recognizes that any of the large-scale sediment diversion alternatives considered would potentially result in varying degrees of collateral injuries, including some high degree collateral injuries, to natural resources injured by the spill. See Executive Summary and Chapter 3, Section 3.2.1.5 in OPA Evaluation of the Alternatives of the LA TIG's Final Restoration Plan. The intended restoration of fresh water flows from the Mississippi River, which historically had characterized and shaped the Barataria Basin ecosystem before levee construction, would result in collateral injury to species that depend on the current higher-salinity conditions that exist without freshwater flows. However, without the proposed Project, there would also be adverse impacts to some of the same species due to large-scale wetland loss over time, as is anticipated from ongoing sea-level rise, subsidence, and other existing stressors, which is anticipated to reduce the suitability of habitat for many of the species that currently occur in Barataria Basin. The proposed Project will not stop all of that marsh loss; however, it is projected to create and maintain approximately 9,800 acres more than the No Action Alternative at year 2070 (see Table 4.6-4 of the EIS).

For its Restoration Plan decision, the LA TIG must weigh the potential and extent of collateral injury against the benefits of the proposed Project (see Chapter 3, Section 3.2.4 in OPA Evaluation of the

Alternatives of the LA TIG's Final Restoration Plan for a discussion of how the LA TIG weighed the potential collateral injury of the proposed Project against its potential benefits). The LA TIG has found that a sediment diversion is the only way to achieve a self-sustaining ecosystem in the Barataria Basin that more closely resembles historic conditions. As described in Section 3.2.1.6 in OPA Evaluation of the Alternatives of the LA TIG's Final Restoration Plan, this sustained ecosystem is expected to benefit many fish and wildlife species in the basin, including many of those negatively affected by the spill, such as red drum, blue crab, white shrimp, Gulf menhaden, and migratory waterfowl. These benefits to fish and wildlife species also would translate to benefits to recreational users who watch, fish, or hunt those species. In addition, these benefits would not only accrue throughout the Barataria Basin but, through the transport of productivity, also in the offshore ecosystems of the northern Gulf of Mexico. By reestablishing deltaic processes, the proposed Project is expected to enhance the ecological productivity of the estuary and improve food web dynamics that would provide benefit to the northern Gulf of Mexico ecosystem. The LA TIG selected the proposed Project because the LA TIG has found it is critical to achieving the overall goals of the Wetlands, Coastal, and Nearshore Habitats Restoration Type in the Final PDARP/PEIS, which include providing benefits across the interconnected northern Gulf of Mexico ecosystem, and placing particular emphasis on coastal and nearshore habitat restoration in the historical Mississippi River Delta plain in Louisiana.

In its Strategic Restoration Plan for Barataria Basin (March 2018), the LA TIG evaluated the potential and extent of collateral injury for a range of restoration techniques. Unfortunately, almost all large-scale restoration comes with potential for collateral injury. The LA TIG evaluated each alternative against a variety of factors, including those outlined in 15 CFR §990.54. In the LA TIG's Final Restoration Plan, the LA TIG strove to identify an alternative that would provide the right balance in terms of being cost-appropriate, meeting LA TIG goals, having a high likelihood of success, and avoiding collateral injury. Again, see Chapter 3, Section 3.2.4 in OPA Evaluation of the Alternatives of the LA TIG's Final Restoration Plan for a discussion of how the LA TIG came to its decision.

In recognition of the potential for collateral injuries, and acknowledging the inability to fully avoid or mitigate collateral injuries, the LA TIG has designed and CPRA would implement a suite of stewardship measures in recognition of the collateral injury that is anticipated to result from the implementation of the proposed Project. See Section 3.2.1.1.5 (Associated Stewardship Measures) of the LA TIG's Restoration Plan, and Appendix R1 (Mitigation and Stewardship Plan) of the Final EIS. The LA TIG is also committed to continuing efforts to restore the

resources that would be adversely affected by the diversion, many of which were also injured by the DWH oil spill.

The Mitigation and Stewardship Plan and the Monitoring and Adaptive Management (MAM) Plan provided in the Draft EIS Appendix R were submitted by CPRA and represent a range of potential mitigation, stewardship, monitoring and adaptive management measures (collectively, measures). At the time of publication of the Draft EIS for public review, Appendix R contained draft Plans and CPRA had not identified which of the measures contained in those Plans it intended to implement. CPRA expanded and refined the Final Mitigation and Stewardship Plan in response to community and resource agency input. The Final EIS Appendix R contains the final Plans and specifies which measures CPRA and the LA TIG intend to implement. Generally, impact determinations discussed in the EIS represent anticipated Project effects without implementation of these measures except in instances where such measures are identified in the discussion. If any mitigation, monitoring, or adaptive management measures are required by USACE as part of its approval of the proposed Project, such measures would be required as special conditions of the Department of the Army (DA) Section 10/404 permit and would be listed in the permit, if one is issued. Implementation of specific measures contained in either Plan, but not included in the Section 10/404 permit as special conditions, would not be required by USACE. USACE does not know whether any particular measure that is not a DA permit condition would be implemented. Measures that USACE currently contemplates as conditions of a DA Section 10/404 permit, if one is issued, are provided in Chapter 4, Section 4.27 Mitigation Summary of the EIS.

The LA TIG explains in Section 1.5 of the Final Restoration Plan that it anticipates requiring implementation of the Mitigation and Stewardship Plan, MAM Plan, and Marine Mammal Intervention Plan as components of the proposed Project, if the Project is approved by the LA TIG for funding. Decisions regarding which measures would be required as part of the LA TIG's funding decision would be set forth in the LA TIG Record of Decision related to the proposed Project.

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**Concern ID: 64184**

**Commenter is concerned with the planning and construction of another big diversion on the east bank of the Mississippi River before there is proof that the proposed MBSD Project would work.**

**Response ID: 16401**

The concern regarding the future success of the proposed Project is noted. The likelihood of success of the proposed Project was discussed in the LA TIG's Draft Restoration Plan. While recognizing the innovative nature of the proposed Project, the LA TIG's Restoration Plan discusses in detail the factors that would contribute to the Project's success. More specifically, Sections 3.2.1.4 (Likelihood of Success - Alternative 1) and 3.2.2.4 (Likelihood of Success - Alternatives 2-6)

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address the likelihood of success of the proposed Project and other action alternatives considered by the LA TIG in its Restoration Plan. In addition, such a sediment diversion has been extensively studied over several decades with the objective of designing and operating a diversion in the vicinity of the proposed Project to provide a combination of land building and ecosystem benefits (see Section 3.2.1.4 [Likelihood of Success - Alternative 1] of the LA TIG's Restoration Plan). The proposed Project would be monitored and adaptatively managed to meet its objectives (see the Monitoring and Adaptive Management [MAM] Plan, Appendix R2 of the EIS). The Mid-Breton Sediment Diversion Project is not the focus of this EIS; however, the potential cumulative impacts of the two diversions are addressed in Chapter 4, Section 4.25 Cumulative Impacts of the EIS and no related edits to the Final EIS have been made.

The Mitigation and Stewardship Plan and the MAM Plan provided in Draft EIS Appendix R were submitted by CPRA and represent a range of potential mitigation, stewardship, monitoring and adaptive management measures (collectively, measures). At the time of publication of the Draft EIS for public review, Appendix R contained draft Plans and CPRA had not identified which of the measures contained in those Plans it intended to implement. CPRA expanded and refined the Final Mitigation and Stewardship Plan in response to community and resource agency input. The Final EIS Appendix R contains the final Plans and specifies which measures CPRA and the LA TIG intend to implement. Generally, impact determinations discussed in the EIS represent anticipated Project effects without implementation of these measures except in instances where such measures are identified in the discussion. If any mitigation, monitoring or adaptive management measures are required by USACE as part of its approval of the proposed Project, such measures would be required as special conditions of the Department of the Army (DA) Section 10/404 permit and would be listed in the permit, if one is issued. Implementation of specific measures contained in either Plan, but not included in the Section 10/404 permit as special conditions, would not be required by USACE. USACE does not know whether any particular measure that is not a DA permit condition would be implemented. Measures that USACE currently contemplates as conditions of a DA Section 10/404 permit, if one is issued, are provided in Chapter 4, Section 4.27 Mitigation Summary of the EIS.

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part of the LA TIG's funding decision would be set forth in the LA TIG Record of Decision related to the proposed Project.

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**Concern ID: 62804**

**Restoration funds are often misused by state and federal entities in a manner that does not protect or restore the environment.**

**Response ID: 16378**

The restoration effects of the proposed Project were discussed throughout Chapter 4 Environmental Consequences of the Draft EIS. USACE does not oversee how NDRA restoration funds are expended.

The LA TIG assessed the reasonableness of costs associated with the proposed Project, as discussed in Chapter 3, Section 3.2.1.2 in OPA Evaluation of the Alternatives of the LA TIG's Final Restoration Plan. The LA TIG established Standard Operating Procedures that apply to both restoration planning and project costs to ensure that funds are spent appropriately on restoration. This includes regular reporting on spending, as well as audit requirements. For more information on these procedures see

<https://www.gulfspillrestoration.noaa.gov/sites/default/files/wp-content/uploads/DWH-SOPs.pdf>.

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**Concern ID: 62813**

**The waters of the Barataria Basin would be so full of contamination that no one would be able to live there.**

**Response ID: 16386**

As discussed in Chapter 3, Section 3.5.1.1 in Surface Water and Sediment Quality of the EIS, the Mississippi River water quality subsegment LA070301\_00 at the diversion intake structure location fully supports its designated uses. Designated uses for this subsegment include swimming, boating, fishing, and drinking water supply. The LDEQ's water quality assessment indicates that regulated substances are not present in concentrations that would cause a water quality impairment at the Mississippi River location of the intake structure. Language has been added to Chapter 4, Section 4.5.5.11 Hazardous Spills in the Mississippi River in Surface Water and Sediment Quality of the Final EIS to clarify this.

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**Concern ID: 62814**

**Strongly held concerns regarding the proposed Project are well documented by scientific studies including the USACE's own body of work such as Pictorial Account and Landscape Evolution of the Crevasses near Fort St. Philip Louisiana and USACE Perspective on Mississippi River Sediment Diversions. The USACE and other scientific studies by Howes and others, which are based on empirical data and not conjecture, show that this proposed Project would most likely negatively impact the environment and residents who depend on it.**

**Response ID: 16387**

The EIS evaluates both beneficial and adverse impacts of the proposed Project and includes a full and fair discussion of significant environmental impacts. In preparing the EIS, USACE utilized both its own high-quality information and information from other sources and

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ensured the professional and scientific integrity of the analyses. Of the references identified by the commenter, no specific study for Howes was provided for consideration. In addition, the “USACE Perspective on Mississippi River Sediment Diversions” was a presentation developed by the USACE during early Project planning. While the presentation was not used as a specific reference for the Draft EIS, multiple references used to create the presentation were. While the report discussing the Fort St. Philip crevasses (Suir et al., 2014) was not referenced in the Draft EIS, it has been reviewed and incorporated into the Final EIS, as part of the new Appendix U Summary of Select Natural and Man-made Diversions in Southeastern Louisiana, described below.

A summary of select natural and man-made diversions in southeastern Louisiana has been developed to compare the purpose and/or characteristics of these diversions to the proposed MBSD Project, and to discuss their recorded impacts on the natural environment. This summary is available in Appendix U Summary of Select Natural and Man-made Diversions in Southeastern Louisiana of the Final EIS and includes an assessment of the crevasses near Fort St. Philip.

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**Concern ID: 62815**

**Some commenters believe that CPRA has not listened to the experienced oyster community regarding the adverse impacts of the proposed Project and have presented very limited Project options to the people of Louisiana and to the USACE.**

**Response ID: 16388**

The Project’s impacts on oysters and oyster habitat are evaluated in the Draft EIS in Chapter 4, Section 4.10.4.5 Key Species. The Project’s impacts on oyster fishing are evaluated in Section 4.14.4.2 in Commercial Fisheries. Alternatives to the proposed Project are discussed in Chapter 2 Alternatives.

According to the LA TIG, CPRA and LDWF worked together with numerous oyster fishers as part of Louisiana Sea Grant’s Seafood Futures Initiative to develop mitigation and stewardship measures aimed at maintaining a sustainable oyster fishery. In addition, CPRA engaged the fishing community potentially impacted by the proposed Project through public meetings to solicit input on mitigation and stewardship strategies and engaged community-based organizations to assist in soliciting additional feedback on the proposed mitigation and stewardship measures from affected fishers. A summary of these public engagement meetings and other outreach efforts is in Chapter 7 Public Involvement of the Final EIS. In response to comments, CPRA has expanded and refined this Mitigation and Stewardship Plan in the Final EIS (Appendix R1).

The Mitigation and Stewardship Plan and the Monitoring and Adaptive Management (MAM) Plan provided in the Draft EIS Appendix R were submitted by CPRA and represent a range of potential mitigation,

stewardship, monitoring and adaptive management measures (collectively, measures). At the time of publication of the Draft EIS for public review, Appendix R contained draft Plans and CPRA had not identified which of the measures contained in those Plans it intended to implement. CPRA expanded and refined the Final Mitigation and Stewardship Plan in response to community and resource agency input. The Final EIS Appendix R contains the final Plans and specifies which measures CPRA and the LA TIG intend to implement. Generally, impact determinations discussed in the EIS represent anticipated Project effects without implementation of these measures except in instances where such measures are identified in the discussion. If any mitigation, monitoring, or adaptive management measures are required by USACE as part of its approval of the proposed Project, such measures would be required as special conditions of the Department of the Army (DA) Section 10/404 permit and would be listed in the permit, if one is issued. Implementation of specific measures contained in either Plan, but not included in the Section 10/404 permit as special conditions, would not be required by USACE. USACE does not know whether any particular measure that is not a DA permit condition would be implemented. Measures that USACE currently contemplates as conditions of a DA Section 10/404 permit, if one is issued, are provided in Chapter 4, Section 4.27 Mitigation Summary of the EIS.

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**Concern ID: 62824**

**A commenter asked for an explanation of why the State of Louisiana encouraged Congress to exempt the proposed MBSD Project and the Mid-Breton Diversion from the MMPA. Further, the commenter was not sure how the proposed Project could be funded by the DWH restoration settlement if those funds are to be allocated to address damage inflicted on Louisiana's fisheries and resources (including dolphins).**

**Response ID: 16394**

Chapter 3, Section 3.11.1 Marine Mammals in the Northern Gulf of Mexico of the Final EIS has been revised to discuss the Marine Mammal Protection Act waiver that was issued for the proposed Project.

USACE does not have information on the reasons for the State of Louisiana's support for legislation related to the MMPA waiver. As explained in Section 2.0 of this Appendix B2 DEIS Public Review and Public Meetings, USACE is neither a proponent nor an opponent of the

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proposed Project. USACE's involvement with the proposed Project is limited to its permitting decisions and associated NEPA and other evaluations of the proposed Project under the CWA Section 404 and RHA Sections 10 and 14 (33 USC Section 408). USACE is not a member of the LA TIG and is not involved in the process to restore damages caused by the DWH oil spill. Response content pertaining to the LA TIG's Draft Restoration Plan, or NRDA processes have been addressed solely by the LA TIG and represents the views only of the LA TIG, not USACE.

The LA TIG recognizes that any of the large-scale sediment diversion alternatives considered would potentially result in varying degrees of collateral injuries, including some high degree collateral injuries, to natural resources injured by the spill. See Executive Summary and Chapter 3, Section 3.2.1.5 in OPA Evaluation of the Alternatives of the LA TIG's Final Restoration Plan. The intended restoration of freshwater flows from the Mississippi River, which historically had characterized and shaped the Barataria Basin ecosystem before levee construction, would result in collateral injury to species that depend on the current higher-salinity conditions that exist without freshwater flows. However, without the proposed Project, there would also be adverse impacts to some of the same species due to large-scale wetland loss over time, as is anticipated from ongoing sea-level rise, subsidence, and other existing stressors, which is anticipated to reduce the suitability of habitat for many of the species that currently occur in Barataria Basin." The proposed Project will not stop all of that marsh loss; however, it is projected to create and maintain approximately 9,800 acres more than the No Action Alternative at year 2070 (see Table 4.6-4 of the EIS).

For its Restoration Plan decision, the LA TIG must weigh the potential and extent of collateral injury against the benefits of the proposed Project (see Chapter 3, Section 3.2.4 in OPA Evaluation of the Alternatives of the LA TIG's Final Restoration Plan for a discussion of how the LA TIG weighed the potential collateral injury of the proposed Project against its potential benefits). The LA TIG has found that a sediment diversion is the only way to achieve a self-sustaining ecosystem in the Barataria Basin that more closely resembles historic conditions. As described in Section 3.2.1.6 in OPA Evaluation of the Alternatives of the LA TIG's Final Restoration Plan, this sustained ecosystem is expected to benefit many fish and wildlife species in the basin, including many of those negatively affected by the spill, such as red drum, blue crab, white shrimp, Gulf menhaden, and migratory waterfowl. These benefits to fish and wildlife species also would translate to benefits to recreational users who watch, fish, or hunt those species. In addition, these benefits would not only accrue throughout the Barataria Basin but, through the transport of productivity, also in the offshore ecosystems of the northern Gulf of Mexico. By reestablishing

deltaic processes, the proposed Project is expected to enhance the ecological productivity of the estuary and improve food web dynamics that would provide benefit to the northern Gulf of Mexico ecosystem. The LA TIG selected the proposed Project because the LA TIG has found it is critical to achieving the overall goals of the Wetlands, Coastal, and Nearshore Habitats Restoration Type in the Final PDARP/PEIS, which include providing benefits across the interconnected northern Gulf of Mexico ecosystem, and placing particular emphasis on coastal and nearshore habitat restoration in the historical Mississippi River Delta plain in Louisiana.

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In recognition of the potential for collateral injuries, and acknowledging the inability to fully avoid or mitigate collateral injuries, the LA TIG has designed and CPRA would implement a suite of stewardship measures in recognition of the collateral injury that is anticipated to result from the implementation of the proposed Project. See Section 3.2.1.1.5 (Associated Stewardship Measures) of the LA TIG's Restoration Plan, and Appendix R1 (Mitigation and Stewardship Plan) of the Final EIS. The LA TIG is also committed to continuing efforts to restore the resources that would be adversely affected by the diversion, many of which were also injured by the DWH oil spill.

The Mitigation and Stewardship Plan and the Monitoring and Adaptive Management (MAM) Plan provided in the Draft EIS Appendix R were submitted by CPRA and represent a range of potential mitigation, stewardship, monitoring and adaptive management measures (collectively, measures). At the time of publication of the Draft EIS for public review, Appendix R contained draft Plans and CPRA had not identified which of the measures contained in those Plans it intended to implement. CPRA expanded and refined the Final Mitigation and Stewardship Plan in response to community and resource agency input. The Final EIS Appendix R contains the final Plans and specifies which measures CPRA and the LA TIG intend to implement. Generally, impact determinations discussed in the EIS represent anticipated Project effects without implementation of these measures except in

instances where such measures are identified in the discussion. If any mitigation, monitoring, or adaptive management measures are required by USACE as part of its approval of the proposed Project, such measures would be required as special conditions of the Department of the Army (DA) Section 10/404 permit and would be listed in the permit, if one is issued. Implementation of specific measures contained in either Plan, but not included in the Section 10/404 permit as special conditions, would not be required by USACE. USACE does not know whether any particular measure that is not a DA permit condition would be implemented. Measures that USACE currently contemplates as conditions of a DA Section 10/404 permit, if one is issued, are provided in Chapter 4, Section 4.27 Mitigation Summary of the EIS.

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**Concern ID: 62852**

**CPRA's mitigation proposal is inadequate and the commenters implore the USACE to consider the complete cost of the negative impacts as part of the total cost of the proposed Project before allowing this plan to advance.**

**Response ID: 16398**

The USACE is evaluating the projected impacts of the Project in the EIS. As part of its Section 10/404 permitting decision-making process, USACE also conducts a public interest review, which weighs the probable harms of the proposed action against its potential benefits. NEPA does not require that a cost-benefit analysis be included in the EIS unless it is relevant to an agency's decision. USACE generally assumes that a permit applicant has performed its own economic evaluation of the proposed project and therefore does not consider a financial justification analysis for its permit decisions. In making its NRDA decision, the LA TIG will evaluate Project alternatives using the OPA evaluation criteria in 15 CFR §990.54 and NEPA evaluation from the Final EIS, consider public input, and review proposed Project mitigation, stewardship, and monitoring and adaptive management actions.

CPRA expanded and refined its Final Mitigation and Stewardship Plan (Appendix R1 of the Final EIS) in response to community and resource agency input. Details regarding the funding that will be available for aquatic/fisheries mitigation and stewardship measures is set forth in the Final Mitigation and Stewardship Plan, Appendix R1. Details regarding other mitigation and stewardship measures (e.g., mitigation for tidal flooding impacts) is also set forth in the Final Mitigation and

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Stewardship Plan, Appendix R1; however, final estimated costs for those measures continues under development. CPRA has stated that the total estimated cost of all mitigation and stewardship measures set forth in the Final Mitigation and Stewardship Plan exceeds \$300 million dollars. Details regarding the cost for the monitoring and adaptive management are set forth in Section 9 of the Final MAM Plan, Appendix R2. Section 3.2.1.2 of the Draft Restoration Plan includes estimates of project costs, including the cost for project design and construction and project monitoring. Updated cost estimates will be provided as part of the Final Restoration Plan, including project monitoring and stewardship measures.

The Mitigation and Stewardship Plan and the Monitoring and Adaptive Management (MAM) Plan provided in the Draft EIS Appendix R were submitted by CPRA and represent a range of potential mitigation, stewardship, monitoring and adaptive management measures (collectively, measures). At the time of publication of the Draft EIS for public review, Appendix R contained draft Plans and CPRA had not identified which of the measures contained in those Plans it intended to implement. CPRA expanded and refined the Final Mitigation and Stewardship Plan in response to community and resource agency input. The Final EIS Appendix R contains the final Plans and specifies which measures CPRA and the LA TIG intend to implement. Generally, impact determinations discussed in the EIS represent anticipated Project effects without implementation of these measures except in instances where such measures are identified in the discussion. If any mitigation, monitoring, or adaptive management measures are required by USACE as part of its approval of the proposed Project, such measures would be required as special conditions of the Department of the Army (DA) Section 10/404 permit and would be listed in the permit, if one is issued. Implementation of specific measures contained in either Plan, but not included in the Section 10/404 permit as special conditions, would not be required by USACE. USACE does not know whether any particular measure that is not a DA permit condition would be implemented. Measures that USACE currently contemplates as conditions of a DA Section 10/404 permit, if one is issued, are provided in Chapter 4, Section 4.27 Mitigation Summary of the EIS.

The LA TIG explains in Section 1.5 of the Final Restoration Plan that it anticipates requiring implementation of the Mitigation and Stewardship Plan, MAM Plan, and Marine Mammal Intervention Plan as components of the proposed Project, if the Project is approved by the LA TIG for funding. Decisions regarding which measures would be required as part of the LA TIG's funding decision would be set forth in the LA TIG Record of Decision related to the proposed Project.

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**Concern ID: 64180**

**The Draft EIS treated likely damage from implementation and operation of this massive freshwater flood project as “collateral”**



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**and just another cost of doing business, well worth the proposed Project's \$2 billion price tag.****Response ID: 16399**

As discussed in Chapter 1, Section 1.6 Scope of the EIS, this EIS has been developed in accordance with applicable NEPA, CEQ, and USACE regulations and guidance to identify the direct and indirect impacts that would likely occur if the proposed Project were to be approved. The USACE is evaluating the projected impacts of the Project in the EIS. As part of its Section 10/404 permitting decision-making process, USACE also conducts a public interest review, which weighs the probable harms of the proposed action against its potential benefits.

As explained in Section 2.0 of this Appendix B2 DEIS Public Review and Public Meetings, USACE is neither a proponent nor an opponent of the proposed Project. USACE's involvement with the proposed Project is limited to its permitting decisions and associated NEPA and other evaluations of the proposed Project under the CWA Section 404 and RHA Sections 10 and 14 (33 USC Section 408). USACE is not a member of the LA TIG and is not evaluating the proposed Project for compliance with OPA and is not involved in the process to restore damages caused by the DWH oil spill. Response content pertaining to the LA TIG's Draft Restoration Plan, OPA, or NRDA processes have been addressed solely by the LA TIG and reflect only the views of the LA TIG, not USACE.

With respect to the Restoration Plan, the LA TIG evaluated a reasonable range of alternatives under the factors outlined in 15 CFR, §990.54. The LA TIG strove to identify an alternative that would provide the right balance in terms of being cost-appropriate, meeting LA TIG goals, having a high likelihood of success, avoiding collateral injury, benefiting multiple resources, and protecting public health and safety. See Chapter 3, Sections 3.2.4.7, 3.2.1.5, and 3.2.2.5 in OPA Evaluation of the Alternatives of the LA TIG's Restoration Plan. A project can harm species also harmed by the spill and still be an appropriate project. This is especially true for projects like sediment diversions that seek to reestablish deltaic processes that shaped the historic delta ecosystems, and necessarily entails re-introducing freshwater flows that had historically characterized the Barataria Basin before the construction of levees.

The LA TIG recognizes that there are clear tradeoffs among the alternatives in terms of the likely benefits achieved and risks related to collateral injury and public health and safety. Given these tradeoffs, the LA TIG selected Alternative 1 as the LA TIG's Preferred Alternative.

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## GEN3000 – Misc. Topics – General Comments

<b>Concern ID: 62316</b>	<b>Growers in the Midwest need solutions to their crop fertility needs that do not require as much nitrogen and phosphorus fertilizer.</b>
<b>Response ID: 15770</b>	Comment noted, but is outside the scope of this EIS. This EIS is focused on CPRA's proposed Mid-Barataria Sediment Diversion Project. The scope of this EIS is limited to areas in which the Project is expected to have more than negligible effects on the environment, particularly the Barataria Basin and the Mississippi River birdfoot delta in Louisiana.
<b>Concern ID: 62317</b>	<b>Commenter was unable to access online document</b>
<b>Response ID: 15771</b>	Commenter was contacted and notified that online link to the appendix requested was corrected.
<b>Concern ID: 62318</b>	<b>CPRA, with assistance of Attorney General and federal agencies, should hold E&amp;P companies accountable for failure to maintain coastal zone structures that has led to coastal marsh loss. Louisiana should hold profit making companies accountable for the damages they cause.</b>
<b>Response ID: 15772</b>	The Draft EIS recognized causes and impacts of coastal land loss (see EIS Chapter 3, Section 3.6.2 Wetland Loss). The suggestions regarding accountability are outside the scope of this EIS.
<b>Concern ID: 62319</b>	<b>The Mid-Barataria Bay Sediment Diversion is an ambitious Project to divert sediment and fresh water from the Lower Mississippi River main stem into the surrounding marshlands, and Project duration is 50 years.</b>
<b>Response ID: 15773</b>	Comment noted. The commenter is correct regarding the intent of the proposed Project, as was described in the Draft EIS Chapter 1 Introduction and Purpose and Need. The period of analysis for analyzing impacts of the proposed Project is 50 years. If implemented, Project operation is anticipated to extend beyond 50 years.
<b>Concern ID: 62320</b>	<b>The commenter is opposed to Mid-Breton Sediment Diversion</b>
<b>Response ID: 15774</b>	The focus of this EIS is the proposed Mid-Barataria Sediment Diversion. The impacts of the proposed Mid-Breton Sediment Diversion are considered in this EIS as part of the cumulative impacts analysis, which analyzes the incremental impacts of the proposed Project when added to other past, present, and reasonably foreseeable future actions (see Chapter 4, Section 4.25 Cumulative Impacts). Additionally, there would be an opportunity for the public to provide comments on the proposed Mid-Breton Sediment Diversion when the USACE releases the Draft EIS for that proposed project.

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<b>Concern ID: 62322</b>	<b>Commenter asserts that more land needs to be built, but the Project may do more harm than good.</b>
<b>Response ID: 15775</b>	<p>The USACE is evaluating the projected impacts of the Project in the EIS. As part of its Section 10/404 permitting decision-making process, USACE also conducts a public interest review, which weighs the probable harms of the proposed action against its potential benefits. The purpose and need of the proposed Project is to restore injuries caused by the DWH oil spill by reestablishing deltaic processes, to ultimately restore habitat and ecosystem services injured by the DWH oil spill. The EIS recognizes that in fulfilling this purpose and need, the proposed Project would have both beneficial and adverse impacts on several resources. See Section 2.9 in Chapter 2 for a summary of the projected effects of the Project.</p> <p>Title 15 CFR §990.54 of the NRDA regulations outlines the criteria against which reasonable alternatives are evaluated to select the LA TIG's Preferred Alternative. Recognizing that almost all restoration comes with some potential for collateral injury, one factor for evaluation is the extent to which each alternative would prevent future injury and avoid collateral injury. The potential for collateral injury does not preclude an alternative from selection, rather the LA TIG must evaluate each alternative under multiple factors, and select a Preferred Alternative to meet the outlined restoration objectives.</p> <p>The LA TIG, in identifying the Preferred Alternative in the Restoration Plan, evaluated a reasonable range of alternatives under the factors outlined in 15 CFR §990.54. The LA TIG strove to identify an alternative that would provide the right balance in terms of being cost-appropriate, meeting LA TIG goals, having a high likelihood of success, avoiding collateral injury, benefiting multiple resources, and protecting public health and safety. See Sections 3.2.4.7 Identification of a Preferred Alternative, 3.2.1.5 Alternative 1 - Avoids Collateral Injury, and 3.2.2.5 Alternatives 2-6 - Avoids Collateral Injury of the LA TIG's Restoration Plan. A project can harm species also harmed by the spill and still be an appropriate project. This is especially true for projects like sediment diversions that seek to reestablish deltaic processes that shaped the historic delta ecosystem that was altered when Mississippi River flows were cut off by construction of levees. However, without the proposed Project, there would also be adverse impacts to some of the same species due to large-scale wetland loss over time, as is anticipated from ongoing sea-level rise, subsidence, and other existing stressors, which is anticipated to reduce the suitability of habitat for many of the species that currently occur in Barataria Basin.</p>
<b>Concern ID: 62323</b>	<b>There has to be a different way to do it that does not have negative environmental impacts, at a fraction of the cost and time.</b>

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**Response ID: 15956**

The EIS recognizes that the proposed Project would have both beneficial and adverse impacts on several resources. See Chapter 2, Section 2.9 Summary of Environmental Consequences Under Each Alternative for a summary of the projected effects of the proposed Project. The USACE is evaluating the projected impacts of the Project in the EIS. As part of its Section 10/404 permitting decision-making process, USACE also conducts a public interest review, which weighs the probable harms of the proposed action against its potential benefits.

The alternatives evaluated in the EIS were based on the purpose and need statement set forth in Chapter 1, Section 1.4 Purpose and Need of the EIS. As described in Chapter 2, an alternatives screening process was conducted where screening criteria were identified and a wide range of alternatives were evaluated including other available coastal restoration tools and methods. The screening criteria included key concepts from the purpose and need including: reconnecting and reestablishing deltaic processes between the Mississippi River and the Barataria Basin in a sustainable manner; delivering sediment, fresh water, and nutrients in a sustainable manner; supporting the long-term viability of existing and planned coastal restoration projects; helping to restore habitat and ecosystem services in the northern Gulf of Mexico injured by the DWH oil spill consistent with the SRP/EA #3; and consistency with the Louisiana Coastal Master Plan.

The Project-specific purpose and need built on analyses in the LA TIG's SRP/EA #3, including its initial screening of strategic restoration approaches including sediment diversions, large-scale marsh creation, ridge restoration, and breakwater construction, and its evaluation of a range of restoration strategies that could restore for injuries in the Barataria Basin.

After examining whether the various alternatives met the screening criteria developed from the purpose and need, only large-scale sediment diversions with varying capacities were brought forward as alternatives to the Applicant's Preferred Alternative for detailed analysis in the Draft EIS. Details of the screening process including screening criteria were described in Chapter 2 Alternatives, Sections 2.2 through 2.5. The alternatives that did not meet the screening criteria were then eliminated from further detailed analyses as described in Section 2.6 Summary of Alternatives Considered But Eliminated From Detailed Analysis. Refer to Appendix D2 Eliminated Alternatives Matrix of the EIS for further details on why these alternatives were not carried forward for further evaluation in the EIS.

Additional detail can be found in the LA TIG's Restoration Plan explaining the LA TIG's evaluation of a range of alternatives and its identification of a Preferred Alternative (sediment diversion with variable flow up to 75,000 cfs). The LA TIG believes that the Preferred

Alternative provides the right balance in terms of the likely benefits the Project would achieve and the risks related to collateral injury for its NRDA decision. This evaluation was completed by the LA TIG for its restoration planning efforts. USACE did not participate in that process.

Prior to the development of the EIS and Restoration Plan, the LA TIG evaluated various restoration alternatives in SRP/EA #3 and found that a combination of “marsh creation and ridge restoration plus a large-scale sediment diversion would provide the greatest level of benefits to injured Wetlands, Coastal, and Nearshore habitats and to the large suite of injured resources that depend in their life cycle on productive and sustainable wetland habitats” (LA TIG, 2018, page 3-32) in the basin and in the broader northern Gulf of Mexico. As a result, the LA TIG pursued the development of a large-scale sediment diversion, specifically the proposed Mid-Barataria Sediment Diversion evaluated in this Restoration Plan. Section 2.3 of the LA TIG’s Restoration Plan provides a detailed discussion of process used to identify restoration alternatives.

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**Concern ID: 62324**

**Commenter appreciated the opportunity to provide input on this issue and looks forward to getting more information regarding the Project and its impact to the homeowners of Martin Lane, Port Sulphur, LA.**

**Response ID: 15776**

The Draft EIS provides information regarding potential impacts to communities such as Port Sulphur, particularly in Section 4.13 Socioeconomics and Section 4.20 Public Health and Safety. Since issuance of the Draft EIS for public comment, CPRA has further developed its Mitigation and Stewardship Plan, which describes planned mitigation and stewardship measures for homeowners impacted by the proposed Project. Final EIS Appendix R1 contains the revised Mitigation and Stewardship Plan.

The Mitigation and Stewardship Plan and the Monitoring and Adaptive Management (MAM) Plan provided in the Draft EIS Appendix R were submitted by CPRA and represent a range of potential mitigation, stewardship, monitoring and adaptive management measures (collectively, measures). At the time of publication of the Draft EIS for public review, Appendix R contained draft Plans and CPRA had not identified which of the measures contained in those Plans it intended to implement. CPRA expanded and refined the Final Mitigation and Stewardship Plan in response to community and resource agency input. The Final EIS Appendix R contains the final Plans and specifies which measures CPRA and the LA TIG intend to implement. Generally, impact determinations discussed in the EIS represent anticipated Project effects without implementation of these measures except in instances where such measures are identified in the discussion. If any mitigation, monitoring, or adaptive management measures are required

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by USACE as part of its approval of the proposed Project, such measures would be required as special conditions of the Department of the Army (DA) Section 10/404 permit and would be listed in the permit, if one is issued. Implementation of specific measures contained in either Plan, but not included in the Section 10/404 permit as special conditions, would not be required by USACE. The USACE does not know whether any particular measure that is not a DA permit condition would be implemented. Measures that USACE currently contemplates as conditions of a DA Section 10/404 permit, if one is issued, are provided in Chapter 4, Section 4.27 Mitigation Summary of the EIS.

The LA TIG explains in Section 1.5 of the Final Restoration Plan that it anticipates requiring implementation of the Mitigation and Stewardship Plan, MAM Plan, and Marine Mammal Intervention Plan as components of the proposed Project, if the Project is approved by the LA TIG for funding. Decisions regarding which measures would be required as part of the LA TIG's funding decision would be set forth in the LA TIG Record of Decision related to the proposed Project.

<b>Concern ID: 62325</b>	<b>There are many water issues including oil extraction, sonar booms, dams and corporate profit.</b>
<b>Response ID: 15777</b>	Comments noted. The scope of this EIS is limited to areas in which the Project is expected to have more than negligible effects on the environment, which is limited to Louisiana, particularly the Barataria Basin and the Mississippi River birdfoot delta.
<b>Concern ID: 62327</b>	<b>The Commenter supports the proposed action, but states that there are flaws in the Draft EIS that should be corrected.</b>
<b>Response ID: 15779</b>	As described in Chapter 1, Section 1.7 Public Involvement Summary of the Final EIS, changes between the Draft and Final EIS are identified through markings along the margins on the applicable pages. Table 1.7-1 lists the section numbers where substantial changes were made (see Chapter 1, Section 1.7).
<b>Concern ID: 62328</b>	<b>The USEPA found that the Maurepas Diversion would have no impact on bald eagles due to contaminants, which is opposite of what this EIS says. This Maurepas document is no longer online.</b>
<b>Response ID: 15780</b>	<p>The USACE cannot speak to USEPA's findings on the Maurepas Diversion's impact on bald eagles. Details regarding the basis of the finding the commenter notes regarding potential effects of the MBSD on bald eagles due to contaminants were provided in Draft EIS Chapter 4, Section 4.12.3.2.2 in Threatened and Endangered Species.</p> <p>A new monitoring parameter, periodic sampling for Contaminants of Concern in fish, shellfish, and wildlife (Section 3.7.3.23), has been added to the Monitoring and Adaptive Management (MAM) Plan, Appendix R2 in the Final EIS.</p>

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<b>Concern ID: 62329</b>	<b>The EIS should discuss how the Mississippi River Levees are the root cause of land loss that cannot be corrected by a single diversion project.</b>
<b>Response ID: 15781</b>	The EIS recognizes the role that the Mississippi River Levee has played in coastal land loss in the Barataria Basin, and does not describe the proposed Project as a solution to fully reverse ongoing land-loss trends. The Draft EIS recognized that the proposed Project is projected to create and maintain only a portion of the wetlands that would otherwise be lost in the absence of the proposed Project over the next 50 years. See EIS Chapter 4, Section 4.6 Wetlands and Waters of the U.S. for the discussion of projected future land loss under the proposed Project as compared to the No Action Alternative.
<b>Concern ID: 62331</b>	<b>The EIS is comprehensive and well-prepared, and used the best available information and data.</b>
<b>Response ID: 15782</b>	Acknowledged.
<b>Concern ID: 62332</b>	<b>The commenter provided a general critique of failures to tackle climate change, to embrace renewable energy and to halt environmental degradation.</b>
<b>Response ID: 15783</b>	Comment noted. The comment does not appear to include any comments regarding the analysis of the Project contained in either the EIS or Restoration Plan.
<b>Concern ID: 62333</b>	<b>Please support the restoration of vital wildlife habitat along the Gulf Coast.</b>
<b>Response ID: 15842</b>	The commenter's desire for habitat restoration is acknowledged.
<b>Concern ID: 62337</b>	<b>There should be better inspection of oil rigs/pipelines and prosecution in incidents that harm nature. Our taxes pay to clean up environmental damage caused by negligence.</b>
<b>Response ID: 15784</b>	While the proposed Project is intended to restore habitat and ecosystem services injured by the DWH oil spill, the commenters are raising issues associated with the wider oil and gas industry that are outside the scope of this EIS.
<b>Concern ID: 62338</b>	<b>The commenter gives two examples of corporations releasing contaminants in Louisiana, and believes that Louisiana coastal protection and restoration projects are hindered by oil and gas interests.</b>
<b>Response ID: 15785</b>	While the proposed Project is intended to restore habitat and ecosystem services injured by the DWH oil spill, the commenters are raising issues associated with the wider oil and gas industry that are outside the scope of this EIS.

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<b>Concern ID: 62341</b>	<b>The people of Louisiana should be prioritized over the coast because the coast is fine.</b>
<b>Response ID: 15845</b>	The commenter's views are acknowledged. The USACE is evaluating the projected impacts of the Project in the EIS. As part of its Section 10/404 permitting decision-making process, USACE also conducts a public interest review, which weighs the probable harms of the proposed action against its potential benefits.
<b>Concern ID: 62343</b>	<b>The commenter requests that agencies use DWH oil spill funds for research and restoration of bird species in the area.</b>
<b>Response ID: 15789</b>	<p>As was described in Draft EIS Chapter 4, Section 4.9 Terrestrial Wildlife and Habitats, the proposed Project would be beneficial to those bird species that use both terrestrial and emergent wetland habitats. Additionally, CPRA's Monitoring and Adaptive Management Plan includes monitoring of green-winged teal, mottled duck, gadwall, and brown pelican, as described in EIS Appendix R2.</p> <p>The Mitigation and Stewardship Plan and the Monitoring and Adaptive Management (MAM) Plan provided in the Draft EIS Appendix R were submitted by CPRA and represent a range of potential mitigation, stewardship, monitoring and adaptive management measures (collectively, measures). At the time of publication of the Draft EIS for public review, Appendix R contained draft Plans and CPRA had not identified which of the measures contained in those Plans it intended to implement. CPRA expanded and refined the Final Mitigation and Stewardship Plan in response to community and resource agency input. The Final EIS Appendix R contains the final Plans and specifies which measures CPRA and the LA TIG intend to implement. Generally, impact determinations discussed in the EIS represent anticipated Project effects without implementation of these measures except in instances where such measures are identified in the discussion. If any mitigation, monitoring, or adaptive management measures are required by USACE as part of its approval of the proposed Project, such measures would be required as special conditions of the Department of the Army (DA) Section 10/404 permit and would be listed in the permit, if one is issued. Implementation of specific measures contained in either Plan, but not included in the Section 10/404 permit as special conditions, would not be required by USACE. USACE does not know whether any particular measure that is not a DA permit condition would be implemented. Measures that USACE currently contemplates as conditions of a DA Section 10/404 permit, if one is issued, are provided in Chapter 4, Section 4.27 Mitigation Summary of the EIS.</p> <p>The LA TIG explains in Section 1.5 of the Final Restoration Plan that it anticipates requiring implementation of the Mitigation and Stewardship Plan, MAM Plan, and Marine Mammal Intervention Plan as components of the proposed Project, if the Project is approved by the LA TIG for</p>

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funding. Decisions regarding which measures would be required as part of the LA TIG's funding decision would be set forth in the LA TIG Record of Decision related to the proposed Project.

<b>Concern ID: 62346</b>	<b>Restoring and protecting these wetlands into the future would provide significant positive impacts for birds (in terms of nesting and feeding sites), and humans (in terms of tourism dollars and mental well-being). Projects like these are critical for wildlife and serve as a means to bring people together.</b>
<b>Response ID: 15791</b>	The Draft EIS acknowledged the benefits of the proposed Project to wetlands and birds. See EIS Chapter 4, Section 4.6 Wetlands and Waters of the U.S. and 4.9 Terrestrial Wildlife and Habitat for a description of those benefits. The proposed Project's anticipated effects on communities are discussed in EIS Chapter 4, Section 4.13 Socioeconomics and 4.16, Recreation and Tourism.
<b>Concern ID: 62348</b>	<b>Commenters note that humans should be good stewards of our environment as it supports life on earth, and note some of the benefits of ecosystem restoration.</b>
<b>Response ID: 15792</b>	Comment noted. The Draft EIS considered the various effects of the Project on the natural and human environment.
<b>Concern ID: 62350</b>	<b>The commenter asked whether they could submit formal comments on the Draft EIS in writing or if they must send them using the NPS online comment form.</b>
<b>Response ID: 15793</b>	Comments on the Draft EIS were accepted via email, USPS, phone, as well as the PEPC online comment form.
<b>Concern ID: 62351</b>	<b>The commenter asked what the reference for the statistics in the EIS is if the Project is unparalleled and innovative.</b>
<b>Response ID: 15846</b>	The impacts and projections discussed in the Draft EIS were based on USACE's and the LA TIG's consideration of the best information and data available to them, including peer-reviewed literature, subject matter expertise, and computer modeling which simulates future conditions. That data and USACE's evaluation of that data, done in coordination with the LA TIG, are included in the EIS to inform the public and the decision maker.
<b>Concern ID: 62352</b>	<b>CPRA has issued statutory rights of entry for the diversion projects, which deter from the credibility of the agency having the best interest of Louisiana taxpayers in mind.</b>
<b>Response ID: 15892</b>	Comment noted.
<b>Concern ID: 62354</b>	<b>The commenter asserts that elected officials push for the Project even though they know it would increase water levels in some communities.</b>

**Response ID: 15794** USACE is evaluating CPRA's proposed Project through the EIS and will make its decision in compliance with the statutes, orders, and policies outlined in Chapter 5 of the EIS.

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**Concern ID: 62355** **There are better ways to build land and the Corps knows how. Our elected officials should put people and communities first instead of the pockets of a selected few people.**

**Response ID: 15955** The range of reasonable alternatives evaluated in the EIS were based on the purpose and need statement set forth in Chapter 1, Section 1.4 Purpose and Need of the EIS and consistent with CEQ NEPA regulations. As described in Chapter 2, an alternatives screening process was conducted where screening criteria were identified and a wide range of alternatives were evaluated including other available coastal restoration tools and methods. The screening criteria included key concepts from the purpose and need including: reconnecting and reestablishing deltaic processes between the Mississippi River and the Barataria Basin in a sustainable manner; delivering sediment, fresh water, and nutrients in a sustainable manner; supporting the long-term viability of existing and planned coastal restoration projects; helping to restore habitat and ecosystem services in the northern Gulf of Mexico injured by the DWH oil spill consistent with the SRP/EA #3; and consistency with the Louisiana Coastal Master Plan. The Project-specific purpose and need built on analyses in the LA TIG's SRP/EA #3, including its initial screening of strategic restoration approaches including sediment diversions, large-scale marsh creation, ridge restoration, and breakwater construction, and its evaluation of a range of restoration strategies that could restore for injuries in the Barataria Basin. Based on a review of the various alternatives against these criteria developed from the purpose and need only large-scale sediment diversions with varying capacities were brought forward as alternatives to the LA TIG's Preferred Alternative for detailed analysis in the Draft EIS. Details of the screening process including screening criteria were described in Chapter 2, Sections 2.2 through 2.5. The alternatives that did not meet the screening criteria were then eliminated from further detailed analyses as described in Section 2.6 Summary of Alternatives Considered But Eliminated From Detailed Analysis. Refer to Appendix D2 Eliminated Alternatives Matrix of the EIS for details on why these alternatives were not carried forward for further evaluation in the EIS.

See Sections 3.2.4.7, 3.2.1.5, and 3.2.2.5 of the LA TIG's Restoration Plan for a discussion regarding the LA TIG's evaluation of the range of alternatives and identification of the LA TIG's Preferred Alternative (sediment diversion with variable flow up to 75,000 cfs). The LA TIG evaluated a reasonable range of alternatives under the factors outlined in 15 CFR §990.54 and it strove to identify an alternative that would provide the right balance in terms of being cost-appropriate, meeting LA

TIG goals, having a high likelihood of success, avoiding collateral injury, benefiting multiple resources, and protecting public health and safety.

Prior to the development of the EIS and Restoration Plan, the LA TIG evaluated various restoration alternatives in SRP/EA #3 and found that a combination of “marsh creation and ridge restoration plus a large-scale sediment diversion would provide the greatest level of benefits to injured Wetlands, Coastal, and Nearshore habitats and to the large suite of injured resources that depend in their life cycle on productive and sustainable wetland habitats” (LA TIG 2018, page 3-32) in the basin and in the broader northern Gulf of Mexico. As a result, the LA TIG pursued the development of a large-scale sediment diversion, specifically the proposed Mid-Barataria Sediment Diversion evaluated in this Restoration Plan. It is also worth noting that the LA TIG has funded other marsh creation restoration efforts that provide ecosystem services lower in the basin (that is, Barataria Basin Ridge and Marsh Creation Project: Spanish Pass Increment and Queen Bess Island Project). These activities complement and reinforce the restoration that would be provided by the proposed MBSD Project. Section 2.3 of the Restoration Plan provides a detailed discussion of process used to identify restoration alternatives.

<b>Concern ID: 62356</b>	<b>CPRA has a history of mis-operation of existing diversions, as well as neglect in maintaining previous salinity control structures.</b>
<b>Response ID: 15875</b>	CPRA's history regarding its operation of other diversions and salinity structures was not evaluated as a factor contributing to the projected impacts of the proposed Project in the EIS and LA TIG's Restoration Plan.
<b>Concern ID: 62359</b>	<b>Commenter requests assistance with the local effort to re-wild the Blitzen and other rivers in and near Malheur to protect birds.</b>
<b>Response ID: 15849</b>	Comment noted. The scope of this EIS is limited to areas in which the Project is expected to have more than negligible effects on the environment, particularly the Barataria Basin and the Mississippi River birdfoot delta in Louisiana.
<b>Concern ID: 62360</b>	<b>A lot of money was wasted on researching and solving this problem.</b>
<b>Response ID: 15850</b>	Comment noted.
<b>Concern ID: 62362</b>	<b>The residents of the impacted communities see what helps and what hurts because they live it every day.</b>
<b>Response ID: 15882</b>	All public comments on the EIS will be considered by the USACE and by the LA TIG. All public comments on the Restoration Plan will be considered by the LA TIG. A summary of public engagement meetings

and other outreach efforts can be found in Chapter 7 Public Involvement of the Final EIS.

<b>Concern ID: 62363</b>	<b>USACE should identify the river management problems their projects have caused and correct those, not adding more patches to the system it broke.</b>
<b>Response ID: 15876</b>	The proposed Project is not a USACE project. The State of Louisiana through CPRA is the permit Applicant and would construct and operate the diversion. The combined effects of USACE's past, present and reasonably foreseeable projects, in combination with the MBSD Project, were considered in Chapter 4, Section 4.25 Cumulative Impacts of the Draft EIS.
<b>Concern ID: 62364</b>	<b>The commenter asked whether there will be any internships for college students later in the Project.</b>
<b>Response ID: 15851</b>	The USACE recommends reaching out to CPRA directly regarding internship opportunities.
<b>Concern ID: 62366</b>	<b>Commenter asked what companies would be associated with this Project.</b>
<b>Response ID: 15853</b>	The USACE recommends reaching out directly to CPRA regarding companies involved in the Project.
<b>Concern ID: 62367</b>	<b>The Mid-Breton Sediment Diversion would have devastating impacts to the Mississippi Gulf Coast, similar to the opening of the Bonnet Carré Spillway.</b>
<b>Response ID: 15898</b>	<p>The focus of this EIS is the proposed Mid-Barataria Sediment Diversion. The impacts of the proposed Mid-Breton Sediment Diversion are considered in this EIS as part of the cumulative impacts analysis, which analyzes the incremental impacts of the proposed Project when added to other past, present, and reasonably foreseeable future actions (see Chapter 4, Section 4.25 Cumulative Impacts). However, there would be an opportunity for the public to provide comments on the proposed Mid-Breton Sediment Diversion at such time the USACE releases the Draft EIS for that proposed project.</p> <p>The proposed Project is not anticipated to have measurable impacts on ecological resources within the State of Mississippi, including distributaries of the Mississippi River.</p>
<b>Concern ID: 62368</b>	<b>The commenter asked whether the proposed Project would help McCall Creek. This creek was used to ship cotton and lumber to the Mississippi River in the late 1800's.</b>
<b>Response ID: 15901</b>	McCall Creek is outside the area of influence, and thus the area of analysis, for the proposed Project. The Project is not intended to benefit McCall Creek. The scope of this EIS is limited to areas in which the Project is expected to have more than negligible effects on the

environment, particularly the Barataria Basin and the Mississippi River birdfoot delta. The proposed Project is not anticipated to have measurable impacts on ecological resources within the State of Mississippi, including tributaries of the Mississippi River.

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<b>Concern ID: 62369</b>	<b>The commenter stated that they need more information on the Project to know what areas would be impacted.</b>
<b>Response ID: 15877</b>	Information on the proposed Project, including the Draft EIS and Draft Restoration Plan, has been made available through several venues, including Project websites ( <a href="http://www.mvn.usace.army.mil/Missions/Regulatory/Permits/Mid-Barataria-Sediment-Diversion-EIS/">http://www.mvn.usace.army.mil/Missions/Regulatory/Permits/Mid-Barataria-Sediment-Diversion-EIS/</a> ; <a href="https://www.gulfspillrestoration.noaa.gov/restoration-areas/louisiana">https://www.gulfspillrestoration.noaa.gov/restoration-areas/louisiana</a> ), media stories, and public libraries. For a summary of public outreach efforts related to the Draft EIS refer to Chapter 7 Public Involvement of the EIS and for restoration planning see Section 1.8 of the LA TIG's Restoration Plan. See Chapter 2 of the EIS for a description of the proposed Project and the Project footprint to better understand the areas that would be directly impacted by the Project's construction.
<b>Concern ID: 62370</b>	<b>The commenter asserted that the MRGO was a shipping channel and a diversion, and asked how much land it built and why it was closed if it built land.</b>
<b>Response ID: 15878</b>	The MRGO was not a diversion; it was a navigation channel for shipping. The MRGO did not directly connect to the Mississippi River; instead it connected to the Gulf Intracoastal Waterway, which goes through the Inner Harbor Navigation Canal and the IHNC Lock before reaching the river. The lock is not designed to carry water or sediment from the Mississippi River into the MRGO. The MRGO is not a useful comparison to the proposed Project for the purpose of impact analysis in this EIS.
<b>Concern ID: 62373</b>	<b>Commenter stated that they do not want tax dollars going toward a project that would harm Louisiana's commercial fishing industry.</b>
<b>Response ID: 15880</b>	If the proposed Project is permitted by USACE and approved by the LA TIG, construction would be funded from funds received from the DWH NRDA settlement, of which approximately \$4 billion was allocated for the restoration of wetlands, coastal, and nearshore habitat, as described in Section 1.1 Background and Summary of the Settlement of the LA TIG's Restoration Plan.  As explained in the Restoration Plan, the LA TIG is the group responsible for restoring natural resources and services within Louisiana that were injured by the DWH oil spill. The LA TIG is comprised of state and federal Trustees of natural resources, and the LA TIG's decision to fund this Project would be based on the Project's

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ability to restore for injuries to natural resources from the DWH oil spill, including aquatic resources.

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**Concern ID: 62374**

**Commenter is opposed to MBSD because it doesn't build land fast enough.**

**Response ID: 15949**

The commenter's opposition to the proposed Project is noted. The commenter is correct that the proposed Project would take approximately 30 years to create its maximum projected acreage of 17,300 acres; after 50 years of operation, the Project would result in the loss of 3,000 acres of land in the birdfoot delta but would create approximately 13,400 acres of land in the Barataria Basin, representing about 20 percent of the land remaining in the Barataria Basin at that time (see Section 3.2.1.1 [Alternative 1 Description] of the Restoration Plan).

The commenter's concern regarding the timeline required for land building was considered in the Draft EIS in Chapter 4, Section 4.2 Geology and Soils. A discussion has been added to clarify currently ongoing and future projected land loss and the amount of land that would be created, sustained, or lost due to proposed diversion operations. This discussion has been added to the Geology and Soils section of the Executive Summary and to Chapter 4, Section 4.2.3.2 Operational Impacts in Geology and Soils of the Final EIS.

Prior to the development of the EIS and Restoration Plan, the LA TIG evaluated various restoration alternatives in SRP/EA #3 and found that a combination of "marsh creation and ridge restoration plus a large-scale sediment diversion would provide the greatest level of benefits to injured Wetlands, Coastal, and Nearshore habitats and to the large suite of injured resources that depend in their life cycle on productive and sustainable wetland habitats" (LA TIG, 2018, page 3-32) in the basin and in the broader northern Gulf of Mexico. As a result, the LA TIG pursued the development of a large-scale sediment diversion, specifically the proposed Mid-Barataria Sediment Diversion evaluated in this Restoration Plan. It is also worth noting that the LA TIG has funded other marsh creation restoration efforts that provide ecosystem services lower in the basin (that is, Barataria Basin Ridge and Marsh Creation Project: Spanish Pass Increment and Queen Bess Island Project). These activities complement and reinforce the restoration that would be provided by the proposed MBSD Project. Section 2.3 of the LA TIG's Restoration Plan provides a detailed discussion of process used to identify restoration alternatives.

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**Concern ID: 62375**

**This Project would have made sense 50 years ago because there would have been more marsh to save at that time.**

**Response ID: 15881**

Commenter's input is noted.

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<b>Concern ID: 62376</b>	<b>A cost-benefit analysis should be performed since there may never be \$2 billion available again for saving the coast.</b>
<b>Response ID: 15948</b>	<p>NEPA does not require that an EIS contain a cost-benefit analysis unless it is relevant to the agency's decision. USACE typically assumes that a permit applicant has done its own economic evaluation of a proposed project. As part of its permitting decision, USACE conducts a public interest review, which weighs the probable harms of a project against its prospective benefits.</p> <p>Consistent with OPA regulations (15 CFR §990.54), the LA TIG's Restoration Plan evaluates multiple alternatives based on a number of criteria, including the cost of the alternative. For more information see Section 3 of the LA TIG's Final Restoration Plan.</p>
<b>Concern ID: 62377</b>	<b>Commenter asserts that the proposed Project is the best hope for undoing the extensive damage that the levee systems caused, and that land building is essential.</b>
<b>Response ID: 15911</b>	<p>The commenter's statement of support, which correctly notes that the purpose of the proposed Project is to reestablish and maintain deltaic processes in support of coastal Louisiana resources, is acknowledged. The EIS recognizes the role that Mississippi River levees have played as one factor in coastal land loss in the Barataria Basin. The EIS does not describe the proposed Project as a solution to fully reverse ongoing land-loss trends. The Draft EIS recognized that the proposed Project is projected to create and maintain only a portion of the wetlands that would otherwise be lost in the absence of the proposed Project over the next 50 years. See EIS Chapter 4, Section 4.2.3. Geology, Topography, and Geomorphology for the discussion of projected future land loss under the proposed Project as compared to the No Action Alternative.</p>
<b>Concern ID: 62378</b>	<b>Commenter notes that their future plans depends on New Orleans existing into the future.</b>
<b>Response ID: 15912</b>	Comment noted.
<b>Concern ID: 62379</b>	<b>A few more years of income production do not justify the looming collapse of not only the natural resource but the possibility of inhabiting the coast.</b>
<b>Response ID: 15913</b>	Comment noted.
<b>Concern ID: 62380</b>	<b>Commenter asks how the proposed Project will affect current and future generations.</b>
<b>Response ID: 15916</b>	The Draft EIS discussed impacts of the proposed Project on human and natural resources projected over 50 years of Project operation.
<b>Concern ID: 62382</b>	<b>The State of Louisiana has done very little to assist the Hypoxia Action Plan or promote its implementation, despite having that</b>

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<b>Response ID: 15929</b>	<p><b>opportunity during the past 20 years that they were planning and promoting diversions under the Coastal Master Plan.</b></p> <p>USACE cannot speak to the state's assistance or promotion of the Hypoxia Action Plan. However, the USACE agrees that the Gulf Hypoxia Action Plan is relevant to the Project area. Therefore, the USACE has added a discussion about the Gulf Hypoxia Action Plan to Chapter 4, Section 4.25.5 Cumulative Impacts, Surface Water and Sediment Quality of the Final EIS.</p>
<b>Concern ID: 62383</b>	<p><b>The Louisiana Nutrient Reduction and Management Strategy, which included diversions as the main feature, is not mentioned in the Draft EIS.</b></p>
<b>Response ID: 15934</b>	<p>A discussion of the Louisiana Nutrient Reduction and Management Strategy has been included in the discussion of Gulf Hypoxia Action Plan which has been added to Chapter 4, Section 4.25.5 Cumulative Impacts, Surface Water and Sediment Quality of the Final EIS.</p>
<b>Concern ID: 62384</b>	<p><b>Our state government, elected officials, the Coastal Protection and Restoration Authority and other state agencies, and local jurisdictions must pivot to centering community expertise as they carry out the MBSD.</b></p>
<b>Response ID: 15961</b>	<p>According to CPRA, it has conducted outreach associated with its Sediment Diversion Program, including Coastal Connections meetings throughout the MBSD Project area over the past several years. In addition, since the release of the Draft EIS CPRA has engaged the public through meetings with the communities projected to be impacted by the MBSD to solicit input on mitigation and stewardship strategies. A summary of these public engagement meetings can be found in Chapter 7 of the Final EIS. Refer to the Final Mitigation and Stewardship Plan in Appendix R1 for mitigation and stewardship measures that would be implemented as a result of the public involvement and engagement efforts</p> <p>The Mitigation and Stewardship Plan and the Monitoring and Adaptive Management (MAM) Plan provided in the Draft EIS Appendix R were submitted by CPRA and represent a range of potential mitigation, stewardship, monitoring and adaptive management measures (collectively, measures). At the time of publication of the Draft EIS for public review, Appendix R contained draft Plans and CPRA had not identified which of the measures contained in those Plans it intended to implement. CPRA expanded and refined the Final Mitigation and Stewardship Plan in response to community and resource agency input. The Final EIS Appendix R contains the final Plans and specifies which measures CPRA and the LA TIG intend to implement. Generally, impact determinations discussed in the EIS represent anticipated Project effects without implementation of these measures except in</p>

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instances where such measures are identified in the discussion. If any mitigation, monitoring, or adaptive management measures are required by USACE as part of its approval of the Project, such measures would be required as special conditions of the Department of the Army (DA) Section 10/404 permit and would be listed in the permit, if one is issued. Implementation of specific measures contained in either Plan, but not included in the Section 10/404 permit as special conditions, would not be required by USACE. USACE does not know whether any particular measure that is not a DA permit condition would be implemented. Measures that USACE currently contemplates as conditions of a DA Section 10/404 permit, if one is issued, are provided in Chapter 4, Section 4.27 Mitigation Summary of the EIS.

The LA TIG explains in Section 1.5 of the Final Restoration Plan that it anticipates requiring implementation of the Mitigation and Stewardship Plan, MAM Plan, and Marine Mammal Intervention Plan as components of the proposed Project, if the Project is approved by the LA TIG for funding. Decisions regarding which measures would be required as part of the LA TIG's funding decision would be set forth in the LA TIG Record of Decision related to the proposed Project.

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**Concern ID: 62385**

**Commenters noted that commercial fishermen and coastal residents are not against restoration. The tension between fishers and coastal projects has always arisen not because of the Projects' intended goals, but given the processes used to develop and implement coastal restoration projects.**

**Response ID: 15957**

CPRA has conducted outreach associated with its Sediment Diversion Program, including Coastal Connections meetings throughout the MBSD Project area over the past several years. In addition, since the release of the Draft EIS CPRA has engaged the public through meetings with the communities projected to be impacted by the MBSD to solicit input on mitigation and stewardship strategies. A summary of these public engagement meetings can be found in Chapter 7 of the Final EIS. Refer to the Final Mitigation and Stewardship Plan in Appendix R1 for mitigation and stewardship measures that would be implemented by CPRA as a result of the public involvement and engagement efforts.

The Mitigation and Stewardship Plan and the Monitoring and Adaptive Management (MAM) Plan provided in the Draft EIS Appendix R were submitted by CPRA and represent a range of potential mitigation, stewardship, monitoring and adaptive management measures (collectively, measures). At the time of publication of the Draft EIS for public review, Appendix R contained draft Plans and CPRA had not identified which of the measures contained in those Plans it intended to implement. CPRA expanded and refined the Final Mitigation and Stewardship Plan in response to community and resource agency

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input. The Final EIS Appendix R contains the final Plans and specifies which measures CPRA and the LA TIG intend to implement. Generally, impact determinations discussed in the EIS represent anticipated Project effects without implementation of these measures except in instances where such measures are identified in the discussion. If any mitigation, monitoring, or adaptive management measures are required by USACE as part of its approval of the Project, such measures would be required as special conditions of the Department of the Army (DA) Section 10/404 permit and would be listed in the permit, if one is issued. Implementation of specific measures contained in either Plan, but not included in the Section 10/404 permit as special conditions, would not be required by USACE. USACE does not know whether any particular measure that is not a DA permit condition would be implemented. Measures that USACE currently contemplates as conditions of a DA Section 10/404 permit, if one is issued, are provided in Chapter 4, Section 4.27 Mitigation Summary of the EIS.

The LA TIG explains in Section 1.5 of the Final Restoration Plan that it anticipates requiring implementation of the Mitigation and Stewardship Plan, MAM Plan, and Marine Mammal Intervention Plan as components of the proposed Project, if the Project is approved by the LA TIG for funding. Decisions regarding which measures would be required as part of the LA TIG's funding decision would be set forth in the LA TIG Record of Decision related to the proposed Project.

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**Concern ID: 62386**

**The construction, implementation, and operation of the first large-scale river sediment diversion must meaningfully include and honor the generational and place-based knowledge of coast-dependent residents. The mitigation, adaptation, and MBSD-adjacent governmental support strategies suggested by CCC emerge directly from their clients' own comments and the expertise they have shared with CCC for over a decade.**

**Response ID: 15958**

CPRA has conducted outreach associated with its Sediment Diversion Program, including Coastal Connections meetings throughout the proposed MBSD Project area over the past several years. In addition, since the release of the Draft EIS CPRA has engaged the public through meetings with the communities projected to be impacted by the MBSD to solicit input on mitigation and stewardship strategies. A summary of these public engagement meetings can be found in Chapter 7 of the Final EIS. Refer to the Final Mitigation and Stewardship Plan in Appendix R1 for mitigation and stewardship measures that would be implemented by CPRA as a result of the public involvement and engagement efforts.

The Mitigation and Stewardship Plan and the Monitoring and Adaptive Management (MAM) Plan provided in the Draft EIS Appendix R were submitted by CPRA and represent a range of potential mitigation,

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stewardship, monitoring and adaptive management measures (collectively, measures). At the time of publication of the Draft EIS for public review, Appendix R contained draft Plans and CPRA had not identified which of the measures contained in those Plans it intended to implement. CPRA expanded and refined the Final Mitigation and Stewardship Plan in response to community and resource agency input. The Final EIS Appendix R contains the final Plans and specifies which measures CPRA and the LA TIG intend to implement. Generally, impact determinations discussed in the EIS represent anticipated Project effects without implementation of these measures except in instances where such measures are identified in the discussion. If any mitigation, monitoring, or adaptive management measures are required by USACE as part of its approval of the Project, such measures would be required as special conditions of the Department of the Army (DA) Section 10/404 permit and would be listed in the permit, if one is issued. Implementation of specific measures contained in either Plan, but not included in the Section 10/404 permit as special conditions, would not be required by USACE. USACE does not know whether any particular measure that is not a DA permit condition would be implemented. Measures that USACE currently contemplates as conditions of a DA Section 10/404 permit, if one is issued, are provided in Chapter 4, Section 4.27 Mitigation Summary of the EIS.

The LA TIG explains in Section 1.5 of the Final Restoration Plan that it anticipates requiring implementation of the Mitigation and Stewardship Plan, MAM Plan, and Marine Mammal Intervention Plan as components of the proposed Project, if the Project is approved by the LA TIG for funding. Decisions regarding which measures would be required as part of the LA TIG's funding decision would be set forth in the LA TIG Record of Decision related to the proposed Project.

<b>Concern ID: 62387</b>	<b>Do the best</b>
<b>Response ID: 15865</b>	Comment noted.
<b>Concern ID: 62388</b>	<b>The internet is rigged.</b>
<b>Response ID: 15855</b>	Comment noted, but is outside the scope of this EIS.
<b>Concern ID: 62390</b>	<b>Commenter supports the selection of the 75,000 cfs sediment diversion, but also encourages the continued exploration of increased capacity and the acceleration of other sediment diversions that are identified in Louisiana's Coastal Master Plan to maximize use of the natural resources of the river.</b>
<b>Response ID: 15918</b>	The commenter's support for the Project is noted. The relative impacts, both beneficial and adverse, for the various capacity alternatives are explained throughout Chapter 4 of the EIS. Although the 150,000 cfs Alternative would result in the greatest degree of benefits (including the most land building), it also would result in the greatest degree of

adverse impacts, particularly to marine mammals (see Section 4.11.5 Operational Impacts), shrimp and oysters (see Section 4.10.4.5 Key Species), and public health and safety (through increased water levels and inundation in areas closer to the immediate outfall, see Section 4.20.4.2 Operational Impacts). Sections 4.10.4.5 Key Species and 4.11.5 Operational Impacts in the Final EIS have been revised to further discuss the impacts of the 150,000 cfs Alternative to brown shrimp, oysters, and dolphins.

The LA TIG's Restoration Plan evaluated each alternative against a variety of factors, including those outlined in 15 CFR §990.54 and strove to identify an alternative that would provide the right balance in terms of being cost-appropriate, meeting LA TIG goals, having a high likelihood of success, and avoiding collateral injury. While a 150,000 cfs diversion would be expected to deliver more ecological benefits in terms of land creation and marsh building than the Preferred Alternative, it would also incur more collateral injuries and pose a greater risk to human health and safety; thus it was not selected as the LA TIG's Preferred Alternative in the Final Restoration Plan. See Section 3.2.4 Overall OPA Evaluation Conclusions of the Final Restoration Plan for a discussion of how the LA TIG came to its decision.

<b>Concern ID: 62391</b>	<b>Commenter expressed disappointment in the opinions issued by the Lieutenant Governor, St. Bernard Parish Council and Plaquemines Parish Council which benefit few oyster fishermen rather than the Louisiana coast.</b>
<b>Response ID: 15919</b>	Comment noted. USACE has considered all public comments, including those favorable and unfavorable to the Project, received during the scoping period and Draft EIS public comment period, and will consider any comment received during the Final EIS public review period before making its decisions for the proposed Project.
<b>Concern ID: 62392</b>	<b>Commenter offered free air time on Paradise Louisiana TV for anyone wishing to debate the subject of diversions.</b>
<b>Response ID: 15864</b>	Comment noted.
<b>Concern ID: 62394</b>	<b>When the Morganza Spillway was built, it diverted the natural flow of water from the Louisiana marsh and the sediment the marsh needs to maintain itself. The commenter asks why the Morganza Spillway is not being opened to allow the natural flow of water so it can deposit sediment.</b>
<b>Response ID: 15856</b>	Comment noted. The operation of the Morganza Spillway is outside the Project area and the scope of this EIS. The scope of this EIS is limited to areas in which the Project is expected to have more than negligible

effects on the environment, particularly the Barataria Basin and the Mississippi River birdfoot delta in Louisiana.

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**Concern ID: 62395**

**The state's restoration plans are inadequate to meet the challenges of coastal restoration and the climate crisis.**

**Response ID: 15920**

The intent of the Project is to restore injuries caused by the DWH oil spill and help restore habitat and ecosystem services injured by the spill. Other complementary coastal restoration strategies are being considered for implementation by CPRA in their Coastal Master Plan and the LA TIG in their restoration planning process.

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**Concern ID: 62397**

**Though this diversion project will restore some crucial land, more attention should be paid to the political economy of coastal restoration, which serves corporate interests in the navigation and fossil fuel industries**

**Response ID: 15921**

Comment noted. The Project was included in CPRA's 2017 Coastal Master Plan and will complement other restoration projects being implemented in the area.

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**Concern ID: 62398**

**The ability of corporate interests to tilt the agency's decision by flooding it with supportive public comments undermines the fairness, transparency, and ultimate success of this Project. The Army Corps and NPS should be aware of the impacts of corporate-funded advocacy campaigns in support of this diversion.**

**Response ID: 15922**

Public input is an integral part of the NEPA process, the OPA process, and the DWH oil spill restoration planning effort. USACE and the LA TIG undertook a coordinated and concurrent public review process for the EIS and the LA TIG's Restoration Plan. All public comments received have been reviewed by both USACE and the LA TIG and will be considered as appropriate under relevant regulations by USACE and by the LA TIG, respectively, as each makes its decision on the proposed MBSD Project.

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**Concern ID: 62399**

**Commenter asserts that short-term profit in the form of commercial fisheries that thrive off the collapsing ecosystem as saltwater moves north should not detract from long-term economic growth which will come from the improved health of our wetlands.**

**Response ID: 15923**

As part of its decision-making process for the DA Section 10/404 permits, the USACE will conduct a public interest review in which the probable harms of the proposed Project will be weighed against its prospective benefits. Also as part of that process, USACE will consider public comments on the Draft EIS.

With respect to its Restoration Plan, the LA TIG acknowledges the commenter's concern that potential impacts to commercial fisheries not override the benefits that would be provided by the Project. In selecting



their Preferred Alternative, the LA TIG evaluated a reasonable range of alternatives under the factors outlined in 15 CFR §990.54 of the NRDA regulations. The LA TIG strove to identify an alternative that would provide the right balance in terms of being cost-appropriate, meeting LA TIG goals, having a high likelihood of success, avoiding collateral injury, benefiting multiple resources, and protecting public health and safety. See Sections 3.2.4.7, 3.2.1.5, 3.2.2.5 of the LA TIG's Final Restoration Plan. As suggested by the commenter, the LA TIG has found that a project can harm species also harmed by the spill and still be an appropriate project. This is especially true for projects like sediment diversions that seek to reestablish deltaic processes that shaped the historic delta ecosystems and necessarily entails Mississippi River flows that were cut off by construction of levees. The LA TIG recognize that there are clear tradeoffs among the alternatives in terms of the likely benefits achieved and risks related to collateral injury and public health and safety. Given these tradeoffs, the LA TIG selected Alternative 1 as the Preferred Alternative in the Final Restoration Plan.

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**Concern ID: 62400**

**North of Covington and Baton Rouge most folks actually entertain the idea of the river running wild and beefing up the delta like back in the 1700's and are inconsiderate of the couple hundred thousand people that inhabit the land below New Orleans. Areas south of New Orleans have their own culture and ways of life that must be protected. Dredging works but people are pretending that's not the answer.**

**Response ID: 15924**

The EIS analyzes impacts throughout the Project area, including south of New Orleans.

Dredging was considered under the category of "marsh creation." Marsh creation alternatives and the reasons for elimination from detailed analysis in the EIS can be found in Chapter 2, Section 2.3 Step 1: Evaluation of Functional Alternatives. As described in Section 2.3.5, Large-Scale Marsh Creation, a marsh creation (dredge) alternative does not meet the purpose and need for the proposed Project; such an alternative does not deliver enough fresh water, nutrients, and fine sediments to sustain adjacent wetlands beyond the marsh creation area and over time would require periodic lifts and maintenance through placement of additional dredged material. Additional information related to the marsh creation alternative and reasons for elimination have been added to Section 2.3.5 for the Final EIS.

USACE will consider all public comments received and will also conduct a public interest review, which considers various factors relevant to the proposed Project and weighs the projected harms of a proposed project against its projected benefits, before deciding whether to grant the permit and permission request.



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Additional detail can be found in the LA TIG's Restoration Plan explaining the LA TIG's evaluation of a range of alternatives and its identification of a Preferred Alternative (sediment diversion with variable flow up to 75,000 cfs). The LA TIG believes that the Preferred Alternative provides the right balance in terms of the likely benefits the Project would achieve and the risks related to collateral injury for its NRDA decision. This evaluation was completed by the LA TIG for its restoration planning efforts. USACE did not participate in that process.

CPRA and the LA TIG are pursuing multiple dredge-based restoration projects in Barataria Basin and throughout coastal Louisiana (for example, the Spanish Pass Ridge and Marsh Creation Project). More details can be found in Louisiana's Coastal Master Plan and on the LA TIG's web page (see <https://www.gulfspillrestoration.noaa.gov/restoration-areas/louisiana>).

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**Concern ID: 62401**

**Decades of world-class science is overwhelmingly conclusive that sediment diversions are crucial to a sustainable Mississippi River Delta. Politics or a few very loud individuals should not jeopardize putting the power of the river to work and save our coast.**

**Response ID: 15925**

The USACE developed a comprehensive EIS that evaluates the beneficial and adverse impacts of the proposed Project. Public input is an integral part of the NEPA process, the OPA process, and the DWH oil spill restoration planning effort. USACE and the LA TIG undertook a coordinated and concurrent public review process for the EIS and the LA TIG's Restoration Plan.

All public comments received have been reviewed by both USACE and the LA TIG and will be considered as appropriate under relevant regulations by USACE and by the LA TIG, respectively, as each makes its decision on the proposed MBSD Project.

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**Concern ID: 62402**

**The U.S. Army Corp of Engineers (USACE) is thrust into this river diversion debate and looked upon like an arbiter or referee. And that would be fine except for the fact that the USACE is just not an innocent bystander in its long history of navigational and flood protection projects that have greatly affected Louisiana's coast.**

**Response ID: 15926**

USACE is neither a proponent for nor an opponent to the proposed Project. As part of its Section 10/404 permitting decision-making process, USACE conducts a public interest review, which weighs the probable harms of the proposed action against its potential benefits.

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**Concern ID: 62403**

**MBSD and Mid-Breton Sediment Diversion are advocated by several powerful NGOs called Changing Course which advocates building new river deltas in Barataria Bay and Breton Sound, giving up on sustaining communities in lower Plaquemines Parish, and allowing the birdfoot delta to collapse.**

**Response ID: 15927**

The “Changing Course” proposal is not being evaluated as part of this EIS.

All public comments received on the EIS and Restoration Plan, including those in support of and critical of the Project, were reviewed and considered in developing the Final EIS and Final Restoration Plan.

With respect to the impact of the proposed Project on lower Plaquemines Parish and the birdfoot delta, the diversion would be expected to accelerate land loss as compared to the No Action Alternative. See Chapter 4, Section 4.2.3 Geology, Topography, and Geomorphology for further discussion. The impacts of the proposed Mid-Breton Sediment Diversion were considered in the Draft EIS as part of the cumulative impacts analysis, which analyzes the incremental impacts of the proposed Project when added to other past, present, and reasonably foreseeable future actions (see Chapter 4, Section 4.25 Cumulative Impacts). Additionally, there will be an opportunity for the public to provide comments on the proposed Mid-Breton Sediment Diversion when USACE releases the Draft EIS for that proposed project.

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**Concern ID: 62404**

**Appendix A contains more detailed recommendations related to the draft Monitoring and Adaptive Management Plan; Appendix B contains a series of recent op-eds and other statements of support for the Project from various stakeholders. We request that the materials in Appendix B be considered as part of the Army Corps’ public interest review and by the LA TIG as evidencing consistency with the OPA criteria.**

**Response ID: 15928**

The USACE and LA TIG have reviewed Appendices A and B. Revisions were made to the Monitoring and Adaptive Management Plan to respond to “Improvement #1: Define a clear adaptive management process” and “Improvement #2: Clarify the problem definition” in Appendix A of the commenter’s comment letter.

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**Concern ID: 62405**

**Commenter suggested that the Final EIS should include targeted economic incentive plans for contractors associated with Project design or construction to prioritize economic opportunities for all interested residents in the Project footprint/outfall area wherever relevant.**

**Response ID: 15940**

Provision of economic incentives for contractors would be the responsibility of CPRA and therefore has not been added to the Final EIS. CPRA is required to follow the provisions of the Louisiana Public Bid Law, including those contained in Title 39, Chapter 17 (the Louisiana Procurement Code) and in Title 38, Chapter 10 Public Contracts. The comment has been provided to CPRA.

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<b>Concern ID: 62406</b>	<b>The actions of oil companies are a major contributor to land loss in Louisiana. Perhaps, instead of accepting a pittance of what the oil lobby makes off the destruction of the state (and deaths of its people in Cancer Alley) as a donation to wetland restoration, Louisiana and Federal legislators/regulators alike should require oil companies to pay back in full this debt for land and life and demand that better methods be devised to prevent any further damage.</b>
<b>Response ID: 15857</b>	Comment noted. The Draft EIS recognizes causes and impacts of coastal land loss (see EIS Chapter 3, Section 3.6.2 Wetland Loss)
<b>Concern ID: 62407</b>	<b>CPRA should prepare materials on the skills needed to obtain these construction jobs, as well as the average annual salaries. It will take time to create the labor line to get workers trained, and the State should be working with our trade schools, community colleges and universities early and often to prepare a local workforce.</b>
<b>Response ID: 15858</b>	Comment noted.
<b>Concern ID: 62408</b>	<b>It is the responsibility of the Governor, through his executive assistant for coastal affairs, to exercise this authority to stop the PLT Project as it is inconsistent with the MBSD Project and Coastal Master Plan.</b>
<b>Response ID: 15859</b>	While EIS Chapter 4, Section 4.25 Cumulative Impacts considers past, present, and reasonably foreseeable future structures or actions in the Project area which could affect the same resources as the proposed Project, such as the PLT, State approval of other structures or actions is outside the scope of this EIS.
<b>Concern ID: 62424</b>	<b>Commenter states that they do not oppose the proposed Project.</b>
<b>Response ID: 15869</b>	Comment noted.
<b>Concern ID: 62426</b>	<b>Several commenters submitted test messages, well wishes and miscellaneous text.</b>
<b>Response ID: 15871</b>	Acknowledged.
<b>Concern ID: 62428</b>	<b>Commenter gave example of local landowner efforts to protect local estuary in Washington state, noting that so much more could be done with the Mississippi Delta.</b>
<b>Response ID: 15872</b>	Comment noted. The scope of this EIS is limited to Louisiana, particularly the Barataria Basin and Mississippi River birdfoot delta.
<b>Concern ID: 62432</b>	<b>The Buckeye Marrero Terminal, LLC permit includes the statements that no discharge should occur within one mile upstream of any drinking water intake, and the permittee is responsible for determining the existence and location of the</b>

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<b>Response ID: 15962</b>	<p><b>nearest drinking water intake. The listed intakes downstream of the MBSD Project site are at Point a la Hache (River Mile 49.2E), Port Sulphur (River Mile 49W), and Venice (River Mile 18.6W).</b></p> <p>The Buckeye Marrero Terminal LPDES Permit conditions are outside the scope of this EIS. However, CPRA would be required to comply with any LPDES permit conditions if such a permit is required by LDEQ for the proposed MBSD Project.</p>
<b>Concern ID: 62433</b>	<p><b>Commenter noted that a resolution was passed unanimously by the Plaquemines Parish District 9 Council against the diversion.</b></p>
<b>Response ID: 15946</b>	<p>The commenter's input is acknowledged. The resolution is included in the Project record.</p>
<b>Concern ID: 62435</b>	<p><b>This comment has been replaced and superseded by correspondence 39875 at commenter's request.</b></p>
<b>Response ID: 15965</b>	<p>Acknowledged.</p>
<b>Concern ID: 63013</b>	<p><b>The commenter asked that the Project proceed with caution, recognizing that these situations are not as straightforward as they may always seem. Modifying terrestrial ecosystems for the sake of a marine ecosystem can ultimately damage both. The commenter notes that their comments should not be considered as condoning the Project, but rather as a request that further thought be given to certain areas to ensure that the Project results in a fair and environmentally secure decision for all involved.</b></p>
<b>Response ID: 15960</b>	<p>The USACE and the LA TIG considered the best information and data available to them in the preparation of the EIS, which will be used by the USACE and the LA TIG in their respective decisions on the Section 10/404 permit application, the Section 408 permission request, and the LA TIG funding request. As part of its Section 10/404 permitting decision-making process, USACE also conducts a public interest review, which weighs the probable harms of the proposed action against its potential benefits. Appendix R2: Monitoring and Adaptive Management Plan provides details about the monitoring and adaptive management plans for the proposed Project.</p> <p>The Mitigation and Stewardship Plan and the Monitoring and Adaptive Management (MAM) Plan provided in the Draft EIS Appendix R were submitted by CPRA and represent a range of potential mitigation, stewardship, monitoring and adaptive management measures (collectively, measures). At the time of publication of the Draft EIS for public review, Appendix R contained draft Plans and CPRA had not identified which of the measures contained in those Plans it intended to implement. CPRA expanded and refined the Final Mitigation and Stewardship Plan in response to community and resource agency input. The Final EIS Appendix R contains the final Plans and specifies</p>

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which measures CPRA and the LA TIG intend to implement. Generally, impact determinations discussed in the EIS represent anticipated Project effects without implementation of these measures except in instances where such measures are identified in the discussion. If any mitigation, monitoring, or adaptive management measures are required by USACE as part of its approval of the proposed Project, such measures would be required as special conditions of the Department of the Army (DA) Section 10/404 permit and would be listed in the permit, if one is issued. Implementation of specific measures contained in either Plan, but not included in the Section 10/404 permit as special conditions, would not be required by USACE. USACE does not know whether any particular measure that is not a DA permit condition would be implemented. Measures that USACE currently contemplates as conditions of a DA Section 10/404 permit, if one is issued, are provided in Chapter 4, Section 4.27 Mitigation Summary of the EIS.

The LA TIG explains in Section 1.5 of the Final Restoration Plan that it anticipates requiring implementation of the Mitigation and Stewardship Plan, MAM Plan, and Marine Mammal Intervention Plan as components of the proposed Project, if the Project is approved by the LA TIG for funding. Decisions regarding which measures would be required as part of the LA TIG's funding decision would be set forth in the LA TIG Record of Decision related to the proposed Project.

<b>Concern ID: 63014</b>	<b>The commenter asserts that USACE should close Mardi Gras Pass. South Pass has silted in to where 20-foot boats are scared to traverse. All navigable channels should remain navigable.</b>
<b>Response ID: 15795</b>	Comment noted. Any proposed closure of Mardi Gras Pass is outside the scope of this EIS, which evaluates the potential impacts of CPRA's proposed Project.
<b>Concern ID: 62372</b>	<b>A commenter noted that it has been said that a new governor could shut down this Project at any point, which cannot happen.</b>
<b>Response ID: 15854</b>	The commenter's input is noted. Consideration of potential future actions of undetermined governors is outside the scope of the EIS. The EIS evaluates the environmental impacts of the proposed Project and a reasonable range of alternatives, including No Action, to inform the USACE's decision regarding the requested Section 404/10 permit and Section 408 permission, as well as the NRDA decision of the LA TIG.
<b>Concern ID: 62409</b>	<b>The commenter commends CPRA for making great strides to save our coast and for being in constant communication and have provided aid to increase the Town of Jean Lafitte's flood protection. They have handled this entire process with open ears and have adapted along the way.</b>
<b>Response ID: 15874</b>	Comment noted.

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<b>Concern ID: 62410</b>	<b>Commenter asserts that if the deltaic system is fully restored, the results would be astonishing and that the new delta could be allowed to flourish that is more productive than the physical delta we measure our losses from 90 years ago.</b>
<b>Response ID: 15943</b>	Comment noted. Although the EIS recognizes that current conditions have changed over time, Chapter 4 Environmental Consequences of the EIS discusses how the proposed Project alternatives would affect the currently-existing natural environment, to which the human and animal populations have acclimated. Chapter 3 Affected Environment summarizes the historic context for each resource assessed in the EIS. Further, Sections 3.1.4.1 Mississippi River and 3.1.4.2 Barataria Basin of the EIS address the deltaic processes that formed the proposed Project area; these sections have been supplemented in the Final EIS to further discuss historic conditions.
<b>Concern ID: 62411</b>	<b>All of these organisms are highly adaptable, as they must be to thrive in a deltaic environment where conditions can change in a geological instant—a saline embayment can freshen overnight and begin to fill with sediment after an avulsion on the river, or a freshwater wetland can be cut off from the river due to a course change. Nothing lives here that has not adapted to those conditions.</b>
<b>Response ID: 15947</b>	As described throughout Chapter 4, Section 4.10 Aquatic Resources of the EIS, operation of the proposed Project would affect the existing flora and fauna of the Barataria Basin in both beneficial and adverse ways, with the overall impacts to a given species being dependent on that species' habitat preferences and tolerances.
<b>Concern ID: 62412</b>	<b>If public funds are spent to acquire rights to private property in the receiving basin, then the right to free and unfettered public access must be acquired as well. Private landowners that succeed in requiring the purchase of rights such as flowage easements in order to allow a project that would prevent their land from disappearing should not be allowed to profit from this massive beneficial investment beyond sale of their property to the people in fee simple at fair market value.</b>
<b>Response ID: 15952</b>	Ownership of any lands created or acquired related to construction or operation of the Project would be determined in accord with current state law, including ownership of mineral rights pursuant to La. R.S. 31:149 and La. R.S. 49:214.5.5(E). Pursuant to La. R.S. 49:214.5.5(B), the Project would not create any rights of access to the public in or on private property.
<b>Concern ID: 62413</b>	<b>The MBSD diversion structure, outfall channel, and outfall area would constitute the world's single largest engineered restoration project. The LA TIG and CPRA should include a recreation and</b>

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<b>Response ID: 15951</b>	<b>education area near the diversion with a viewing platform, trails, bike paths, along with a boat launch into the diversion outfall area.</b> Due to concerns about safety of the public and security for the Project facilities, there is not a plan to make the diversion structure or immediate outfall area accessible for public use. CPRA is, however, planning to provide signage and other public space near the Project to educate the public regarding the purpose and functioning on the Project. Ownership of any lands created by operation of the Project would be determined in accord with current state law, including ownership of mineral rights pursuant to La. R.S. 31:149 and La. R.S. 49:214.5.5(E). Pursuant to La. R.S. 49:214.5.5(B), the Project would not create any rights of access to the public in or on private property.
<b>Concern ID: 62415</b>	<b>Commenter requested USACE and LA TIG review more detailed comments on the Draft Environmental Impact Statement and Draft Restoration Plan in the comments of the Restore the Mississippi River Delta campaign.</b>
<b>Response ID: 15866</b>	The comments of the Restore the Mississippi River Delta have been considered.
<b>Concern ID: 62421</b>	<b>A well-funded propaganda machine is touting a highly-experimental project using a narrative that conveniently ignores what is easily the biggest source of the local communities' woes: extraction; these communities are left to seek funding on their own to repair the damage from these industries such as spoil banks and open canals.</b>
<b>Response ID: 15953</b>	Comment noted; however, this comment raises concerns that are outside the scope of this EIS.
<b>Concern ID: 62422</b>	<b>All spending for the promotion of the MBSD must be reported to the public in extensive detail. This includes spending from federal and state agencies, foundations, non-profits, and businesses.</b>
<b>Response ID: 15862</b>	The commenter's recommendation is noted, but is outside the scope of this EIS. Financial reporting regarding the LA TIG agencies' budgets and amounts expended is available through the Deepwater Horizon DIVER database. <a href="https://www.diver.orr.noaa.gov/web/guest/diver-explorer?siteid=9&amp;subtitle=DWH%20Natural%20Resource%20Damage%20Assessment%20Data">https://www.diver.orr.noaa.gov/web/guest/diver-explorer?siteid=9&amp;subtitle=DWH%20Natural%20Resource%20Damage%20Assessment%20Data</a> . USACE does not have information regarding expenditures by agencies and/or organizations to promote the proposed MBSD Project.
<b>Concern ID: 62423</b>	<b>Any studies completed by institutions funded by extractive industries should be redone by a neutral party.</b>
<b>Response ID: 15954</b>	The authors and agencies involved in the EIS analysis utilized the best information and data available to them to develop a comprehensive document that considers the beneficial and adverse impacts of the

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proposed Project. USACE is neither a proponent for nor an opponent of the proposed Project. Studies utilized in the EIS were reviewed and considered by USACE's independent third-party contractor, GEC, and its experts for technical acceptability. GEC executed an Organizational Conflict of Interest statement attesting that it does not have an interest in the outcome of the permitting process. USACE independently evaluated and verified the EIS for its accuracy, scope, and contents.

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**Concern ID: 62431**

**Commenter asserts that diversion projects give Mississippi Delta communities a chance to survive, but they do not guarantee anything. Community members must overcome distrust and listen to authentic voices, from both communities and objective scientists, engineers, economists, social scientists and planners, who have no financial stake in the outcome.**

**Response ID: 15873**

Public input is an integral part of the NEPA process, the OPA process, and the DWH oil spill restoration planning effort. USACE and the LA TIG undertook a coordinated and concurrent public review process for the EIS and the LA TIG's Restoration Plan.

Allowing submission of comments on either document to the same locations provided commenters a "one-stop shop" and was done to reduce confusion by commenters about where to direct their comments regarding the MBSD Project. Additionally, this ensured the LA TIG reviewed and considered all relevant comments to both the Restoration Plan and the Draft EIS in its decision-making process. All public comments received have been reviewed by both USACE and the LA TIG and will be considered as appropriate under relevant regulations by USACE and by the LA TIG, respectively, as each makes its decision on the proposed MBSD Project. For a summary of public outreach efforts related to the Draft EIS refer to Chapter 7 Public Involvement of the EIS and for restoration planning see Section 1.8 of the LA TIG's Restoration Plan.

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**Concern ID: 62326**

**Once the permafrost thaws past a certain point then the temperature of the Ocean will rise such that the methane hydrate frozen at the bottom of the continental shelves and Ocean will be released then there will be an oxygen-poor atmosphere above sea level.**

**Response ID: 15778**

Ongoing impacts and future threats of climate change on wildlife habitat and wetlands were discussed throughout Draft EIS Chapter 3, including Section 3.6 Wetlands and Waters of the U.S., Section 3.7 Air Quality and Section 3.9 Terrestrial Wildlife and Habitat. Draft EIS Section 4.1.3.2 Sea-level Rise in Section 4.1 Overview of Delft3D Basinwide Model for Impact Analysis described how modeling used for the EIS impact analysis factors in sea-level rise.

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<b>Concern ID: 62334</b>	<b>The USACE has the skilled staff, needed knowledge, equipment and resources to save the coastline and protect people and wildlife.</b>
<b>Response ID:</b>	The USACE acknowledges the commenter's endorsement. However, the Project is proposed by CPRA; for the proposed Project, the USACE is responsible for evaluation of CPRA's Section 404/10 permit application and Section 408 permission request.
<b>Concern ID: 62339</b>	<b>What we do locally can affect the entire nation.</b>
<b>Response ID: 15786</b>	Comment noted.
<b>Concern ID: 62340</b>	<b>Staff and volunteers who worked to save birds and other wildlife from DWH effects are stakeholders in this decision.</b>
<b>Response ID:</b>	The USACE and LA TIG appreciate the efforts of volunteers to save birds and other wildlife after the DWH oil spill, and recognize such volunteers among the many stakeholders in the decision whether to approve and fund the proposed Project.
<b>Concern ID: 62342</b>	<b>National parks, monuments, lakes, streams, oceans and other picturesque areas should be left in their natural state.</b>
<b>Response ID: 15788</b>	Comment noted. The purpose and need of the proposed Project is to restore injuries caused by the DWH oil spill by reestablishing deltaic processes to ultimately restore habitat and ecosystem services injured by the DWH oil spill.
<b>Concern ID: 62344</b>	<b>Humans have no right to inhumanely kill animals, and humans depend on animals to live.</b>
<b>Response ID: 15790</b>	Comment noted. The Draft EIS considered the effects of the Project on terrestrial and aquatic, and marine mammal species in Chapter 4, Section 4.10 Aquatic Resources, Section 4.9 Terrestrial Wildlife and Habitat, and Section 4.11 Marine Mammals, respectively.
<b>Concern ID: 62357</b>	<b>Southern Louisiana has been losing habitat for many years.</b>
<b>Response ID: 15896</b>	Comment noted. Chapter 3, Section 3.6.2.2 Causes of Wetland Loss of the Draft EIS described historic wetland losses in the Barataria Basin. Further, Sections 3.1.4.1 Mississippi River and 3.1.4.2 Barataria Basin of the Draft EIS addressed the deltaic processes that formed the proposed Project area; these sections have been supplemented in the Final EIS to further discuss historic conditions.
<b>Concern ID: 62358</b>	<b>Commenter notes that racism has caused social distancing for years.</b>
<b>Response ID: <a href="#">15848</a></b>	Comment noted. Draft EIS Chapter 4, Section 4.15 Environmental Justice considered the impact of the proposed Project on minority and low-income populations.
<b>Concern ID: 62389</b>	<b>The Draft EIS both overestimates adverse effects and underestimates positive effects. All of these complex benefits are</b>

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**difficult to quantify and model, but they are apparent at each outlet of the Mississippi and Atchafalaya rivers.**

**Response ID: 15917**

In preparing the EIS, USACE, together with members of the LA TIG (including cooperating agencies and CPRA), utilized high-quality information, ensured the professional and scientific integrity and accuracy of its analyses, and identified its methodologies and sources. Where information is unavailable or incomplete, those data gaps are disclosed in the document.

The Delft3D Basinwide Model represents the best tool currently available to USACE and the LA TIG to inform impact analyses for the EIS. Chapter 4, Section 4.1.3 Overview of Delft3D Basinwide Model for Impact Analysis of the EIS acknowledges that the outputs of the model are projections generated using defined inputs, often based on historical conditions. Because it is not possible to precisely predict future conditions such as weather patterns and degree of sea-level rise, the model inputs are necessarily based on trends, averages, and best professional judgment as well as reasonable assumptions about future behaviors. Model outputs are not predictions of actual future conditions (see EIS Chapter 4, Section 4.1.3.3 Model Limitations and Uncertainty and Section 8 of Appendix E Delft3D Modeling). The outputs are instead used to compare the degree of difference between the impacts projected for each alternative and as compared to the No Action Alternative.

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**Concern ID: 62427**

**Given the environmental damage that Louisiana has sustained in recent years, and the damage expected in the near future from climate change, the commenter thinks that both the citizens of Louisiana and the US Army Corps of Engineers should be focused on protecting human communities and wildlife habitat.**

**Response ID: 15964**

The EIS analyses utilized the best information and data available to USACE and the LA TIG at the time of writing. USACE is neither a proponent nor an opponent of the proposed Project. USACE's role is limited to its permitting decisions and associated NEPA and other evaluations of the proposed Project under Section 404 of the CWA and Sections 10 and 14 of the RHA of 1899.

As explained in its Restoration Plan, the LA TIG's support for the proposed Project stems from its obligations under OPA to restore for the natural resource injuries incurred by the DWH oil spill. As an oil pollution incident, the DWH oil spill is subject to the provisions of OPA, 33 United States Code (USC) § 2701 et seq. A primary goal of OPA is to make the environment and public whole for injuries to natural resources, and services resulting from incidents involving an oil discharge or substantial threat of an oil discharge. The DWH Trustee Council and its Trustee Implementation Groups were established under the authority of OPA. The NRDA regulations under OPA (15 CFR §

990) establish a process for restoration planning, including the development and evaluation of restoration alternatives and the development of Restoration Plans. These OPA NRDA regulations establish criteria for identifying and evaluating restoration alternatives (see Section 3.1). Restoration activities under OPA are intended to return injured natural resources and services to their baseline condition (that is, primary restoration), and to compensate the public for interim losses from the time of the incident until the time resources services recover to baseline conditions (that is, compensatory restoration). To meet these goals, the restoration activities need to produce benefits that are related to or have a nexus (that is, connection) to the natural resource injuries and service losses resulting from the spill.

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**Concern ID: 66931**

**Please either post the entire Draft EIS to the USACE website as one PDF or remove the PDF security restrictions. It is difficult to conduct searches for particular text/topics in multiple PDFs. If the restrictions are removed, the PDFs can be downloaded and combined into one PDF, making it much easier to search.**

**Response ID: 16858**

The USACE applied security settings on the Draft EIS for document control so that chapters/sections would not be edited.

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**Concern ID: 66932**

**The Draft EIS link does not work.**

**Response ID: 16859**

The USACE webpage may have temporarily been down at some point during the Draft EIS comment period. If so, it was only a temporary outage.

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**Concern ID: 66933**

**The Project would save less land than the city of Gretna.**

**Response ID: 16860**

The commenter's concern about the amount of land created or sustained by the Project was considered in the Draft EIS. As explained in Chapter 4, Section 4.2.3.2 Geology and Soils, Operational Impacts, the Project would increase the amount of land in the Barataria Basin by approximately 13,400 acres in 2070, but result in 3,000 less acres of land in the birdfoot delta in 2070 (see Chapter 4, Section 4.2.3.2.1 Geology, Table 4.2-4).

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**Concern ID: 62434**

**It is up to USACE to do something now to regulate and save this area from decimation by greedy corporations.**

**Response ID: 15959**

Comment noted, but is outside the scope of this EIS. This EIS is focused on evaluating and disclosing the potential environmental impacts associated with the proposed Mid-Barataria Sediment Diversion Project.

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**Concern ID: 62353**

**The corrupting influence of money in our political system is undermining our democratic traditions.**

**Response ID: 15847**

Comment noted, but is outside the scope of this EIS. This EIS is focused on evaluating and disclosing the potential environmental impacts associated with the proposed Mid-Barataria Sediment Diversion Project.

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**Concern ID: 62414**

**The government can prevent widespread economic or environmental losses by imposing higher restrictions on state and federal permits issued to companies asking for permission for dredging of canals, diverting construction projects, or the oil/gas expedition drilling within the state and federal waters. With all the new restrictions, nothing stopped the biggest man-made disastrous oil spill from the BP explosion on April 20, 2010.**

**Response ID: 15860**

Comment noted, but is outside the scope of this EIS. This EIS is focused on evaluating and disclosing the potential environmental impacts associated with the proposed Mid-Barataria Sediment Diversion Project.

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**Concern ID: 62430**

**Almost the entire Upper Mississippi River watershed has also been developed to enhance agricultural productivity including extensive use of a drainage system used to load water off landscapes as quickly as possible. This development exacerbates flood damages by preventing the landscape from naturally retaining and slowing the release of rainfall and impacts the river's ability to filter pollution, such as nitrogen and phosphorus.**

**Response ID: 15863**

Comment noted, but is outside the scope of this EIS. The scope of this EIS is limited to areas in which the Project is expected to have more than negligible effects on the environment, particularly the Barataria Basin and the Mississippi River birdfoot delta in Louisiana.

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**Concern ID: 62416**

**Louisiana's oystermen and women have been champions of protecting and restoring our damaged coastal environment for decades, investing their own funds and resources through building cultch and coastal water bottoms which demonstrates their commitment to a common goal they can share with CPRA and others.**

**Response ID: 15867**

Commenter's input is noted.

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**Concern ID: 62418**

**Louisiana's oystermen and women have long been among the most active advocates for saving and restoring our coast. And, while they support broader efforts to restore the wetlands and to provide for coastal flood protection, those who live and work in our coastal communities and depend on the natural fisheries and wildlife resources of Louisiana's estuaries, and whose culture is intertwined with those resources, deserve**

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**to have the guarantee that all efforts would be taken to preserve these natural renewable resources for generations to come.**

**Response ID: 15950**

The Draft EIS evaluates how the proposed Project would impact commercial, recreational, and subsistence fishers as compared to No Action conditions in Chapter 4, Sections 4.10 (Aquatic Resources), 4.14 (Commercial Fisheries), 4.15 (Environmental Justice) and 4.16 (Recreation and Tourism).

In response to public comments and resource agency input about the proposed mitigation efforts, CPRA has expanded and refined the oyster mitigation and stewardship measures. CPRA's mitigation and stewardship strategies and associated expenditures would focus on establishing sustainable fisheries for oysters rather than on compensating individual oyster harvesters for their particularized economic losses (see the Mitigation and Stewardship Plan in Appendix R1 to the Final EIS). Without the Project, adverse impacts to oyster fisheries would be expected over the next 50 years. Prior to 2050, those changes would be minor and gradual. After 2050, more drastic changes are anticipated, leading to a steep decline in suitability for oysters in a large portion of the currently suitable habitat. With implementation of the diversion, the Project would cause significant adverse impacts to oyster fisheries in the early years of the Project's operational life. The revised mitigation and stewardship measures include allocating \$4 million to establish new public seed grounds, \$15 million to enhance public and private oyster grounds, \$4 million to enhance broodstock reefs and \$8 million for alternative oyster culture.

The Mitigation and Stewardship Plan and the Monitoring and Adaptive Management (MAM) Plan provided in Draft EIS Appendix R were submitted by CPRA and represent a range of potential mitigation, stewardship, monitoring and adaptive management measures (collectively, measures). At the time of publication of the Draft EIS for public review, Appendix R contained draft Plans and CPRA had not identified which of the measures contained in those Plans it intended to implement. CPRA expanded and refined the Final Mitigation and Stewardship Plan in response to community and resource agency input. The Final EIS Appendix R contains the final Plans and specifies which measures CPRA and the LA TIG intend to implement. Generally, impact determinations discussed in the EIS represent anticipated Project effects without implementation of these measures except in instances where such measures are identified in the discussion. If any mitigation, monitoring or adaptive management measures are required by USACE as part of its approval of the Project, such measures would be required as special conditions of the Department of the Army (DA) Section 10/404 permit and would be listed in the permit, if one is issued. Implementation of specific measures contained in either Plan, but not included in the Section 10/404 permit as special conditions, would not be required by USACE. USACE does not know whether any particular measure that is not a DA permit condition would be implemented. Measures that USACE currently contemplates as conditions of a DA Section 10/404 permit, if one is issued, are provided in Chapter 4, Section 4.27 Mitigation Summary of the EIS.

The LA TIG explains in Section 1.5 of the Final Restoration Plan that it anticipates requiring implementation of the Mitigation and Stewardship Plan, MAM Plan, and Marine Mammal Intervention Plan as components of the proposed Project, if the Project is approved by the LA

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TIG for funding. Decisions regarding which measures would be required as part of the LA TIG's funding decision would be set forth in the LA TIG Record of Decision related to the proposed Project.

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**Concern ID: 62419**

**The pursuit of Multiple Lines of Defense strategy and coastal protection at all costs has had negative impacts on the State's commercial fishing, shrimping and oystering communities, doing far more damage to the state's economy and coastal employment than any lasting good to our coastal infrastructure.**

**Response ID: 15861**

Comment noted. Chapter 4, Section 4.14.4.2 of the Draft EIS discussed impacts of the proposed MBSD Project on commercial fisheries. As summarized in Section 4.14.5, moderate to major adverse impacts on shrimp and oyster fisheries in the Project area are anticipated under the Applicant's Preferred Alternative, primarily by accelerating by decades the decline of species abundance that would also be anticipated under the No Action Alternative. Benefits to the blue crab fishery and some finfish are also anticipated.

CPRA has developed a plan to mitigate the potential adverse Project impacts. The Mitigation and Stewardship Plan and the Monitoring and Adaptive Management (MAM) Plan provided in Draft EIS Appendix R were submitted by CPRA and represent a range of potential mitigation, stewardship, monitoring and adaptive management measures (collectively, measures). At the time of publication of the Draft EIS for public review, Appendix R contained draft Plans and CPRA had not identified which of the measures contained in those Plans it intended to implement. CPRA expanded and refined the Final Mitigation and Stewardship Plan in response to community and resource agency input. The Final EIS Appendix R contains the final Plans and specifies which measures CPRA and the LA TIG intend to implement. Generally, impact determinations discussed in the EIS represent anticipated Project effects without implementation of these measures except in instances where such measures are identified in the discussion. If any mitigation, monitoring or adaptive management measures are required by USACE as part of its approval of the Project, such measures would be required as special conditions of the Department of the Army (DA) Section 10/404 permit and would be listed in the permit, if one is issued. Implementation of specific measures contained in either Plan, but not included in the Section 10/404 permit as special conditions, would not be required by USACE. USACE does not know whether any particular measure that is not a DA permit condition would be implemented. Measures that USACE currently contemplates as conditions of a DA Section 10/404 permit, if one is issued, are provided in Chapter 4, Section 4.27 Mitigation Summary of the EIS.

The LA TIG explains in Section 1.5 of the Final Restoration Plan that it anticipates requiring implementation of the Mitigation and Stewardship Plan, MAM Plan, and Marine Mammal Intervention Plan as components of the proposed Project, if the Project is approved by the LA TIG for funding. Decisions regarding which measures would be required as part of the LA TIG's funding decision would be set forth in the LA TIG Record of Decision related to the proposed Project.

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**Concern ID: 62420**

**Commenter requested that all who share their concerns about the detrimental, unintended but very real consequences of the proposed Project make their voices heard by commenting at CEMVN- Midbarataria@usace.army.mil.**

**Response ID: 15868**

Comment noted.

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## GEN4000 – Executive Summary

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**Concern ID: 61861**

**The description of the nature of impacts is fundamentally flawed. Clarify who decides whether an impact is adverse or beneficial and what the criteria for these decisions are.**

**Response ID: 15932**

Early in the EIS process, USACE in coordination with the LA TIG and CPRA decided on an approach to evaluation of the environmental impacts for the EIS. As stated in Chapter 4, Section 4.1, Approach to Evaluation of Environmental Consequences, under NEPA, federal agencies must consider the potential environmental impacts, both beneficial and adverse, of the proposed Project and its reasonable alternatives, including direct, indirect, and cumulative impacts. During development of the EIS, it was considered whether the proposed Project would cause a significant adverse or beneficial impact on the human environment (defined as the natural and physical environment and the relationship of people with that environment [40 CFR 1508.14]). The CEQ regulations require consideration of both context and intensity when determining whether an effect is significant. Chapter 4, Sections 4.1.1 (Context) and 4.1.2 (Intensity) of the EIS set forth the criteria for context and intensity for determining impacts in the EIS. Resource-specific indicators for impacts are included for each resource in their corresponding sections within Chapter 4, Environmental Consequences of the EIS.

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**Concern ID: 61862**

**The estimates of land gain in the Executive Summary do not match what is stated in Chapter 4, Environmental Consequences.**

**Response ID: 15935**

The estimates of land gain were reviewed for discrepancies in both the Executive Summary and Chapter 4, Environmental Consequences of the Draft EIS and have been determined to be accurate in both instances. However, to help address these concerns, the EIS has been revised to add a discussion to clarify currently ongoing and future projected land loss and the amount of land that would be created, sustained, or lost due to proposed diversion operations. This discussion has been added to the Geology and Soils section of the Executive Summary and to Chapter 4, Section 4.2.3.2.2.1 Geology, of the Final EIS.

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**Concern ID: 61863****Based on the Executive Summary, the proposed MBSD Project is not a sediment diversion.****Response ID: 15933**

Section ES.3 of the Executive Summary describes the proposed Project: “The proposed Project evaluated in this EIS is a controlled sediment and freshwater intake diversion structure in Plaquemines Parish on the right descending bank of the Mississippi River at river mile (RM) 60.7, with a conveyance system that would discharge sediment, fresh water, and nutrients from the Mississippi River into an outfall area within the mid-Barataria Basin in Plaquemines and Jefferson Parishes.” The MBSD Project is fully described and discussed in the body of the EIS, particularly Chapter 2, Section 2.8 Action Alternatives Carried Forward for Detailed Analysis where the Project components are described in detail.

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### MA10000 – MAM Plan – General Comments

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**Concern ID: 62833****CPRA should incorporate research results from the last 11 years and earlier to ensure that restored ecosystems attain close to pre-spill conditions.****Response ID: 16660**

The LA TIG’s strategy for restoring the ecosystem impacted by the DWH oil spill to pre-spill conditions is the subject of the Deepwater Horizon Oil Spill Programmatic Damage Assessment and Restoration Plan and Programmatic Environmental Impact Statement (PDARP/PEIS). The PDARP/PEIS describes the Deepwater Horizon Oil Spill Natural Resource Damages Trustees’, including CPRA’s, ecosystem approach to restoration. The PDARP/PEIS also includes a robust Monitoring and Adaptive Management Framework for ensuring that the collective suite of restoration activities undertaken pursuant to the PDARP/PEIS meets the Trustees’ restoration goals of fully restoring for injuries from the oil spill. That Monitoring and Adaptive Framework, which is described in Section 5.5.15 and in Appendix 5.E of the PDARP/PEIS, incorporates research undertaken both before and after the oil spill. Additionally, in September 2021, the LA TIG released a Monitoring and Adaptive Management Strategy that describes the LA TIG’s objectives, processes, and priorities to support restoration planning, implementation, and evaluation through monitoring and adaptive management activities applicable to all LA TIG activities. That Strategy improves the LA TIG’s ability to achieve effective and efficient restoration of natural resources injured by the DWH oil spill in the Louisiana Restoration Area—with more than \$200 million from the DWH monitoring and adaptive management funding allocation dedicated to that effort.

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**Concern ID: 62834**

**Adaptive management should adapt restoration actions to incorporate human utilization response to climate and biodiversity changes.**

**Response ID: 16661**

The Monitoring and Adaptive Management (MAM) Plan (Appendix R2 to the Draft EIS) considered the adaptive management issues raised by the commenters. The MAM Plan calls for monitoring of the socioeconomic parameters set forth in the State's System Wide Assessment and Monitoring Program (see Section 3.7.3.24 [Socio-economic Data] of the MAM Plan in Appendix R2 to the Final EIS).

The Mitigation and Stewardship Plan and the MAM Plan provided in Draft EIS Appendix R were submitted by CPRA and represent a range of potential mitigation, stewardship, monitoring and adaptive management measures (collectively, measures). At the time of publication of the Draft EIS for public review, Appendix R contained draft Plans and CPRA had not identified which of the measures contained in those Plans it intended to implement. The Final EIS Appendix R contains the final Plans and specifies which measures CPRA and the LA TIG intend to implement. Generally, impact determinations discussed in the EIS represent anticipated Project effects without implementation of these measures except in instances where such measures are identified in the discussion. If any mitigation, monitoring or adaptive management measures are required by USACE as part of its approval of the Project, such measures would be required as special conditions of the Department of the Army (DA) Section 10/404 permit and would be listed in the permit, if one is issued. Implementation of specific measures contained in either Plan, but not included in the Section 10/404 permit as special conditions, would not be required by USACE. USACE does not know whether any particular measure that is not a DA permit condition would be implemented. Measures that USACE currently contemplates as conditions of a DA Section 10/404 permit, if one is issued, are provided in Chapter 4, Section 4.27 Mitigation Summary of the EIS.

The LA TIG explains in Section 1.5 of the Final Restoration Plan that it anticipates requiring implementation of the Mitigation and Stewardship Plan, MAM Plan, and Marine Mammal Intervention Plan as components of the proposed Project, if the Project is approved by the LA TIG for funding. Decisions regarding which measures would be required as part of the LA TIG's funding decision would be set forth in the LA TIG Record of Decision related to the proposed Project.

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**Concern ID: 62835**

**Federal and state decision makers and the Trustees should work proactively, transparently, and collaboratively with communities with environmental justice concerns and stakeholders to develop ideas and proposals for adaptation and mitigation as environmental conditions change.**

**Response ID: 16662**

CPRA undertook substantial community outreach, particularly aimed at soliciting input from low-income and minority populations, during the period between the Draft and Final EIS and LA TIG's Draft and Final Restoration Plan. CPRA engaged the communities potentially impacted by the Project, including low-income and minority community members, through public meetings to solicit input on mitigation and stewardship strategies. Further, CPRA engaged community-based organizations to assist in soliciting additional feedback on the proposed mitigation and stewardship measures. CPRA also used a survey tool to gather feedback from low-income and minority community members regarding Project impacts and on mitigation concepts. A summary of these public engagement meetings and other outreach efforts is in Chapter 7 (Public Involvement) of the Final EIS. If the Project is implemented, CPRA plans to continue outreach to the communities and stakeholders with environmental justice concerns through Project construction and operations.

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**Concern ID: 62836**

**What are the conditions for closure of the diversion? For example, would the diversion be shut down if there is community flooding or a large amount of wetland loss in the first 5 years? CPRA's stated commitment to adaptive management may eventually result in the agency making substantial adjustments to the operational regime of the proposed Project without providing recourse for affected stakeholder groups.**

**Response ID: 16663**

Information regarding Project operations, including the plan for when the diversion would be shut down for emergencies and storm events, is set forth in CPRA's Operations (Water Control) Plan issued with the Draft EIS (Appendix F2 Preliminary Operations Plan).

With regard to community flooding, the Mitigation and Stewardship Plan (Appendix R1 to the Final EIS) details mitigation strategies that would address increased water levels in impacted communities. With regard to ensuring Project performance, in accordance with the Monitoring and Adaptive Management (MAM) Plan, CPRA would monitor Project performance over the life of the Project and adaptively manage the Project to ensure Project success (for examples of potential adaptive management actions, see Tables 4.1-1 through 4.1-3 in the MAM Plan in Appendix R2 to the Final EIS). If the Project is implemented, CPRA would continue to keep stakeholders informed about Project progress, timing, construction, and operation.

The Mitigation and Stewardship Plan and the MAM Plan provided in Draft EIS Appendix R were submitted by CPRA and represent a range of potential mitigation, stewardship, monitoring and adaptive management measures (collectively, measures). At the time of publication of the Draft EIS for public review, Appendix R contained draft Plans and CPRA had not identified which of the measures

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The LA TIG explains in Section 1.5 of the Final Restoration Plan that it anticipates requiring implementation of the Mitigation and Stewardship Plan, MAM Plan, and Marine Mammal Intervention Plan as components of the proposed Project, if the Project is approved by the LA TIG for funding. Decisions regarding which measures would be required as part of the LA TIG's funding decision would be set forth in the LA TIG Record of Decision related to the proposed Project.

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**Concern ID: 62837**

**Encouraging the comprehensive and holistic restoration of the Lower Mississippi River would benefit all restoration projects in the region. Coordinating the operation of the proposed Project to work well with other restoration and water management efforts would benefit birds, wildlife, and people.**

**Response ID: 16664**

The Project is part of several comprehensive, coordinated strategies for restoration of Barataria Basin and the surrounding region. First, the Project is contemplated in the PDARP/PEIS, which establishes a comprehensive framework for restoring the northern Gulf of Mexico from impacts from the DWH oil spill. Second, the Project is part of the LA TIG's Strategic Restoration Plan for Barataria Basin, which articulates a comprehensive Restoration Plan for restoring the Barataria Basin. The Project is also a cornerstone project of Louisiana's Coastal Master Plan, the 50 year, \$50 billion scientifically based strategy for restoring coastal Louisiana. Louisiana's Coastal Master Plan projects are selected with an eye toward complementing other restoration efforts, such as the Gulf of Mexico Hypoxia Task Force and the Lowermost Mississippi River Management Program.

The Draft EIS considered coordinating the Project with other restoration and management efforts—specifically CPRA's agreement to implement

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Conservation Recommendation 3 from the Fish and Wildlife Coordination Report to establish a basin-wide operation and monitoring data repository to ensure operators of other projects can coordinate in an effort to maximize restoration efforts in the basin (see Chapter 5, Section 5.3 [Fish and Wildlife Coordination Act Report Recommendations] of the EIS and Section 6.3 [Data Storage and Accessibility] of the Monitoring and Adaptive Management (MAM) Plan in Appendix R2 to the EIS). These collaboration methods are also included in the Final EIS.

The Mitigation and Stewardship Plan and the MAM Plan provided in Draft EIS Appendix R were submitted by CPRA and represent a range of potential mitigation, stewardship, monitoring and adaptive management measures (collectively, measures). At the time of publication of the Draft EIS for public review, Appendix R contained draft Plans and CPRA had not identified which of the measures contained in those Plans it intended to implement. The Final EIS Appendix R contains the final Plans and specifies which measures CPRA and the LA TIG intend to implement. Generally, impact determinations discussed in the EIS represent anticipated Project effects without implementation of these measures except in instances where such measures are identified in the discussion. If any mitigation, monitoring or adaptive management measures are required by USACE as part of its approval of the Project, such measures would be required as special conditions of the Department of the Army (DA) Section 10/404 permit and would be listed in the permit, if one is issued. Implementation of specific measures contained in either Plan, but not included in the Section 10/404 permit as special conditions, would not be required by USACE. USACE does not know whether any particular measure that is not a DA permit condition would be implemented. Measures that USACE currently contemplates as conditions of a DA Section 10/404 permit, if one is issued, are provided in Chapter 4, Section 4.27 Mitigation Summary of the EIS.

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**Concern ID: 62846**

**Adaptively managing the Project to support oyster culture would be infeasible, as doing so would require maintaining current salinity patterns.**

**Response ID: 16666**

CPRA's Monitoring and Adaptive Management (MAM) Plan (Appendix R2 to the Draft EIS) outlines a monitoring process for salinities in the

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basin after Project operations commence. As explained in the MAM Plan, information from salinity monitoring would be used to inform potential relocation of seed grounds to more environmentally suitable areas within the basin or the establishment of broodstock reefs to address larval supply.

The Mitigation and Stewardship Plan and the MAM Plan provided in Draft EIS Appendix R were submitted by CPRA and represent a range of potential mitigation, stewardship, monitoring and adaptive management measures (collectively, measures). At the time of publication of the Draft EIS for public review, Appendix R contained draft Plans and CPRA had not identified which of the measures contained in those Plans it intended to implement. The Final EIS Appendix R contains the final Plans and specifies which measures CPRA and the LA TIG intend to implement. Generally, impact determinations discussed in the EIS represent anticipated Project effects without implementation of these measures except in instances where such measures are identified in the discussion. If any mitigation, monitoring or adaptive management measures are required by USACE as part of its approval of the Project, such measures would be required as special conditions of the Department of the Army (DA) Section 10/404 permit and would be listed in the permit, if one is issued. Implementation of specific measures contained in either Plan, but not included in the Section 10/404 permit as special conditions, would not be required by USACE. USACE does not know whether any particular measure that is not a DA permit condition would be implemented. Measures that USACE currently contemplates as conditions of a DA Section 10/404 permit, if one is issued, are provided in Chapter 4, Section 4.27 Mitigation Summary of the EIS.

The LA TIG explains in Section 1.5 of the Final Restoration Plan that it anticipates requiring implementation of the Mitigation and Stewardship Plan, MAM Plan, and Marine Mammal Intervention Plan as components of the proposed Project, if the Project is approved by the LA TIG for funding. Decisions regarding which measures would be required as part of the LA TIG's funding decision would be set forth in the LA TIG Record of Decision related to the proposed Project.

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**Concern ID: 62861**

**Outfall management techniques should be fully evaluated to help redirect diverted waters away from oyster production areas, or other sensitive areas, where feasible. These techniques could be utilized as part of a comprehensive adaptive management plan that may reduce impacts, including the introduction of invasive species, on seafood species.**

**Response ID: 16670**

Based on analyses included in the Coastal Master Plan, the size and scope of ridges necessary to isolate areas in the basin from fresh water

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would make this solution infeasible. No related edits have been made to the Final EIS.

CPRA's Monitoring and Adaptive Management (MAM) Plan (Appendix R2 to the EIS) outlines a monitoring process for salinities in the basin that CPRA would implement after operations commence. The salinity information would inform potential relocation of seed grounds to more environmentally suitable areas within the basin or the establishment of broodstock reefs in environmentally suitable areas to address larval supply. The Mitigation and Stewardship Plan (Appendix R1 to the EIS) includes oyster mitigation and stewardship measures totaling \$32 million. Table 4.27-2 in Section 4.27 (Mitigation Summary) identifies which of these oyster mitigation and stewardship measures are specific to the proposed Project and which are augmentation of existing or proposed programs.

The Mitigation and Stewardship Plan and the MAM Plan provided in Draft EIS Appendix R were submitted by CPRA and represent a range of potential mitigation, stewardship, monitoring and adaptive management measures (collectively, measures). At the time of publication of the Draft EIS for public review, Appendix R contained draft Plans and CPRA had not identified which of the measures contained in those Plans it intended to implement. The Final EIS Appendix R contains the final Plans and specifies which measures CPRA and the LA TIG intend to implement. Generally, impact determinations discussed in the EIS represent anticipated Project effects without implementation of these measures except in instances where such measures are identified in the discussion. If any mitigation, monitoring or adaptive management measures are required by USACE as part of its approval of the Project, such measures would be required as special conditions of the Department of the Army (DA) Section 10/404 permit and would be listed in the permit, if one is issued. Implementation of specific measures contained in either Plan, but not included in the Section 10/404 permit as special conditions, would not be required by USACE. USACE does not know whether any particular measure that is not a DA permit condition would be implemented. Measures that USACE currently contemplates as conditions of a DA Section 10/404 permit, if one is issued, are provided in Chapter 4, Section 4.27 Mitigation Summary of the EIS.

The LA TIG explains in Section 1.5 of the Final Restoration Plan that it anticipates requiring implementation of the Mitigation and Stewardship Plan, MAM Plan, and Marine Mammal Intervention Plan as components of the proposed Project, if the Project is approved by the LA TIG for funding. Decisions regarding which measures would be required as part of the LA TIG's funding decision would be set forth in the LA TIG Record of Decision related to the proposed Project.

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<b>Concern ID: 62863</b>	<b>Combining the LA TIG Restoration Plan review with the Draft EIS, Mitigation and Stewardship Plan and MAM Plan review has created confusion. For example, having two versions of the Mitigation and Stewardship Plan and MAM Plan with different appendix numbers makes it difficult to cite the appropriate documents.</b>
<b>Response ID: 16672</b>	<p>Commenters' concern that the combined public review for the USACE Draft EIS and the LA TIG Restoration Plan may have caused confusion for some readers is noted.</p> <p>The LA TIG wanted to ensure that the Restoration Plan contained all information relevant to Trustee decision-making and thus included two documents in the LA TIG's Restoration Plan that were also appended to the EIS. All comments on the Monitoring and Adaptive Management (MAM) Plan and Mitigation and Stewardship Plan have been reviewed by both USACE and the LA TIG and have been responded to, whether commenters referred to Appendices in the Draft EIS or Draft Restoration Plan.</p>
<b>Concern ID: 62864</b>	<b>There is significant confusion about funds available for mitigation versus monitoring and adaptive management. The EIS should clarify how much funding will be available for each.</b>
<b>Response ID: 16673</b>	<p>Details regarding the funding that will be available for aquatic/fisheries mitigation and stewardship measures is set forth in the Final Mitigation and Stewardship Plan, Appendix R1. Details regarding other mitigation and stewardship measures (e.g., mitigation for tidal flooding impacts) is also set forth in the Final Mitigation and Stewardship Plan, Appendix R1; however, final estimated costs for those measures continues under development. CPRA has stated that the total estimated cost of all mitigation and stewardship measures set forth in the Final Mitigation and Stewardship Plan exceeds \$300 million dollars. Details regarding the cost for the monitoring and adaptive management are set forth in Section 9 of the Final MAM Plan, Appendix R2. Section 3.2.1.2 of the Draft Restoration Plan includes estimates of project costs, including the cost for project design and construction and project monitoring. Updated cost estimates will be provided as part of the Final Restoration Plan, including project monitoring and stewardship measures.</p> <p>The Mitigation and Stewardship Plan and the MAM Plan provided in Draft EIS Appendix R were submitted by CPRA and represent a range of potential mitigation, stewardship, monitoring and adaptive management measures (collectively, measures). At the time of publication of the Draft EIS for public review, Appendix R contained draft Plans and CPRA had not identified which of the measures contained in those Plans it intended to implement. The Final EIS Appendix R contains the final Plans and specifies which measures CPRA and the LA TIG intend to implement. Generally, impact determinations discussed in the EIS represent anticipated Project</p>

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The LA TIG explains in Section 1.5 of the Final Restoration Plan that it anticipates requiring implementation of the Mitigation and Stewardship Plan, MAM Plan, and Marine Mammal Intervention Plan as components of the proposed Project, if the Project is approved by the LA TIG for funding. Decisions regarding which measures would be required as part of the LA TIG's funding decision would be set forth in the LA TIG Record of Decision related to the proposed Project.

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**Concern ID: 62865**

**Such a transformative project will require a robust program of monitoring, which will not only support the proposed Project, but also will support the evaluation of future diversions that are anticipated in the Coastal Master Plan.**

**Response ID: 16674**

The robust monitoring raised by the commenters was considered by CPRA and the LA TIG in the Monitoring and Adaptive Management (MAM) Plan included in the Draft EIS (Appendix R2). CPRA's MAM Plan included with the Final EIS (Appendix R2) provides additional detail on the substantial monitoring CPRA would undertake as part of Project implementation. The MAM Plan identifies monitoring needs and the key performance measures associated with each objective that would be used to evaluate progress toward meeting the Project's restoration objectives and to inform CPRA's adaptive management decisions.

The Mitigation and Stewardship Plan and the MAM Plan provided in Draft EIS Appendix R were submitted by CPRA and represent a range of potential mitigation, stewardship, monitoring and adaptive management measures (collectively, measures). At the time of publication of the Draft EIS for public review, Appendix R contained draft Plans and CPRA had not identified which of the measures contained in those Plans it intended to implement. The Final EIS Appendix R contains the final Plans and specifies which measures CPRA and the LA TIG intend to implement. Generally, impact determinations discussed in the EIS represent anticipated Project

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The LA TIG explains in Section 1.5 of the Final Restoration Plan that it anticipates requiring implementation of the Mitigation and Stewardship Plan, MAM Plan, and Marine Mammal Intervention Plan as components of the proposed Project, if the Project is approved by the LA TIG for funding. Decisions regarding which measures would be required as part of the LA TIG's funding decision would be set forth in the LA TIG Record of Decision related to the proposed Project.

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**Concern ID: 62867**

**The Final EIS should not be published unless there are commitments to monitor the following parameters at the diversion site or in Barataria Bay: Project operations, the flow and quality of the water flowing through the diversion, wetland type coverage over time, water surface elevation, water quality in the basin, salinity, contaminant concentrations in diverted sediments, fish and shellfish abundance, oyster reef parameters, benthic community composition and abundance, SAV coverage, finfish and oyster contaminant concentrations, and shellfish harvest restrictions. These same data should also be collected in two reference basins.**

**Response ID: 16676**

Basin-side monitoring of water surface elevation, water quality in the basin, salinity, fish and shellfish abundance, and benthic community composition and abundance to evaluate how the Project is meeting Project objectives were included in the Monitoring and Adaptive Management (MAM) Plan of the Draft EIS (Appendix R2). Riverside monitoring parameters include river discharge, suspended sediment concentrations, nutrient concentrations in water conveyed to the Barataria Basin, sedimentology of the Alliance South sand bar, and Mississippi River sediment load were also included in the MAM Plan of the Draft EIS. Additionally, in the Fish and Wildlife Coordination Act Report (CAR) section of Chapter 5 (Consultation and Coordination) of the Draft EIS, CPRA accepted USFWS' recommendation on pre- and post-construction periodic sampling of Contaminants of Concern in fish, shellfish, and wildlife from the outfall area and the Mississippi River

(see Section 3.7.3.23 of the MAM Plan [Appendix R2 to the EIS]). Therefore, no changes were made in the Final EIS on these issues. The Louisiana Department of Health will continue to monitor shellfish harvest restrictions. Additionally, the majority of the parameters above are collected via the State's System Wide Assessment and Monitoring Program that will allow comparison of the Project variables within and among other estuarine basins across the Louisiana coast.

The Mitigation and Stewardship Plan and the MAM Plan provided in Draft EIS Appendix R were submitted by CPRA and represent a range of potential mitigation, stewardship, monitoring and adaptive management measures (collectively, measures). At the time of publication of the Draft EIS for public review, Appendix R contained draft Plans and CPRA had not identified which of the measures contained in those Plans it intended to implement. The Final EIS Appendix R contains the final Plans and specifies which measures CPRA and the LA TIG intend to implement. Generally, impact determinations discussed in the EIS represent anticipated Project effects without implementation of these measures except in instances where such measures are identified in the discussion. If any mitigation, monitoring or adaptive management measures are required by USACE as part of its approval of the Project, such measures would be required as special conditions of the Department of the Army (DA) Section 10/404 permit and would be listed in the permit, if one is issued. Implementation of specific measures contained in either Plan, but not included in the Section 10/404 permit as special conditions, would not be required by USACE. USACE does not know whether any particular measure that is not a DA permit condition would be implemented. Measures that USACE currently contemplates as conditions of a DA Section 10/404 permit, if one is issued, are provided in Chapter 4, Section 4.27 Mitigation Summary of the EIS.

The LA TIG explains in Section 1.5 of the Final Restoration Plan that it anticipates requiring implementation of the Mitigation and Stewardship Plan, MAM Plan, and Marine Mammal Intervention Plan as components of the proposed Project, if the Project is approved by the LA TIG for funding. Decisions regarding which measures would be required as part of the LA TIG's funding decision would be set forth in the LA TIG Record of Decision related to the proposed Project.

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**Concern ID: 62870**

**Although the EIS references studies that support high site fidelity in the Barataria Stock of bottlenose dolphins, no comprehensive or comparable studies on-site fidelity have been conducted with adjacent stocks including Mississippi River Delta and Mississippi Sound (MSS) stocks. The proposed Project should include routine, standardized, line transect, capture-mark-recapture surveys of bottlenose dolphins, as well as genetic sampling and tagging efforts, in Lake Borgne, Bay Boudreau and Bay Saint**

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**Louis regions. In addition, MSS stocks could experience additional pressure due to displacement or change in prey or movement of bottlenose dolphins from the proposed Project. Therefore, the MSS stock needs to be monitored before and after the Project, with a particular focus on Lake Borgne and Bay Boudreau Region dolphins.**

**Response ID: 16678**

The Draft EIS considered the issue raised by commenters in Chapter 4, Section 4.11.5.3 (Operational Impacts - Other Dolphin Stocks Considered), finding it is unlikely the Mississippi River Delta (MRD) stock would be impacted by the proposed Project, either directly from low salinity or other environmental effects (for example, temperature). Hence, the Project would not be expected to impact dolphins or their prey inhabiting those waters. It is not anticipated that dolphins in the Barataria Basin would relocate to the MRD stock area or beyond; therefore, no impact on other Louisiana stocks is anticipated. Therefore, no changes were made to the Final EIS on MRD stock monitoring.

Studies such as the ones suggested by the commenter, including aerial line transect surveys designed to better understand the population structure (for example, abundance, distribution, and density) of the Mississippi Sound, Lake Borgne, and Bay Boudreau dolphin stocks east of the Mississippi River, are being integrated into the permitting and environmental analysis efforts associated with CPRA's proposed Mid-Breton Sediment Diversion Project, currently under USACE permit review through a separate EIS process.

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**Concern ID: 62874**

**CPRA should monitor sediment flow through the diversion annually, particularly in the first, more critical decade of operation. This will help determine whether the goals of the Project can be achieved with more efficient use of water flow in following years.**

**Response ID: 16681**

The sediment monitoring issues raised by the commenter were considered in Table 4.1-1 of the Monitoring and Adaptive Management (MAM) Plan (Appendix R2 to the Draft EIS); therefore, no changes were made to the Final EIS on sediment monitoring. This included monitoring the sediment-to-water ratio in the flows conveyed into Barataria Basin as well as the sediment volume conveyed into Barataria Basin. As noted in the MAM Plan, these parameters would be monitored each year for the life of the Project, including the first decade of Project operation. The sediment-to-water ratio would be evaluated biweekly during operational events and quarterly during base flows. For more information, refer to of the MAM Plan (Appendix R2 to the EIS).

The Mitigation and Stewardship Plan and the MAM Plan provided in Draft EIS Appendix R were submitted by CPRA and represent a range of potential mitigation, stewardship, monitoring and adaptive management measures (collectively, measures). At the time of



publication of the Draft EIS for public review, Appendix R contained draft Plans and CPRA had not identified which of the measures contained in those Plans it intended to implement. The Final EIS Appendix R contains the final Plans and specifies which measures CPRA and the LA TIG intend to implement. Generally, impact determinations discussed in the EIS represent anticipated Project effects without implementation of these measures except in instances where such measures are identified in the discussion. If any mitigation, monitoring or adaptive management measures are required by USACE as part of its approval of the Project, such measures would be required as special conditions of the Department of the Army (DA) Section 10/404 permit and would be listed in the permit, if one is issued. Implementation of specific measures contained in either Plan, but not included in the Section 10/404 permit as special conditions, would not be required by USACE. USACE does not know whether any particular measure that is not a DA permit condition would be implemented. Measures that USACE currently contemplates as conditions of a DA Section 10/404 permit, if one is issued, are provided in Chapter 4, Section 4.27 Mitigation Summary of the EIS.

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**Concern ID: 62875**

**CPRA should ensure systematic monitoring of algal blooms and their impacts in the basin, both before and after Project operation.**

**Response ID: 16682**

Sections 3.7.3.9-3.7.3.11 (Chlorophyll A, Phytoplankton Species Composition [including Harmful Cyanobacterial/Algal Bloom Species], and Harmful Cyanobacterial/Algal Bloom Toxins, respectively) in the Monitoring and Adaptive Management (MAM) Plan (Appendix R2 to the Draft EIS) have been revised. Proposed monitoring includes both pre-construction and post-construction monitoring for the potential development of phytoplankton blooms raised by the commenter. Chlorophyll A would be monitored hourly at in situ gages and daily through remote sensing. Additionally, all three parameters will be monitored monthly, with additional discrete sampling events dependent on observations, systematically using in situ sondes and/or remote sensing, with results determining when phytoplankton sampling would occur and, in turn, when sampling for harmful algal bloom toxins should occur.

The Mitigation and Stewardship Plan and the MAM Plan provided in Draft EIS Appendix R were submitted by CPRA and represent a range

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of potential mitigation, stewardship, monitoring and adaptive management measures (collectively, measures). At the time of publication of the Draft EIS for public review, Appendix R contained draft Plans and CPRA had not identified which of the measures contained in those Plans it intended to implement. The Final EIS Appendix R contains the final Plans and specifies which measures CPRA and the LA TIG intend to implement. Generally, impact determinations discussed in the EIS represent anticipated Project effects without implementation of these measures except in instances where such measures are identified in the discussion. If any mitigation, monitoring or adaptive management measures are required by USACE as part of its approval of the Project, such measures would be required as special conditions of the Department of the Army (DA) Section 10/404 permit and would be listed in the permit, if one is issued. Implementation of specific measures contained in either Plan, but not included in the Section 10/404 permit as special conditions, would not be required by USACE. USACE does not know whether any particular measure that is not a DA permit condition would be implemented. Measures that USACE currently contemplates as conditions of a DA Section 10/404 permit, if one is issued, are provided in Chapter 4, Section 4.27 Mitigation Summary of the EIS.

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**Concern ID: 63311**

**No amount of adaptive management will ensure the continued support of oyster culture in the Barataria Basin.**

**Response ID: 16684**

The Draft EIS discussed anticipated impacts to oyster fisheries in Section 4.14.4.2 (Operational Impacts, Applicant's Preferred Alternative, Eastern Oyster Fishery) in Commercial Fisheries and found that the proposed Project would have major, permanent, adverse impacts on Eastern oyster fisheries in the Project area.

The concerns expressed by the commenter were considered by CPRA and the LA TIG in preparing the Monitoring and Adaptive Management (MAM) Plan (Appendix R2 to the Draft EIS). LA TIG acknowledges that operation of the Project would likely reduce oyster abundance in the Barataria Basin (see Section 4.14.4.2 [Commercial Fisheries - Operational Impacts] of the Final EIS). However, specific MAM and mitigation activities have been proposed to understand and mitigate impacts to oyster production. As described in the MAM Plan (Appendix R2 to the Final EIS), if the data collected through MAM activities

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suggests that sustaining oyster populations in the basin is no longer viable, the CPRA would implement some of the actions outlined in the Mitigation and Stewardship Plan (Appendix R1 to the Final EIS), such as the relocation of seed grounds to more environmentally suitable areas or the establishment of broodstock reefs to address larval supply, in areas outside of Barataria Basin. The Mitigation and Stewardship Plan (Appendix R1 to the EIS) includes additional oyster mitigation and stewardship measures totaling \$32 million. Table 4.27-2 in Section 4.27 (Mitigation Summary) shows which of these oyster mitigation and stewardship measures are new and which are augmentation of existing or proposed programs.

The Mitigation and Stewardship Plan and the MAM Plan provided in Draft EIS Appendix R were submitted by CPRA and represent a range of potential mitigation, stewardship, monitoring and adaptive management measures (collectively, measures). At the time of publication of the Draft EIS for public review, Appendix R contained draft Plans and CPRA had not identified which of the measures contained in those Plans it intended to implement. The Final EIS Appendix R contains the final Plans and specifies which measures CPRA and the LA TIG intend to implement. Generally, impact determinations discussed in the EIS represent anticipated Project effects without implementation of these measures except in instances where such measures are identified in the discussion. If any mitigation, monitoring or adaptive management measures are required by USACE as part of its approval of the Project, such measures would be required as special conditions of the Department of the Army (DA) Section 10/404 permit and would be listed in the permit, if one is issued. Implementation of specific measures contained in either Plan, but not included in the Section 10/404 permit as special conditions, would not be required by USACE. USACE does not know whether any particular measure that is not a DA permit condition would be implemented. Measures that USACE currently contemplates as conditions of a DA Section 10/404 permit, if one is issued, are provided in Chapter 4, Section 4.27 Mitigation Summary of the EIS.

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**Concern ID: 63775**

**The MAM Plan should develop an information dashboard or clearinghouse where the basin-wide data can be kept and**

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**Response ID: 16686**

**accessed, would be useful to the public as well as diversion operators, state agencies, researchers, and other stakeholders.**

In response to public comments, CPRA would develop a web-based informational dashboard that would make operational information available to the public through the internet in real time. This dashboard would allow CPRA to continue to keep stakeholders informed about Project progress, timing, construction, and operation.

This dashboard has been added to the Monitoring and Adaptive Management (MAM) Plan included in the Final EIS (Appendix R2).

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**Concern ID: 63777**

**CPRA should coordinate with not only USFWS, NMFS, and other resource agencies, but also other science, policy-based and community stakeholders, to ensure a broader discussion of management impacts and options.**

**Response ID: 16687**

CPRA and the LA TIG considered the commenters concern in developing the Monitoring and Adaptive Management (MAM) Plan (Appendix R2 to the EIS). The MAM Plan includes input from key stakeholders (see Section 2.2.2.2 [Stakeholder Review Panel]) and transparent decision making (see Section 6.4 [Data Sharing] and Section 7 [Reporting]). The MAM Plan included in the Final EIS (Appendix R2) has been revised in response to public comments. In addition, in response to public comments, CPRA would develop a web-based informational dashboard that would make operational information available to the public through the internet in real time. This dashboard would allow CPRA to continue to keep stakeholders informed about Project progress, timing, construction, and operation.

With specific regard to the inclusion of scientific expertise, in addition to the expertise within CPRA, the governance provisions of the MAM Plan call for establishing a Technical Focus Group/Peer Review Group with subject matter expertise to provide technical support on long-term Project planning, assist in the evaluation and interpretation of monitoring data and evaluate the state of the science concerning adaptive management. See Section 2.2.2.3 (Technical Focus Group(s)/Peer Review) of the MAM Plan (Appendix R2 to the Final EIS).

The Mitigation and Stewardship Plan and the Monitoring and Adaptive Management (MAM) Plan provided in Draft EIS Appendix R were submitted by CPRA and represent a range of potential mitigation, stewardship, monitoring and adaptive management measures (collectively, measures). At the time of publication of the Draft EIS for public review, Appendix R contained draft Plans and CPRA had not identified which of the measures contained in those Plans it intended to implement. The Final EIS Appendix R contains the final Plans and specifies which measures CPRA and the LA TIG intend to implement.

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Generally, impact determinations discussed in the EIS represent anticipated Project effects without implementation of these measures except in instances where such measures are identified in the discussion. If any mitigation, monitoring or adaptive management measures are required by USACE as part of its approval of the Project, such measures would be required as special conditions of the Department of the Army (DA) Section 10/404 permit and would be listed in the permit, if one is issued. Implementation of specific measures contained in either Plan, but not included in the Section 10/404 permit as special conditions, would not be required by USACE. USACE does not know whether any particular measure that is not a DA permit condition would be implemented. Measures that USACE currently contemplates as conditions of a DA Section 10/404 permit, if one is issued, are provided in Chapter 4, Section 4.27 Mitigation Summary of the EIS.

The LA TIG explains in Section 1.5 of the Final Restoration Plan that it anticipates requiring implementation of the Mitigation and Stewardship Plan, MAM Plan, and Marine Mammal Intervention Plan as components of the proposed Project, if the Project is approved by the LA TIG for funding. Decisions regarding which measures would be required as part of the LA TIG's funding decision would be set forth in the LA TIG Record of Decision related to the proposed Project.

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**Concern ID: 63834****The Mitigation Plan should include sufficient resources to address invasive aquatic plants in the area of influence.****Response ID: 16691**

The invasive aquatic plant issue raised by the commenter was considered in CPRA's Monitoring and Adaptive Management (MAM) Plan included with the Draft EIS (Appendix R2), which included monitoring for flora and fauna including potential increases in invasive species. Observed increases would then be addressed through the adaptive management structure within the MAM Plan. No related changes were made to the MAM Plan included in the Final EIS (see Appendix R2).

The Mitigation and Stewardship Plan and the MAM Plan provided in Draft EIS Appendix R were submitted by CPRA and represent a range of potential mitigation, stewardship, monitoring and adaptive management measures (collectively, measures). At the time of publication of the Draft EIS for public review, Appendix R contained draft Plans and CPRA had not identified which of the measures contained in those Plans it intended to implement. The Final EIS Appendix R contains the final Plans and specifies which measures CPRA and the LA TIG intend to implement. Generally, impact determinations discussed in the EIS represent anticipated Project effects without implementation of these measures except in instances where such measures are identified in the discussion. If any mitigation,

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monitoring or adaptive management measures are required by USACE as part of its approval of the Project, such measures would be required as special conditions of the Department of the Army (DA) Section 10/404 permit and would be listed in the permit, if one is issued. Implementation of specific measures contained in either Plan, but not included in the Section 10/404 permit as special conditions, would not be required by USACE. USACE does not know whether any particular measure that is not a DA permit condition would be implemented. Measures that USACE currently contemplates as conditions of a DA Section 10/404 permit, if one is issued, are provided in Chapter 4, Section 4.27 Mitigation Summary of the EIS.

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**Concern ID: 62801**

**State and federal decision makers should commit to developing a robust adaptive management program utilizing the best available science and that incorporates knowledge gained from monitoring the Project over time and also considers input from key stakeholders. The adaptive management program should engage affected communities in developing adaptation ideas, use protocols for transparent decision making regarding Project operations, and provide accessible communication regarding how Project operation decisions are changing the environment.**

**Response ID: 16658**

The issues raised by the commenters were considered in the Monitoring and Adaptive Management (MAM) Plan, which was issued with the Draft EIS (Appendix R2) and jointly developed by CPRA and its LA TIG federal partners based on best information available to them. The MAM Plan includes many of the specific provisions requested by the commenter, including input from key stakeholders (see Section 2.2.2.2 [Stakeholder Review Panel]) and transparent decision making (see Section 6.4 [Data Sharing] and Section 7 [Reporting]).

In addition, in response to public comments, CPRA intends to develop a web-based informational dashboard that would make operational information available to the public through the internet in real time. This dashboard would allow CPRA to continue to keep stakeholders informed about Project progress, timing, construction, and operation.

The Mitigation and Stewardship Plan and the MAM Plan provided in Draft EIS Appendix R were submitted by CPRA and represent a range of potential mitigation, stewardship, monitoring and adaptive management measures (collectively, measures). At the time of

publication of the Draft EIS for public review, Appendix R contained draft Plans and CPRA had not identified which of the measures contained in those Plans it intended to implement. The Final EIS Appendix R contains the final Plans and specifies which measures CPRA and the LA TIG intend to implement. Generally, impact determinations discussed in the EIS represent anticipated Project effects without implementation of these measures except in instances where such measures are identified in the discussion. If any mitigation, monitoring or adaptive management measures are required by USACE as part of its approval of the Project, such measures would be required as special conditions of the Department of the Army (DA) Section 10/404 permit and would be listed in the permit, if one is issued. Implementation of specific measures contained in either Plan, but not included in the Section 10/404 permit as special conditions, would not be required by USACE. USACE does not know whether any particular measure that is not a DA permit condition would be implemented. Measures that USACE currently contemplates as conditions of a DA Section 10/404 permit, if one is issued, are provided in Chapter 4, Section 4.27 Mitigation Summary of the EIS.

The LA TIG explains in Section 1.5 of the Final Restoration Plan that it anticipates requiring implementation of the Mitigation and Stewardship Plan, MAM Plan, and Marine Mammal Intervention Plan as components of the proposed Project, if the Project is approved by the LA TIG for funding. Decisions regarding which measures would be required as part of the LA TIG's funding decision would be set forth in the LA TIG Record of Decision related to the proposed Project.

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**Concern ID: 62838**

**Near-term, long term, and real-time monitoring in the Barataria Basin will be essential to the operation of the diversion as well as to public communication about the performance, over space and time, of the diversion and its area of influence. Governance and decision making for the Project should be a science-based, inclusive, and transparent process with genuine engagement and input from external experts and community stakeholders.**

**Response ID: 16665**

According to the LA TIG, the monitoring issues raised by the commenter were considered in CPRA's Monitoring and Adaptive Management (MAM) Plan (Appendix R2 to the Draft EIS), which was jointly developed by CPRA and its LA TIG federal partners based on best information available to them. The MAM Plan included input from key stakeholders (see Section 2.2.2.2 [Stakeholder Review Panel]) and transparent decision making (see Section 6.4 [Data Sharing] and Section 7 [Reporting]). In response to public comments, CPRA would develop a web-based informational dashboard that would make operational information available to the public through the internet in real time. This dashboard would allow CPRA to continue to keep

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stakeholders informed about Project progress, timing, construction, and operation.

With specific regard to the inclusion of scientific expertise, in addition to the expertise within CPRA, the governance provisions of the MAM Plan call for establishing a Technical Focus Group/Peer Review Group with subject matter expertise to provide technical support on long-term Project planning, assist in the evaluation and interpretation of monitoring data, and evaluate the state of the science concerning adaptive management. See Section 2.2.2.3 (Technical Focus Group(s)/Peer Review) of the MAM Plan (Appendix R2 to the Final EIS).

The Mitigation and Stewardship Plan and the MAM Plan provided in Draft EIS Appendix R were submitted by CPRA and represent a range of potential mitigation, stewardship, monitoring and adaptive management measures (collectively, measures). At the time of publication of the Draft EIS for public review, Appendix R contained draft Plans and CPRA had not identified which of the measures contained in those Plans it intended to implement. The Final EIS Appendix R contains the final Plans and specifies which measures CPRA and the LA TIG intend to implement. Generally, impact determinations discussed in the EIS represent anticipated Project effects without implementation of these measures except in instances where such measures are identified in the discussion. If any mitigation, monitoring or adaptive management measures are required by USACE as part of its approval of the Project, such measures would be required as special conditions of the Department of the Army (DA) Section 10/404 permit and would be listed in the permit, if one is issued. Implementation of specific measures contained in either Plan, but not included in the Section 10/404 permit as special conditions, would not be required by USACE. USACE does not know whether any particular measure that is not a DA permit condition would be implemented. Measures that USACE currently contemplates as conditions of a DA Section 10/404 permit, if one is issued, are provided in Chapter 4, Section 4.27 Mitigation Summary of the EIS.

The LA TIG explains in Section 1.5 of the Final Restoration Plan that it anticipates requiring implementation of the Mitigation and Stewardship Plan, MAM Plan, and Marine Mammal Intervention Plan as components of the proposed Project, if the Project is approved by the LA TIG for funding. Decisions regarding which measures would be required as part of the LA TIG's funding decision would be set forth in the LA TIG Record of Decision related to the proposed Project.

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**Concern ID: 62857**

**The complexity of the proposed Project, and the multitude of uncertainties that have been identified while estimating its benefits and impacts, demonstrates the importance for real-time**



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**monitoring protocols in the adaptive management program to reduce uncertainties over time.****Response ID: 16667**

According to the LA TIG, the monitoring measures raised by the commenters were considered in CPRA's Monitoring and Adaptive Management (MAM) Plan (Appendix R2 to the Draft EIS). Monitoring, including collection of real-time data, is essential for increasing the likelihood of achieving desired Project outcomes given the uncertainties inherent to predicting the Project's effects. For example, post-construction, hydrographic station readings in the Mississippi River would be posted in real time and accessible from remote networks to enable forecasting water and sediment arrival. Along the gradient from the Mississippi River through the diversion and into the basin, CPRA is planning for the use of real-time data for key hydrographic variables (turbidity, stage, velocity, and water quality). As CPRA's plan to perform real-time monitoring was included in the Draft EIS, no changes have been made in the Final EIS in response to this comment. See CPRA's MAM Plan (Appendix R2 to the EIS) for additional details regarding the monitoring efforts planned in anticipation of and during Project operations.

The Mitigation and Stewardship Plan and the MAM Plan provided in Draft EIS Appendix R were submitted by CPRA and represent a range of potential mitigation, stewardship, monitoring and adaptive management measures (collectively, measures). At the time of publication of the Draft EIS for public review, Appendix R contained draft Plans and CPRA had not identified which of the measures contained in those Plans it intended to implement. The Final EIS Appendix R contains the final Plans and specifies which measures CPRA and the LA TIG intend to implement. Generally, impact determinations discussed in the EIS represent anticipated Project effects without implementation of these measures except in instances where such measures are identified in the discussion. If any mitigation, monitoring or adaptive management measures are required by USACE as part of its approval of the Project, such measures would be required as special conditions of the Department of the Army (DA) Section 10/404 permit and would be listed in the permit, if one is issued. Implementation of specific measures contained in either Plan, but not included in the Section 10/404 permit as special conditions, would not be required by USACE. USACE does not know whether any particular measure that is not a DA permit condition would be implemented. Measures that USACE currently contemplates as conditions of a DA Section 10/404 permit, if one is issued, are provided in Chapter 4, Section 4.27 Mitigation Summary of the EIS.

The LA TIG explains in Section 1.5 of the Final Restoration Plan that it anticipates requiring implementation of the Mitigation and Stewardship Plan, MAM Plan, and Marine Mammal Intervention Plan as components

of the proposed Project, if the Project is approved by the LA TIG for funding. Decisions regarding which measures would be required as part of the LA TIG's funding decision would be set forth in the LA TIG Record of Decision related to the proposed Project.

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**Concern ID: 62862**

**Taking advantage of operational changes authorized in WRDA 2007, Davis Pond should be used as an adaptive management tool to achieve a gradual transition to lower estuarine salinities in the Barataria Basin. During the transition, the response of estuarine organisms, including brown shrimp, oysters and bottlenose dolphins could be monitored.**

**Response ID: 16671**

The Draft EIS did not consider using Davis Pond as an adaptive management tool. Based on the comparative size and location of the Davis Pond Freshwater Diversion relative to the Project, operational limitations on Davis Pond during low river flows and existing limitations on the flexibility of Davis Pond's operational regime, Davis Pond cannot effectively be used to ease the transition to a fresher estuary. In addition, increasing flows from Davis Pond in advance of commencement of Project operations could reduce the pre-construction time period available for fishers to continue their fishing activities while beginning to adapt to changes that occur once Project operations commence. Accordingly, no changes have been made to the Final EIS.

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**Concern ID: 62866**

**A commenter recommends that, if the MBSD Project goes forward, the LA TIG and CPRA work with NMFS to initiate the pre-operations sampling program for marine mammals in Barataria Bay by the end of 2021 to ensure a minimum five years of baseline information is collected on bottlenose dolphins and their prey species and habitat, prior to the implementation of the MBSD, as outlined in the MAM Plan.**

**Response ID: 16675**

The dolphin monitoring measures raised by commenters were considered in Section 6.3.6 (Public Interest Mitigation - Marine Mammals) of CPRA's Draft Mitigation and Stewardship Plan (Appendix R1 to the Draft EIS) and Section 3.7.3.19 (Atlantic Bottlenose Dolphins [Tursiops truncatus]) of the Monitoring and Adaptive Management (MAM) Plan (Appendix R2 to the Draft EIS). The revised MAM Plan included in Appendix R2 of the Final EIS describes proposed dolphin monitoring during the 5 years prior to operations. The LA TIG coordinated with NMFS in the development of these measures.

The Mitigation and Stewardship Plan and the MAM Plan provided in Draft EIS Appendix R were submitted by CPRA and represent a range of potential mitigation, stewardship, monitoring and adaptive management measures (collectively, measures). At the time of publication of the Draft EIS for public review, Appendix R contained draft Plans and CPRA had not identified which of the measures contained in those Plans it intended to implement. The Final EIS

Appendix R contains the final Plans and specifies which measures CPRA and the LA TIG intend to implement. Generally, impact determinations discussed in the EIS represent anticipated Project effects without implementation of these measures except in instances where such measures are identified in the discussion. If any mitigation, monitoring or adaptive management measures are required by USACE as part of its approval of the Project, such measures would be required as special conditions of the Department of the Army (DA) Section 10/404 permit and would be listed in the permit, if one is issued. Implementation of specific measures contained in either Plan, but not included in the Section 10/404 permit as special conditions, would not be required by USACE. USACE does not know whether any particular measure that is not a DA permit condition would be implemented. Measures that USACE currently contemplates as conditions of a DA Section 10/404 permit, if one is issued, are provided in Chapter 4, Section 4.27 Mitigation Summary of the EIS.

The LA TIG explains in Section 1.5 of the Final Restoration Plan that it anticipates requiring implementation of the Mitigation and Stewardship Plan, MAM Plan, and Marine Mammal Intervention Plan as components of the proposed Project, if the Project is approved by the LA TIG for funding. Decisions regarding which measures would be required as part of the LA TIG's funding decision would be set forth in the LA TIG Record of Decision related to the proposed Project.

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**Concern ID: 62876**

**Commenter supports the pre-operations sampling plan outlined for marine mammals in the Draft EIS Appendices R1 and R2 (Mitigation and Stewardship Plan, and MAM Plan), which include enhanced stranding response and investigations, capture-mark-recapture surveys, visual assessment surveys, health assessments, tagging, remote biopsy sampling, prey assessment, and collection of habitat data.**

**Response ID: 16683**

Appendix R2 (Monitoring and Adaptive Management [MAM] Plan) and Appendix R1 (Mitigation and Stewardship Plan) to the Draft EIS contained the information on marine mammal monitoring noted by the commenter. In addition, since the publication of the Draft EIS and the LA TIG's Draft Restoration Plan, the LA TIG has developed a new Marine Mammal Intervention (MMI) Plan to be implemented by CPRA to further respond to and recognize expressed public concerns about the potential impacts of the Project on marine mammals (see new Appendix R5 to the Final EIS). The MMI Plan outlines a spectrum of response actions ranging from recovery/relocation to no intervention to euthanasia. While the more severe actions (that is, euthanasia) may not offset the ultimate outcome of dolphin mortality associated with the Project, it can alleviate animal suffering. Where relocation is possible,

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the goal would be to release dolphins into more hospitable habitat where any health impacts would be minimized.

The Mitigation and Stewardship Plan and the MAM Plan provided in Draft EIS Appendix R were submitted by CPRA and represent a range of potential mitigation, stewardship, monitoring and adaptive management measures (collectively, measures). At the time of publication of the Draft EIS for public review, Appendix R contained draft Plans and CPRA had not identified which of the measures contained in those Plans it intended to implement. The Final EIS Appendix R contains the final Plans, including the additional Marine Mammal Intervention Plan, and specifies which measures CPRA and the LA TIG intend to implement. Generally, impact determinations discussed in the EIS represent anticipated Project effects without implementation of these measures except in instances where such measures are identified in the discussion. If any mitigation, monitoring or adaptive management measures are required by USACE as part of its approval of the Project, such measures would be required as special conditions of the Department of the Army (DA) Section 10/404 permit and would be listed in the permit, if one is issued. Implementation of specific measures contained in these Plans, but not included in the Section 10/404 permit as special conditions, would not be required by USACE. USACE does not know whether any particular measure that is not a DA permit condition would be implemented. Measures that USACE currently contemplates as conditions of a DA Section 10/404 permit, if one is issued, are provided in Chapter 4, Section 4.27 Mitigation Summary of the EIS.

The LA TIG explains in Section 1.5 of the Final Restoration Plan that it anticipates requiring implementation of the Mitigation and Stewardship Plan, MAM Plan, and Marine Mammal Intervention Plan as components of the proposed Project, if the Project is approved by the LA TIG for funding. Decisions regarding which measures would be required as part of the LA TIG's funding decision would be set forth in the LA TIG Record of Decision related to the proposed Project.

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**Concern ID: 63805**

**Water quality must be monitored throughout construction, implementation, and beyond in as near to real-time as possible.**

**Response ID: 16689**

The pre- and post-operations water quality monitoring noted by the commenter was considered in CPRA's Monitoring and Adaptive Management (MAM) Plan (Appendix R2 to the Draft EIS). CPRA would collect water quality data in real time from existing Coastwide Reference Monitoring System (CRMS), Louisiana Department of Environmental Quality (LDEQ), and United States Geological Survey (USGS) stations in the Barataria Basin (see Figures 3.7-5 and 3.7-6 in the MAM Plan for water quality sampling locations). The MAM Plan states that collected data will inform future Project management

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decisions aimed at improving Project effectiveness and limiting ecological and/or human impacts when possible. Therefore, no changes were made in the Final EIS on water quality monitoring.

The Mitigation and Stewardship Plan and the MAM Plan provided in Draft EIS Appendix R were submitted by CPRA and represent a range of potential mitigation, stewardship, monitoring and adaptive management measures (collectively, measures). At the time of publication of the Draft EIS for public review, Appendix R contained draft Plans and CPRA had not identified which of the measures contained in those Plans it intended to implement. The Final EIS Appendix R contains the final Plans and specifies which measures CPRA and the LA TIG intend to implement. Generally, impact determinations discussed in the EIS represent anticipated Project effects without implementation of these measures except in instances where such measures are identified in the discussion. If any mitigation, monitoring or adaptive management measures are required by USACE as part of its approval of the Project, such measures would be required as special conditions of the Department of the Army (DA) Section 10/404 permit and would be listed in the permit, if one is issued. Implementation of specific measures contained in either Plan, but not included in the Section 10/404 permit as special conditions, would not be required by USACE. USACE does not know whether any particular measure that is not a DA permit condition would be implemented. Measures that USACE currently contemplates as conditions of a DA Section 10/404 permit, if one is issued, are provided in Chapter 4, Section 4.27 Mitigation Summary of the EIS.

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**Concern ID: 63843**

**Nutrients in diverted water should be monitored and removed before reaching Barataria Basin.**

**Response ID: 16692**

The issue raised by the commenter on monitoring nutrients in diverted water was considered in the Monitoring and Adaptive Management (MAM) Plan included with the Draft EIS (Appendix R2); no changes were made in the MAM Plan in response to this comment. CPRA has proposed to measure Mississippi River nutrient concentrations on a biweekly basis during operational events (above baseflow), and quarterly during base flow conditions. This information will be used to calculate, in conjunction with measurement of the water volume conveyed into the Barataria Basin, the nutrient loads conveyed into the

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Barataria Basin. CPRA also proposes to measure nutrient levels in Barataria surface waters on a monthly basis.

Chapter 4, Section 4.6 (Wetland Resources and Waters of the U.S.) of the Draft EIS also discussed how wetlands created by the Project would likely absorb the additional nutrients diverted to the basin, thereby reducing the potential negative impacts of nutrients in Mississippi River water. In response to commenters' concerns, a discussion of the Gulf Hypoxia Action Plan has been added to Chapter 4, Section 4.25.5 (Cumulative Impacts - Surface Water and Sediment Quality) of the Final EIS.

The Mitigation and Stewardship Plan and the MAM Plan provided in Draft EIS Appendix R were submitted by CPRA and represent a range of potential mitigation, stewardship, monitoring and adaptive management measures (collectively, measures). At the time of publication of the Draft EIS for public review, Appendix R contained draft Plans and CPRA had not identified which of the measures contained in those Plans it intended to implement. The Final EIS Appendix R contains the final Plans and specifies which measures CPRA and the LA TIG intend to implement. Generally, impact determinations discussed in the EIS represent anticipated Project effects without implementation of these measures except in instances where such measures are identified in the discussion. If any mitigation, monitoring or adaptive management measures are required by USACE as part of its approval of the Project, such measures would be required as special conditions of the Department of the Army (DA) Section 10/404 permit and would be listed in the permit, if one is issued. Implementation of specific measures contained in either Plan, but not included in the Section 10/404 permit as special conditions, would not be required by USACE. USACE does not know whether any particular measure that is not a DA permit condition would be implemented. Measures that USACE currently contemplates as conditions of a DA Section 10/404 permit, if one is issued, are provided in Chapter 4, Section 4.27 Mitigation Summary of the EIS.

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**Concern ID: 63844**

**The MAM Plan should address increased nutrient levels and the potential for increased eutrophication in coastal bays.**



**Response ID: 16693**

Monitoring nutrients in diverted water was considered in CPRA's Monitoring and Adaptive Management (MAM) Plan included with the Draft EIS (Appendix R2).

Chapter 4, Sections 4.5.5.3 Nitrogen and 4.5.5.4 Phosphorus in Section 4.5 Surface Water and Sediment Quality of the Draft EIS discussed how wetlands created by the Project could absorb the additional nutrients diverted to the basin, thereby reducing the potential negative impacts within the Barataria Basin from nutrients introduced into the basin from Mississippi River water. Section 4.10.4.4 General Impacts on Habitat and the Environment, Applicant's Preferred Alternative, Nutrient Loading and Dissolved Oxygen of the Draft EIS discussed the potential for algal blooms and resulting dissolved oxygen levels due to nutrient loading in Barataria Basin waters and bays.

In response to commenters' concerns, a discussion of the Gulf Hypoxia Action Plan has been added to Chapter 4, Section 4.25.5 (Cumulative Impacts - Surface Water and Sediment Quality) of the Final EIS. This discussion includes the Nutrient Reduction Strategies developed by the 12 member states of the Hypoxia Task Force. Louisiana's Nutrient Reduction and Management Strategy has highlighted the important role that river diversions could play in reducing nutrient loads. The wetlands created by the diversion would take up nutrients, thus assisting in the reduction of impacts in the Gulf of Mexico from excess nutrients introduced through the Mississippi River water.

The Mitigation and Stewardship Plan and the MAM Plan provided in Draft EIS Appendix R were submitted by CPRA and represent a range of potential mitigation, stewardship, monitoring and adaptive management measures (collectively, measures). At the time of publication of the Draft EIS for public review, Appendix R contained draft Plans and CPRA had not identified which of the measures contained in those Plans it intended to implement. The Final EIS Appendix R contains the final Plans and specifies which measures CPRA and the LA TIG intend to implement. Generally, impact determinations discussed in the EIS represent anticipated Project effects without implementation of these measures except in instances where such measures are identified in the discussion. If any mitigation, monitoring or adaptive management measures are required by USACE as part of its approval of the Project, such measures would be required as special conditions of the Department of the Army (DA) Section 10/404 permit and would be listed in the permit, if one is issued. Implementation of specific measures contained in either Plan, but not included in the Section 10/404 permit as special conditions, would not be required by USACE. USACE does not know whether any particular measure that is not a DA permit condition would be implemented. Measures that USACE currently contemplates as conditions of a DA



Section 10/404 permit, if one is issued, are provided in Chapter 4, Section 4.27 Mitigation Summary of the EIS.

The LA TIG explains in Section 1.5 of the Final Restoration Plan that it anticipates requiring implementation of the Mitigation and Stewardship Plan, MAM Plan, and Marine Mammal Intervention Plan as components of the proposed Project, if the Project is approved by the LA TIG for funding. Decisions regarding which measures would be required as part of the LA TIG's funding decision would be set forth in the LA TIG Record of Decision related to the proposed Project.

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**Concern ID: 63970**

**A commenter, when commenting on the MAM Plan, expressed concern that just as the State of Louisiana is about to embark on a series of sediment diversions that will result in significant dolphins deaths, the State of Louisiana has pulled itself out of the stranding response business. While the commenter recognized that increased stranding response funding would be available through the Project, it is not clear to them to whom this funding will be given and thus how effectively the funding will be utilized. They are worried that most stranded dolphins in Barataria Bay would already be dead.**

**Response ID: 16694**

The LA TIG, in recognition of the need to improve stranding response in Louisiana, finalized Restoration Plan #5 in August of 2020, which included the use of non-MBSD Deepwater Horizon Natural Resource Damages funding for enhancement of the Louisiana Marine Mammal Stranding Network. NOAA is the lead implementing Trustee on this enhancement project and has assumed the stranding network coordination role in Louisiana. These enhancements would be extended through stranding network investments noted in the MBSD Mitigation and Stewardship Plan (Appendix R1 to the EIS). NOAA would lead implementation of stewardship measures for marine mammals including the continued enhancement of the stranding network. CPRA would lead any Project operational mitigation actions considered as part of the Monitoring and Adaptive Management (MAM) Plan, in consultation with NOAA.

The Mitigation and Stewardship Plan and the MAM Plan provided in Draft EIS Appendix R were submitted by CPRA and represent a range of potential mitigation, stewardship, monitoring and adaptive management measures (collectively, measures). At the time of publication of the Draft EIS for public review, Appendix R contained draft Plans and CPRA had not identified which of the measures contained in those Plans it intended to implement. The Final EIS Appendix R contains the final Plans and specifies which measures CPRA and the LA TIG intend to implement. Generally, impact determinations discussed in the EIS represent anticipated Project effects without implementation of these measures except in instances

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where such measures are identified in the discussion. If any mitigation, monitoring or adaptive management measures are required by USACE as part of its approval of the Project, such measures would be required as special conditions of the Department of the Army (DA) Section 10/404 permit and would be listed in the permit, if one is issued. Implementation of specific measures contained in either Plan, but not included in the Section 10/404 permit as special conditions, would not be required by USACE. USACE does not know whether any particular measure that is not a DA permit condition would be implemented. Measures that USACE currently contemplates as conditions of a DA Section 10/404 permit, if one is issued, are provided in Chapter 4, Section 4.27 Mitigation Summary of the EIS.

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**Concern ID: 63809**

**The Trustees must continue to invest in monitoring and research to measure the Project's success and better understand the changing environment, the diversion impacts to people, and to inform the robust adaptive management program that will inform decisions related to Project operations. An independent and multi-disciplinary science and technical advisory group - including physical scientists, ecologists, sociologists and other experts - should be established and engaged frequently to advise operation managers.**

**Response ID: 16690**

USACE is not a Trustee.

The LA TIG acknowledges the comment, and notes that, the robust monitoring and adaptive management measures raised by commenters were considered in the Monitoring and Adaptive Management (MAM) Plan (Appendix R2 to the Draft EIS). In particular, the MAM Plan establishes a technical advisory group (see Section 2.2.2.3 [Technical Focus Group(s)/Peer Review] of the MAM Plan). As a result, no changes have been made to the MAM Plan included with the Final EIS in response to this comment. If the LA TIG funds the Project, the LA TIG would also fund the MAM Plan.

The Mitigation and Stewardship Plan and the MAM Plan provided in Draft EIS Appendix R were submitted by CPRA and represent a range of potential mitigation, stewardship, monitoring and adaptive management measures (collectively, measures). At the time of publication of the Draft EIS for public review, Appendix R contained draft Plans and CPRA had not identified which of the measures

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**Concern ID: 62868**

**Sediment should be monitored for a broad suite of contaminants, including PAHs and mercury, near sites of active deposition.**

**Response ID: 16677**

The sediment monitoring recommendation raised by commenters was considered in Chapter 5, Section 5.3 (Fish and Wildlife Coordination Act Report Recommendations) of the Draft EIS, where CPRA agreed to the USFWS' recommendation to undertake pre- and post-construction periodic sampling of Contaminants of Concern in fish, shellfish, and wildlife from the outfall area and the Mississippi River (see also Section 3.7.3.23 of CPRA's Monitoring and Adaptive Management (MAM) Plan [Appendix R2 to the Draft EIS]). Because sediment sampling is likely to be highly variable spatially and temporally, the recommendation from the USFWS and CPRA's commitment to sample fish and shellfish would give a more integrated picture of any contaminant concerns.

The Mitigation and Stewardship Plan and the MAM Plan provided in Draft EIS Appendix R were submitted by CPRA and represent a range of potential mitigation, stewardship, monitoring and adaptive management measures (collectively, measures). At the time of publication of the Draft EIS for public review, Appendix R contained draft Plans and CPRA had not identified which of the measures contained in those Plans it intended to implement. The Final EIS

Appendix R contains the final Plans and specifies which measures CPRA and the LA TIG intend to implement. Generally, impact determinations discussed in the EIS represent anticipated Project effects without implementation of these measures except in instances where such measures are identified in the discussion. If any mitigation, monitoring or adaptive management measures are required by USACE as part of its approval of the Project, such measures would be required as special conditions of the Department of the Army (DA) Section 10/404 permit and would be listed in the permit, if one is issued. Implementation of specific measures contained in either Plan, but not included in the Section 10/404 permit as special conditions, would not be required by USACE. USACE does not know whether any particular measure that is not a DA permit condition would be implemented. Measures that USACE currently contemplates as conditions of a DA Section 10/404 permit, if one is issued, are provided in Chapter 4, Section 4.27 Mitigation Summary of the EIS.

The LA TIG explains in Section 1.5 of the Final Restoration Plan that it anticipates requiring implementation of the Mitigation and Stewardship Plan, MAM Plan, and Marine Mammal Intervention Plan as components of the proposed Project, if the Project is approved by the LA TIG for funding. Decisions regarding which measures would be required as part of the LA TIG's funding decision would be set forth in the LA TIG Record of Decision related to the proposed Project.

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**Concern ID: 63768**

**CPRA should work with local community and four-year colleges to prepare local graduates in project monitoring techniques. They should primarily use local contractors to carry out the monitoring work.**

**Response ID: 16685**

According to CPRA, it encourages the use of local contractors within the limitations allowed by law. CPRA uses several assistance programs to help ensure contractors have skilled local candidates available for employment. One example of such a program is the Coastal Science Assistantship Program (CSAP), which provides a stipend to local students to assist in CPRA's various coastal activities. These programs are not specific to the proposed Project and are not affiliated with the Project Monitoring and Adaptive Management (MAM) Plan.

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**Concern ID: 62859**

**The Final EIS and supporting record should include additional information about possible operational minimization measures that may be considered through the adaptive management process, based on monitoring and new information. For example, evaluation of the construction of landscape features that might provide higher-salinity refuge areas within the basin might be an option.**

**Response ID: 16668**

The Draft EIS considered measures for adaptively managing the Project as part of the Monitoring and Adaptive Management (MAM) Plan (Appendix R2 to the Draft EIS). Since issuance of the Draft EIS, CPRA modified the MAM Plan to include additional information regarding strategies for minimizing impacts through monitoring and adaptive management (see Section 3.7.1.1.7 [Topography/bathymetry of the Project Influence Area] of the MAM Plan in Appendix R2 to the Final EIS).

The EIS considered potential features in the outfall area such as canals, bayous, impoundments, weirs, and chenier-like ridges to manipulate the flow of water and sediment for water quality and sediment retention benefits, to create barriers for storm surge and wind, and to redirect waters away from oyster production and sensitive areas. However, flow-directing outfall features within the initial delta formation area were eliminated from consideration because of the potential for such features to impede the development of the delta formation. See Chapter 2, Section 2.5 Step 3: Evaluation of Sediment Diversion Outfall Features for evaluation of these alternative outfall features as part of the alternatives screening process. Because these features were previously eliminated, they will not be considered as part of future adaptive management.

As described in the MAM Plan (Appendix R2 to the Final EIS), CPRA would monitor salinities in the basin after Project operations commence to help inform potential relocation of seed grounds to more environmentally suitable areas within the basin or the establishment of broodstock reefs to address larval supply. The Mitigation and Stewardship Plan (Appendix R1 to the Final EIS) includes a full suite of oyster mitigation and stewardship measures totaling \$32 million.

The Mitigation and Stewardship Plan and the MAM Plan provided in Draft EIS Appendix R were submitted by CPRA and represent a range of potential mitigation, stewardship, monitoring and adaptive management measures (collectively, measures). At the time of publication of the Draft EIS for public review, Appendix R contained draft Plans and CPRA had not identified which of the measures contained in those Plans it intended to implement. The Final EIS Appendix R contains the final Plans and specifies which measures CPRA and the LA TIG intend to implement. Generally, impact determinations discussed in the EIS represent anticipated Project effects without implementation of these measures except in instances where such measures are identified in the discussion. If any mitigation, monitoring or adaptive management measures are required by USACE as part of its approval of the Project, such measures would be required as special conditions of the Department of the Army (DA) Section 10/404 permit and would be listed in the permit, if one is issued. Implementation of specific measures contained in either Plan, but not

included in the Section 10/404 permit as special conditions, would not be required by USACE. USACE does not know whether any particular measure that is not a DA permit condition would be implemented. Measures that USACE currently contemplates as conditions of a DA Section 10/404 permit, if one is issued, are provided in Chapter 4, Section 4.27 Mitigation Summary of the EIS.

The LA TIG explains in Section 1.5 of the Final Restoration Plan that it anticipates requiring implementation of the Mitigation and Stewardship Plan, MAM Plan, and Marine Mammal Intervention Plan as components of the proposed Project, if the Project is approved by the LA TIG for funding. Decisions regarding which measures would be required as part of the LA TIG's funding decision would be set forth in the LA TIG Record of Decision related to the proposed Project.

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**Concern ID: 62871**

**This Project can proceed carefully and with full attention to the ways in which impacts to bottlenose dolphins can be lessened. Supporting a rigorous pre- and post- construction monitoring program can reduce key uncertainties about the populations of bottlenose dolphins and can help measure Project effects.**

**Response ID: 16679**

The marine mammal related monitoring issue raised by the commenters was considered in CPRA's Monitoring and Adaptive Management (MAM) Plan (Appendix R2 to the Draft EIS). The MAM Plan describes pre- and post-construction monitoring to document baseline and changes to the abundance, distribution, population demography, density, survival, health, and reproduction of the Barataria Bay Estuarine System (BBES) stock of bottlenose dolphins, their prey, and their habitat, including effects that may result from the operation of the Project and resulting low salinity. For more information, refer to Section 3.7.3.19 (Atlantic Bottlenose Dolphins [*Tursiops truncatus*]) of the MAM Plan (Appendix R2 to the EIS). As these marine mammal monitoring measures were already considered in the Draft EIS, no changes were made in the Final EIS in response to this comment.

The Mitigation and Stewardship Plan and the MAM Plan provided in Draft EIS Appendix R were submitted by CPRA and represent a range of potential mitigation, stewardship, monitoring and adaptive management measures (collectively, measures). At the time of publication of the Draft EIS for public review, Appendix R contained draft Plans and CPRA had not identified which of the measures contained in those Plans it intended to implement. The Final EIS Appendix R contains the final Plans and specifies which measures CPRA and the LA TIG intend to implement. Generally, impact determinations discussed in the EIS represent anticipated Project effects without implementation of these measures except in instances where such measures are identified in the discussion. If any

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mitigation, monitoring or adaptive management measures are required by USACE as part of its approval of the Project, such measures would be required as special conditions of the Department of the Army (DA) Section 10/404 permit and would be listed in the permit, if one is issued. Implementation of specific measures contained in either Plan, but not included in the Section 10/404 permit as special conditions, would not be required by USACE. USACE does not know whether any particular measure that is not a DA permit condition would be implemented. Measures that USACE currently contemplates as conditions of a DA Section 10/404 permit, if one is issued, are provided in Chapter 4, Section 4.27 Mitigation Summary of the EIS.

The LA TIG explains in Section 1.5 of the Final Restoration Plan that it anticipates requiring implementation of the Mitigation and Stewardship Plan, MAM Plan, and Marine Mammal Intervention Plan as components of the proposed Project, if the Project is approved by the LA TIG for funding. Decisions regarding which measures would be required as part of the LA TIG's funding decision would be set forth in the LA TIG Record of Decision related to the proposed Project.

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**Concern ID: 62827**

**Monitoring is an essential part of ecological restoration because it gives information about the quality of the habitat and the longevity of positive and negative Project impacts.**

**Response ID: 16659**

CPRA and the LA TIG acknowledge that monitoring is critical for understanding the positive and negative impacts of the Project over the long term. Accordingly, the importance of monitoring was considered as part of the LA TIG's Restoration Plan and in the MAM Plan included with the Draft EIS (Appendix R2). CPRA and its LA TIG partners have further revised and refined this MAM Plan prior to issuance of the Final EIS partially in response to public comments. As part of the Project implementation, CPRA would undertake substantial monitoring as explained in the MAM Plan (see Appendix R2 to the Final EIS).

The Mitigation and Stewardship Plan and the Monitoring and Adaptive Management (MAM) Plan provided in Draft EIS Appendix R were submitted by CPRA and represent a range of potential mitigation, stewardship, monitoring and adaptive management measures (collectively, measures). At the time of publication of the Draft EIS for public review, Appendix R contained draft Plans and CPRA had not identified which of the measures contained in those Plans it intended to implement. CPRA expanded and refined the Final Mitigation and Stewardship Plan in response to community and resource agency input. The Final EIS Appendix R contains the final Plans and specifies which measures CPRA and the LA TIG intend to implement. Generally, impact determinations discussed in the EIS represent anticipated Project effects without implementation of these measures except in instances where such measures are identified in the discussion. If any mitigation, monitoring or adaptive management measures are required by USACE as part of its approval of the Project, such measures would be required as special conditions of the Department of the



Army (DA) Section 10/404 permit and would be listed in the permit, if one is issued. Implementation of specific measures contained in either Plan, but not included in the Section 10/404 permit as special conditions, would not be required by USACE. USACE does not know whether any particular measure that is not a DA permit condition would be implemented. Measures that USACE currently contemplates as conditions of a DA Section 10/404 permit, if one is issued, are provided in Chapter 4, Section 4.27 Mitigation Summary of the EIS.

The LA TIG explains in Section 1.5 of the Final Restoration Plan that it anticipates requiring implementation of the Mitigation and Stewardship Plan, MAM Plan, and Marine Mammal Intervention Plan as components of the proposed Project, if the Project is approved by the LA TIG for funding. Decisions regarding which measures would be required as part of the LA TIG's funding decision would be set forth in the LA TIG Record of Decision related to the proposed Project.

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**Concern ID: 62860**

**The Draft EIS Monitoring and Adaptive Management (MAM) Plan in Appendix R2 includes several steps and elements that would be considered appropriate for adaptive management and allow for full benefits of such measures.**

**Response ID: 16669**

The MAM Plan steps and elements noted and supported by the commenters were included in Appendix R2 to the Draft EIS. These measures have been further refined in CPRA's MAM Plan issued with the Final EIS (Appendix R2).

The Mitigation and Stewardship Plan and the Monitoring and Adaptive Management (MAM) Plan provided in Draft EIS Appendix R were submitted by CPRA and represent a range of potential mitigation, stewardship, monitoring and adaptive management measures (collectively, measures). At the time of publication of the Draft EIS for public review, Appendix R contained draft Plans and CPRA had not identified which of the measures contained in those Plans it intended to implement. CPRA expanded and refined the Final Mitigation and Stewardship Plan in response to community and resource agency input. The Final EIS Appendix R contains the final Plans and specifies which measures CPRA and the LA TIG intend to implement. Generally, impact determinations discussed in the EIS represent anticipated Project effects without implementation of these measures except in instances where such measures are identified in the discussion. If any mitigation, monitoring or adaptive management measures are required by USACE as part of its approval of the Project, such measures would be required as special conditions of the Department of the Army (DA) Section 10/404 permit and would be listed in the permit, if one is issued. Implementation of specific measures contained in either Plan, but not included in the Section 10/404 permit as special conditions, would not be required by USACE. USACE does not know whether any particular measure that is not a DA permit condition would be implemented. Measures that USACE currently contemplates as conditions of a DA Section 10/404 permit, if one is issued, are provided in Chapter 4, Section 4.27 Mitigation Summary of the EIS.

The LA TIG explains in Section 1.5 of the Final Restoration Plan that it anticipates requiring implementation of the Mitigation and Stewardship Plan, MAM Plan, and Marine Mammal

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Intervention Plan as components of the proposed Project, if the Project is approved by the LA TIG for funding. Decisions regarding which measures would be required as part of the LA TIG's funding decision would be set forth in the LA TIG Record of Decision related to the proposed Project.

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## MA14000 – MAM Data Management & Reporting

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**Concern ID: 63094**

**There should be a website that shows if the diversion is running and at what capacity.**

**Response ID: 16646**

In response to public and agency comments, CPRA would develop a web-based informational dashboard that would make operational information available to the public through the internet in real time. This dashboard would allow CPRA to continue to keep stakeholders informed about Project progress, timing, construction, and operation.

This dashboard has been added to the Monitoring and Adaptive Management (MAM) Plan included in the Final EIS (Appendix R2). The Mitigation and Stewardship Plan and the MAM Plan provided in Draft EIS Appendix R were submitted by CPRA and represent a range of potential mitigation, stewardship, monitoring and adaptive management measures (collectively, measures). At the time of publication of the Draft EIS for public review, Appendix R contained draft Plans and CPRA had not identified which of the measures contained in those Plans it intended to implement. The Final EIS Appendix R contains the final Plans and specifies which measures CPRA and the LA TIG intend to implement. Generally, impact determinations discussed in the EIS represent anticipated Project effects without implementation of these measures except in instances where such measures are identified in the discussion. If any mitigation, monitoring or adaptive management measures are required by USACE as part of its approval of the Project, such measures would be required as special conditions of the Department of the Army (DA) Section 10/404 permit and would be listed in the permit, if one is issued. Implementation of specific measures contained in either Plan, but not included in the Section 10/404 permit as special conditions, would not be required by USACE. USACE does not know whether any particular measure that is not a DA permit condition would be implemented. Measures that USACE currently contemplates as conditions of a DA Section 10/404 permit, if one is issued, are provided in Chapter 4, Section 4.27 Mitigation Summary of the EIS.

The LA TIG explains in Section 1.5 of the Final Restoration Plan that it anticipates requiring implementation of the Mitigation and Stewardship Plan, MAM Plan, and Marine Mammal Intervention Plan as components

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of the proposed Project, if the Project is approved by the LA TIG for funding. Decisions regarding which measures would be required as part of the LA TIG's funding decision would be set forth in the LA TIG Record of Decision related to the proposed Project.

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**Concern ID: 63095****CPRA should communicate relevant thresholds and triggers for monitoring to the public on a regular basis.****Response ID: 16648**

As explained in the Monitoring and Adaptive Management (MAM) Plan, CPRA would develop a web-based informational dashboard that would make operational information available to the public through the internet in real time. The dashboard would allow CPRA to continue to keep stakeholders informed about Project progress, timing, construction, and operations.

The Mitigation and Stewardship Plan and the MAM Plan provided in Draft EIS Appendix R were submitted by CPRA and represent a range of potential mitigation, stewardship, monitoring and adaptive management measures (collectively, measures). At the time of publication of the Draft EIS for public review, Appendix R contained draft Plans and CPRA had not identified which of the measures contained in those Plans it intended to implement. The Final EIS Appendix R contains the final Plans and specifies which measures CPRA and the LA TIG intend to implement. Generally, impact determinations discussed in the EIS represent anticipated Project effects without implementation of these measures except in instances where such measures are identified in the discussion. If any mitigation, monitoring or adaptive management measures are required by USACE as part of its approval of the Project, such measures would be required as special conditions of the Department of the Army (DA) Section 10/404 permit and would be listed in the permit, if one is issued. Implementation of specific measures contained in either Plan, but not included in the Section 10/404 permit as special conditions, would not be required by USACE. USACE does not know whether any particular measure that is not a DA permit condition would be implemented. Measures that USACE currently contemplates as conditions of a DA Section 10/404 permit, if one is issued, are provided in Chapter 4, Section 4.27 Mitigation Summary of the EIS.

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## MT20000 – Compensatory Wetland Mitigation

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<b>Concern ID: 62189</b>	<b>Jesuit Bend Mitigation Bank would provide an offset for Project impacts, particularly if wet pasture impacts are offset with fresh to intermediate marsh as it has been for previous USACE projects.</b>
<b>Response ID: 16402</b>	<p>The direct wetland impacts associated with the proposed Project are discussed in the EIS at Chapter 4, Section 4.6.4.1 Wetland Resources and Waters of the U.S., Construction Impacts, Wetland Types and Extent. USACE will evaluate impacts and consider any necessary compensatory mitigation consistent with 33 CFR §320.4(r), 33 CFR Part 332 and applicable USACE guidance in its permitting decision. If compensatory mitigation were required, options consistent with Part 332 would be considered, including banks within the appropriate watershed with available credits. Any potential compensatory mitigation requirements would be discussed in the ROD.</p>
<b>Concern ID: 62191</b>	<b>The mitigation proposed by CPRA (“self-mitigation”) is inconsistent with federal law and fails to consider and give priority to credits from mitigation banks; USACE should consider CPRA’s mitigation plan and determine that compensatory mitigation is required for construction footprint impact through the purchase of released in-kind and in-basin mitigation bank credits, which are available from Jesuit Bend Mitigation Bank</b>
<b>Response ID: 16403</b>	<p>The direct wetland impacts associated with the proposed Project are disclosed in the EIS and will be evaluated by USACE in accordance with 33 CFR §320.4(r) in its permitting decision. If compensatory mitigation were required, options consistent with 33 CFR Part 332, including banks within the appropriate watershed with available credits, would be considered. If a permit is issued, any potential compensatory mitigation requirements would be provided in the ROD.</p> <p>The term “self-mitigating” was used in Chapter 4, Section 4.27.2.1 Compensatory Mitigation, Jurisdictional Wetlands and Waters of the U.S. to indicate that CPRA believes the marsh creation benefits of the Project would offset the wetland impacts. However, since publication of the Draft EIS, CPRA has committed to constructing wetlands within the designated beneficial use area with excavated material that, according to Wetland Value Assessment (WVA) modeling, would at minimum be equivalent to the identified Average Annual Habitat Units (AAHUs) lost from Project construction. Edits have been made to Final EIS Chapter 2, Section 2.8.1.1 Project Design Features to reflect this Project feature. Final EIS Section 4.6.5.3 Wetland Resources and Waters of the U.S., Wetland Value Assessment has been updated with the Interagency Habitat Evaluation Team’s WVA calculation of the AAHUs that would be created in these beneficial use areas, and Section</p>

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4.27.2.1 Compensatory Mitigation, Jurisdictional Wetlands and Waters of the U.S. has been edited to summarize the wetland impacts and describe the projected benefits that would be provided by these beneficial use marsh creation sites and other wetland benefits of the Project.

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### **New Concerns and Responses:**

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**Concern ID: 66934**

**It appears that CPRA is considering using some of the excavated material for construction of the MBSD for beneficial use placement and upland reuse (for example, filling existing borrow pits). However, this material would first be used for construction of the Project components and only be used for beneficial reuse “if suitable” and “to the extent practicable.” CPRA acknowledges that “[b]ecause the amount of dredge material suitable for placement in the beneficial use sites is currently unknown, the benefits cannot be calculated or considered as a mitigation offset.”**

**Response ID: 16861**

Since publication of the Draft EIS, CPRA has determined that it would construct a beneficial use component to the proposed Project and has submitted information concerning the design and location of the beneficial use sites such that the benefits in terms of acreage and Average Annual Habitat Units (AAHUs) can now be calculated. These beneficial use areas would be located near the proposed outfall transition feature. According to Wetland Value Assessment (WVA) modeling, these constructed wetlands would at minimum be equivalent to the identified AAHUs lost from Project construction. Edits have been made to Final EIS Chapter 2, Section 2.8.1.1. Project Design Feature) to reflect this Project feature. Final EIS Chapter 4, Section 4.6.5.3 Wetland Resources and Waters of the U.S., Wetland Value Assessment has been updated with the Interagency Habitat Evaluation Team’s WVA calculation of the AAHUs that would be created in these beneficial use areas, and Section 4.27.2.1 Compensatory Mitigation, Jurisdictional Wetlands and Waters of the U.S. has been edited to summarize the anticipated wetland impacts and anticipated benefits of the proposed Project that include these marsh creation sites and other wetland benefits of the Project.

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**Concern ID: 66935**

**CPRA claims that there will be “no net loss” of wetlands because wetland losses during construction would be offset by the anticipated creation of wetlands during operation of the MBSD. The uncertainty and timing of these environmental benefits cannot justify disregarding the requirement that unavoidable impacts be minimized and mitigated. Based on the uncertainty and timing, these benefits cannot be reasonably expected to**

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<b>Response ID: 16862</b>	<b>offset the significant losses of jurisdictional wetlands and their functions within the construction footprint.</b>
	<p>CPRA has determined that it will construct wetlands within the designated beneficial use area with excavated material, which, according to Wetland Value Assessment (WVA) modeling, would at minimum provide equivalent Average Annual Habitat Units (AAHUs) to the identified AAHUs anticipated to be lost due to direct impacts from Project construction. The proposed Project beneficial use wetland creation feature would be constructed concurrently with overall construction of the proposed Project.</p> <p>CPRA is not relying on diversion marsh creation performance to replace the permanent loss of wetlands that would result from Project construction. Because the beneficial use marsh creation Project feature would be constructed using typical marsh creation construction methods, uncertainty regarding the success and environmental benefits of this Project feature would be minimized. Edits have been made to Final EIS Section 2.8.1.1. Project Design Features to reflect this Project feature. Final EIS Section 4.6.5.3 Wetland Resources and Waters of the U.S., Wetland Value Assessment has been updated with the Interagency Habitat Evaluation Team's WVA calculation of the AAHUs that will be created in these beneficial use areas, and Section 4.27.2.1 Compensatory Mitigation, Jurisdictional Wetlands and Waters of the U.S. has been edited to summarize the anticipated wetland impacts and benefits of the proposed Project to include these beneficial use marsh creation sites and other wetland benefits of the Project.</p>
<b>Concern ID: 66936</b>	<b>CPRA claims that sometime in the next 50 years (potentially 2040 or later) fresh and intermediate marsh is anticipated to be established, and this will mitigate the known, immediate, permanent loss of 182.9 acres of jurisdictional wetlands. CPRA does not dispute that there will be a significant temporal loss of aquatic function. This temporal lag in the creation of wetlands (even assuming that the MBSD works as projected, which is highly uncertain) cannot justify deviating from compensatory mitigation requirements. As required by the 2008 Final Rule, this temporal loss must be addressed, quantified and mitigated through the purchase of available in-kind and in-basin mitigation bank credits or other well-established mechanisms.</b>
<b>Response 16863</b>	<p>CPRA is not relying on diversion marsh creation success to replace the anticipated permanent loss of 193.1 acres of wetlands resulting from Project construction. The permanent loss of 1193.1 acres of jurisdictional wetlands would be replaced through construction of at least 402 acres of marsh through beneficial use of excavated material concurrent with construction of the proposed Project.</p>

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<b>Concern 66937</b>	<b>As acknowledged by CPRA, CPRA’s proposed self-mitigation involves a high degree of uncertainty. To account for uncertainty, CPRA relies on an adaptive management plan. Thus, not only will the “self-mitigation” not occur before or concurrent to the impacts, it is uncertain to happen at all.</b>
<b>Response 16864</b>	<p>CPRA is not relying on diversion marsh creation success to replace the anticipated permanent loss of 193.1 acres of wetlands resulting from Project construction. The permanent loss of 193.1 acres of jurisdictional wetlands would be replaced through construction of at least 402 acres of marsh through beneficial use of excavated material concurrent with construction of the proposed Project.</p> <p>Because the beneficial use marsh creation Project feature would be constructed using typical marsh creation construction methods, uncertainty regarding the success and environmental benefits of this Project feature would be minimized. Therefore, the uncertainty regarding whether the proposed Project would produce projected land building and marsh creation benefits through operation of the diversion, as projected by the Delft3D Basinwide Model, is not relevant to the calculation of anticipated wetland creation benefits associated with the beneficial use component of the proposed Project.</p>
<b>Concern ID: 66938</b>	<b>The purchase of mitigation bank credits (or mitigation through some other well-established mechanism) is feasible, appropriate and practicable. The purchase of in-kind and in-basin mitigation bank credits will offset the values and functions of the impacted jurisdictional wetlands.</b>
<b>Response ID: 16865</b>	Should compensatory mitigation be required, the purchase of mitigation bank credits and potentially other mitigation options would be considered in accordance with 33 CFR Part 332.
<b>Concern ID: 66939</b>	<b>It is inappropriate to compare the MBSD to “typical” marsh creation projects. Although under certain circumstances the Corps has the limited discretion to not require compensatory mitigation when a proposed discharge is reasonably expected to result in environmental benefits, the anticipated benefits of the MBSD cannot justify the Corps exercising this discretion.</b>
<b>Response ID: 16866</b>	CPRA has determined it would construct wetlands within the designated beneficial use area with excavated material that, according to WVA modeling, would at minimum produce sufficient AAHUs to replace the anticipated AAHUs that would be lost due to Project construction. USACE’s determination in its permitting decision whether to require compensatory mitigation would be made in accordance with 33 CFR §320.4(r), 33 CFR Part 332 and applicable USACE guidance, including the 1990 USEPA & USACE MOA Concerning the Determination of Mitigation.

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<b>Concern ID: 66940</b>	<b>The Corps is mandated to require “additional” mitigation when temporal losses to aquatic function will result.</b>
<b>Response ID: 16867</b>	CPRA has determined that it would construct a beneficial use marsh creation component concurrent with Project construction. The WVA model considers the temporal losses to aquatic function in its calculations regarding Project impacts and marsh creation construction benefits.
<b>Concern ID: 66941</b>	<b>Despite the requirements of the 2008 Final Rule, CPRA and the Corps do not address whether a single acre of this land will be provided long-term protection. Not only is there no guarantee that the Project will successfully result in the creation of these acres, even if the Project is successful, there is nothing in place to prevent the conservation objectives of the Project being compromised by incompatible uses. As a result, the proposed mitigation for the MBSD is not in compliance with the 2008 Final Rule requirements and is unlawful.</b>
<b>Response ID: 16868</b>	Benefits to be derived from marsh reestablishment have been evaluated through the WVA model which considers temporal losses to and gains in aquatic function. The beneficial use of excavated material to create marsh is a component of the Project and would be constructed concurrently with proposed Project. USACE’s determination in its permitting decision whether to require compensatory mitigation would be made in accordance with 33 CFR §320.4(r), 33 CFR Part 332 and applicable USACE guidance. If compensatory mitigation were required, banks within the appropriate watershed with available credits would be considered.
<b>Concern 66943</b>	<b>If the Project is considered permittee-responsible mitigation, CPRA’s “self-mitigation” is also inconsistent with CEMVN’s Permittee-Responsible Mitigation Plan Template.</b>
<b>Response 16869</b>	The beneficial use component of the proposed Project is not considered permittee-responsible mitigation; it is a Project feature. USACE would not require that the marsh creation component to use the Permittee-Responsible Mitigation Plan Template. USACE’s determination in its permitting decision whether to require compensatory mitigation would be made in accordance with 33 CFR §320.4(r), 33 CFR Part 332 and applicable USACE guidance, including the 1990 USEPA & USACE MOA Concerning the Determination of Mitigation.
<b>Concern 66945</b>	<b>“Self-Mitigation” for the MBSD is not environmentally preferable. Not only does CPRA’s proposed “self-mitigation” not meet the requirements of the 2008 Final Rule or CEMVN’s requirements for permittee-responsible mitigation, it is not environmentally preferable. Mitigation bank credits are the preferred option under</b>

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<b>Response 16870</b>	<p><b>the 2008 Final Rule. There is no basis for the Corps to override the preference for compensatory mitigation through available in-kind and in-basin mitigation bank credits.</b></p> <p>The beneficial use component of the proposed Project is not considered permittee-responsible mitigation. USACE's determination in its permitting decision whether to require compensatory mitigation would be made in accordance with 33 CFR §320.4(r), 33 CFR Part 332 and applicable USACE guidance. If compensatory mitigation were required, banks within the appropriate watershed with available credits would be considered.</p>
<b>Concern 66946</b>	<p><b>The USFWS recognizes that the anticipated marsh to be created by the Project would not “self-mitigate” for the indirect impacts the proposed Project would cause in the birdfoot delta and therefore has recommended that CPRA provide additional mitigation in the form of wetland creation through crevasse construction in the birdfoot delta. The Project’s direct impacts to 182.9 acres of jurisdictional wetlands should similarly be offset through wetland creation.</b></p>
<b>Response 16871</b>	<p>The anticipated direct impacts to 182.9 acres of jurisdictional wetlands due to Project construction would be replaced through construction of at least 400 acres of marsh through beneficial use of excavated material concurrent with construction of the proposed Project. Because the beneficial use marsh creation Project feature would be constructed using typical marsh creation construction methods, uncertainty regarding the success and environmental benefits of this Project feature would be minimized. CPRA has also agreed to the conservation recommendations of the USFWS, including the construction of crevasse projects that may include terracing to offset the indirect losses on the Delta NWR and the Pass A Loutre (PAL) WMA. Within 5 years of the commencement of Project operations, CPRA or the LA TIG will provide \$10 million of additional funding for wetland preservation and restoration work in the Delta NWR and the PAL WMA to offset modeled acres of indirect wetland losses in those areas. That funding may be accomplished through additional restoration work sponsored by the LA TIG (for example, construction of the E&amp;D work discussed in the DWH LA TIG's Restoration Plan and Environmental Assessment #7), or through a direct contribution for additional work. The funding will be proportioned between the Delta NWR and the PAL WMA based on the magnitude of the predicted wetland loss in each area.</p>
<b>Concern 66497</b>	<p><b>For the purpose of determining in-kind mitigation for degraded wetlands, one needs to determine the wetland habitat that existed prior to the degradation. The majority of emergent wetlands habitat that existed prior to degradation of wetlands within the</b></p>

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<b>Response 16872</b>	<p><b>Project's construction footprint was fresh/intermediate marsh. Emergent wetlands delineated within the Project footprint include soils associated with historic marsh, specifically Lafitte and Westwego soil series.</b></p> <p>The comment is acknowledged. USACE's determination in its permitting decision whether to require compensatory mitigation would be made in accordance with 33 CFR §320.4(r), 33 CFR Part 332 and applicable USACE guidance. If compensatory mitigation were required, banks within the appropriate watershed with available credits would be considered.</p>
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## MT21100 – Impacts to Navigation Mitigation

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<b>Concern ID: 62968</b>	<p><b>If operation of the diversion causes infill of various canals used to access surrounding communities, who will be responsible for dredging to maintain access? For example, if Wilkinson Canal is filled with silt then the canal cannot be used and waterfront property owners with boat lifts in Myrtle Grove will not be able to get out using their boats; the EIS does not require a remedy or provide a funded maintenance plan for this issue (including who would pay for dredging).</b></p>
<b>Response ID: 16642</b>	<p>The impacts raised by the commenters were considered in the Draft EIS. As stated in Chapter 4, Section 4.21 Navigation, the USACE would continue to maintain federal navigation channels in the Project area during Project operations.</p> <p>In acknowledgement of commenters' concerns regarding maintenance of non-federal navigation channels and canals impacted by sedimentation of the proposed diversion, the Mitigation and Stewardship Plan includes measures to mitigate impacts on navigation resulting from operation of the Project, including monitoring and dredging or other measures for certain non-federal navigation channels including Wilkinson Canal (see Appendix R1 [Mitigation and Stewardship Plan] to the Final EIS for additional details).</p> <p>The Mitigation and Stewardship Plan and the Monitoring and Adaptive Management (MAM) Plan provided in Draft EIS Appendix R were submitted by CPRA and represent a range of potential mitigation, stewardship, monitoring and adaptive management measures (collectively, measures). At the time of publication of the Draft EIS for public review, Appendix R contained draft Plans and CPRA had not identified which of the measures contained in those Plans it intended to implement. CPRA expanded and refined the Final Mitigation and Stewardship Plan in response to community and resource agency input. The Final EIS Appendix R contains the Final Mitigation and</p>

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Stewardship Plan and specifies which measures CPRA intends to implement. Generally, impact determinations discussed in the EIS represent anticipated Project effects without implementation of these measures except in instances where such measures are identified in the discussion. If any mitigation, monitoring or adaptive management measures are required by USACE as part of its approval of the Project, such measures would be required as special conditions of the Department of the Army (DA) Section 10/404 permit and would be listed in the permit, if one is issued. Implementation of specific measures contained in either Plan, but not included in the Section 10/404 permit as special conditions, would not be required by USACE. USACE does not know whether any particular measure that is not a DA permit condition would be implemented. Measures that USACE currently contemplates as conditions of a DA Section 10/404 permit, if one is issued, are provided in Chapter 4, Section 4.27 Mitigation Summary of the EIS.

The LA TIG explains in Section 1.5 of the Final Restoration Plan that it anticipates requiring implementation of the Mitigation and Stewardship Plan, MAM Plan, and Marine Mammal Intervention Plan as components of the proposed Project, if the Project is approved by the LA TIG for funding. Decisions regarding which measures would be required as part of the LA TIG's funding decision would be set forth in the LA TIG Record of Decision related to the proposed Project.

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**Concern ID: 63791****CPRA should monitor canals and dredge them as they begin to silt from the diversion.****Response ID: 16645**

The commenter's concerns regarding siltation and infill of Wilkinson Canal and other navigation channels in the Barataria Basin were considered in the Draft EIS in Chapter 4, Section 4.16.5.2 Recreation and Tourism - Operational Impacts and Section 4.21.5.2 in Navigation.

Siltation and infill of Wilkinson Canal was considered in the Draft Mitigation and Stewardship Plan (Appendix R1) issued with the Draft EIS. Since issuance of the Draft EIS, CPRA has revised its plan to address infill of Wilkinson Canal caused by Project operations. See Section 6.3.1 (Impacts to Navigation) of the Final Mitigation and Stewardship Plan (Appendix R1 to the Final EIS) for CPRA's final plan with regard to the siltation of Wilkinson Canal.

The Mitigation and Stewardship Plan and the Monitoring and Adaptive Management (MAM) Plan provided in Draft EIS Appendix R were submitted by CPRA and represent a range of potential mitigation, stewardship, monitoring and adaptive management measures (collectively, measures). At the time of publication of the Draft EIS for public review, Appendix R contained draft Plans and CPRA had not identified which of the measures contained in those Plans it intended to implement. CPRA expanded and refined the Final Mitigation and

Stewardship Plan in response to community and resource agency input. The Final EIS Appendix R contains the Final Mitigation and Stewardship Plan and specifies which measures CPRA intends to implement. Generally, impact determinations discussed in the EIS represent anticipated Project effects without implementation of these measures except in instances where such measures are identified in the discussion. If any mitigation, monitoring or adaptive management measures are required by USACE as part of its approval of the Project, such measures would be required as special conditions of the Department of the Army (DA) Section 10/404 permit and would be listed in the permit, if one is issued. Implementation of specific measures contained in either Plan, but not included in the Section 10/404 permit as special conditions, would not be required by USACE. USACE does not know whether any particular measure that is not a DA permit condition would be implemented. Measures that USACE currently contemplates as conditions of a DA Section 10/404 permit, if one is issued, are provided in Chapter 4, Section 4.27 Mitigation Summary of the EIS.

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**Concern ID: 62969**

**To ensure commerce is not disrupted and navigation safety is prioritized, the CPRA and Louisiana should engage and communicate with the navigation industry concerning Project impacts to the Mississippi River Ship Channel, birdfoot delta, and Southwest Pass.**

**Response ID: 16643**

The EIS Appendix Q2 Navigation Study Reports included CPRA's coordination with Mississippi River pilots to evaluate impacts on navigation safety during proposed Project construction and operations. Appendix Q2 Navigation Study Reports has been updated with additional details of CPRA's efforts.

USACE agrees that maintaining safe and efficient navigation is a top priority. USACE has engaged the navigation industry in meetings on August 2, 2018, September 5, 2018, and February 3, 2022 and will continue to coordinate with the navigation industry regarding the industry's concerns about the proposed Project.

CPRA's Operational Plan for the proposed Project states, "In the event diversion operations cause an unintended and severe impediment to navigation, as determined by the U.S. Coast Guard in consultation with CPRA, CPRA will coordinate with the U.S. Coast Guard and CEMVN

and determine what, if any, changes in diversion operations are warranted to address the impediment” (see the Draft EIS, Appendix F2 Preliminary Operations Plan).

CPRA has proposed the following measures in its Final Mitigation and Stewardship Plan (Appendix R1) to address concerns about navigation impacts in the Mississippi River during Project construction. These measures have been forwarded to the U.S. Coast Guard for their review and input:

- CPRA would coordinate the location of Mississippi River Aids to Navigation (ATONS) associated with the MBSD structure with the USCG. The ATONS would be visually inspected each day and the operability recorded in the Daily Report and would be maintained for the duration of the Project.
- Whenever flow through the structure is started or stopped, on-site personnel shall notify the USCG via a Navigation Bulletin so that traffic is informed of the Project’s operating condition.
- Before raising or lowering any gate at the entrance to the diversion channel, the operator should check the vicinity of the inflow, conveyance and outflow channels for boats, fishermen and swimmers and alert them to clear the area. Methods for these alerts may include horns, lights and/or audio messages.

The Mitigation and Stewardship Plan and the Monitoring and Adaptive Management (MAM) Plan provided in Draft EIS Appendix R were submitted by CPRA and represent a range of potential mitigation, stewardship, monitoring and adaptive management measures (collectively, measures). At the time of publication of the Draft EIS for public review, Appendix R contained draft Plans and CPRA had not identified which of the measures contained in those Plans it intended to implement. CPRA expanded and refined the Final Mitigation and Stewardship Plan in response to community and resource agency input. The Final EIS Appendix R contains the Final Mitigation and Stewardship Plan and specifies which measures CPRA intends to implement. Generally, impact determinations discussed in the EIS represent anticipated Project effects without implementation of these measures except in instances where such measures are identified in the discussion. If any mitigation, monitoring or adaptive management measures are required by USACE as part of its approval of the Project, such measures would be required as special conditions of the Department of the Army (DA) Section 10/404 permit and would be listed in the permit, if one is issued. Implementation of specific measures contained in either Plan, but not included in the Section 10/404 permit as special conditions, would not be required by USACE. USACE does not know whether any particular measure that is not a DA permit condition would be implemented. Measures that USACE



currently contemplates as conditions of a DA Section 10/404 permit, if one is issued, are provided in Chapter 4, Section 4.27 Mitigation Summary of the EIS.

The LA TIG explains in Section 1.5 of the Final Restoration Plan that it anticipates requiring implementation of the Mitigation and Stewardship Plan, MAM Plan, and Marine Mammal Intervention Plan as components of the proposed Project, if the Project is approved by the LA TIG for funding. Decisions regarding which measures would be required as part of the LA TIG's funding decision would be set forth in the LA TIG Record of Decision related to the proposed Project.

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**Concern ID: 63032**

**The requirement to maintain a sufficient picket boat during the construction and operation of the diversion structure to protect maritime commerce, transiting vessels and the diversion structure(s) must be included.**

**Response ID: 16644**

The commenter's concerns regarding the impacts of the Project on navigation safety in the Mississippi River were considered and addressed in the Draft EIS navigation section in Chapter 4, Section 4.21.4 Mississippi River. This section explains that during construction, the Project would have moderate, temporary, adverse impacts on the safety and efficiency of shallow-draft vessels transiting past the proposed Project site in the Mississippi River and intermittent but permanent, moderate, adverse, impacts on navigation safety and efficiency during operations. Since issuance of the Draft EIS, CPRA's 60-percent designs for the proposed Project have decreased the extent to which the Project's intake structure (including the temporary construction cofferdam) would extend into the Mississippi River during construction. The Final EIS has been updated to reflect this reduced impact on navigation safety and efficiency during construction. Therefore, the impact determination on navigation safety and efficiency during construction has been revised to "minor, temporary, and adverse impacts" in Chapter 4, Section 4.21.4.1.2.2 Traffic in the Navigation section of the Final EIS. Prior to any issuance of a permit for the Project by USACE, the USACE would coordinate with the U.S. Coast Guard to establish special permit conditions to address vessel safety in the Mississippi River during construction and operation of the proposed Project.

CPRA's Operational Plan for the proposed project states, "In the event diversion operations cause an unintended and severe impediment to navigation, as determined by the U.S. Coast Guard in consultation with CPRA, CPRA will coordinate with the U.S. Coast Guard and CEMVN and determine what, if any, changes in diversion operations are warranted to address the impediment" (see the EIS, Appendix F2 Preliminary Operations Plan).



Further, CPRA has proposed the following measures in its Final Mitigation and Stewardship Plan (Appendix R1) to address concerns about navigation impacts in the Mississippi River during Project construction. These measures have been forwarded to the U.S. Coast Guard for their review and input.

- CPRA would coordinate the location of Mississippi River Aids to Navigation (ATONS) associated with the MBSD structure with the USCG.
- Whenever flow through the structure is started or stopped, on-site personnel shall notify the USCG via a Navigation Bulletin so that traffic is informed of the Project's operating condition.
- Before raising or lowering any gate at the entrance to the diversion channel, the operator should check the vicinity of the inflow, conveyance and outflow channels for boats, fishermen and swimmers and alert them to clear the area. Methods for these alerts may include horns, lights and/or audio messages.

The Mitigation and Stewardship Plan and the Monitoring and Adaptive Management (MAM) Plan provided in Draft EIS Appendix R were submitted by CPRA and represent a range of potential mitigation, stewardship, monitoring and adaptive management measures (collectively, measures). At the time of publication of the Draft EIS for public review, Appendix R contained draft Plans and CPRA had not identified which of the measures contained in those Plans it intended to implement. CPRA expanded and refined the Final Mitigation and Stewardship Plan in response to community and resource agency input. The Final EIS Appendix R contains the Final Mitigation and Stewardship Plan and specifies which measures CPRA intends to implement. Generally, impact determinations discussed in the EIS represent anticipated Project effects without implementation of these measures except in instances where such measures are identified in the discussion. If any mitigation, monitoring or adaptive management measures are required by USACE as part of its approval of the Project, such measures would be required as special conditions of the Department of the Army (DA) Section 10/404 permit and would be listed in the permit, if one is issued. Implementation of specific measures contained in either Plan, but not included in the Section 10/404 permit as special conditions, would not be required by USACE. USACE does not know whether any particular measure that is not a DA permit condition would be implemented. Measures that USACE currently contemplates as conditions of a DA Section 10/404 permit, if one is issued, are provided in Chapter 4, Section 4.27 Mitigation Summary of the EIS.

The LA TIG explains in Section 1.5 of the Final Restoration Plan that it anticipates requiring implementation of the Mitigation and Stewardship

Plan, MAM Plan, and Marine Mammal Intervention Plan as components of the proposed Project, if the Project is approved by the LA TIG for funding. Decisions regarding which measures would be required as part of the LA TIG's funding decision would be set forth in the LA TIG Record of Decision related to the proposed Project.

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## MT21200 – Property Impacts Mitigation

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**Concern ID: 63096**

**Commenters request information and mitigation to compensate for impacts to properties, especially in Myrtle Grove and Happy Jack, (including compensation for acquisition; compensation for raising docks, roads, property, and facilities; relocation expenses; and insurance costs).**

**Response ID: 16699**

Chapter 4, Sections 4.13.5 Operational Impacts in Socioeconomics and 4.20.4.2 Operational Impacts in Public Health and Safety, Including Flood and Storm Hazard Risk Reduction, of the Draft EIS considered the increased water levels and corresponding inundation outside of federal levee systems potentially caused by the proposed Project.

CPRA is interested in assisting affected communities to remain in place as long as they would like. In response to public comments, CPRA expanded its Final Mitigation and Stewardship Plan (Appendix R1 to the Final EIS) to include mitigation and stewardship measures to partially offset some of the projected effects of the proposed Project on water levels in the communities south of the outfall outside of levee protection from Myrtle Grove south to Grand Bayou and Happy Jack.

The particular mitigation and stewardship measures vary based on the community, taking into consideration the degree of effect from the proposed Project, as well as the characteristics of the community. For example, the Final Mitigation and Stewardship Plan (Appendix R1 to the Final EIS) explains CPRA's plan to improve the bulkhead around the Myrtle Grove Marina Estates Subdivision which should reduce the incidence of tidal flooding in Myrtle Grove compared to future conditions without the proposed Project. In Grand Bayou and Happy Jack, where the increased water levels due to the proposed Project are projected to be less, CPRA plans to raise the road to improve access to the communities. In addition, CPRA plans to acquire the right to add and/or increase water flow on landowners' properties through the purchase of Project servitudes from landowners in these communities. The Project servitude would allow CPRA to flow water over the landowner's property at heights and durations that are greater than would be in the case in the future without the Project. The Project servitude would be recorded against title to the property and would run

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with the land. CPRA would attempt to negotiate with the affected landowner to acquire this servitude. If the CPRA and the landowner were unable to reach a negotiated agreement, CPRA would exercise its eminent domain authority to purchase the servitude. CPRA would compensate those landowners for the value of the Project servitude. A property owner would be able to use the funds received in exchange for the servitude to implement flood mitigation and stewardship measures.

As an alternative to these measures, CPRA may consider purchasing an impacted property outright (that is, in fee) if requested by the owner. Decisions about whether to purchase a property would be made on a case-by-case basis depending on the particular circumstances.

Structural measures in CPRA's Mitigation and Stewardship Plan are not included in CPRA's DA permit application and if this permit is approved, would not be authorized under the DA permit. Many of these structural measures would require additional DA and other permits prior to installation. Such permits are not guaranteed and would take time for USACE and other regulating agencies to process.

A DA permit does not convey any property rights and does not authorize any injury to property or invasion of rights or any infringement of Federal, state or local laws or regulations. The applicant's signature on an application is an affirmation that the applicant possesses or will possess the requisite property interest to undertake the activity proposed in the application.

These measures are described in CPRA's Final Mitigation and Stewardship Plan (Appendix R1 to the Final EIS).

The Mitigation and Stewardship Plan and the Monitoring and Adaptive Management (MAM) Plan provided in Draft EIS Appendix R were submitted by CPRA and represent a range of potential mitigation, stewardship, monitoring and adaptive management measures (collectively, measures). At the time of publication of the Draft EIS for public review, Appendix R contained draft Plans and CPRA had not identified which of the measures contained in those Plans it intended to implement. The Final EIS Appendix R contains the final Plans and specifies which measures CPRA and the LA TIG intend to implement. Generally, impact determinations discussed in the EIS represent anticipated Project effects without implementation of these measures except in instances where such measures are identified in the discussion. If any mitigation, monitoring or adaptive management measures are required by USACE as part of its approval of the proposed Project, such measures would be required as special conditions of the Department of the Army (DA) Section 10/404 permit and would be listed in the permit, if one is issued. Implementation of specific measures contained in either Plan, but not included in the Section 10/404 permit as special conditions, would not be required by

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**Concern ID: 63097**

**Commenter requested information regarding how high to install a new bulkhead on their lot in the Myrtle Grove Marina Subdivision.**

**Response ID: 16636**

Projected increases in water levels and corresponding tidal inundation in communities near the immediate outfall areas (within 10 miles north and 20 miles south) and outside of flood protection were considered in Chapter 4, Section 4.20 Public Health and Safety, Including Flood and Storm Hazard Risk Reduction of the Draft EIS. See Table 4.20-2 of the Final EIS for the projected number of days that inundation would be experienced (based on fixed thresholds) at these communities including Myrtle Grove.

CPRA's Final Mitigation and Stewardship Plan includes structural measures that CPRA plans to implement to reduce some impacts of the proposed Project. In particular, CPRA has proposed, as part of the Mitigation and Stewardship Plan (Appendix R1 to the Final EIS) to improve the bulkhead along the lots in the Myrtle Grove Marina Estates Subdivision to an elevation of 4.0 feet NAVD88 or greater.

Structural measures in CPRA's Mitigation and Stewardship Plan are not included in CPRA's DA permit application and if this permit is approved, would not be authorized under the DA permit. Many of these structural measures would require additional DA and other permits prior to installation. Such permits are not guaranteed and would take time for USACE and other regulating agencies to process.

A DA permit does not convey any property rights and does not authorize any injury to property or invasion of rights or any infringement of Federal, state or local laws or regulations. The applicant's signature on an application is an affirmation that the applicant possesses or will possess the requisite property interest to undertake the activity proposed in the application.

The Mitigation and Stewardship Plan and the Monitoring and Adaptive Management (MAM) Plan provided in Draft EIS Appendix R were submitted by CPRA and represent a range of potential mitigation,

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stewardship, monitoring and adaptive management measures (collectively, measures). At the time of publication of the Draft EIS for public review, Appendix R contained draft Plans and CPRA had not identified which of the measures contained in those Plans it intended to implement. The Final EIS Appendix R contains the final Plans and specifies which measures CPRA and the LA TIG intend to implement. Generally, impact determinations discussed in the EIS represent anticipated Project effects without implementation of these measures except in instances where such measures are identified in the discussion. If any mitigation, monitoring or adaptive management measures are required by USACE as part of its approval of the Project, such measures would be required as special conditions of the Department of the Army (DA) Section 10/404 permit and would be listed in the permit, if one is issued. Implementation of specific measures contained in either Plan, but not included in the Section 10/404 permit as special conditions, would not be required by USACE. USACE does not know whether any particular measure that is not a DA permit condition would be implemented. Measures that USACE currently contemplates as conditions of a DA Section 10/404 permit, if one is issued, are provided in Chapter 4, Section 4.27 Mitigation Summary of the EIS.

The LA TIG explains in Section 1.5 of the Final Restoration Plan that it anticipates requiring implementation of the Mitigation and Stewardship Plan, MAM Plan, and Marine Mammal Intervention Plan as components of the proposed Project, if the Project is approved by the LA TIG for funding. Decisions regarding which measures would be required as part of the LA TIG's funding decision would be set forth in the LA TIG Record of Decision related to the proposed Project.

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**Concern ID: 63098**

**Commenter asserted that the compensation evaluation for Midway should consider public market and value of borrow material.**

**Response ID: 16637**

As part of any property rights acquisition from Midway to implement the Project, CPRA would compensate landowners for the value of any property interest acquired in accordance with applicable law.. Determining the appropriate amount that CPRA would pay for property it acquires for the Project is outside of the scope of the USACE EIS process and the LA TIG's OPA Restoration Plan.

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**Concern ID: 63099**

**Commenter expressed concern that they will not be able to access their property due to flood waters caused by operation of the Project and that the Project will kill fish, shrimp, and crab that they enjoy from their property.**

**Response ID: 16709**

The commenter's concern regarding the impacts of the proposed Project on access to certain properties due to increased water levels was considered in Chapter 4, Section 4.20.4.2 Operational Impacts in Public Health and Safety, Including Flood and Storm Hazard Risk

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Reduction of the Draft EIS, and the impacts of the proposed Project on aquatic species and recreational and subsistence fishing were considered in Sections 4.10.4.5 Key Species in Aquatic Resources, 4.13.5.6 Community Cohesion and 4.16.5.2 Applicant's Preferred Alternative in Recreation and Tourism.

Recognizing these potential impacts, CPRA engaged the communities potentially impacted by the proposed Project through public meetings to solicit input on mitigation and stewardship strategies. A summary of these public engagement meetings and other outreach efforts is in Chapter 7 Public Involvement of the Final EIS. The Final EIS Mitigation and Stewardship Plan (Appendix R1) was expanded and refined since the Draft EIS based on this community input. CPRA's Final Mitigation and Stewardship Plan includes structural measures that CPRA plans to implement to address and offset some impacts of the proposed Project. For example, CPRA plans to improve the bulkhead around the Myrtle Grove Marina Estates Subdivision to reduce incidence of tidal flooding in Myrtle Grove compared to future conditions without the Project. CPRA is also planning to provide property owners from Woodpark south to Grand Bayou and Happy Jack with funds to elevate docks and boat houses, and to mitigate the effects of the proposed Project on boat access from Myrtle Grove and Woodpark to the basin. See the Final Mitigation and Stewardship Plan (Appendix R1 to the Final EIS) for additional details.

Structural measures such as raising roads or improving bulkheads in CPRA's Mitigation and Stewardship Plan are not included in CPRA's DA permit application and if this permit is approved, would not be authorized under the DA permit. Many of these structural measures would require additional DA and other permits prior to installation. Such permits are not guaranteed and would take time for USACE and other regulating agencies to process.

A DA permit does not convey any property rights and does not authorize any injury to property or invasion of rights or any infringement of Federal, state or local laws or regulations. The applicant's signature on an application is an affirmation that the applicant possesses or will possess the requisite property interest to undertake the activity proposed in the application.

The Draft EIS also addressed how changes in the proposed Project area both with and without implementation of the proposed Project would potentially impact aquatic species Chapter 4, Section 4.10 Aquatic Species and recreational fishing Chapter 4, Section 4.6 Recreation and Tourism. In response to public comments and resource agency input, CPRA has expanded and refined the fisheries mitigation and stewardship measures since the release of the Draft EIS. CPRA's mitigation and stewardship strategies and expenditures focus on



establishing sustainable fisheries. The final fishery mitigation plan can be found in the Final Mitigation and Stewardship Plan (Appendix R1 to the Final EIS).

The Mitigation and Stewardship Plan and the Monitoring and Adaptive Management (MAM) Plan provided in Draft EIS Appendix R were submitted by CPRA and represent a range of potential mitigation, stewardship, monitoring and adaptive management measures (collectively, measures). At the time of publication of the Draft EIS for public review, Appendix R contained draft Plans and CPRA had not identified which of the measures contained in those Plans it intended to implement. The Final EIS Appendix R contains the final Plans and specifies which measures CPRA and the LA TIG intend to implement. Generally, impact determinations discussed in the EIS represent anticipated Project effects without implementation of these measures except in instances where such measures are identified in the discussion. If any mitigation, monitoring or adaptive management measures are required by USACE as part of its approval of the proposed Project, such measures would be required as special conditions of the Department of the Army (DA) Section 10/404 permit and would be listed in the permit, if one is issued. Implementation of specific measures contained in either Plan, but not included in the Section 10/404 permit as special conditions, would not be required by USACE. USACE does not know whether any particular measure that is not a DA permit condition would be implemented. Measures that USACE currently contemplates as conditions of a DA Section 10/404 permit, if one is issued, are provided in Chapter 4, Section 4.27 Mitigation Summary of the EIS.

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**Concern ID: 63100**

**Commenters request additional information on how homestead exemption will be considered in compensation for acquisition.**

**Response ID: 16638**

The reference to homestead exemption in the Draft EIS was for informational purposes, and not intended to determine how compensation or mitigation would be provided. As part of any property acquisition to implement the Project, CPRA intends to compensate landowners for the value of any property interest acquired in accordance with applicable law..

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**Concern ID: 63101**

**Commenter requests information on whether property will be transferrable after receiving mitigation and whether insurance will continue to be available.**

**Response ID: 16639**

Details regarding CPRA's planned mitigation and stewardship measures are explained in CPRA's Final Mitigation and Stewardship Plan, Appendix R1 to the Final EIS. Any property that is subject to a Project servitude would remain transferrable, however, subsequent transfers of that property would remain subject to the terms of the servitude. Similarly, if CPRA were to implement structural mitigation and stewardship measures on a landowner's property (such as improving the bulkhead), the property would remain transferrable, however, subsequent transfers of the property would remain subject to the terms of any servitude or other agreement granted to CPRA.

A DA permit does not convey any property rights and does not authorize any injury to property or invasion of rights or any infringement of Federal, state or local laws or regulations. The applicant's signature on an application is an affirmation that the applicant possesses or will possess the requisite property interest to undertake the activity proposed in the application.

CPRA and the LA TIG would not place any restrictions on the ability to obtain or receive insurance as a condition to implementation of any mitigation and stewardship measures.

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**Concern ID: 63102**

**Commenters expressed concern that they will not be able to use their property if the Project proceeds. Commenters believe that the amount of funds proposed for mitigation is insufficient.**

**Response ID: 16640**

The commenters' concern regarding the adequacy of the funding for mitigation and stewardship measures was considered by CPRA and the LA TIG in developing CPRA's Mitigation and Stewardship Plan (Appendix R1) issued with the Draft EIS. The Mitigation and Stewardship Plan issued with the Draft EIS included proposals to address and partially offset some of the projected impacts of the Project on surrounding communities outside levee protection, including potential mitigation and stewardship measures to address increased water levels due to the Project. In response to comments, CPRA further expanded and refined this Mitigation and Stewardship Plan in the Final EIS (Appendix R1).

The mitigation and stewardship measures would vary by community. In Myrtle Grove, CPRA would improve the bulkhead around the Myrtle Grove Marina Estates Subdivision to reduce the incidence of tidal flooding in Myrtle Grove compared to future conditions without the Project. In other communities from Woodpark to Happy Jack south of the Project site outside levee protection, CPRA would elevate the roadways and make other infrastructure improvements to maintain

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access and the utilities of those communities. Also in these communities, CPRA plans to acquire Project servitudes from landowners. The Project servitude would allow CPRA to flow water over the landowner's property at heights and durations that are greater than would be in the case in the future without the Project. The Project servitude would be recorded against title to the property and would run with the land. CPRA would attempt to negotiate with the affected landowner to acquire this servitude. If the CPRA and the landowner were unable to reach a negotiated agreement, CPRA would exercise its eminent domain authority to purchase the servitude. CPRA would compensate those landowners for the Project servitude. A property owner would be able to use the funds received in exchange for the servitude to implement flood mitigation and stewardship measures.

As an alternative to these measures, CPRA may consider purchasing an impacted property outright (that is, in fee) if requested by the owner. Decisions about whether to purchase a property would be made on a case-by-case basis depending on the particular circumstances.

Structural measures in CPRA's Mitigation and Stewardship Plan are not included in CPRA's DA permit application and if this permit is approved, would not be authorized under the DA permit. Many of these structural measures would require additional DA and other permits prior to installation. Such permits are not guaranteed and would take time for USACE and other regulating agencies to process.

A DA permit does not convey any property rights and does not authorize any injury to property or invasion of rights or any infringement of Federal, state or local laws or regulations. The applicant's signature on an application is an affirmation that the applicant possesses or will possess the requisite property interest to undertake the activity proposed in the application.

Details regarding the funding that will be available for aquatic/fisheries mitigation and stewardship measures is set forth in the Final Mitigation and Stewardship Plan, Appendix R1. Details regarding other mitigation and stewardship measures (e.g., mitigation for tidal flooding impacts) is also set forth in the Final Mitigation and Stewardship Plan, Appendix R1; however, final estimated costs for those measures continues under development. CPRA has stated that the total estimated cost of all mitigation and stewardship measures set forth in the Final Mitigation and Stewardship Plan exceeds \$300 million dollars. Details regarding the cost for the monitoring and adaptive management are set forth in Section 9 of the Final MAM Plan, Appendix R2. Section 3.2.1.2 of the Draft Restoration Plan includes estimates of project costs, including the cost for project design and construction and project monitoring. Updated cost estimates will be provided as part of the Final Restoration Plan, including project monitoring and stewardship measures.

The Mitigation and Stewardship Plan and the Monitoring and Adaptive Management (MAM) Plan provided in Draft EIS Appendix R were submitted by CPRA and represent a range of potential mitigation, stewardship, monitoring and adaptive management measures (collectively, measures). At the time of publication of the Draft EIS for public review, Appendix R contained draft Plans and CPRA had not identified which of the measures contained in those Plans it intended to implement. The Final EIS Appendix R contains the final Plans and specifies which measures CPRA and the LA TIG intend to implement. Generally, impact determinations discussed in the EIS represent anticipated Project effects without implementation of these measures except in instances where such measures are identified in the discussion. If any mitigation, monitoring or adaptive management measures are required by USACE as part of its approval of the Project, such measures would be required as special conditions of the Department of the Army (DA) Section 10/404 permit and would be listed in the permit, if one is issued. Implementation of specific measures contained in either Plan, but not included in the Section 10/404 permit as special conditions, would not be required by USACE. USACE does not know whether any particular measure that is not a DA permit condition would be implemented. Measures that USACE currently contemplates as conditions of a DA Section 10/404 permit, if one is issued, are provided in Chapter 4, Section 4.27 Mitigation Summary of the EIS.

The LA TIG explains in Section 1.5 of the Final Restoration Plan that it anticipates requiring implementation of the Mitigation and Stewardship Plan, MAM Plan, and Marine Mammal Intervention Plan as components of the proposed Project, if the Project is approved by the LA TIG for funding. Decisions regarding which measures would be required as part of the LA TIG's funding decision would be set forth in the LA TIG Record of Decision related to the proposed Project.

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**Concern ID: 63103**

**Commenter suggests that a floodgate across the canal would be a better solution and would not harm property.**

**Response ID: 16641**

The Draft Mitigation and Stewardship Plan (Appendix R1 to the Draft EIS) outlined the mitigation and stewardship measures proposed by CPRA to address and offset the projected impacts of Project operations on surrounding communities, including providing mitigation for increased water levels due to the Project. In response to comments, CPRA has expanded and refined the Final Mitigation and Stewardship Plan in the Final EIS (Appendix R1).

As part of developing the Final Mitigation and Stewardship Plan, CPRA considered the possibility of installing a flood gate for the Myrtle Grove Marina Estates Subdivision. CPRA decided not to pursue this option for several reasons. While some property owners in Myrtle Grove have

suggested a flood gate, others do not support a flood gate due to the impacts that such a structure would have on immediate accessibility to the Barataria Basin. CPRA also considered a flood wall, but again, community members were not aligned regarding this potential solution, with some objecting to a flood wall on the grounds that it would block access to the Barataria Basin. CPRA has proposed instead other structural mitigation and stewardship measures to address the projected impacts of the Project on water levels and boat accessibility in the Mitigation and Stewardship Plan.

Structural measures in CPRA's Mitigation and Stewardship Plan are not included in CPRA's DA permit application and if this permit is approved, would not be authorized under the DA permit. Many of these structural measures would require additional DA and other permits prior to installation. Such permits are not guaranteed and would take time for USACE and other regulating agencies to process.

The Mitigation and Stewardship Plan and the Monitoring and Adaptive Management (MAM) Plan provided in Draft EIS Appendix R were submitted by CPRA and represent a range of potential mitigation, stewardship, monitoring and adaptive management measures (collectively, measures). At the time of publication of the Draft EIS for public review, Appendix R contained draft Plans and CPRA had not identified which of the measures contained in those Plans it intended to implement. The Final EIS Appendix R contains the final Plans and specifies which measures CPRA and the LA TIG intend to implement. Generally, impact determinations discussed in the EIS represent anticipated Project effects without implementation of these measures except in instances where such measures are identified in the discussion. If any mitigation, monitoring or adaptive management measures are required by USACE as part of its approval of the Project, such measures would be required as special conditions of the Department of the Army (DA) Section 10/404 permit and would be listed in the permit, if one is issued. Implementation of specific measures contained in either Plan, but not included in the Section 10/404 permit as special conditions, would not be required by USACE. USACE does not know whether any particular measure that is not a DA permit condition would be implemented. Measures that USACE currently contemplates as conditions of a DA Section 10/404 permit, if one is issued, are provided in Chapter 4, Section 4.27 Mitigation Summary of the EIS.

The LA TIG explains in Section 1.5 of the Final Restoration Plan that it anticipates requiring implementation of the Mitigation and Stewardship Plan, MAM Plan, and Marine Mammal Intervention Plan as components of the proposed Project, if the Project is approved by the LA TIG for funding. Decisions regarding which measures would be required as

part of the LA TIG's funding decision would be set forth in the LA TIG Record of Decision related to the proposed Project.

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## MT21300 – Flooding Impacts Mitigation

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**Concern ID: 62951**

**CPRA must address how it will mitigate flooding in the EIS with specific plans and adequate funding. Commenters specifically asked whether there will be funding available to raise roads, homes, and properties; to compensate property owners for lost property value; to relocate people and businesses; to address increases in flood insurance costs; to provide a fair market buyout option; to pay for flood walls, gates, and maintenance; to compensate for loss of use and enjoyment of property; and to cover increased costs of providing emergency services.**

**Response ID: 16711**

Impacts associated with inundation raised by the commenters were considered in Chapter 4, Section 4.20 Public Health and Safety, Including Flood and Storm Hazard Risk Reduction of the Draft EIS and in Appendix R1 Mitigation and Stewardship Plan. In response to comments, CPRA has expanded and refined this Mitigation and Stewardship Plan in the Final EIS (Appendix R1).

Concurrent with publication of the Draft EIS, CPRA held several meetings with the communities potentially affected to receive their input on how best to mitigate the Project effects on water levels. CPRA also engaged community-based organizations to assist in soliciting additional feedback on the proposed mitigation and stewardship measures. A summary of these public engagement meetings and other outreach efforts is in Chapter 7 Public Involvement of the Final EIS. CPRA plans to continue utilizing community-based organizations to help ensure that diverse populations become aware of and take advantage of the mitigation and stewardship measures. CPRA also plans to prepare outreach materials in easy to read and understand formats for distribution to the public.

Based in part on the feedback received, CPRA expanded the Final Mitigation and Stewardship Plan (Appendix R1 to the Final EIS) to include mitigation and stewardship measures to partially offset some of the projected effects of the proposed Project on water levels in the communities south of the outfall outside of levee protection. This includes a combination of structural measures (for example, raising roads, boat houses, docks, and utilities) and non-structural measures (for example, Project servitudes).

Structural measures in the Mitigation and Stewardship Plan are not included in CPRA's MBSD DA permit application and if this permit is approved, would not be authorized under the DA permit. Many of these

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structural measures would require additional DA and other permits prior to installation. Such permits are not guaranteed and would take time for USACE and other regulating agencies to process.

A DA permit does not convey any property rights and does not authorize any injury to property or invasion of rights or any infringement of Federal, state or local laws or regulations. The applicant's signature on an application is an affirmation that the applicant possesses or will possess the requisite property interest to undertake the activity proposed in the application.

The particular mitigation and stewardship measures vary based on the community, taking into consideration the degree of effect from the proposed Project, as well as the characteristics of the community. For example, the Final Mitigation and Stewardship Plan (Appendix R1 to the Final EIS) explains CPRA's plans to improve the bulkhead around the Myrtle Grove Marina Estates Subdivision, which would reduce the incidence of tidal flooding in the Myrtle Grove Marina Estates Subdivision compared to future conditions if the proposed Project were not constructed.

In communities south of the diversion outside levee projection from Woodpark south to Grand Bayou and Happy Jack, CPRA plans to raise the road to improve access to the properties and purchase Project servitudes from property owners that would permit CPRA to add and/or increase the water flow on landowners' properties. CPRA would attempt to negotiate with the landowners to acquire this servitude. If CPRA and the landowner were unable to reach a negotiated agreement, CPRA would exercise its eminent domain authority to acquire these servitudes and would compensate landowners for the value of any property interest acquired. Landowners would be able to use the funds from the Project servitude to implement additional flood mitigation and stewardship measures.

CPRA also may consider purchasing an impacted property outright if requested by the owner. Decisions regarding buyouts would be made on a case-by-case basis depending on the particular circumstances. These potential measures are described in the Mitigation and Stewardship Plan (Appendix R1 to the Final EIS).

As part of developing the Final Mitigation and Stewardship Plan (Appendix R1 to the Final EIS), CPRA considered the possibility of installing a flood gate for the Myrtle Grove community. CPRA decided not to pursue this option for several reasons. While some property owners in the Myrtle Grove Marina Estates Subdivision have suggested a flood gate, others do not support a flood gate due to the impacts that such a structure would have on immediate accessibility to the Barataria Basin. CPRA also considered a flood wall, but again, community members were not aligned regarding this potential solution, with some



objecting to a flood wall on the grounds that it would block access to the basin. CPRA has developed instead other structural mitigation and stewardship measures to address the projected impacts of the proposed Project on water levels and boat accessibility in the Final Mitigation and Stewardship Plan.

The Final EIS concludes that the proposed Project would not impact the availability of flood insurance, but may cause an increase in flood insurance premium for some properties. See Section 4.13.5.3 in Socioeconomics and Section 4.15.4 in Environmental Justice of the Final EIS for further discussion of the potential effect of the Project on the cost of flood insurance. Due to the evolving implementation of FEMA's Risk Rating 2.0, it is difficult to predict whether or by how much premiums may change.

The Mitigation and Stewardship Plan and the Monitoring and Adaptive Management (MAM) Plan provided in Draft EIS Appendix R were submitted by CPRA and represent a range of potential mitigation, stewardship, monitoring and adaptive management measures (collectively, measures). At the time of publication of the Draft EIS for public review, Appendix R contained draft Plans and CPRA had not identified which of the measures contained in those Plans it intended to implement. CPRA expanded and refined the Final Mitigation and Stewardship Plan in response to community and resource agency input. The Final EIS Appendix R contains the final Plans and specifies which measures CPRA and the LA TIG intend to implement. Generally, impact determinations discussed in the EIS represent anticipated Project effects without implementation of these measures except in instances where such measures are identified in the discussion. If any mitigation, monitoring or adaptive management measures are required by USACE as part of its approval of the proposed Project, such measures would be required as special conditions of the Department of the Army (DA) Section 10/404 permit and would be listed in the permit, if one is issued. Implementation of specific measures contained in either Plan, but not included in the Section 10/404 permit as special conditions, would not be required by USACE. USACE does not know whether any particular measure that is not a DA permit condition would be implemented. Measures that USACE currently contemplates as conditions of a DA Section 10/404 permit, if one is issued, are provided in Chapter 4, Section 4.27 Mitigation Summary of the EIS.

The LA TIG explains in Section 1.5 of the Final Restoration Plan that it anticipates requiring implementation of the Mitigation and Stewardship Plan, MAM Plan, and Marine Mammal Intervention Plan as components of the proposed Project, if the Project is approved by the LA TIG for funding. Decisions regarding which measures would be required as



part of the LA TIG's funding decision would be set forth in the LA TIG Record of Decision related to the proposed Project.

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**Concern ID: 62952**

**Commenter expressed concern about the efficacy of certain mitigation and stewardship measures such as floodwalls, floodgates and flood easements.**

**Response ID: 16710**

Since issuance of the Draft EIS, CPRA has expanded and refined the Mitigation and Stewardship Plan (Appendix R1) based on community and resource agency input. Details regarding the funding that will be available for aquatic/fisheries mitigation and stewardship measures is set forth in the Final Mitigation and Stewardship Plan, Appendix R1. Details regarding other mitigation and stewardship measures (e.g., mitigation for tidal flooding impacts) is also set forth in the Final Mitigation and Stewardship Plan, Appendix R1; however, final estimated costs for those measures continues under development. CPRA has stated that the total estimated cost of all mitigation and stewardship measures set forth in the Final Mitigation and Stewardship Plan exceeds \$300 million dollars. Details regarding the cost for the monitoring and adaptive management are set forth in Section 9 of the Final MAM Plan, Appendix R2. Section 3.2.1.2 of the Draft Restoration Plan includes estimates of project costs, including the cost for project design and construction and project monitoring. Updated cost estimates will be provided as part of the Final Restoration Plan, including project monitoring and stewardship measures.

If the LA TIG decides to fund the proposed Project, that funding authorization would also include funding for the mitigation and stewardship measures set forth in the Mitigation and Stewardship Plan.

With implementation of the structural mitigation included in the Final Mitigation and Stewardship Plan, access to the properties within the communities south of the outfall (beginning at Myrtle Grove and continuing south to Grand Bayou and Happy Jack) would be improved over future conditions without the proposed Project. In particular, roadways would either be protected from flooding by increasing the height of the community's bulkhead (Myrtle Grove) or elevating the access roadways (Woodpark south to Happy Jack). The result would be that property owners, tenants and guests, as well as emergency service workers, would have improved access to the potentially flooded properties. See the Mitigation and Stewardship Plan (Appendix R1 to the Final EIS) for additional details.

As part of developing the Final Mitigation and Stewardship Plan (Appendix R1 to the Final EIS), CPRA considered the possibility of installing a flood gate for the Myrtle Grove Marina Estates Subdivision. CPRA decided not to pursue this option for several reasons. While some property owners in the Myrtle Grove Estates Subdivision have suggested a flood gate, others do not support a flood gate due to the

impacts that such a structure would have on immediate accessibility to the Barataria Basin. CPRA also considered a flood wall, but again, community members were not aligned regarding this potential solution, with some objecting to a flood wall on the grounds that it would block access to the basin. CPRA has developed instead other structural mitigation and stewardship measures to address the projected impacts of the proposed Project on water levels and boat accessibility in the Mitigation and Stewardship Plan.

In addition, changes in water levels due to Project operations would not be expected to change the Flood Insurance Rate Maps (FIRMs). See Section 4.13.5.3 in Socioeconomics and Section 4.15.4 in Environmental Justice of the Final EIS for further discussion of the potential effect of the Project on the cost of flood insurance. Due to the evolving implementation of FEMA's Risk Rating 2.0, it is difficult to predict whether or by how much premiums may change. Also, the proposed Project servitudes, which would permit CPRA to increase the water levels on the properties during Project operations in exchange for monetary compensation, would not restrict the provision of emergency services.

The Mitigation and Stewardship Plan and the Monitoring and Adaptive Management (MAM) Plan provided in Draft EIS Appendix R were submitted by CPRA and represent a range of potential mitigation, stewardship, monitoring and adaptive management measures (collectively, measures). At the time of publication of the Draft EIS for public review, Appendix R contained draft Plans and CPRA had not identified which of the measures contained in those Plans it intended to implement. CPRA expanded and refined the Final Mitigation and Stewardship Plan in response to community and resource agency input. The Final EIS Appendix R contains the final Plans and specifies which measures CPRA and the LA TIG intend to implement. Generally, impact determinations discussed in the EIS represent anticipated Project effects without implementation of these measures except in instances where such measures are identified in the discussion. If any mitigation, monitoring or adaptive management measures are required by USACE as part of its approval of the proposed Project, such measures would be required as special conditions of the Department of the Army (DA) Section 10/404 permit and would be listed in the permit, if one is issued. Implementation of specific measures contained in either Plan, but not included in the Section 10/404 permit as special conditions, would not be required by USACE. USACE does not know whether any particular measure that is not a DA permit condition would be implemented. Measures that USACE currently contemplates as conditions of a DA Section 10/404 permit, if one is issued, are provided in Chapter 4, Section 4.27 Mitigation Summary of the EIS.

The LA TIG explains in Section 1.5 of the Final Restoration Plan that it anticipates requiring implementation of the Mitigation and Stewardship Plan, MAM Plan, and Marine Mammal Intervention Plan as components of the proposed Project, if the Project is approved by the LA TIG for funding. Decisions regarding which measures would be required as part of the LA TIG's funding decision would be set forth in the LA TIG Record of Decision related to the proposed Project.

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**Concern ID: 62954**

**Compensation should not be provided for impacts to vacation homes, rental homes, or planned homes.**

**Response ID: 16612**

The comment that compensation should not be provided for impacts to vacation homes, rental homes, or planned homes, is acknowledged. CPRA's mitigation and stewardship measures set forth in the Final Mitigation and Stewardship Plan (Appendix R1 to the Final EIS) do not differentiate between primary residences and second, vacation or rental homes in terms of the mitigation planned as part of the Project or offered to any property owner. In cases where CPRA acquires property interests as part of implementing the mitigation and stewardship measures, CPRA will compensate the landowner for that property interest.

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**Concern ID: 62956**

**It is imperative that oyster productivity be rebuilt because it would provide natural flood protection.**

**Response ID: 16613**

The oyster mitigation concern raised by the commenters was considered in the Draft EIS as part of the Draft Mitigation and Stewardship Plan (Appendix R1). Additional details on oyster mitigation have been added to this appendix in the Final EIS. CPRA agrees that maintaining a sustainable oyster population is imperative and has designated \$32 million in mitigation strategies associated with the Project toward that objective. Most of these funds would go towards new public seed grounds, enhanced public/private grounds, Alternative Oyster Culture, and broodstock reefs. Additional funding would go towards assisting the oyster industry in marketing and outreach. Details regarding the oyster mitigation and stewardship measures are set forth in the Final Mitigation and Stewardship Plan (Appendix R1 to the Final EIS).

The Mitigation and Stewardship Plan and the Monitoring and Adaptive Management (MAM) Plan provided in Draft EIS Appendix R were submitted by CPRA and represent a range of potential mitigation, stewardship, monitoring and adaptive management measures (collectively, measures). At the time of publication of the Draft EIS for public review, Appendix R contained draft Plans and CPRA had not identified which of the measures contained in those Plans it intended to implement. CPRA expanded and refined the Final Mitigation and Stewardship Plan in response to community and resource agency input. The Final EIS Appendix R contains the final Plans and specifies

which measures CPRA and the LA TIG intend to implement. Generally, impact determinations discussed in the EIS represent anticipated Project effects without implementation of these measures except in instances where such measures are identified in the discussion. If any mitigation, monitoring or adaptive management measures are required by USACE as part of its approval of the Project, such measures would be required as special conditions of the Department of the Army (DA) Section 10/404 permit and would be listed in the permit, if one is issued. Implementation of specific measures contained in either Plan, but not included in the Section 10/404 permit as special conditions, would not be required by USACE. USACE does not know whether any particular measure that is not a DA permit condition would be implemented. Measures that USACE currently contemplates as conditions of a DA Section 10/404 permit, if one is issued, are provided in Chapter 4, Section 4.27 Mitigation Summary of the EIS.

The LA TIG explains in Section 1.5 of the Final Restoration Plan that it anticipates requiring implementation of the Mitigation and Stewardship Plan, MAM Plan, and Marine Mammal Intervention Plan as components of the proposed Project, if the Project is approved by the LA TIG for funding. Decisions regarding which measures would be required as part of the LA TIG's funding decision would be set forth in the LA TIG Record of Decision related to the proposed Project.

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**Concern ID: 62957**

**Commenter expressed support for implementation and recognizes the cross benefit of mitigation and stewardship measures to address increased localized flooding. The commenter noted that once in place those measures would result in protection to the communities from both localized flooding associated with the Project as well as from increased flooding associated with subsidence and sea-level rise.**

**Response ID: 16614**

The LA TIG acknowledges the commenter's support of the Project and agrees that the mitigation and stewardship measures would address some Project impacts, as well as flooding from sea-level rise and subsidence.

The Mitigation and Stewardship Plan and the Monitoring and Adaptive Management (MAM) Plan provided in Draft EIS Appendix R were submitted by CPRA and represent a range of potential mitigation, stewardship, monitoring and adaptive management measures (collectively, measures). At the time of publication of the Draft EIS for public review, Appendix R contained draft Plans and CPRA had not identified which of the measures contained in those Plans it intended to implement. CPRA expanded and refined the Final Mitigation and Stewardship Plan in response to community and resource agency input. The Final EIS Appendix R contains the final Plans and specifies which measures CPRA and the LA TIG intend to implement. Generally,

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impact determinations discussed in the EIS represent anticipated Project effects without implementation of these measures except in instances where such measures are identified in the discussion. If any mitigation, monitoring or adaptive management measures are required by USACE as part of its approval of the proposed Project, such measures would be required as special conditions of the Department of the Army (DA) Section 10/404 permit and would be listed in the permit, if one is issued. Implementation of specific measures contained in either Plan, but not included in the Section 10/404 permit as special conditions, would not be required by USACE. USACE does not know whether any particular measure that is not a DA permit condition would be implemented. Measures that USACE currently contemplates as conditions of a DA Section 10/404 permit, if one is issued, are provided in Chapter 4, Section 4.27 Mitigation Summary of the EIS.

The LA TIG explains in Section 1.5 of the Final Restoration Plan that it anticipates requiring implementation of the Mitigation and Stewardship Plan, MAM Plan, and Marine Mammal Intervention Plan as components of the proposed Project, if the Project is approved by the LA TIG for funding. Decisions regarding which measures would be required as part of the LA TIG's funding decision would be set forth in the LA TIG Record of Decision related to the proposed Project.

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**Concern ID: 63291**

**The Project should consider the use of muscle walls to protect homes, businesses, municipalities from flooding.**

**Response ID: 16615**

The Draft EIS did not consider the use of muscle walls as a potential flooding mitigation measure. While CPRA has updated the Mitigation and Stewardship Plan (Appendix R1 to the Final EIS), CPRA has not made final decisions regarding the materials that would be used for the structural mitigation and stewardship measures.

The Mitigation and Stewardship Plan and the Monitoring and Adaptive Management (MAM) Plan provided in Draft EIS Appendix R were submitted by CPRA and represent a range of potential mitigation, stewardship, monitoring and adaptive management measures (collectively, measures). At the time of publication of the Draft EIS for public review, Appendix R contained draft Plans and CPRA had not identified which of the measures contained in those Plans it intended to implement. CPRA expanded and refined the Final Mitigation and Stewardship Plan in response to community and resource agency input. The Final EIS Appendix R contains the final Plans and specifies which measures CPRA and the LA TIG intend to implement. Generally, impact determinations discussed in the EIS represent anticipated Project effects without implementation of these measures except in instances where such measures are identified in the discussion. If any mitigation, monitoring or adaptive management measures are required by USACE as part of its approval of the Project, such measures would

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be required as special conditions of the Department of the Army (DA) Section 10/404 permit and would be listed in the permit, if one is issued. Implementation of specific measures contained in either Plan, but not included in the Section 10/404 permit as special conditions, would not be required by USACE. USACE does not know whether any particular measure that is not a DA permit condition would be implemented. Measures that USACE currently contemplates as conditions of a DA Section 10/404 permit, if one is issued, are provided in Chapter 4, Section 4.27 Mitigation Summary of the EIS.

The LA TIG explains in Section 1.5 of the Final Restoration Plan that it anticipates requiring implementation of the Mitigation and Stewardship Plan, MAM Plan, and Marine Mammal Intervention Plan as components of the proposed Project, if the Project is approved by the LA TIG for funding. Decisions regarding which measures would be required as part of the LA TIG's funding decision would be set forth in the LA TIG Record of Decision related to the proposed Project.

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**Concern ID: 63915**

**Grand Bayou would be negatively impacted by water level, and yet is not likely to receive land-building benefits. CPRA should consider mitigation activities that enhances compliance for oil companies to reduce the impacts of oil and gas activities in the area.**

**Response ID: 16616**

The impacts on Grand Bayou raised by the commenter were considered in Chapter 4, Sections 4.15.4 Operational Impacts in Environmental Justice and 4.20.4.2 Operational Impacts in Public Health and Safety of the Draft EIS and in CPRA's Draft Mitigation and Stewardship Plan (Appendix R1 to the Draft EIS). In response to comments, CPRA has expanded and refined this Mitigation and Stewardship Plan in the Final EIS (Appendix R1). The Final Mitigation and Stewardship Plan includes funding for improvements and other mitigation and stewardship measures in the Grand Bayou community, many of which are targeted at improvements requested by community residents. This includes funding for raising homes and roads, boardwalks, and floating gardens. In addition, CPRA would purchase Project servitudes from landowners in the Grand Bayou community whose property is projected to be impacted by increased water levels caused by during Project operations. CPRA would compensate those landowners for the value of the Project servitude, which would be recorded against title to the property and would run with the land. CPRA would attempt to negotiate with the affected landowner to acquire the Project servitude. If CPRA and the landowner were unable to reach a negotiated agreement, CPRA would exercise its eminent domain authority to purchase the Project servitude. Details regarding these mitigation and stewardship measures are set forth in Appendix R1 to the Final EIS.



The Mitigation and Stewardship Plan and the Monitoring and Adaptive Management (MAM) Plan provided in Draft EIS Appendix R were submitted by CPRA and represent a range of potential mitigation, stewardship, monitoring and adaptive management measures (collectively, measures). At the time of publication of the Draft EIS for public review, Appendix R contained draft Plans and CPRA had not identified which of the measures contained in those Plans it intended to implement. CPRA expanded and refined the Final Mitigation and Stewardship Plan in response to community and resource agency input. The Final EIS Appendix R contains the final Plans and specifies which measures CPRA and the LA TIG intend to implement. Generally, impact determinations discussed in the EIS represent anticipated Project effects without implementation of these measures except in instances where such measures are identified in the discussion. If any mitigation, monitoring or adaptive management measures are required by USACE as part of its approval of the Project, such measures would be required as special conditions of the Department of the Army (DA) Section 10/404 permit and would be listed in the permit, if one is issued. Implementation of specific measures contained in either Plan, but not included in the Section 10/404 permit as special conditions, would not be required by USACE. USACE does not know whether any particular measure that is not a DA permit condition would be implemented. Measures that USACE currently contemplates as conditions of a DA Section 10/404 permit, if one is issued, are provided in Chapter 4, Section 4.27 Mitigation Summary of the EIS.

The LA TIG explains in Section 1.5 of the Final Restoration Plan that it anticipates requiring implementation of the Mitigation and Stewardship Plan, MAM Plan, and Marine Mammal Intervention Plan as components of the proposed Project, if the Project is approved by the LA TIG for funding. Decisions regarding which measures would be required as part of the LA TIG's funding decision would be set forth in the LA TIG Record of Decision related to the proposed Project.

The Draft EIS recognizes causes and impacts of coastal land loss, including oil and gas activities (see EIS Chapter 3, Section 3.6.2 Wetland Loss). Enforcement related to other spills is not within the scope of the EIS or Restoration Plan. As explained in Section 4.2.4.2 (Mineral Resources - Operational Impacts) and depicted in Figure 4.2-5 of the Final EIS, operation of the Project is projected to infill canals within the basin near the Project outfall that were constructed as part of oil and gas production.

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## MT21400 - Aquatic/Fisheries Impacts (other than commercial) SMM

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**Concern ID: 62975**      **Those who experience a taking from this and future diversions must be reasonably compensated for their losses; however, having to fish in a new location does not warrant compensation.**

**Response ID: 16611**      Statements about what types of losses might constitute compensable takings are beyond the scope of the EIS. The Mitigation and Stewardship Plan (Appendix R1 to the EIS) focuses on maintaining a sustainable fishery into the future, rather than compensating individual fishers for alleged losses.

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## MT21500 - ESA-Listed Species SMM

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**Concern ID: 62943**      **The EIS should address mitigation and stewardship measures for threatened, endangered (T&E) and special status species and their habitat, including adding a section to the Mitigation Plan that specifies the measures that will be taken to minimize impacts to T&E species.**

**Response ID: 16610**      Impacts to Threatened and Endangered Species (T&E species) were addressed in Chapter 4, Section 4.12 (Threatened and Endangered Species) of the Draft EIS. Those impacts are also subject to the ongoing consultation with the U.S. Fish & Wildlife Service and the National Marine Fisheries Service (collectively, the “Services”) under the Endangered Species Act (ESA). Appendix O Biological Assessment & Biological Opinion of the EIS contains a Biological Assessment (BA) for T&E species. This BA discusses impacts to T&E species, as well as measures that would be taken to minimize impacts to T&E species.

For the species that the Project is “likely to adversely affect” (for example, pallid sturgeon), a request, along with the BA, was sent to the Services to initiate formal consultation regarding those species. The formal consultation resulted in Biological Opinions (BO) for those T&E species that includes specific measures to minimize the amount of take for the specified T&E species.

The USFWS BO on the proposed Project (included as Appendix O3 USFWS Biological Opinion of the Final EIS) concludes the proposed Project would not be likely to jeopardize the continued existence of the pallid sturgeon and authorized the loss (by death or serious injury) of 48 pallid sturgeon per year. Section 5.2 of the USFWS’ BO requires that the diversion gate be opened or closed over a several hour period to allow fish sufficient time to migrate back to the river or away from the

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structure, that CPRA and the USACE coordinate with the USFWS to develop a Fish Monitoring and Removal Plan for pallid sturgeon, and conduct any cutterhead or suction dredging in the Mississippi River (if determined to be warranted at a later date) using operational parameters coordinated with the USFWS.

The NMFS' BO on the proposed Project (included in the Final EIS as Appendix O4 NMFS Biological Opinion) concludes the proposed Project is not likely to jeopardize the continued existence of sea turtles and authorizes the incidental take of 783 sea turtles per year, including 370 Kemp's ridley sea turtles (including up to 38 mortalities), 319 loggerhead sea turtles (including up to 10 mortalities), and 94 green sea turtles (including up to 9 mortalities). Section 8.3 of the NMFS' BO requires that the federal action agencies ensure that the Project proponent monitor brown shrimp fishing effort in the action area; fund, implement, and annually report on a salinity monitoring program in Barataria Bay; and funds and implements a monitoring plan targeting the distribution, health, and habitat use of sea turtles in the Barataria Basin.

ESA consultation seeks to minimize impacts to T&E species. CPRA has updated its Mitigation and Stewardship Plan (Appendix R1 to the Final EIS) to include a reference to Appendix O Biological Assessment & Biological Opinion for T&E species. For State-listed and/or Special Status Species, potential impacts are identified in Chapter 4, Section 4.12.3 State-listed Threatened and Endangered Species of the Final EIS and conservation measures are discussed in the FWCAR (see Appendix T USFWS Coordination Act Report (CAR) to the Final EIS).

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## MT21800 – Cultural Resources SMM

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**Concern ID: 62935**

**The cultural resources mitigation plan in the Draft Programmatic Agreement (Appendix K Cultural Resources Information of the Draft EIS) includes a public education component (website or other materials). The commenter suggested that the public education component should include information about individual cultural resource sites as well as regional information. Also, the commenter suggested that the following entities should be consulted in developing the public education component: public university archeology programs that have an interest, the Louisiana Archeological Society, and the Louisiana Archeological Survey and Antiquities Commission. Additionally, the public education component should include support for public archeology instruction in kindergarten through high school and for Louisiana's universities that teach archeology and support for**

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**the Louisiana Archeology Month, which is the Louisiana Department of Culture, Recreation and Tourism’s means of educating the public about Louisiana’s heritage.**

**Response ID: 16654**

The public education component of the Alternative Mitigation Plan appended to the Programmatic Agreement in Appendix K Cultural Resources Information of the EIS is intended to inform the public about the regional history of Native Americans between 1500 and 1900 AD in Southeastern Louisiana. As stated in the Alternative Mitigation Plan, to achieve this objective, the plan proposes to examine the archaeological record and cultural history of the region. While information gleaned from individual sites is invaluable, they often provide limited information at a local level and do not generally provide much information about the larger geographic region. In addition to incorporating ethnographic interviews, the parties participating in the National Historic Preservation Act (NHPA) Section 106 consultation have agreed on the minimum types of source materials that would be reviewed to develop the public education component of the plan, all of which may be derived from a variety of community programs and organizations, likely including those recommended by the commenter. A qualified professional consultant would complete the public education component. As stated in Part VI.B.2 of the Programmatic Agreement in the EIS Appendix K Cultural Resources Information, draft versions of all products would be provided to the NHPA Section 106 Consulting Parties for a 60-day review period to ensure that the final product is suitable for public education and includes a robust collection of the available materials from a diverse group of sources.

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**Concern ID: 63899**

**The commenter expressed concern that the ethnohistoric overview component of the cultural resources alternative mitigation plan should draw on archeology, which could include a regional analysis, as well as oral and archival sources. The commenter expressed concern that the alternative mitigation plan would merely be a summary of existing literature.**

**Response ID: 16656**

The issue raised by the commenter was addressed in the Programmatic Agreement developed concurrent with the Draft EIS, which sets forth the alternative mitigation to be implemented by CPRA as part of implementing the Project (see the Programmatic Agreement in Appendix K Cultural Resources Information of the EIS). The Alternative Mitigation Plan, developed by the Section 106 Consulting Parties, including federally recognized Tribes, includes a regional ethnohistory of Native American settlement in the southeastern coastal Louisiana region (Barataria Basin, Breton Sound Basin, and Pontchartrain Basin). The analysis conducted as part of the Alternative Mitigation Plan would include an examination of the archaeological record at the regional level as well as oral and archival sources. The Consulting Parties have agreed that the region is considered

understudied and that the general public is currently without a synthesis of the extant archaeological and historical literature, particularly one augmented with regionally relevant Native American oral accounts. The products that the study proposes to provide are not merely a summary of the existing literature. Rather, the plan would: (1) mitigate for the lack of cohesion among the archaeological record, scholarly literature on Native American history, and the available vital/archival records; and (2) make the existing literature and Tribal knowledge available to the public online and in the classroom.

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**Concern ID: 63900**

**The cultural resources Alternative Mitigation Plan should compile information about the history of Tribes and specific cultural sites for use in consultations.**

**Response ID: 16657**

The issue raised by the commenter was addressed in the Programmatic Agreement developed for the Draft EIS, which sets forth the Alternative Mitigation Plan to be implemented by CPRA as part of implementing the Project (see the Programmatic Agreement In Appendix K of the EIS). The Alternative Mitigation Plan, developed by the NHPA Section 106 Consulting Parties, including federally recognized Tribes, includes a regional ethnohistory of Native American settlement in the southeastern coastal Louisiana region (Barataria Basin, Breton Sound Basin, and Pontchartrain Basin). The Alternative Mitigation Plan does not include the investigation of archaeological sites. Instead, the objective of the Alternative Mitigation Plan is to develop a comprehensive ethnohistoric overview of Native American history in southeastern coastal Louisiana (Barataria Basin, Breton Sound Basin, and Pontchartrain Basin). One of the proposed products to be developed through the Alternative Mitigation Plan is information, documents, and/or maps to improve NHPA Section 106 consultation with federal agencies by clarifying for each participating Tribe which projects they wish to consult on.

**Concern ID: 62938**

**CPRA should work with residents of Ironton and Tribes to protect cultural resources and maintain access to cultural sites, including those separated from Ironton by the diversion channel. Commenters suggest that the Project mitigate for any loss of access to cultural sites, using the Lagniappe for the Working Coast project as an example.**

**Response ID: 16655**

As indicated in Chapter 4, Section 4.24 (Cultural Resources) of the EIS, cultural resources consultations have been conducted in accordance with Section 106 of the National Historic Preservation Act (NHPA). The Section 106 Consulting Parties are comprised of the USACE (the lead federal agency), the State Historic Preservation Office, the Advisory

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Council on Historic Preservation, CPRA (the Applicant), federal agency members of the LA TIG, and federally recognized Tribal Nations who expressed historic ties to the Barataria Basin and who choose to participate. This consultation resulted in the development of a Programmatic Agreement that is included in Appendix K Cultural Resources Information of the EIS. The Alternative Mitigation Plan (see the Programmatic Agreement and its attachments in Appendix K), was developed to mitigate for the Project's adverse effects on historic properties in the Barataria Basin caused by the proposed Project. The Programmatic Agreement identifies the Tribal Nations that decided to participate in the consultation, and explains that the USACE would continue to consult with any interested federally recognized Tribal Nation who has not yet requested to consult.

As indicated in Chapter 4, Section 4.24.2.2 of the Cultural Resources section of the Draft EIS, the NHPA Section 106 Consulting Parties have developed Stipulations in the Programmatic Agreement that contain prescriptive steps and potential mitigation measures should any portions of the known historic properties (that is, archeological remains of St. Rosalie Plantation) within the Construction APE be identified as NRHP eligible by ongoing Phase II analysis. This section has been updated in the Final EIS to clarify that neither the St. Rosalie Cemetery, the Ironton Cemetery or visitation access to them would be impacted by construction or operation of the proposed MBSD Project. The cemeteries are currently and would continue to be on private property. Residents of Ironton currently have access to the St. Rosalie and Ironton cemeteries via LA 23 and would continue to have access to the cemeteries via LA 23 after the proposed Project is constructed. To clarify potential impacts on Ironton, Section 4.15 Environmental Justice has been revised to highlight information about potential impacts on the community of Ironton in the Final EIS.

Lagniappe for the Working Coast is a grant awarded by the National Estuary Program to a partnership between the Lowlander Center and state-recognized Tribes to mitigate erosion to areas, including archaeological sites, sacred to Louisiana's coastal Tribes through the backfilling of unused or abandoned canals excavated in coastal marshes. More information on National Estuary Program grants is available at <https://estuaries.org/initiatives/watershedgrants/>.

## SMM10000 – Other/General SMM

**Concern ID: 63151****Some commenters stated general support and appreciation for the mitigation plan.****Response ID: 16555**

Comments offering general support and appreciation for the Mitigation and Stewardship Plan (Appendix R1 to the Draft EIS) are acknowledged. CPRA has expanded and refined the Mitigation and Stewardship Plan, Appendix R1 to the Final EIS, since publication of the Draft EIS and LA TIG's Draft Restoration Plan based on community and resource agency input.

The Mitigation and Stewardship Plan and the Monitoring and Adaptive Management (MAM) Plan provided in Draft EIS Appendix R were submitted by CPRA and represent a range of potential mitigation, stewardship, monitoring and adaptive management measures (collectively, measures). At the time of publication of the Draft EIS for public review, Appendix R contained draft Plans and CPRA had not identified which of the measures contained in those Plans it intended to implement. CPRA expanded and refined the Final Mitigation and Stewardship Plan in response to community and resource agency input. The Final EIS Appendix R contains the final Plans and specifies which measures CPRA and the LA TIG intend to implement.

Generally, impact determinations discussed in the EIS represent anticipated Project effects without implementation of these measures except in instances where such measures are identified in the discussion. If any mitigation, monitoring or adaptive management measures are required by USACE as part of its approval of the Project, such measures would be required as special conditions of the Department of the Army (DA) Section 10/404 permit and would be listed in the permit, if one is issued. Implementation of specific measures contained in either Plan, but not included in the Section 10/404 permit as special conditions, would not be required by USACE. USACE does not know whether any particular measure that is not a DA permit condition would be implemented. Measures that USACE currently contemplates as conditions of a DA Section 10/404 permit, if one is issued, are provided in Chapter 4, Section 4.27 Mitigation Summary of the EIS.

The LA TIG explains in Section 1.5 of the Final Restoration Plan that it anticipates requiring implementation of the Mitigation and Stewardship Plan, MAM Plan, and Marine Mammal Intervention Plan as components of the proposed Project, if the Project is approved by the LA TIG for funding. Decisions regarding which measures would be required as part of the LA TIG's funding decision would be set forth in the LA TIG Record of Decision related to the proposed Project.



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**Concern ID: 63179****Mitigation should be clear and adequate and should focus on community needs, which requires collaboration with potentially impacted communities and should be facilitated through community-based organizations.****Response ID: 16556**

In developing its Mitigation and Stewardship Plan and its Monitoring and Adaptive Management (MAM) Plan, CPRA engaged the communities potentially impacted by the Project through public meetings to solicit input on mitigation strategies. CPRA also engaged community-based organizations to assist in soliciting additional feedback on the proposed mitigation and stewardship measures. A summary of CPRA's public engagement meetings and other outreach efforts is in Chapter 7 (Public Involvement) of the Final EIS. CPRA plans to continue utilizing community-based organizations to help ensure that diverse populations become aware of and take advantage of the mitigation and stewardship measures that CPRA would offer if the Project is approved and funded.

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**Concern ID: 63180****Mitigation plan should have been presented with the Draft EIS.****Response ID: 16557**

The Draft Mitigation and Stewardship Plan for the Project was included as Appendix R1 to the Draft EIS, for which a NOA was published in the Federal Register on March 5, 2021 (86 FR 12942). The LA TIG presented an overview of the Mitigation Plan during the April Draft EIS Public Meetings. The Mitigation and Stewardship Plan included in the Draft EIS was a draft plan, with specific issues that required further development before the plan was finalized. The Final Mitigation and Stewardship Plan is published as Appendix R1 to the Final EIS. CPRA expanded and refined the Final Mitigation and Stewardship Plan (Appendix R1) in response to community and resource agency input. The Final EIS Appendix R contains the final Plans and specifies which measures CPRA and the LA TIG intend to implement. Generally, impact determinations discussed in the EIS represent anticipated Project effects without implementation of these measures except in instances where such measures are identified in the discussion. If any mitigation, monitoring or adaptive management measures are required by USACE as part of its approval of the Project, such measures would be required as special conditions of the Department of the Army (DA) Section 10/404 permit and would be listed in the permit, if one is issued. Implementation of specific measures contained in either Plan, but not included in the Section 10/404 permit as special conditions, would not be required by USACE. USACE does not know whether any particular measure that is not a DA permit condition would be implemented. Measures that USACE currently contemplates as conditions of a DA Section 10/404 permit, if one is issued, are provided in Chapter 4, Section 4.27 Mitigation Summary of the EIS.



The LA TIG explains in Section 1.5 of the Final Restoration Plan that it anticipates requiring implementation of the Mitigation and Stewardship Plan, MAM Plan, and Marine Mammal Intervention Plan as components of the proposed Project, if the Project is approved by the LA TIG for funding. Decisions regarding which measures would be required as part of the LA TIG's funding decision would be set forth in the LA TIG Record of Decision related to the proposed Project.

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**Concern ID: 63181****CPRA has no real mitigation plan.****Response ID: 16558**

The Draft EIS contained CPRA's Mitigation and Stewardship Plan in Appendix R1.

The Mitigation and Stewardship Plan and the Monitoring and Adaptive Management (MAM) Plan provided in the Draft EIS Appendix R were submitted by CPRA and represent a range of potential mitigation, stewardship, monitoring and adaptive management measures (collectively, measures). At the time of publication of the Draft EIS for public review, Appendix R contained draft Plans and CPRA had not identified which of the measures contained in those Plans it intended to implement. CPRA expanded and refined the Final Mitigation and Stewardship Plan in response to community and resource agency input. The Final EIS Appendix R contains the final Plans and specifies which measures CPRA and the LA TIG intend to implement.

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The LA TIG explains in Section 1.5 of the Final Restoration Plan that it anticipates requiring implementation of the Mitigation and Stewardship Plan, MAM Plan, and Marine Mammal Intervention Plan as components of the proposed Project, if the Project is approved by the LA TIG for funding. Decisions regarding which measures would be required as part of the LA TIG's funding decision would be set forth in the LA TIG Record of Decision related to the proposed Project.

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**Concern ID: 63182**

**Proposed mitigation is insufficient and not guaranteed, and the amount of funding for mitigation is not clearly stated.**

**Response ID: 16559**

Details regarding the funding that will be available for aquatic/fisheries mitigation and stewardship measures is set forth in the Final Mitigation and Stewardship Plan, Appendix R1. Details regarding other mitigation and stewardship measures (e.g., mitigation for tidal flooding impacts) is also set forth in the Final Mitigation and Stewardship Plan, Appendix R1; however, final estimated costs for those measures continues under development. CPRA has stated that the total estimated cost of all mitigation and stewardship measures set forth in the Final Mitigation and Stewardship Plan exceeds \$300 million dollars. Details regarding the cost for the monitoring and adaptive management are set forth in Section 9 of the Final MAM Plan, Appendix R2. Section 3.2.1.2 of the Draft Restoration Plan includes estimates of project costs, including the cost for project design and construction and project monitoring. Updated cost estimates will be provided as part of the Final Restoration Plan, including project monitoring and stewardship measures.

The Mitigation and Stewardship Plan and the Monitoring and Adaptive Management (MAM) Plan provided in the Draft EIS Appendix R were submitted by CPRA and represent a range of potential mitigation, stewardship, monitoring and adaptive management measures (collectively, measures). At the time of publication of the Draft EIS for public review, Appendix R contained draft Plans and CPRA had not identified which of the measures contained in those Plans it intended to implement. CPRA expanded and refined the Final Mitigation and Stewardship Plan in response to community and resource agency input. The Final EIS Appendix R contains the final Plans and specifies which measures CPRA and the LA TIG intend to implement. Generally, impact determinations discussed in the EIS represent anticipated Project effects without implementation of these measures except in instances where such measures are identified in the discussion. If any mitigation, monitoring, or adaptive management measures are required by USACE as part of its approval of the proposed Project, such measures would be required as special conditions of the Department of the Army (DA) Section 10/404 permit and would be listed in the permit, if one is issued. Implementation of specific measures contained in either Plan, but not included in the Section 10/404 permit as special conditions, would not be required by USACE. USACE does not know whether any particular measure that is not a DA permit condition would be implemented. Measures that USACE currently contemplates as conditions of a DA Section 10/404 permit, if one is issued, have been provided in Chapter 4, Section 4.27 Mitigation Summary of the EIS.

The LA TIG explains in Section 1.5 of the Final Restoration Plan that it anticipates requiring implementation of the Mitigation and Stewardship Plan, MAM Plan, and Marine Mammal Intervention Plan as components of the proposed Project, if the Project is approved by the LA TIG for funding. Decisions regarding which measures would be required as part of the LA TIG's funding decision would be set forth in the LA TIG Record of Decision related to the proposed Project.

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**Concern ID: 63183**

**Commenter supports the Project but believes that there needs to be protection for cultural resources in the area. Commenters noted specific sites such as those in Bayou des Oies and a need for safeguards that respect the culture and history of the Lafitte Barataria-Crown Point community in a way that promotes the continued sustainability of that community.**

**Response ID: 16560**

The commenter's support for the Project is acknowledged. The EIS discusses impacts to the local communities and various quantitative and qualitative impacts from the proposed Project in Chapter 4, Section 4.13 Socioeconomics, including Community Cohesion (Section 4.13.5.6). Consistent with the concern of the commenter, the EIS does find potential minor to moderate, long-term adverse impacts on community cohesion from the proposed Project compared to the No Action Alternative.

CPRA's Final Mitigation and Stewardship Plan includes various mitigation and stewardship measures to address projected adverse impacts of the proposed Project, including mitigation and stewardship measures for increased flooding in some communities and for adverse impacts to fisheries. For example, CPRA's Final Mitigation and Stewardship Plan includes measures intended to help preserve community cohesion in Grand Bayou and Ironton. For a complete listing of measures that would be taken, see the Final Mitigation and Stewardship Plan, Appendix R1 to the Final EIS. If implemented, these measures could help to preserve affected communities and their histories/cultures.

The Mitigation and Stewardship Plan and the Monitoring and Adaptive Management (MAM) Plan provided in the Draft EIS Appendix R were submitted by CPRA and represent a range of potential mitigation, stewardship, monitoring and adaptive management measures (collectively, measures). At the time of publication of the Draft EIS for public review, Appendix R contained draft Plans and CPRA had not identified which of the measures contained in those Plans it intended to implement. CPRA expanded and refined the Final Mitigation and Stewardship Plan in response to community and resource agency input. The Final EIS Appendix R contains the final Plans and specifies which measures CPRA and the LA TIG intend to implement. Generally, impact determinations discussed in the EIS represent

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anticipated Project effects without implementation of these measures except in instances where such measures are identified in the discussion. If any mitigation, monitoring, or adaptive management measures are required by USACE as part of its approval of the proposed Project, such measures would be required as special conditions of the Department of the Army (DA) Section 10/404 permit and would be listed in the permit, if one is issued. Implementation of specific measures contained in either Plan, but not included in the Section 10/404 permit as special conditions, would not be required by USACE. USACE does not know whether any particular measure that is not a DA permit condition would be implemented. Measures that USACE currently contemplates as conditions of a DA Section 10/404 permit, if one is issued, have been provided in Chapter 4, Section 4.27 Mitigation Summary of the EIS.

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**Concern ID: 63184**

**Commenter concerned about public land loss at birdfoot delta and recommends creating state and federal public lands in the diversion outfall area.**

**Response ID: 16561**

The Draft EIS considered impacts to public lands in Chapter 4, Section 4.17.4 (Public Lands - Operational Impacts). Ownership of newly created land from Project operations would be determined in accordance with state law. Pursuant to La. R.S. 49:214.5.5(B), the Project would not create any rights to the public in or on private property. It is expected that land loss in the birdfoot delta within the National Wildlife Refuge (NWR) and Wildlife Management Area WMAWMA would be offset by creation of land built in the area in water bottoms owned by the State of Louisiana. At the recommendation of USFWS, within 5 years of the commencement of Project operations, CPRA or the LA TIG will provide \$10,000,000 of additional funding for wetland preservation and restoration work in the Delta NWR and the Pass A Loutre (PAL) WMA to offset modeled acres of indirect wetland losses in those areas (See Appendix R1 Mitigation Plan, Section 4.6 Fish and Wildlife Coordination Act).

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**Concern ID: 63185**

**Additional development of mitigation plans and accountability for mitigation commitments is needed.**

**Response ID: 16562**

The Mitigation and Stewardship Plan and the Monitoring and Adaptive Management (MAM) Plan provided in the Draft EIS Appendix R were submitted by CPRA and represent a range of potential mitigation,

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stewardship, monitoring and adaptive management measures (collectively, measures). At the time of publication of the Draft EIS for public review, Appendix R contained draft Plans and CPRA had not identified which of the measures contained in those Plans it intended to implement. CPRA expanded and refined the Final Mitigation and Stewardship Plan in response to community and resource agency input. The Final EIS Appendix R contains the final Plans and specifies which measures CPRA and the LA TIG intend to implement. Generally, impact determinations discussed in the EIS represent anticipated Project effects without implementation of these measures except in instances where such measures are identified in the discussion. If any mitigation, monitoring, or adaptive management measures are required by USACE as part of its approval of the proposed Project, such measures would be required as special conditions of the Department of the Army (DA) Section 10/404 permit and would be listed in the permit, if one is issued. Implementation of specific measures contained in either Plan, but not included in the Section 10/404 permit as special conditions, would not be required by USACE. USACE does not know whether any particular measure that is not a DA permit condition would be implemented. Measures that USACE currently contemplates as conditions of a DA Section 10/404 permit, if one is issued, have been provided in Chapter 4, Section 4.27 Mitigation Summary of the EIS.

The LA TIG explains in Section 1.5 of the Final Restoration Plan that it anticipates requiring implementation of the Mitigation and Stewardship Plan, MAM Plan, and Marine Mammal Intervention Plan as components of the proposed Project, if the Project is approved by the LA TIG for funding. Decisions regarding which measures would be required as part of the LA TIG's funding decision would be set forth in the LA TIG Record of Decision related to the proposed Project.

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**Concern ID: 63188**

**One comment noted, in reference to the adequacy of the mitigation funds, that the initial amounts committed are 10 times the annual budget of Plaquemines Parish.**

**Response ID: 16563**

The Draft EIS contained a Mitigation and Stewardship Plan in Appendix R1. The Final Mitigation and Stewardship Plan is published as Appendix R1 to the Final EIS. CPRA expanded and refined the Final Mitigation and Stewardship Plan (Appendix R1) in response to community and resource agency input.

According to CPRA, its budget for mitigation and stewardship measures, to be potentially funded by the LA TIG, reflects the needs that were identified through the environmental review and many public meetings. See the Mitigation and Stewardship Plan (Appendix R1 to the Final EIS) for additional information on mitigation funding allocations. The Plaquemines Parish budget was not considered by

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CPRA in determining the budget for the stewardship and mitigation and stewardship measures.

The Mitigation and Stewardship Plan and the Monitoring and Adaptive Management (MAM) Plan provided in Draft EIS Appendix R were submitted by CPRA and represent a range of potential mitigation, stewardship, monitoring and adaptive management measures (collectively, measures). At the time of publication of the Draft EIS for public review, Appendix R contained draft Plans and CPRA had not identified which of the measures contained in those Plans it intended to implement. CPRA expanded and refined the Final Mitigation and Stewardship Plan in response to community and resource agency input. The Final EIS Appendix R contains the final Plans and specifies which measures CPRA and the LA TIG intend to implement. Generally, impact determinations discussed in the EIS represent anticipated Project effects without implementation of these measures except in instances where such measures are identified in the discussion. If any mitigation, monitoring or adaptive management measures are required by USACE as part of its approval of the Project, such measures would be required as special conditions of the Department of the Army (DA) Section 10/404 permit and would be listed in the permit, if one is issued. Implementation of specific measures contained in either Plan, but not included in the Section 10/404 permit as special conditions, would not be required by USACE. USACE does not know whether any particular measure that is not a DA permit condition would be implemented. Measures that USACE currently contemplates as conditions of a DA Section 10/404 permit, if one is issued, are provided in Chapter 4, Section 4.27 Mitigation Summary of the EIS.

The LA TIG explains in Section 1.5 of the Final Restoration Plan that it anticipates requiring implementation of the Mitigation and Stewardship Plan, MAM Plan, and Marine Mammal Intervention Plan as components of the proposed Project, if the Project is approved by the LA TIG for funding. Decisions regarding which measures would be required as part of the LA TIG's funding decision would be set forth in the LA TIG Record of Decision related to the proposed Project.

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**Concern ID: 63192**

**The Proposed Project should include investment in economic development, such as tourism.**

**Response ID: 16565**

The Draft EIS considered the effects of the Project on economic development, including the effects on tourism (see Chapter 4, Section 4.13.5 [Socioeconomics - Operational Impacts] and Section 4.16.5 [Recreation and Tourism - Operational Impacts] of the EIS), concluding that the Project would have both beneficial and adverse impacts on the regional economy associated with recreational expenditures. While the EIS concludes that the Project would have a

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beneficial impact on hunting and wildlife watching due to an increase in wetland habitat in some areas of Barataria Basin, it also found minor to moderate, permanent, adverse impacts to recreational boating in the delta formation area due to a number of factors.

Commenters' desire for additional economic development associated with the Project is noted. The estuarine and freshwater wetlands are an integral component of recreation in the region and the Project would increase the area and sustainability of wetland habitats (see Section 3.2.1.1.1 [Alternative 1] in the LA TIG's Restoration Plan and Section 4.6 [Wetland Resources and Waters of the U.S.] of the EIS for more information).

The Restoration Plan focuses on restoring wetlands, coastal, and nearshore habitat in the Barataria Basin. Injured resources, including lost recreational use, not addressed in the Final Restoration Plan have been addressed by previous restoration plans and are intended to be the focus of future restoration plans. For example, the LA TIG has addressed restoration of lost recreational use within Louisiana in RP/EA #2 (LA TIG, 2018a) and RP/EA #4 (LA TIG, 2018b).

Additionally, CPRA's Mitigation and Stewardship Plan (Appendix R1 to the EIS) includes measures focused on establishing a sustainable fishing industry in the long term, including providing financial and technical assistance for alternate business ventures, job training, boats and/or boat improvements, and other measures that will provide economic benefits to the industry.

The Mitigation and Stewardship Plan and the Monitoring and Adaptive Management (MAM) Plan provided in the Draft EIS Appendix R were submitted by CPRA and represent a range of potential mitigation, stewardship, monitoring and adaptive management measures (collectively, measures). At the time of publication of the Draft EIS for public review, Appendix R contained draft Plans and CPRA had not identified which of the measures contained in those Plans it intended to implement. CPRA expanded and refined the Final Mitigation and Stewardship Plan in response to community and resource agency input. The Final EIS Appendix R contains the final Plans and specifies which measures CPRA and the LA TIG intend to implement.

Generally, impact determinations discussed in the EIS represent anticipated Project effects without implementation of these measures except in instances where such measures are identified in the discussion. If any mitigation, monitoring, or adaptive management measures are required by USACE as part of its approval of the proposed Project, such measures would be required as special conditions of the Department of the Army (DA) Section 10/404 permit and would be listed in the permit, if one is issued. Implementation of specific measures contained in either Plan, but not included in the



Section 10/404 permit as special conditions, would not be required by USACE. USACE does not know whether any particular measure that is not a DA permit condition would be implemented. Measures that USACE currently contemplates as conditions of a DA Section 10/404 permit, if one is issued, have been provided in Chapter 4, Section 4.27 Mitigation Summary of the EIS.

The LA TIG explains in Section 1.5 of the Final Restoration Plan that it anticipates requiring implementation of the Mitigation and Stewardship Plan, MAM Plan, and Marine Mammal Intervention Plan as components of the proposed Project, if the Project is approved by the LA TIG for funding. Decisions regarding which measures would be required as part of the LA TIG's funding decision would be set forth in the LA TIG Record of Decision related to the proposed Project.

In light of the public interest expressed in other projects of this scale and nature, the LA TIG anticipates that members of the public may want to visit the Project site. Due to concerns about safety of the public and security for the Project facilities, there is not a plan to make the diversion structure or immediate outfall area accessible for public use. CPRA would, however, provide signage and other public space near the Project to educate the public regarding the purpose and functioning on the Project.

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**Concern ID: 63194**

**The Draft EIS and Draft Restoration Plan seem to indicate CPRA and other entities will only begin performing mitigation when they have proof of impact. Instead, they should help communities begin to adapt throughout construction so adaptations will be in process as the MBSD operation begins.**

**Response ID: 16566**

The Draft Mitigation and Stewardship Plan (Appendix R1 to the Draft EIS) contained information on steps that would be taken before Project construction to protect fisheries. Since publication of the Draft EIS and in response to comments, CPRA has expanded and refined this Mitigation and Stewardship Plan in the Final EIS, including specifying mitigation and stewardship measures that would be undertaken before Project construction (see Appendix R1 to the Final EIS for additional details). For example, the Final Mitigation and Stewardship Plan outlines the structural mitigation and stewardship measures that CPRA plans to implement in the communities south of the diversion outside of levee protection (Myrtle Grove to Happy Jack/Grand Bayou) prior to beginning Project operations.

Structural measures such as raising roads or improving bulkheads in the Mitigation and Stewardship Plan were not included in CPRA's MBSD DA permit application and are not part of the currently-proposed MBSD Project. Many of these structural measures would require USACE and other permits prior to installation. No applications

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have been filed with USACE. Such permits are not guaranteed and would take time for USACE and other regulating agencies to process.

The Mitigation and Stewardship Plan and the Monitoring and Adaptive Management (MAM) Plan provided in Draft EIS Appendix R were submitted by CPRA and represent a range of potential mitigation, stewardship, monitoring and adaptive management measures (collectively, measures). At the time of publication of the Draft EIS for public review, Appendix R contained draft Plans and CPRA had not identified which of the measures contained in those Plans it intended to implement. CPRA expanded and refined the Final Mitigation and Stewardship Plan in response to community and resource agency input. The Final EIS Appendix R contains the final Plans and specifies which measures CPRA and the LA TIG intend to implement.

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**Concern ID: 63202**

**There needs to be a plan to protect the basin from pollution introduced from the Mississippi River into the Barataria Basin.**

**Response ID: 16570**

Chapter 3, Section 3.5.1.1 Water Quality Standards and Dedicated Uses - Mississippi River of the Draft EIS considered the commenter's concern regarding the potential for the Project to introduce pollution from the Mississippi River into the basin and explains that the Mississippi River fully supports designated uses for the river established by the Environmental Protection Agency and the Louisiana Department of Environmental Quality. However, the designated uses

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for the Mississippi River may be different from the designated uses for other waterbodies in the Barataria Basin. The Monitoring and Adaptive Management (MAM) Plan (Appendix R2 to the Final EIS) includes monitoring of a variety of water quality related parameters, which would start prior to construction and continue throughout the Project's implementation.

The Mitigation and Stewardship Plan and the Monitoring and Adaptive Management (MAM) Plan provided in Draft EIS Appendix R were submitted by CPRA and represent a range of potential mitigation, stewardship, monitoring and adaptive management measures (collectively, measures). At the time of publication of the Draft EIS for public review, Appendix R contained draft Plans and CPRA had not identified which of the measures contained in those Plans it intended to implement. The Final EIS Appendix R contains the final Plans and specifies which measures CPRA and the LA TIG intend to implement. Generally, impact determinations discussed in the EIS represent anticipated Project effects without implementation of these measures except in instances where such measures are identified in the discussion. If any mitigation, monitoring or adaptive management measures are required by USACE as part of its approval of the Project, such measures would be required as special conditions of the Department of the Army (DA) Section 10/404 permit and would be listed in the permit, if one is issued. Implementation of specific measures contained in either Plan, but not included in the Section 10/404 permit as special conditions, would not be required by USACE. USACE does not know whether any particular measure that is not a DA permit condition would be implemented. Measures that USACE currently contemplates as conditions of a DA Section 10/404 permit, if one is issued, are provided in Chapter 4, Section 4.27 Mitigation Summary of the EIS.

The LA TIG explains in Section 1.5 of the Final Restoration Plan that it anticipates requiring implementation of the Mitigation and Stewardship Plan, MAM Plan, and Marine Mammal Intervention Plan as components of the proposed Project, if the Project is approved by the LA TIG for funding. Decisions regarding which measures would be required as part of the LA TIG's funding decision would be set forth in the LA TIG Record of Decision related to the proposed Project.

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**Concern ID: 63210**

**Concern was expressed about whether residents will be notified before the diversion is turned on.**

**Response ID: 16577**

The Draft EIS did not address whether or how residents would be notified regarding Project operations. In response to public comments, CPRA's Monitoring and Adaptive Management (MAM) Plan (Appendix R2 in the Final EIS) states that it would develop a web-based informational dashboard that would make operational information

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available to the public through the internet in real time. This dashboard would allow CPRA to continue to keep stakeholders informed about Project progress, timing, construction, and operation.

The Mitigation and Stewardship Plan and the MAM Plan provided in Draft EIS Appendix R were submitted by CPRA and represent a range of potential mitigation, stewardship, monitoring and adaptive management measures (collectively, measures). At the time of publication of the Draft EIS for public review, Appendix R contained draft Plans and CPRA had not identified which of the measures contained in those Plans it intended to implement. The Final EIS Appendix R contains the final Plans and specifies which measures CPRA and the LA TIG intend to implement. Generally, impact determinations discussed in the EIS represent anticipated Project effects without implementation of these measures except in instances where such measures are identified in the discussion. If any mitigation, monitoring or adaptive management measures are required by USACE as part of its approval of the Project, such measures would be required as special conditions of the Department of the Army (DA) Section 10/404 permit and would be listed in the permit, if one is issued. Implementation of specific measures contained in either Plan, but not included in the Section 10/404 permit as special conditions, would not be required by USACE. USACE does not know whether any particular measure that is not a DA permit condition would be implemented. Measures that USACE currently contemplates as conditions of a DA Section 10/404 permit, if one is issued, are provided in Chapter 4, Section 4.27 Mitigation Summary of the EIS.

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**Concern ID: 63726**

**Some commenters felt that the amounts allocated for mitigation were insufficient, while others felt that no amount of mitigation would suffice, for example for the more senior fishers who won't be in a good position to adapt to the changing environment.**

**Response ID: 16702**

The Draft EIS considered how changes in the commercial fisheries, both with and without implementation of the proposed Project, would impact more senior fishers in Chapter 4, Section 4.14.4 in Commercial Fisheries. In response to public comments and resource agency input about the proposed mitigation efforts, CPRA has expanded and refined its fisheries mitigation and stewardship measures. CPRA's mitigation and stewardship strategies and associated expenditures

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would focus on establishing sustainable fisheries for oysters rather than on compensating individual oyster harvesters for their particularized economic losses (see the Mitigation and Stewardship Plan in Appendix R1 to the Final EIS). Without the Project, adverse impacts to fisheries would be expected over the next 50 years. Prior to 2050, those changes would be minor and gradual. After 2050, more drastic changes are anticipated, leading to a steep decline in suitability for fisheries in a large portion of the currently suitable habitat. With implementation of the diversion, the Project would cause significant adverse impacts to fisheries in the early years of the Project's operational life. The provisions of the fishery mitigation and stewardship plan, valued at approximately \$54 million, would help to achieve that goal and to mitigate the impacts of the proposed Project on oyster fishers. While not mitigation for the Project impacts, examples of other restoration/fishery improvement actions include: the LA TIG's funding of \$10 million in public and private oyster reef enhancement through the Living Coastal and Marine Resources funding allocation, the LA TIG's funding of \$9.7 million in oyster broodstock reef enhancement through the Living Coastal and Marine Resources funding allocation, CPRA's allocation of \$2 million in adaptive management funding to support off-bottom oyster culture, the LA TIG's allocation of \$5.8 million in Living Coastal and Marine Resources funds to support the operations of the Voisin Hatchery and the LA TIG's allocation of \$38 million in recreational use funds to support subsistence and recreational fisheries. The Final Mitigation and Stewardship Plan is included in Appendix R1 to the Final EIS.

The comments of more senior fishers who expressed concern about their ability to adapt to changing fishery conditions are acknowledged. If permitted by USACE and funded by the LA TIG, it would take CPRA approximately 5 years to complete construction of the proposed Project and to begin operations. This relatively long period provides those affected with the time and opportunity to decide how they want to go forward, ranging from taking advantage of the adaptation opportunities offered through the Mitigation and Stewardship Plan (Appendix R1 to the EIS) to transitioning out of the fishing industry or retiring.

The Mitigation and Stewardship Plan and the Monitoring and Adaptive Management (MAM) Plan provided in Draft EIS Appendix R were submitted by CPRA and represent a range of potential mitigation, stewardship, monitoring and adaptive management measures (collectively, measures). At the time of publication of the Draft EIS for public review, Appendix R contained draft Plans and CPRA had not identified which of the measures contained in those Plans it intended to implement. CPRA expanded and refined the Final Mitigation and Stewardship Plan in response to community and resource agency

input. The Final EIS Appendix R contains the final Plans and specifies which measures CPRA and the LA TIG intend to implement. Generally, impact determinations discussed in the EIS represent anticipated Project effects without implementation of these measures except in instances where such measures are identified in the discussion. If any mitigation, monitoring or adaptive management measures are required by USACE as part of its approval of the proposed Project, such measures would be required as special conditions of the Department of the Army (DA) Section 10/404 permit and would be listed in the permit, if one is issued. Implementation of specific measures contained in either Plan, but not included in the Section 10/404 permit as special conditions, would not be required by USACE. USACE does not know whether any particular measure that is not a DA permit condition would be implemented. Measures that USACE currently contemplates as conditions of a DA Section 10/404 permit, if one is issued, are provided in Chapter 4, Section 4.27 Mitigation Summary of the EIS.

The LA TIG explains in Section 1.5 of the Final Restoration Plan that it anticipates requiring implementation of the Mitigation and Stewardship Plan, MAM Plan, and Marine Mammal Intervention Plan as components of the proposed Project, if the Project is approved by the LA TIG for funding. Decisions regarding which measures would be required as part of the LA TIG's funding decision would be set forth in the LA TIG Record of Decision related to the proposed Project.

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**Concern ID: 63886**

**A commenter expressed that they believe in living with water, and that mitigation is important and they are concerned about it.**

**Response ID: 16578**

The Draft EIS considered how communities in the Project area have "lived with water" and adapted to evolving conditions due to sea-level rise, subsidence and storm events in Chapter 3, Section 3.20 (Public Health and Safety) and Chapter 4, Section 4.20 (Public Health and Safety). Further, CPRA's Mitigation and Stewardship Plan (Appendix R1) included with the Draft EIS included potential measures to address the projected impacts of Project operations on water levels and inundation in the communities near the Project outfall outside levee protection. Since publication of the Draft EIS and LA TIG's Draft Restoration Plan, CPRA has expanded and refined the Mitigation and Stewardship Plan based on community and resource agency input to include additional detail regarding the measures planned to address increases in water levels. The Final Mitigation and Stewardship Plan is included in Appendix R1 to the Final EIS.

The Mitigation and Stewardship Plan and the Monitoring and Adaptive Management (MAM) Plan provided in Draft EIS Appendix R were submitted by CPRA and represent a range of potential mitigation, stewardship, monitoring and adaptive management measures

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(collectively, measures). At the time of publication of the Draft EIS for public review, Appendix R contained draft Plans and CPRA had not identified which of the measures contained in those Plans it intended to implement. CPRA expanded and refined the Final Mitigation and Stewardship Plan in response to community and resource agency input. The Final EIS Appendix R contains the final Plans and specifies which measures CPRA and the LA TIG intend to implement. Generally, impact determinations discussed in the EIS represent anticipated Project effects without implementation of these measures except in instances where such measures are identified in the discussion. If any mitigation, monitoring or adaptive management measures are required by USACE as part of its approval of the Project, such measures would be required as special conditions of the Department of the Army (DA) Section 10/404 permit and would be listed in the permit, if one is issued. Implementation of specific measures contained in either Plan, but not included in the Section 10/404 permit as special conditions, would not be required by USACE. USACE does not know whether any particular measure that is not a DA permit condition would be implemented. Measures that USACE currently contemplates as conditions of a DA Section 10/404 permit, if one is issued, are provided in Chapter 4, Section 4.27 Mitigation Summary of the EIS.

The LA TIG explains in Section 1.5 of the Final Restoration Plan that it anticipates requiring implementation of the Mitigation and Stewardship Plan, MAM Plan, and Marine Mammal Intervention Plan as components of the proposed Project, if the Project is approved by the LA TIG for funding. Decisions regarding which measures would be required as part of the LA TIG's funding decision would be set forth in the LA TIG Record of Decision related to the proposed Project.

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**Concern ID: 63930**

**Public comments asked to ensure mitigation dollars are set aside to help the most marginalized communities and provide an equitable allocation of resources.**

**Response ID: 16579**

CPRA's Draft Mitigation and Stewardship Plan included in the Draft EIS (Appendix R1) set forth numerous measures that CPRA could undertake to mitigate Project impacts. CPRA has expanded and refined the Mitigation and Stewardship Plan, Appendix R1 to the Final EIS, since publication of the Draft EIS and LA TIG's Draft Restoration Plan based on community and resource agency input. The Final Mitigation and Stewardship Plan contains additional details on the various mitigation and stewardship measures specifically designed and targeted to assist low-income and minority individuals and communities including reserving a portion of some mitigation and stewardship programs for individuals from identified communities with environmental justice concerns that may be disproportionately impacted by the Project and engaging an outreach coordinator to



assist community members with available programs and resources. A summary of the public engagement meetings and other outreach efforts is in Chapter 7 (Public Involvement) of the Final EIS.

The Mitigation and Stewardship Plan and the Monitoring and Adaptive Management (MAM) Plan provided in Draft EIS Appendix R were submitted by CPRA and represent a range of potential mitigation, stewardship, monitoring and adaptive management measures (collectively, measures). At the time of publication of the Draft EIS for public review, Appendix R contained draft Plans and CPRA had not identified which of the measures contained in those Plans it intended to implement. CPRA expanded and refined the Final Mitigation and Stewardship Plan in response to community and resource agency input. The Final EIS Appendix R contains the final Plans and specifies which measures CPRA and the LA TIG intend to implement. Generally, impact determinations discussed in the EIS represent anticipated Project effects without implementation of these measures except in instances where such measures are identified in the discussion. If any mitigation, monitoring or adaptive management measures are required by USACE as part of its approval of the Project, such measures would be required as special conditions of the Department of the Army (DA) Section 10/404 permit and would be listed in the permit, if one is issued. Implementation of specific measures contained in either Plan, but not included in the Section 10/404 permit as special conditions, would not be required by USACE. USACE does not know whether any particular measure that is not a DA permit condition would be implemented. Measures that USACE currently contemplates as conditions of a DA Section 10/404 permit, if one is issued, are provided in Chapter 4, Section 4.27 Mitigation Summary of the EIS.

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**Concern ID: 63933**

**Commenters asked if there will be mitigation efforts done prior to the implementation of the diversion and when will those measures occur?**

**Response ID: 16580**

CPRA's Draft Mitigation and Stewardship Plan (Appendix R1 to the Draft EIS) contained information on mitigation, including mitigation that would be undertaken before the Project becomes operational. In response to comments, CPRA has expanded and refined this Mitigation and Stewardship Plan in the Final EIS, including providing

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additional detail on several mitigation efforts that would be undertaken before the Project becomes operational, including funding for public and private oyster seed ground enhancement, marketing, shrimp vessel and facility improvements, workforce and business training, and subsistence fishing access (see the Mitigation and Stewardship Plan in Appendix R1 to the Final EIS for additional details).

The Mitigation and Stewardship Plan and the Monitoring and Adaptive Management (MAM) Plan provided in Draft EIS Appendix R were submitted by CPRA and represent a range of potential mitigation, stewardship, monitoring and adaptive management measures (collectively, measures). At the time of publication of the Draft EIS for public review, Appendix R contained draft Plans and CPRA had not identified which of the measures contained in those Plans it intended to implement. CPRA expanded and refined the Final Mitigation and Stewardship Plan in response to community and resource agency input. The Final EIS Appendix R contains the final Plans and specifies which measures CPRA and the LA TIG intend to implement. Generally, impact determinations discussed in the EIS represent anticipated Project effects without implementation of these measures except in instances where such measures are identified in the discussion. If any mitigation, monitoring or adaptive management measures are required by USACE as part of its approval of the Project, such measures would be required as special conditions of the Department of the Army (DA) Section 10/404 permit and would be listed in the permit, if one is issued. Implementation of specific measures contained in either Plan, but not included in the Section 10/404 permit as special conditions, would not be required by USACE. USACE does not know whether any particular measure that is not a DA permit condition would be implemented. Measures that USACE currently contemplates as conditions of a DA Section 10/404 permit, if one is issued, are provided in Chapter 4, Section 4.27 Mitigation Summary of the EIS.

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**Concern ID: 63934**

**Implementing agencies should be adaptive and transparent in how they mitigate impacts to communities. CPRA has done a great job in outreach and the same level of outreach and engagement should continue through construction and Project operation.**

**Response ID: 16581**

CPRA engaged the communities potentially impacted by the Project through public meetings to solicit input on mitigation strategies. Further, CPRA engaged community-based organizations to assist in soliciting additional feedback on the proposed mitigation and stewardship measures. A summary of these public engagement meetings and other outreach efforts is in Chapter 7 (Public Involvement) of the Final EIS. CPRA would continue outreach to help ensure that impacted communities become aware and take advantage of the mitigation and stewardship measures that CPRA would offer if the Project is approved and funded. The MAM Plan also includes particular measures including engagement with stakeholder groups. See Section 2.2.2.2 (Stakeholder Review Panel) of the MAM Plan (Appendix R2 to the Final EIS).

**Concern ID: 63935**

**State and Federal agencies should collaborate with CPRA to help with mitigation efforts related to workforce development, housing, education and training programs, mental health, fisheries subsidies and access to capital for people to go into business for themselves.**

**Response ID: 16582**

According to CPRA, it is collaborating with the LA TIG federal agencies (NOAA, DOI, USEPA, USDA) through the LA TIG framework as well as other venues, in the development and implementation of the Mitigation and Stewardship Plan. CPRA anticipates working with other State agencies, such as Louisiana Economic Development, on the workforce development, education and training programs included in the Mitigation and Stewardship Plan (Appendix R1 to the EIS). Finally, the State of Louisiana has been working with, and will continue to work with, Louisiana Sea Grant on the Seafood Futures initiative, focused on ensuring a long term, sustainable fishing industry in spite of coastal changes. Louisiana Sea Grant, based at Louisiana State University, is part of the National Sea Grant Program, a network made up of 34 programs located in each of the coastal and Great Lakes states and Puerto Rico. Sea Grant Programs work individually and in partnership to address major marine and coastal challenges.

**Concern ID: 63946**

**Public comments asked to create a fund specifically for those impacted as a result of the diversion and develop a screening process where people can qualify each year to receive mitigation funds.**

**Response ID: 16586**

The Draft EIS evaluates how the Project would impact commercial, recreational, and subsistence fishers as compared to the No Action alternative in Chapter 4, Sections 4.10 (Aquatic Resources), 4.14 (Commercial Fisheries), 4.15 (Environmental Justice) and 4.16 (Recreation and Tourism).

In response to public comments and agency input about the proposed mitigation efforts, CPRA has expanded and refined the mitigation and

stewardship measures. However, CPRA's mitigation and stewardship strategies do not include direct payments to fishers. Rather, CPRA's mitigation and stewardship strategies and expenditures focus on establishing sustainable fisheries rather than on compensating individual fishers for their particularized economic losses (see the Mitigation and Stewardship Plan in Appendix R1 to the Final EIS). Without the Project, adverse impacts to fisheries would be expected over the next 50 years. Prior to 2050, those changes would be minor and gradual. After 2050, more drastic changes are anticipated, leading to a steep decline in suitability for fisheries in a large portion of the currently suitable habitat. With implementation of the diversion, the Project would cause significant adverse impacts to fisheries in the early years of the Project's operational life.

The updated fishery mitigation plan, valued at approximately \$54 million, along with other restoration actions and programs being funded by the LA TIG and by the State through LDWF, address the impacts of the Project. The fishery mitigation plan can be found in the Mitigation and Stewardship Plan (Appendix R1 to the EIS). These measures utilize programs and techniques familiar to members of the fishing industry. CPRA and LDWF would develop eligibility criteria as part of finalizing the programs which focus on fishers of Barataria Basin.

These programs would also benefit businesses other than commercial fishers that are directly or indirectly dependent on a successful commercial fishery.

The Mitigation and Stewardship Plan and the Monitoring and Adaptive Management (MAM) Plan provided in Draft EIS Appendix R were submitted by CPRA and represent a range of potential mitigation, stewardship, monitoring and adaptive management measures (collectively, measures). At the time of publication of the Draft EIS for public review, Appendix R contained draft Plans and CPRA had not identified which of the measures contained in those Plans it intended to implement. CPRA expanded and refined the Final Mitigation and Stewardship Plan in response to community and resource agency input. The Final EIS Appendix R contains the final Plans and specifies which measures CPRA and the LA TIG intend to implement. Generally, impact determinations discussed in the EIS represent anticipated Project effects without implementation of these measures except in instances where such measures are identified in the discussion. If any mitigation, monitoring or adaptive management measures are required by USACE as part of its approval of the Project, such measures would be required as special conditions of the Department of the Army (DA) Section 10/404 permit and would be listed in the permit, if one is issued. Implementation of specific measures contained in either Plan, but not included in the Section

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**Concern ID: 63965**

**The Trustees should begin mitigation and adaptation during construction before impact as opposed to waiting after impacts occur to initiate the process.**

**Response ID: 16588**

CPRA's Draft Mitigation and Stewardship Plan (Appendix R1 to the Draft EIS) contained information on mitigation and stewardship measures, including measures that would be undertaken by CPRA before Project construction. Since publication of the Draft EIS and in response to comments, CPRA has expanded and refined this Mitigation and Stewardship Plan in the Final EIS, which now provides additional detail on several efforts that CPRA would undertake before Project construction, including funding for public and private oyster seed ground enhancement, marketing, shrimp vessel and facility improvements, workforce and business training, and subsistence fishing access (see Appendix R1 [Mitigation and Stewardship Plan] to the Final EIS for additional details).

CPRA would be responsible for implementation of any mitigation actions and for monitoring and adaptive management associated with the proposed Project.

The Mitigation and Stewardship Plan and the Monitoring and Adaptive Management (MAM) Plan provided in Draft EIS Appendix R were submitted by CPRA and represent a range of potential mitigation, stewardship, monitoring and adaptive management measures (collectively, measures). At the time of publication of the Draft EIS for public review, Appendix R contained draft Plans and CPRA had not identified which of the measures contained in those Plans it intended to implement. CPRA expanded and refined the Final Mitigation and Stewardship Plan in response to community and resource agency input. The Final EIS Appendix R contains the final Plans and specifies which measures CPRA and the LA TIG intend to implement.

Generally, impact determinations discussed in the EIS represent anticipated Project effects without implementation of these measures

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except in instances where such measures are identified in the discussion. If any mitigation, monitoring or adaptive management measures are required by USACE as part of its approval of the Project, such measures would be required as special conditions of the Department of the Army (DA) Section 10/404 permit and would be listed in the permit, if one is issued. Implementation of specific measures contained in either Plan, but not included in the Section 10/404 permit as special conditions, would not be required by USACE. USACE does not know whether any particular measure that is not a DA permit condition would be implemented. Measures that USACE currently contemplates as conditions of a DA Section 10/404 permit, if one is issued, are provided in Chapter 4, Section 4.27 Mitigation Summary of the EIS.

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**Concern ID: 63190**

**Commenters recommend Hypoxia Action Plan be seen as a mitigation effort already in place and/or that its recommended actions be considered as part of the mitigation for Project.**

**Response ID: 16564**

The commenters accurately noted that the Gulf Hypoxia Action Plan is relevant to the Project area. In response to these comments, a discussion of the Gulf Hypoxia Action Plan has been added to Chapter 4, Section 4.25.5 (Cumulative Impacts - Surface Water and Sediment Quality) of the Final EIS. Similar text has been added to the LA TIG's Final Restoration Plan. The proposed Project is anticipated to reduce the amount of nitrogen and phosphorus that reaches the Gulf of Mexico through nutrient uptake in the marshes that would be created and/or sustained by the proposed diversion. Because the proposed Project is already anticipated to reduce the nutrients that contribute to the Gulf Hypoxia Zone (GHZ), further mitigation actions with respect to the GHZ for the proposed Project are not considered necessary. However, CPRA has committed to implement water quality monitoring for nitrogen and phosphorus (and other parameters) in the outfall area and to make the results of that monitoring available online to the public and interested parties in real time. Consequently, while the Hypoxia Action Plan would not be considered as mitigation for impacts associated with the Project, the anticipated reduction in nutrients reaching the Gulf through wetlands restoration and the water quality monitoring/access to water quality monitoring data would be consistent with the Hypoxia Action Plan.



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**Concern ID: 63203**

**Proposed Project will have a potential negligible to minor impact on levee systems and CPRA should request Corps credits for proposed Project.**

**Response ID: 16571**

The Project would have a negligible to minor beneficial impact on the NOV-NFL and WBV levee systems by reducing surge elevation and wave height to the north of created and maintained wetlands. The proposed Project would have a negligible to minor adverse impact on the NOV-NFL Levee system by increasing surge elevation to the south of the outfall. CPRA notified USACE in writing that work in-kind credit is not being pursued for MBSD; however, CPRA reserves the right to pursue work in-kind credit in the future. CPRA is not eligible for credit under Engineer Regulation 1165-2-208 and the existing NOV-NFL Project Partnership Agreement.

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**Concern ID: 63208**

**Additional information is needed on who will pay for the increased costs for flooding and levee protection that will be needed due to the Project.**

**Response ID: 16576**

The Draft EIS summarizes whether and the degree to which construction and operation of the Project would cause increases in water levels and corresponding inundation in Table 4.20-15 in Chapter 4, Section 4.20 Public Health and Safety. Further, a draft of CPRA's Mitigation and Stewardship Plan was issued with the Draft EIS (Appendix R1) and explained CPRA's mitigation and stewardship measures to address increases in water levels and inundation projected to result from Project operations. Between completion of the Draft EIS and publication of the Final EIS, CPRA expanded and refined those mitigation and stewardship measures based on input received on the Draft EIS and during direct community outreach (see Chapter 7 [Public Involvement] of the Final EIS). As explained in CPRA's Final Mitigation and Stewardship Plan issued with the Final EIS (Appendix R1), CPRA would allocate funding to address and avoid some adverse effects due to the projected increases in inundation, including construction of structural mitigation and stewardship measures such as improving bulkheads, elevating roads, and raising homes. Increases in tidal flooding are not projected to exceed existing levee protection, therefore, CPRA does not intend to raise levees or to construct new levees. CPRA also would use Project funds to acquire Project servitudes over certain properties projected to be affected by Project operations. The Project servitude would allow CPRA to flow water over the landowner's property at heights and durations that are greater than would be in the case in the future without the Project. For additional details regarding CPRA's mitigation and stewardship measures, see the Final Mitigation and Stewardship Plan, Appendix R1 to the Final EIS.



If the LA TIG decides to fund the Project, that funding authorization would also include funding for mitigation and stewardship measures.

Structural measures contained in CPRA's Mitigation and Stewardship Plan are not included in CPRA's DA permit application and if this permit is approved, would not be authorized under this DA permit. Many of these structural measures would require additional DA and other its prior to installation. Such permits are not guaranteed and would take time for USACE and other regulatory agencies to process.

A DA permit does not convey any property rights and does not authorize any injury to property or invasion of rights or any infringement of Federal, state or local laws or regulations. The applicant's signature on an application is an affirmation that the applicant possesses or will possess the requisite property interest to undertake the activity proposed in the application.

The Mitigation and Stewardship Plan and the Monitoring and Adaptive Management (MAM) Plan provided in Draft EIS Appendix R were submitted by CPRA and represent a range of potential mitigation, stewardship, monitoring and adaptive management measures (collectively, measures). At the time of publication of the Draft EIS for public review, Appendix R contained draft Plans and CPRA had not identified which of the measures contained in those Plans it intended to implement. CPRA expanded and refined the Final Mitigation and Stewardship Plan in response to community and resource agency input. The Final EIS Appendix R contains the final Plans and specifies which measures CPRA and the LA TIG intend to implement. Generally, impact determinations discussed in the EIS represent anticipated Project effects without implementation of these measures except in instances where such measures are identified in the discussion. If any mitigation, monitoring or adaptive management measures are required by USACE as part of its approval of the Project, such measures would be required as special conditions of the Department of the Army (DA) Section 10/404 permit and would be listed in the permit, if one is issued. Implementation of specific measures contained in either Plan, but not included in the Section 10/404 permit as special conditions, would not be required by USACE. USACE does not know whether any particular measure that is not a DA permit condition would be implemented. Measures that USACE currently contemplates as conditions of a DA Section 10/404 permit, if one is issued, are provided in Chapter 4, Section 4.27 Mitigation Summary of the EIS.

The LA TIG explains in Section 1.5 of the Final Restoration Plan that it anticipates requiring implementation of the Mitigation and Stewardship Plan, MAM Plan, and Marine Mammal Intervention Plan as components of the proposed Project, if the Project is approved by the

LA TIG for funding. Decisions regarding which measures would be required as part of the LA TIG's funding decision would be set forth in the LA TIG Record of Decision related to the proposed Project.

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**Concern ID: 63196****Mitigation will be about the same regardless of the diversion capacity.****Response ID: 16567**

The purpose of CPRA's Mitigation and Stewardship Plan (see Appendix R1 to the EIS) is to demonstrate how some adverse impacts of the Project (75,000 cfs capacity) would be avoided, minimized, or mitigated. The mitigation and stewardship measures are focused on the construction and operation of the diversion with a capacity of 75,000 cfs. If a different diversion capacity were selected for implementation, the Mitigation and Stewardship Plan would be reviewed and adjusted, as appropriate, to reflect the revised Project impacts.

The Mitigation and Stewardship Plan and the Monitoring and Adaptive Management (MAM) Plan provided in Draft EIS Appendix R were submitted by CPRA and represent a range of potential mitigation, stewardship, monitoring and adaptive management measures (collectively, measures). At the time of publication of the Draft EIS for public review, Appendix R contained draft Plans and CPRA had not identified which of the measures contained in those Plans it intended to implement. CPRA expanded and refined the Final Mitigation and Stewardship Plan in response to community and resource agency input. The Final EIS Appendix R contains the final Plans and specifies which measures CPRA and the LA TIG intend to implement. Generally, impact determinations discussed in the EIS represent anticipated Project effects without implementation of these measures except in instances where such measures are identified in the discussion. If any mitigation, monitoring or adaptive management measures are required by USACE as part of its approval of the Project, such measures would be required as special conditions of the Department of the Army (DA) Section 10/404 permit and would be listed in the permit, if one is issued. Implementation of specific measures contained in either Plan, but not included in the Section 10/404 permit as special conditions, would not be required by USACE. USACE does not know whether any particular measure that is not a DA permit condition would be implemented. Measures that USACE currently contemplates as conditions of a DA Section 10/404 permit, if one is issued, are provided in Chapter 4, Section 4.27 Mitigation Summary of the EIS.

The LA TIG explains in Section 1.5 of the Final Restoration Plan that it anticipates requiring implementation of the Mitigation and Stewardship Plan, MAM Plan, and Marine Mammal Intervention Plan as components of the proposed Project, if the Project is approved by the

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LA TIG for funding. Decisions regarding which measures would be required as part of the LA TIG's funding decision would be set forth in the LA TIG Record of Decision related to the proposed Project.

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**Concern ID: 63201**

**Mitigation should be transparent; changes to ecosystem would occur even without the proposed Project due to continued sea-level rise and wetland loss.**

**Response ID: 16569**

The Draft EIS evaluated anticipated changes to wetland and other resources due to sea-level rise and wetland loss if the proposed Project is not implemented in its evaluation of the No Action Alternative. Any mitigation and stewardship measures that would be required by USACE would be special conditions of the DA permit, if one is issued. If a permit is issued, it would be made available to the public via the USACE website.

As described in Section 1.6 (No Action Alternative) of the LA TIG's Final Restoration Plan (as well as in greater detail in the SRP/EA #3), the loss of deltaic processes in this estuarine ecosystem has resulted in a steady decline in the health of natural resources in the Barataria Basin, which is indicated by metrics such as decreased plant health, high rates of erosion, and higher salinities farther north in the basin. Without the proposed MBSD Project, deterioration of injured resources within and beyond the Barataria Basin would continue (see the No Action Alternative Analyses in Chapter 4, Sections 4.2 [Geology and Soils] and 4.6 [Wetland Resources and Waters of the U.S.] of the EIS).

The measures set forth in CPRA's Mitigation and Stewardship Plan for the Project address changes directly attributable to the proposed MBSD Project, such as changes in salinity affecting fisheries. In response to comments, CPRA has expanded and refined this Mitigation and Stewardship Plan in the Final EIS (Appendix R1).

The Mitigation and Stewardship Plan and the Monitoring and Adaptive Management (MAM) Plan provided in Draft EIS Appendix R were submitted by CPRA and represent a range of potential mitigation, stewardship, monitoring and adaptive management measures (collectively, measures). At the time of publication of the Draft EIS for public review, Appendix R contained draft Plans and CPRA had not identified which of the measures contained in those Plans it intended to implement. CPRA expanded and refined the Final Mitigation and Stewardship Plan in response to community and resource agency input. The Final EIS Appendix R contains the final Plans and specifies which measures CPRA and the LA TIG intend to implement. Generally, impact determinations discussed in the EIS represent anticipated Project effects without implementation of these measures except in instances where such measures are identified in the discussion. If any mitigation, monitoring or adaptive management measures are required by USACE as part of its approval of the

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Project, such measures would be required as special conditions of the Department of the Army (DA) Section 10/404 permit and would be listed in the permit, if one is issued. Implementation of specific measures contained in either Plan, but not included in the Section 10/404 permit as special conditions, would not be required by USACE. USACE does not know whether any particular measure that is not a DA permit condition would be implemented. Measures that USACE currently contemplates as conditions of a DA Section 10/404 permit, if one is issued, are provided in Chapter 4, Section 4.27 Mitigation Summary of the EIS.

The LA TIG explains in Section 1.5 of the Final Restoration Plan that it anticipates requiring implementation of the Mitigation and Stewardship Plan, MAM Plan, and Marine Mammal Intervention Plan as components of the proposed Project, if the Project is approved by the LA TIG for funding. Decisions regarding which measures would be required as part of the LA TIG's funding decision would be set forth in the LA TIG Record of Decision related to the proposed Project.

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**Concern ID: 63944**

**Some commenters were concerned about potential hardships that would be caused by the diversion and made personal requests for direct financial assistance, job training, boat repairs, or boat upgrades to allow them to fish in more distant fishing grounds.**

**Response ID: 16584**

The Draft EIS evaluates how the Project would impact commercial, recreational, and subsistence fishers and how it would affect disadvantaged, minority and low-income communities as compared to No Action conditions in Chapter 4, Sections 4.10.4.5 Aquatic Resources, Key Species, 4.14.4 Commercial Fisheries, Operational Impacts, 4.15.4 Environmental Justice, Operational Impacts, Commercial Fishing and Subsistence Fishing and Hunting, and Recreational Fishing and Hunting and 4.16.5 Recreation and Tourism, Operational Impacts, Recreational Fishing. Without the Project, adverse impacts to fisheries would be expected during the 50-year period evaluated in the EIS. Prior to 2050, those changes would be minor and gradual. After 2050, more drastic changes are anticipated, leading to a steep decline in suitability for some fisheries in a large portion of the currently suitable habitat. By contrast, with implementation of the diversion, the Project would cause significant adverse impacts to some commercial fisheries in the early years of the Project's operational life.

To address some of the adverse impacts to fishers and fisheries projected to be caused by the proposed diversion, CPRA has prepared a Mitigation and Stewardship Plan (see CPRA's Mitigation and Stewardship Plan in Appendix R1 to the Final EIS). CPRA's mitigation and stewardship strategies and expenditures focus on

establishing sustainable fisheries rather than on compensating individual fishers for their particularized economic losses. In response to public comments and agency input about proposed mitigation and stewardship efforts, CPRA has expanded and refined its mitigation and stewardship measures.

The Draft Mitigation and Stewardship Plan (Appendix R1 to the Draft EIS) included measures focused on establishing a sustainable fishing industry in the long term, rather than measures for compensating the short-term economic losses of individual fishers. CPRA's Mitigation and Stewardship Plan includes many of the programs suggested by the commenters, including:

- \$15 million for vessel and facility improvements
- \$2 million in workforce and business training

See Appendix R1 to the Final EIS for more details.

The Mitigation and Stewardship Plan and the Monitoring and Adaptive Management (MAM) Plan provided in Draft EIS Appendix R were submitted by CPRA and represent a range of potential mitigation, stewardship, monitoring and adaptive management measures (collectively, measures). At the time of publication of the Draft EIS for public review, Appendix R contained draft Plans and CPRA had not identified which of the measures contained in those Plans it intended to implement. CPRA expanded and refined the Final Mitigation and Stewardship Plan in response to community and resource agency input. The Final EIS Appendix R contains the final Plans and specifies which measures CPRA and the LA TIG intend to implement. Generally, impact determinations discussed in the EIS represent anticipated Project effects without implementation of these measures except in instances where such measures are identified in the discussion. If any mitigation, monitoring or adaptive management measures are required by USACE as part of its approval of the Project, such measures would be required as special conditions of the Department of the Army (DA) Section 10/404 permit and would be listed in the permit, if one is issued. Implementation of specific measures contained in either Plan, but not included in the Section 10/404 permit as special conditions, would not be required by USACE. USACE does not know whether any particular measure that is not a DA permit condition would be implemented. Measures that USACE currently contemplates as conditions of a DA Section 10/404 permit, if one is issued, are provided in Chapter 4, Section 4.27 Mitigation Summary of the EIS.

The LA TIG explains in Section 1.5 of the Final Restoration Plan that it anticipates requiring implementation of the Mitigation and Stewardship Plan, MAM Plan, and Marine Mammal Intervention Plan as

components of the proposed Project, if the Project is approved by the LA TIG for funding. Decisions regarding which measures would be required as part of the LA TIG's funding decision would be set forth in the LA TIG Record of Decision related to the proposed Project.

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**Concern ID: 63945**

**The seafood industry mitigation plan does not provide mitigation and stewardship measures to stakeholders in Mississippi who are licensed in Louisiana.**

**Response ID: 16585**

CPRA's Mitigation and Stewardship Plan (Appendix R1 to the Final EIS) provides a suite of mitigation strategies applicable to fishers that may be impacted by the Project regardless of state of residence. CPRA has expanded and refined its Mitigation and Stewardship Plan, Appendix R1 to the Final EIS, since publication of the Draft EIS and LA TIG's Draft Restoration Plan based on community and resource agency input. The focus of those measures remains providing assistance to impacted users. Those mitigation programs will be equally available to any impacted fisher who relies on fisheries in the Barataria Basin, regardless of whether or not they reside in the Basin.

The Mitigation and Stewardship Plan and the Monitoring and Adaptive Management (MAM) Plan provided in Draft EIS Appendix R were submitted by CPRA and represent a range of potential mitigation, stewardship, monitoring and adaptive management measures (collectively, measures). At the time of publication of the Draft EIS for public review, Appendix R contained draft Plans and CPRA had not identified which of the measures contained in those Plans it intended to implement. CPRA expanded and refined the Final Mitigation and Stewardship Plan in response to community and resource agency input. The Final EIS Appendix R contains the final Plans and specifies which measures CPRA and the LA TIG intend to implement. Generally, impact determinations discussed in the EIS represent anticipated Project effects without implementation of these measures except in instances where such measures are identified in the discussion. If any mitigation, monitoring or adaptive management measures are required by USACE as part of its approval of the Project, such measures would be required as special conditions of the Department of the Army (DA) Section 10/404 permit and would be listed in the permit, if one is issued. Implementation of specific measures contained in either Plan, but not included in the Section 10/404 permit as special conditions, would not be required by USACE. USACE does not know whether any particular measure that is not a DA permit condition would be implemented. Measures that USACE currently contemplates as conditions of a DA Section 10/404 permit, if one is issued, are provided in Chapter 4, Section 4.27 Mitigation Summary of the EIS.

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**Concern ID: 63948****Public comment asked for provision of affordable broadband internet access for all residents impacted by the MBSD.****Response ID: 16587**

Under USACE regulations, compensatory mitigation is intended to address significant resource losses that are specifically identifiable, reasonably likely to occur and of importance to the human or aquatic environment. Mitigation must be directly related to the impacts of the proposal, appropriate to the scope and degree of those impacts and reasonably enforceable. Because the proposed Project is not anticipated to adversely impact cable, internet or communication access, or infrastructure, the suggested provision of broadband internet access would not relate to resource losses caused by the proposed Project and would not be required by USACE.

CPRA has proposed mitigation and stewardship measures to address and partially offset some of the projected impacts of the Project, including providing mitigation for impacts to fisheries and increased water surface elevations caused by the Project (see Appendix R1 [Mitigation and Stewardship Plan] to the EIS). These measures have been designed to target specific impacts, and while broadband would likely benefit some of the impacted communities, CPRA and the LA TIG have chosen a targeted approach to mitigation based on the projected impacts of the Project.

The Mitigation and Stewardship Plan and the Monitoring and Adaptive Management (MAM) Plan provided in Draft EIS Appendix R were submitted by CPRA and represent a range of potential mitigation, stewardship, monitoring and adaptive management measures (collectively, measures). At the time of publication of the Draft EIS for public review, Appendix R contained draft Plans and CPRA had not identified which of the measures contained in those Plans it intended to implement. CPRA expanded and refined the Final Mitigation and Stewardship Plan in response to community and resource agency input. The Final EIS Appendix R contains the final Plans and specifies which measures CPRA and the LA TIG intend to implement. Generally, impact determinations discussed in the EIS represent anticipated Project effects without implementation of these measures except in instances where such measures are identified in the discussion. If any mitigation, monitoring or adaptive management measures are required by USACE as part of its approval of the

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The LA TIG explains in Section 1.5 of the Final Restoration Plan that it anticipates requiring implementation of the Mitigation and Stewardship Plan, MAM Plan, and Marine Mammal Intervention Plan as components of the proposed Project, if the Project is approved by the LA TIG for funding. Decisions regarding which measures would be required as part of the LA TIG's funding decision would be set forth in the LA TIG Record of Decision related to the proposed Project.

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**Concern ID: 63204****CPRA and State should work with willing landowners and users on closure of canals to increase proposed Project benefits.****Response ID: 16572**

CPRA and other LA TIG Trustees have a long record of implementing a variety of restoration projects, including closures of canals where appropriate and cost-effective for coastal restoration. These projects are consistent with the Coastal Master Plan, and CPRA anticipates that they will continue to be implemented in the future. Canal closures are not a feature of the proposed Project and were not evaluated in the Draft EIS. In response to comments from the community, however, CPRA's Mitigation and Stewardship Plan (Appendix R1 to the Final EIS) evaluated canal closures as a possible mitigation measure and as a result the Final Mitigation and Stewardship Plan includes a funding allocation for canal closures in Grand Bayou.

The Mitigation and Stewardship Plan and the Monitoring and Adaptive Management (MAM) Plan provided in Draft EIS Appendix R were submitted by CPRA and represent a range of potential mitigation, stewardship, monitoring and adaptive management measures (collectively, measures). At the time of publication of the Draft EIS for public review, Appendix R contained draft Plans and CPRA had not identified which of the measures contained in those Plans it intended to implement. CPRA expanded and refined the Final Mitigation and Stewardship Plan in response to community and resource agency input. The Final EIS Appendix R contains the final Plans and specifies which measures CPRA and the LA TIG intend to implement. Generally, impact determinations discussed in the EIS represent anticipated Project effects without implementation of these measures except in instances where such measures are identified in the

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discussion. If any mitigation, monitoring or adaptive management measures are required by USACE as part of its approval of the proposed Project, such measures would be required as special conditions of the Department of the Army (DA) Section 10/404 permit and would be listed in the permit, if one is issued. Implementation of specific measures contained in either Plan, but not included in the Section 10/404 permit as special conditions, would not be required by USACE. USACE does not know whether any particular measure that is not a DA permit condition would be implemented. Measures that USACE currently contemplates as conditions of a DA Section 10/404 permit, if one is issued, are provided in Chapter 4, Section 4.27 Mitigation Summary of the EIS.

The LA TIG explains in Section 1.5 of the Final Restoration Plan that it anticipates requiring implementation of the Mitigation and Stewardship Plan, MAM Plan, and Marine Mammal Intervention Plan as components of the proposed Project, if the Project is approved by the LA TIG for funding. Decisions regarding which measures would be required as part of the LA TIG's funding decision would be set forth in the LA TIG Record of Decision related to the proposed Project.

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**Concern ID: 63207**

**Water pollution, especially nitrogen and phosphorus, may negatively impact the Project. The Mitigation Plan should 1) Fund LA's Nutrient Management and Reduction Strategy; 2) Fund ground activities upstream to reduce pollution in the river; and 3) identify projects in other states to reduce pollution loading.**

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**Response ID: 16575**

The Draft EIS considered the impacts that water pollution within the Mississippi River, including nitrogen and phosphorus, may cause in Chapter 4, Section 4.5.5 Operational Impacts in Surface Water and Sediment Quality. In response to comments, a discussion of the Gulf Hypoxia Action Plan has been added to Chapter 4, Section 4.25.5 Cumulative Impacts - Surface Water and Sediment Quality of the Final EIS. The Hypoxia Action Plan highlights the important role that sediment diversions can play in reducing nutrient loading into the Gulf of Mexico.

While the LA TIG's Final Restoration Plan is focused on wetland creation in Barataria Basin and not upland nutrient removal, Louisiana's Nutrient Reduction and Management Strategy highlights the important role that river diversions could play in reducing nutrient loads. See <https://deq.louisiana.gov/page/nutrient-management-strategy>. As stated in Section 4.25.5.2, the combined impact of several Mississippi River diversions operating simultaneously may reduce nutrient flow from the river to the Gulf, having a beneficial impact on the Gulf of Mexico hypoxic zone.

While not part of this Project, the LA TIG is funding other restoration efforts on the ground to reduce nutrient pollution in the Mississippi

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River. Each of the 12 member states in the Gulf of Mexico Watershed Nutrient Task Force (Hypoxia Task Force) have nutrient reduction strategies that identify programs and projects to reduce nutrient loads to the Mississippi River and the Gulf of Mexico. These state strategies can be found at <https://www.epa.gov/ms-htf/hypoxia-task-force-nutrient-reduction-strategies>.

Federal agencies also provide financial and technical support and conduct scientific studies that support improvements in local water quality throughout the Mississippi River Basin and reduce nutrient loads to the Gulf of Mexico. Separate from this Project, other funding is available for nutrient reduction projects in other states.

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**Concern ID: 63206**

**Commenter expressed appreciation for CPRA's indication that it would move away from the USACE's handful of dredging contractors, and recommendations were made to explore expanding other fields of expertise such as engineering or construction firms, as well as focusing on the use of locals to benefit the economy.**

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**Response ID: 16574**

The EIS does not address how CPRA would select contractors for the Project if the Project is approved and funded; topics such as contracting are beyond the scope of the NEPA review. CPRA is required to follow, and does follow, the provisions of the Louisiana Public Bid Law, including those contained in Title 39, Chapter 17 (the Louisiana Procurement Code) and in Title 38, Chapter 10 (Public Contracts). CPRA also conducts its procurement in accordance with the provisions governing the Hudson and Veteran's initiatives and the Louisiana First Hiring Act. CPRA has no authority to procure outside of these procurement statutes.

In furtherance of its work and mission, CPRA contracts for a variety of professional services (such as engineering services), consulting services, and construction work, all of which are procured in strict accordance with Louisiana law. As provided by law, CPRA makes all solicitations for work available to the public through the posting of public notices and advertisements for work, which are open to the public for competition.

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**Concern ID: 63205**

**Potential basin impacts are understated; the proposed Project could support proactive efforts to create a cleaner Mississippi River and a cleaner Barataria Basin.**

**Response ID: 16573**

In response to comments, a discussion of the Gulf Hypoxia Action Plan has been added to Chapter 4, Section 4.25.5 (Cumulative Impacts - Surface Water and Sediment Quality) of the Final EIS. The Hypoxia Action Plan highlights the important role that sediment diversions can play in reducing nutrient loading into the Gulf of Mexico.

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**Concern ID: 63197**

**While recognizing that their recommendations may be outside the scope of the EIS, commenters suggested continuing to work with fishers and to examine fishing laws and policies.**

**Response ID: 16568**

The LA TIG acknowledges the desire of the commenters for ongoing engagement with fishers regarding the fishing laws and policies. Existing task forces within the State, such as the Joint Fisheries Task Force Working Group within the Louisiana Department of Wildlife and Fisheries (LDWF), would be an appropriate forum to suggest the examination of fishing laws and policies, given the many factors resulting in changed conditions in the State.

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**Concern ID: 63942**

**Commenters requested mitigation actions be taken to minimize air, water and noise impacts near the construction site.**

**Response ID: 16583**

If the Project is permitted, approved, and funded, CPRA has stated that it would implement certain BMPs during Project construction to avoid and minimize construction impacts listed in Chapter 4, Section 4.27.1 (Mitigation Summary - Avoidance and Minimization) and Appendix R1 (Mitigation and Stewardship Plan) of the Draft EIS. In response to comments, CPRA expanded and refined the BMPs and EPMs between the Draft and Final EIS in the Mitigation Summary Table (Appendix R3 to the Final EIS).

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## SMM11000 - Marine Mammals SMM

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**Concern ID: 62917**

**Public comment suggested that there should be increased monitoring for the dolphin population.**

**Response ID: 16541**

The Monitoring and Adaptive Management (MAM) Plan included in the Draft EIS (Appendix R2) contained draft plans for monitoring marine mammals in Barataria Bay before and during Project operations. The LA TIG recognizes that pre-operation Project monitoring would be essential to understand the impacts of the Project on marine mammals and to inform adaptive management approaches to both monitoring and operational modifications that allow for the minimization of impacts, where practicable. The MAM Plan included in the Draft EIS identified a core marine mammal monitoring team that would be established to conduct year-round marine mammal monitoring. This core team would also provide stranding surveillance and response capacity. The monitoring plans included in the MAM Plan included in the Final EIS (Appendix R2) have been enhanced to allow for critical data collection capabilities. The MAM Plan in the Final EIS (Appendix R2) has also been updated to provide the marine mammal team important

environmental data necessary to understand where monitoring should be focused and to inform operational adaptive management.

The Mitigation and Stewardship Plan and the MAM Plan provided in Draft EIS Appendix R were submitted by CPRA and represent a range of potential mitigation, stewardship, monitoring and adaptive management measures (collectively, measures). At the time of publication of the Draft EIS for public review, Appendix R contained draft Plans and CPRA had not identified which of the measures contained in those Plans it intended to implement. CPRA expanded and refined the Final Mitigation and Stewardship Plan in response to community and resource agency input. The Final EIS Appendix R contains the final Plans, including the additional Marine Mammal Intervention Plan, and specifies which measures CPRA and the LA TIG intend to implement. Generally, impact determinations discussed in the EIS represent anticipated Project effects without implementation of these measures except in instances where such measures are identified in the discussion. If any mitigation, monitoring or adaptive management measures are required by USACE as part of its approval of the Project, such measures would be required as special conditions of the Department of the Army (DA) Section 10/404 permit and would be listed in the permit, if one is issued. Implementation of specific measures contained in either Plan, but not included in the Section 10/404 permit as special conditions, would not be required by USACE. USACE does not know whether any particular measure that is not a DA permit condition would be implemented. Measures that USACE currently contemplates as conditions of a DA Section 10/404 permit, if one is issued, are provided in Chapter 4, Section 4.27 Mitigation Summary of the EIS.

The LA TIG explains in Section 1.5 of the Final Restoration Plan that it anticipates requiring implementation of the Mitigation and Stewardship Plan, MAM Plan, and Marine Mammal Intervention Plan as components of the proposed Project, if the Project is approved by the LA TIG for funding. Decisions regarding which measures would be required as part of the LA TIG's funding decision would be set forth in the LA TIG Record of Decision related to the proposed Project.

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**Concern ID: 62918**

**A suggestion was submitted that Barataria Basin dolphins will thrive in the Grand Isle area and request for the Army Corps to consider transporting Mid-Barataria dolphins to Grand Isle.**

**Response ID: 16704**

The dolphins within the Barataria Basin, including those that inhabit the waters near Grand Isle, are all bottlenose dolphins (*Tursiops truncatus*) and are part of a single population stock, however studies indicate that many of these dolphins live and feed over much more localized areas within the bay. This population (including the dolphins around Grand Isle) was severely compromised by the DWH oil spill and, as described

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in Chapter 3, Section 3.11.3.2 in Marine Mammals of the EIS, continue to demonstrate health impacts (for example, reproductive failure, lung and heart disease, etc.) as a result of the spill and have not yet started a population trajectory to recovery. As noted in Chapter 4, Section 4.11 Marine Mammals of the Draft EIS, once diversion operations begin, the dolphin survival rate (that is, the number of dolphins that survives from year to year) will decline. After the planned 50 years of operation, dolphins in three of the four strata (as described in Thomas et al., 2021) are predicted to be functionally extinct under the Applicant's Preferred Alternative, with the dolphins in the remaining Island stratum (which includes the Grand Isle area) being severely reduced relative to the No Action Alternative (the median predicted abundance in the Island stratum is 85 percent lower [95 percent CI: 28-99 percent] under the Applicant's Preferred Alternative than under the No Action Alternative). Section 4.11 of the Final EIS has been updated to reflect the results of Thomas et al. (2021).

In recognition of the potential collateral injury to bottlenose dolphins and in response to public comments on this issue, the LA TIG has developed a Marine Mammal Intervention Plan since the release of the Draft EIS (see Appendix R5 to the Final EIS). The Plan indicates that any animals impacted by the diversion that are captured and/or rehabilitated would be released in locations suitable for health and survival, which may include, but is not limited to, the areas near Grand Isle. However, it would be logistically impossible to translocate all dolphins compromised by the proposed Project to the waters around Grand Isle. In addition, given that BBES dolphins demonstrate high site fidelity within Barataria Basin and are not anticipated to leave unsuitable habitats resulting from Project operations, as described in Chapter 4, Section 4.11.5.1 in Marine Mammals of the EIS, it is unknown if dolphins that are relocated to waters near Grand Isle would stay near Grand Isle. Moreover, to compress the entire population (currently estimated at approximately 2,000 dolphins) to the waters of Grand Isle would likely result in increased competition and reduced prey resources, and the population would not be sustainable.

The Mitigation and Stewardship Plan and the Monitoring and Adaptive Management (MAM) Plan provided in Draft EIS Appendix R were submitted by CPRA and represent a range of potential mitigation, stewardship, monitoring and adaptive management measures (collectively, measures). At the time of publication of the Draft EIS for public review, Appendix R contained draft Plans and CPRA had not identified which of the measures contained in those Plans it intended to implement. CPRA expanded and refined the Final Mitigation and Stewardship Plan in response to community and resource agency input. The Final EIS Appendix R contains the final Plans, including the additional Marine Mammal Intervention Plan, and specifies which



measures CPRA and the LA TIG intend to implement. Generally, impact determinations discussed in the EIS represent anticipated Project effects without implementation of these measures except in instances where such measures are identified in the discussion. If any mitigation, monitoring or adaptive management measures are required by USACE as part of its approval of the proposed Project, such measures would be required as special conditions of the Department of the Army (DA) Section 10/404 permit and would be listed in the permit, if one is issued. Implementation of specific measures contained in these Plans, but not included in the Section 10/404 permit as special conditions, would not be required by USACE. USACE does not know whether any particular measure that is not a DA permit condition would be implemented. Measures that USACE currently contemplates as conditions of a DA Section 10/404 permit, if one is issued, are provided in Chapter 4, Section 4.27 Mitigation Summary of the EIS.

The LA TIG explains in Section 1.5 of the Final Restoration Plan that it anticipates requiring implementation of the Mitigation and Stewardship Plan, MAM Plan, and Marine Mammal Intervention Plan as components of the proposed Project, if the Project is approved by the LA TIG for funding. Decisions regarding which measures would be required as part of the LA TIG's funding decision would be set forth in the LA TIG Record of Decision related to the proposed Project.

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**Concern ID: 62919**

**Commenters suggested that the proposed Project should include additional details and measures to minimize adverse impacts on dolphins, including additional adaptive management measures, such as operational minimization measures (and other measures to minimize short-term impacts from lower salinity levels) as well as additional details about human interaction/anthropogenic stressor reduction stewardship measures, and about how the goals of those measures will be achieved. One commenter noted that while the alternatives evaluated in the Draft EIS, including those rejected for further review, are adequate for purposes of a Final EIS and Record of Decision, more information on minimization measures that may be considered to address impacts to dolphins through the adaptive management process is needed**

**Response ID: 16707**

In recognition of the potential collateral injury to bottlenose dolphins and in response to public comments on this issue, the CPRA has revised the Monitoring and Adaptive Management (MAM) Plan included in the Draft EIS (see Appendix R2 [Monitoring and Adaptive Management Plan] to the Final EIS) to include more specific details regarding strategies and protocols to be used to minimize impacts on dolphins at the onset of operations and the process through which operational data would be used to evaluate potential modifications to those strategies and protocols. As stated in the MAM Plan, adaptive management



strategies are largely reliant upon data that would only be available once operations commence, but may also be informed by new information gained during the preoperational period. At that time, such data would be used to evaluate modifications to operations that may further minimize impacts to marine mammals while achieving Project goals. In the updated MAM Plan, the CPRA has included a framework by which recommendations on operational management actions designed to minimize impacts on marine mammals would be made and CPRA's final determination on whether they would implement those measures.

The LA TIG has also developed a Marine Mammal Intervention Plan (see Appendix R5 to the Final EIS), which outlines a spectrum of response actions for dolphins affected by the operation of the diversion, ranging from recovery/relocation to no intervention to euthanasia. While the more severe actions (that is, euthanasia) may not offset the ultimate outcome of dolphin mortality associated with the proposed Project, it can alleviate animal suffering. Where relocation is possible, the goal would be to release dolphins into more hospitable habitat where any health impacts would be minimized. With respect to achieving the goals of the stewardship measures that are incorporated in the Mitigation and Stewardship Plan addressing other anthropogenic stressors, the NMFS' Southeast Regional Office and Southeast Fisheries Science Center will lead those efforts. The Final Mitigation and Stewardship Plan has been updated to include additional information regarding this topic (see Appendix R1 to the Final EIS).

The Mitigation and Stewardship Plan and the MAM Plan provided in Draft EIS Appendix R were submitted by CPRA and represent a range of potential mitigation, stewardship, monitoring and adaptive management measures (collectively, measures). At the time of publication of the Draft EIS for public review, Appendix R contained draft Plans and CPRA had not identified which of the measures contained in those Plans it intended to implement. CPRA expanded and refined the Final Mitigation and Stewardship Plan in response to community and resource agency input. The Final EIS Appendix R contains the final Plans, including the additional Marine Mammal Intervention Plan, and specifies which measures CPRA and the LA TIG intend to implement. Generally, impact determinations discussed in the EIS represent anticipated Project effects without implementation of these measures except in instances where such measures are identified in the discussion. If any mitigation, monitoring or adaptive management measures are required by USACE as part of its approval of the proposed Project, such measures would be required as special conditions of the Department of the Army (DA) Section 10/404 permit and would be listed in the permit, if one is issued. Implementation of specific measures contained in these Plans, but not included in the

Section 10/404 permit as special conditions, would not be required by USACE. USACE does not know whether any particular measure that is not a DA permit condition would be implemented. Measures that USACE currently contemplates as conditions of a DA Section 10/404 permit, if one is issued, are provided in Chapter 4, Section 4.27 Mitigation Summary of the EIS.

The LA TIG explains in Section 1.5 of the Final Restoration Plan that it anticipates requiring implementation of the Mitigation and Stewardship Plan, MAM Plan, and Marine Mammal Intervention Plan as components of the proposed Project, if the Project is approved by the LA TIG for funding. Decisions regarding which measures would be required as part of the LA TIG's funding decision would be set forth in the LA TIG Record of Decision related to the proposed Project.

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**Concern ID: 62921**

**Commenters suggested that the State of Louisiana must comply with the MMPA waiver and minimize impacts to marine mammal population stocks in ways that are practicable and consistent with the purposes of the Project. This includes considering alternative actions and modifications to Project operations to reduce or mitigate impacts to BBES dolphins while still meeting the Project purpose. The Mitigation Plan incorrectly suggests that actions to reduce impacts to dolphins is not necessary because it would negatively impact Project performance. The Trustees should research all possible mitigation actions to reduce impacts to BBES and invest in the restoration projects that effectively reduce this impact. These may include alternative construction designs or operational strategies, such as reduced diversion flow or salinity thresholds, that would reduce impacts to bottlenose dolphins.**

**Response ID: 16703**

CPRA prepared a Mitigation and Stewardship Plan and a Monitoring and Adaptive Management (MAM) Plan. Chapter 3, Section 3.11.1 Marine Mammals in the Northern Gulf of Mexico of the Final EIS has been revised to discuss the Marine Mammal Protection Act waiver that was issued for the proposed Project.

There is no requirement in the Bipartisan Budget Act that CPRA evaluate alternatives other than the Project. The Bipartisan Budget Act of 2018, Section 20201 requires the State of Louisiana, in consultation with the Secretary of Commerce (delegated to NMFS), to the extent practicable and consistent with the purposes of the proposed Project to minimize impacts on marine mammal species and population stocks, and monitor and evaluate the impacts of the proposed Project on such species and population stocks.

CPRA's updated MAM Plan (Appendix R2 of the Final EIS) includes measures and frameworks for minimizing and monitoring impacts of the proposed Project on marine mammals. In addition, the LA TIG has developed a Marine Mammal Intervention Plan. As described in the

Federal Register notice announcing issuance of the MMPA waiver, the State's consultation with NMFS will be ongoing to appropriately address the evolving Project planning and design for the construction, operation, and maintenance phases. This ongoing consultation is described in the MAM Plan as well as the Marine Mammal Intervention Plan (see below and Appendices R2 and R5 to the Final EIS for more details).

As described in the Draft EIS, the MAM Plan identifies potential ways in which the LA TIG may reduce impacts to dolphins. The MAM Plan in the Final EIS has been updated to provide more detail about the strategies and protocols that would be used at the onset of operations to minimize impacts on dolphins, as well as the process through which operational data would be used to evaluate potential modifications to those strategies and protocols. However, the adaptive management strategies and actions are largely reliant upon data that would be collected during either the pre-construction monitoring period or once operations commence. Once operational data are available, they would be used to evaluate the potential Project modifications to further minimize impacts to marine mammals. There are limited minimization measures available that would reduce impacts on marine mammals and those limited measures would likely only benefit dolphins residing the furthest from the diversion structure (for example, the Island strata).

However, the LA TIG recognizes that despite these operational strategies, dolphins within Barataria Bay would likely experience significant impacts, as described in the EIS, given the purposes of the proposed Project. In response, the LA TIG has developed a Marine Mammal Intervention Plan that outlines a spectrum of response actions ranging from recovery/relocation to no intervention to euthanasia (see Appendix R5 to the Final EIS). While the more severe actions such as euthanasia may not offset the ultimate outcome of mortality, it can alleviate animal suffering. Where relocation is possible, the goal would be to release dolphins into more hospitable habitat where any health impacts would be minimized.

In addition, the Mitigation and Stewardship Plan and MAM Plan include actions that would occur prior to operations to improve understanding of the BBES dolphins as well as improvement of stocks across the state (see Appendices R1 and R2 to the Final EIS).

In arriving at the mitigation and stewardship actions included in the Mitigation and Stewardship Plan, the LA TIG worked with experts within NOAA with expertise on marine mammals to ensure the consideration of all potential mitigation actions. In terms of operational strategies to reduce marine mammal impacts, as noted above, those strategies cannot be further defined at this time as they are largely reliant upon data that would be collected during the pre-construction monitoring period or once operations commence. One goal of the proposed

Project is to deliver sediment, fresh water, and nutrients into the basin and the design of all of the action alternatives would accomplish that goal. Alternative diversion designs that accomplish that goal on the desired scale would not address dolphin impacts, as those impacts are largely related to salinity changes, which are driven by the transmission of fresh water into the basin.

The Mitigation and Stewardship Plan and the Monitoring and Adaptive Management (MAM) Plan provided in Draft EIS Appendix R were submitted by CPRA and represent a range of potential mitigation, stewardship, monitoring and adaptive management measures (collectively, measures). At the time of publication of the Draft EIS for public review, Appendix R contained draft Plans and CPRA had not identified which of the measures contained in those Plans it intended to implement. CPRA expanded and refined the Final Mitigation and Stewardship Plan in response to community and resource agency input. The Final EIS Appendix R contains the final Plans, including the additional Marine Mammal Intervention Plan, and specifies which measures CPRA and the LA TIG intend to implement. Generally, impact determinations discussed in the EIS represent anticipated Project effects without implementation of these measures except in instances where such measures are identified in the discussion. If any mitigation, monitoring or adaptive management measures are required by USACE as part of its approval of the proposed Project, such measures would be required as special conditions of the Department of the Army (DA) Section 10/404 permit and would be listed in the permit, if one is issued. Implementation of specific measures contained in these Plans, but not included in the Section 10/404 permit as special conditions, would not be required by USACE. USACE does not know whether any particular measure that is not a DA permit condition would be implemented. Measures that USACE currently contemplates as conditions of a DA Section 10/404 permit, if one is issued, are provided in Chapter 4, Section 4.27 Mitigation Summary of the EIS.

The LA TIG explains in Section 1.5 of the Final Restoration Plan that it anticipates requiring implementation of the Mitigation and Stewardship Plan, MAM Plan, and Marine Mammal Intervention Plan as components of the proposed Project, if the Project is approved by the LA TIG for funding. Decisions regarding which measures would be required as part of the LA TIG's funding decision would be set forth in the LA TIG Record of Decision related to the proposed Project.

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**Concern ID: 62925**

**Increased stranding response capacity is unlikely to be effective because there are insufficient stranding response and rehabilitation resources, rehabilitation is expensive and results are unknown, and rehabilitated dolphins released in other estuaries will compete with established populations (Deming et al., 2020; Fougères, 2015; Garrison et al., 2020; Gluch, 2004;**

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**Mazzoil et al., 2008; McHugh et al., 2021; Thomas et al., 2021; Wells et al., 2013; Wells, 2014).**

**Deming, A.C., N.L. Wingers, D.P. Moore, D. Rotstein, R.S. Wells, R. Ewing, M.R. Hodanbosi, and R.H. Carmichael. 2020. Health impacts and recovery from prolonged freshwater exposure in a common bottlenose dolphin (*Tursiops truncatus*). *Frontiers in Veterinary Science* 7:235.**

**Fougeres, E. 2015. Overview of the Gulf of Mexico marine mammal stranding network. Pages 11- 13 in Cornish, V. (ed.). 2015. Gulf of Mexico Marine Mammal Research and Monitoring Meeting: Summary Report. Marine Mammal Commission, Bethesda, MD 20910.**

**Garrison, L.P., J. Litz, and C. Sinclair. 2020. Predicting the effects of low salinity associated with the MBSD Project on resident common bottlenose dolphins (*Tursiops truncatus*) in Barataria Bay, LA. NOAA Technical Memorandum NMFS-SEFSC-748, Miami, Florida. 90 pages.**

**Gluch, N. 2004. United States Small Cetacean Rehabilitation Policy: Driving forces behind a socially motivated policy. Master's Thesis, Duke University. 30 pages.**

**Mazzoil, M.S., S.D. McCulloch, M.J. Youngbluth, D.S. Kilpatrick, M.E. Murdoch, B. Mase-Guthrie, D.K. Odell, and G.D. Bossart. 2008. Radio-tracking and survivorship of two rehabilitated bottlenose dolphins (*Tursiops truncatus*) in the Indian River Lagoon, Florida. *Aquatic Mammals* 34(1):54-64.**

**McHugh, K.A., A.A. Barleycorn, J.B. Allen, K. Bassos-Hull, G. Lovewell, D. Boyd, A. Panike, C. Cush, D. Fauquier, B. Mase, R.C. Lacy, M.R. Greenfield, D.I. Rubenstein, A. Weaver, A. Stone, L. Oliver, K. Morse, and R.S. Wells. 2021. Staying alive: Long-term success of bottlenose dolphin interventions in southwest Florida. *Frontiers in Marine Science* 7:624729.**

**Thomas, L., T. Marques, C. Booth, R. Takeshita, and L. Schwacke. 2021. Predicted population consequences of low salinity associated with the proposed Mid-Barataria Sediment Diversion Project on bottlenose dolphins in the Barataria Bay Estuarine System Stock. Report to the Marine Mammal Commission, Bethesda, Maryland.**

**Wells, R.S., D.A. Fauquier, F.M.D. Gulland, F.I. Townsend, and R.D. Giovanni, Jr. 2013. Evaluating postintervention survival of free-ranging odontocete cetaceans. *Marine Mammal Science* 29(4):E463-E468.**

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**Wells, R.S. 2014. Social structure and life history of common bottlenose dolphins near Sarasota Bay, Florida: Insights from four decades and five generations. Pages 149-172 in J. Yamagiwa and L. Karczmarski (eds.), Primates and Cetaceans: Field Research and Conservation of Complex Mammalian Societies, Primate Monographs, Tokyo, Japan: Springer.**

**Response ID: 16543**

Chapter 4, Section 4.11.5.2 Barataria Bay Estuarine Stock of the EIS and Section 3.2.1.5 (Avoids Collateral Injury) of the LA TIG's Restoration Plan acknowledge that a large number of dolphins would become ill and strand or die in Barataria Bay as a result of the Project.

Two citations mentioned by the commenter (Garrison et al., 2020 and Wells, 2014) were included in the Draft EIS. Other citations mentioned by the commenter (Deming et al., 2020; Fougères, 2015; Gluch, 2004; Mazzoil et al., 2008; McHugh et al., 2021; Wells et al., 2013) were reviewed and would not change the findings of the EIS, but they have been added to Section 4.11 (Marine Mammals). As noted in other responses, the Final EIS has also been updated to reflect the results of Thomas et al (2021), which did not change the conclusions of the EIS.

To address bottlenose dolphin impacts, the LA TIG has developed a Marine Mammal Intervention Plan that has been included in the Final EIS and Final Restoration Plan (Appendix R5 to the EIS). The Plan outlines a spectrum of response actions ranging from recovery/relocation to no intervention to euthanasia. While the more severe actions such as euthanasia may not offset the ultimate outcome of mortality, it can alleviate animal suffering. Where relocation is possible, the goal would be to release dolphins into more hospitable habitat where any health impacts would be minimized. However, the LA TIG recognizes that the number of animals able to be relocated will likely be very small in comparison to the number impacted by the Project.

The Mitigation and Stewardship Plan and the Monitoring and Adaptive Management (MAM) Plan provided in Draft EIS Appendix R were submitted by CPRA and represent a range of potential mitigation, stewardship, monitoring and adaptive management measures (collectively, measures). At the time of publication of the Draft EIS for public review, Appendix R contained draft Plans and CPRA had not identified which of the measures contained in those Plans it intended to implement. CPRA expanded and refined the Final Mitigation and Stewardship Plan in response to community and resource agency input. The Final EIS Appendix R contains the final Plans, including the additional Marine Mammal Intervention Plan, and specifies which measures CPRA and the LA TIG intend to implement. Generally, impact determinations discussed in the EIS represent anticipated Project effects without implementation of these measures except in

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instances where such measures are identified in the discussion. If any mitigation, monitoring or adaptive management measures are required by USACE as part of its approval of the Project, such measures would be required as special conditions of the Department of the Army (DA) Section 10/404 permit and would be listed in the permit, if one is issued. Implementation of specific measures contained in these Plans, but not included in the Section 10/404 permit as special conditions, would not be required by USACE. USACE does not know whether any particular measure that is not a DA permit condition would be implemented. Measures that USACE currently contemplates as conditions of a DA Section 10/404 permit, if one is issued, are provided in Chapter 4, Section 4.27 Mitigation Summary of the EIS.

The LA TIG explains in Section 1.5 of the Final Restoration Plan that it anticipates requiring implementation of the Mitigation and Stewardship Plan, MAM Plan, and Marine Mammal Intervention Plan as components of the proposed Project, if the Project is approved by the LA TIG for funding. Decisions regarding which measures would be required as part of the LA TIG's funding decision would be set forth in the LA TIG Record of Decision related to the proposed Project.

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**Concern ID: 62930**

**Commenter noted that commercial fishing is the primary cause of marine mammal bycatch and should be considered over rod and reel (recreational) fishing during further development of CPRA's Mitigation and Stewardship Plan.**

**Response ID: 16546**

The threat of commercial fishing to marine mammals was discussed and considered in Chapter 3, Section 3.11.4 (Existing Threats) of the Draft EIS; therefore, no related edits were made to the Final EIS. Stewardship measures that would be implemented as part of the Applicant's Preferred Alternative are designed to address some anthropogenic threats to bottlenose dolphins in Louisiana waters including interaction with recreational and commercial fishing (see the Mitigation and Stewardship Plan in Appendix R1 to the EIS).

As stated in the PDARP, the Deepwater Horizon Trustees will continue to advance bycatch reduction measures in the commercial fisheries across the Gulf of Mexico.

The Mitigation and Stewardship Plan and the Monitoring and Adaptive Management (MAM) Plan provided in Draft EIS Appendix R were submitted by CPRA and represent a range of potential mitigation, stewardship, monitoring and adaptive management measures (collectively, measures). At the time of publication of the Draft EIS for public review, Appendix R contained draft Plans and CPRA had not identified which of the measures contained in those Plans it intended to implement. CPRA expanded and refined the Final Mitigation and Stewardship Plan in response to community and resource agency input. The Final EIS Appendix R contains the final Plans, including the



additional Marine Mammal Intervention Plan, and specifies which measures CPRA and the LA TIG intend to implement. Generally, impact determinations discussed in the EIS represent anticipated Project effects without implementation of these measures except in instances where such measures are identified in the discussion. If any mitigation, monitoring or adaptive management measures are required by USACE as part of its approval of the Project, such measures would be required as special conditions of the Department of the Army (DA) Section 10/404 permit and would be listed in the permit, if one is issued. Implementation of specific measures contained in either Plan, but not included in the Section 10/404 permit as special conditions, would not be required by USACE. USACE does not know whether any particular measure that is not a DA permit condition would be implemented. Measures that USACE currently contemplates as conditions of a DA Section 10/404 permit, if one is issued, are provided in Chapter 4, Section 4.27 Mitigation Summary of the EIS.

The LA TIG explains in Section 1.5 of the Final Restoration Plan that it anticipates requiring implementation of the Mitigation and Stewardship Plan, MAM Plan, and Marine Mammal Intervention Plan as components of the proposed Project, if the Project is approved by the LA TIG for funding. Decisions regarding which measures would be required as part of the LA TIG's funding decision would be set forth in the LA TIG Record of Decision related to the proposed Project.

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**Concern ID: 62931**

**Commenter noted agreement with the assessment of effects that mitigation and monitoring may have on the BBES dolphins, specifically in consideration of the broader impact this Project will have on the BBES dolphins. Commenter agreed that as long as measures are conducted with due care, any effects that flow from the enhanced monitoring would be warranted.**

**Response ID: 16547**

The commenter's support of the need for marine mammal related mitigation and monitoring for the Project is acknowledged.

The Mitigation and Stewardship Plan and the Monitoring and Adaptive Management (MAM) Plan provided in Draft EIS Appendix R were submitted by CPRA and represent a range of potential mitigation, stewardship, monitoring and adaptive management measures (collectively, measures). At the time of publication of the Draft EIS for public review, Appendix R contained draft Plans and CPRA had not identified which of the measures contained in those Plans it intended to implement. CPRA expanded and refined the Final Mitigation and Stewardship Plan in response to community and resource agency input. The Final EIS Appendix R contains the final Plans, including the additional Marine Mammal Intervention Plan, and specifies which measures CPRA and the LA TIG intend to implement. Generally, impact determinations discussed in the EIS represent anticipated

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Project effects without implementation of these measures except in instances where such measures are identified in the discussion. If any mitigation, monitoring or adaptive management measures are required by USACE as part of its approval of the Project, such measures would be required as special conditions of the Department of the Army (DA) Section 10/404 permit and would be listed in the permit, if one is issued. Implementation of specific measures contained in either Plan, but not included in the Section 10/404 permit as special conditions, would not be required by USACE. USACE does not know whether any particular measure that is not a DA permit condition would be implemented. Measures that USACE currently contemplates as conditions of a DA Section 10/404 permit, if one is issued, are provided in Chapter 4, Section 4.27 Mitigation Summary of the EIS.

The LA TIG explains in Section 1.5 of the Final Restoration Plan that it anticipates requiring implementation of the Mitigation and Stewardship Plan, MAM Plan, and Marine Mammal Intervention Plan as components of the proposed Project, if the Project is approved by the LA TIG for funding. Decisions regarding which measures would be required as part of the LA TIG's funding decision would be set forth in the LA TIG Record of Decision related to the proposed Project.

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**Concern ID: 63823**

**Commenters noted that the proposed mitigation will not actually reduce impacts on dolphins, and there is no way to mitigate those impacts. Commenters noted that reducing human interaction will not reduce or address impacts of the projects on the local population.**

**Response ID: 16550**

Chapter 4, Section 4.11.5.2 Barataria Bay Estuarine Stock of the EIS acknowledges that according to Thomas, et al. (2021) most of the approximately 2,300 dolphins within the Barataria Basin will perish within the first 10 years of start of operations of the proposed Project (comparing the anticipated Barataria Basin 2027 dolphin population [2,307 dolphins] to the projected 2038 population under the Preferred Alternative [644 dolphins] indicates that approximately 72 percent of the dolphins would perish). That section further acknowledges that the anticipated dolphin mortality would be due to reductions in salinity levels rather than other stressors and that mitigation and stewardship measures that would not reduce the salinity impacts, would be unlikely to reduce the projected dolphin mortality.

With respect to the Restoration Plan, in Section 3.2.1.5 (Avoids Collateral Injury) the LA TIG acknowledges that a large number of dolphins would become ill and strand in Barataria Bay as a result of the Project. The Mitigation and Stewardship Plan also acknowledges that the proposed mitigation may not minimize impacts of the Project on dolphins (see Appendix R1 to the EIS). Measures described in the MAM and Mitigation and Stewardship Plan were developed in

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recognition of the anticipated effects of the Project and to provide valuable data to inform adaptive management actions that could be considered to minimize adverse impacts on BBES dolphins while being consistent with the Project's purpose (see Appendices R1 and R2 to the Final EIS).

The LA TIG does not agree that there is no effective mitigation for this Project but recognizes that the mitigation will be limited (that is, primarily for dolphins around Grand Isle), depending on how operations are managed. Similar to mitigation, the stewardship measures described in the Mitigation and Stewardship Plan will primarily benefit other Louisiana stocks of dolphins outside of the Barataria Basin, though they will provide some benefit to BBES dolphins. For example, minimizing dolphin feeding will protect dolphins from vessel interactions. As noted in Chapter 4, Section 4.11 (Marine Mammals) of the EIS, a remnant BBES dolphin population is expected to remain near the barrier islands. Efforts to reduce anthropogenic stressors other than those from the Project through the Stewardship and Mitigation Plan will benefit the existing and future population in the Barataria Basin and throughout the state. However, the LA TIG recognizes that the impacts of the Project will likely be significant on marine mammals even with the proposed mitigation and stewardship measures.

The Mitigation and Stewardship Plan and the Monitoring and Adaptive Management (MAM) Plan provided in Draft EIS Appendix R were submitted by CPRA and represent a range of potential mitigation, stewardship, monitoring and adaptive management measures (collectively, measures). At the time of publication of the Draft EIS for public review, Appendix R contained draft Plans and CPRA had not identified which of the measures contained in those Plans it intended to implement. CPRA expanded and refined the Final Mitigation and Stewardship Plan in response to community and resource agency input. The Final EIS Appendix R contains the final Plans, including the additional Marine Mammal Intervention Plan, and specifies which measures CPRA and the LA TIG intend to implement. Generally, impact determinations discussed in the EIS represent anticipated Project effects without implementation of these measures except in instances where such measures are identified in the discussion. If any mitigation, monitoring or adaptive management measures are required by USACE as part of its approval of the Project, such measures would be required as special conditions of the Department of the Army (DA) Section 10/404 permit and would be listed in the permit, if one is issued. Implementation of specific measures contained in either Plan, but not included in the Section 10/404 permit as special conditions, would not be required by USACE. USACE does not know whether any particular measure that is not a DA permit condition would be implemented. Measures that USACE currently contemplates as

conditions of a DA Section 10/404 permit, if one is issued, are provided in Chapter 4, Section 4.27 Mitigation Summary of the EIS.

The LA TIG explains in Section 1.5 of the Final Restoration Plan that it anticipates requiring implementation of the Mitigation and Stewardship Plan, MAM Plan, and Marine Mammal Intervention Plan as components of the proposed Project, if the Project is approved by the LA TIG for funding. Decisions regarding which measures would be required as part of the LA TIG's funding decision would be set forth in the LA TIG Record of Decision related to the proposed Project.

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**Concern ID: 63826**

**Commenters suggested that no one will be able to mitigate dolphin impacts if Project activities kill them.**

**Response ID: 16551**

The stewardship measures described in the Mitigation and Stewardship Plan are intended for implementation prior to and during diversion operations. Although these measures may not minimize impacts from the proposed Project on BBES dolphins, they could enhance individual dolphin survival threatened by other anthropogenic sources, such as by funding a state-wide stranding program (the current funding of which is set to expire in 2026; see Appendix R1 to the EIS).

Regarding the operation of the diversion, CPRA also developed a detailed MAM Plan to evaluate the proposed MBSD Project's effects on the Barataria Basin as they occur and consider how the management of the diversion may be adapted to better meet Project goals (see Appendix R2 [Monitoring and Adaptive Management Plan] to the EIS). In addition to performance monitoring to measure progress toward the proposed MBSD Project's restoration objectives, and to better understand the ecological functions and services provided by habitat created by the Project, the Monitoring and Adaptive Management (MAM) Plan also includes monitoring to document changes to the abundance, distribution, population demography, density, survival, health and reproduction of the BBES Stock of bottlenose dolphins, their prey, and their habitat that may result from the operation of the Project and resulting low salinity.

Adaptive management strategies in CPRA's MAM Plan to minimize impacts to BBES dolphins from Project operations include a framework for coordinating stranding response activities during operations, and a commitment to evaluate whether diversion operations could be modified to meet Project goals while reducing impacts to marine mammals. Marine mammal related MAM activities have been updated since the release of the Draft EIS to include more details regarding the process through which operational data would be used to evaluate potential modifications to those strategies and protocols.

The Mitigation and Stewardship Plan and the MAM Plan provided in Draft EIS Appendix R were submitted by CPRA and represent a range

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of potential mitigation, stewardship, monitoring and adaptive management measures (collectively, measures). At the time of publication of the Draft EIS for public review, Appendix R contained draft Plans and CPRA had not identified which of the measures contained in those Plans it intended to implement. CPRA expanded and refined the Final Mitigation and Stewardship Plan in response to community and resource agency input. The Final EIS Appendix R contains the final Plans, including the additional Marine Mammal Intervention Plan, and specifies which measures CPRA and the LA TIG intend to implement. Generally, impact determinations discussed in the EIS represent anticipated Project effects without implementation of these measures except in instances where such measures are identified in the discussion. If any mitigation, monitoring or adaptive management measures are required by USACE as part of its approval of the Project, such measures would be required as special conditions of the Department of the Army (DA) Section 10/404 permit and would be listed in the permit, if one is issued. Implementation of specific measures contained in either Plan, but not included in the Section 10/404 permit as special conditions, would not be required by USACE. USACE does not know whether any particular measure that is not a DA permit condition would be implemented. Measures that USACE currently contemplates as conditions of a DA Section 10/404 permit, if one is issued, are provided in Chapter 4, Section 4.27 Mitigation Summary of the EIS.

The LA TIG explains in Section 1.5 of the Final Restoration Plan that it anticipates requiring implementation of the Mitigation and Stewardship Plan, MAM Plan, and Marine Mammal Intervention Plan as components of the proposed Project, if the Project is approved by the LA TIG for funding. Decisions regarding which measures would be required as part of the LA TIG's funding decision would be set forth in the LA TIG Record of Decision related to the proposed Project.

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**Concern ID: 63828**

**It is unclear from the Draft EIS what effort was made by the State of Louisiana to meet the statutory responsibility under the Bipartisan Budget Act in its selection of alternatives.**

**Response ID: 16553**

Chapter 3, Section 3.11.1 Marine Mammals in the Northern Gulf of Mexico of the Final EIS has been revised to discuss the Marine Mammal Protection Act waiver that was issued for the proposed Project.

There is no requirement that CPRA evaluate alternatives other than the Project. The Bipartisan Budget Act of 2018, Section 20201 requires the State of Louisiana, in consultation with the Secretary of Commerce (delegated to NMFS), to the extent practicable and consistent with the purposes of the Project, to minimize impacts on marine mammal

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species and population stocks, and monitor and evaluate the impacts of the proposed Project on such species and population stocks.

The Monitoring and Adaptive Management (MAM) Plan (Appendix R2 of the Final EIS) includes measures for minimizing and monitoring impacts of the Project on marine mammals. As described in the Federal Register notice announcing issuance of the MMPA waiver, the State's consultation with NMFS would be ongoing to appropriately address the evolving Project planning and design for the construction, operation, and maintenance phases. This ongoing consultation is described in the MAM Plan as well as the Marine Mammal Intervention Plan (see Appendices R2 and R5 to the Final EIS).

The Mitigation and Stewardship Plan and the MAM Plan provided in Draft EIS Appendix R were submitted by CPRA and represent a range of potential mitigation, stewardship, monitoring and adaptive management measures (collectively, measures). At the time of publication of the Draft EIS for public review, Appendix R contained draft Plans and CPRA had not identified which of the measures contained in those Plans it intended to implement. CPRA expanded and refined the Final Mitigation and Stewardship Plan in response to community and resource agency input. The Final EIS Appendix R contains the final Plans, including the additional Marine Mammal Intervention Plan, and specifies which measures CPRA and the LA TIG intend to implement. Generally, impact determinations discussed in the EIS represent anticipated Project effects without implementation of these measures except in instances where such measures are identified in the discussion. If any mitigation, monitoring or adaptive management measures are required by USACE as part of its approval of the Project, such measures would be required as special conditions of the Department of the Army (DA) Section 10/404 permit and would be listed in the permit, if one is issued. Implementation of specific measures contained in these Plans, but not included in the Section 10/404 permit as special conditions, would not be required by USACE. USACE does not know whether any particular measure that is not a DA permit condition would be implemented. Measures that USACE currently contemplates as conditions of a DA Section 10/404 permit, if one is issued, are provided in Chapter 4, Section 4.27 Mitigation Summary of the EIS.

The LA TIG explains in Section 1.5 of the Final Restoration Plan that it anticipates requiring implementation of the Mitigation and Stewardship Plan, MAM Plan, and Marine Mammal Intervention Plan as components of the proposed Project, if the Project is approved by the LA TIG for funding. Decisions regarding which measures would be required as part of the LA TIG's funding decision would be set forth in the LA TIG Record of Decision related to the proposed Project.



**Concern ID: 63835**

**The Draft Restoration Plan is unclear about how information about noise, vessels and other direct threats will be used. However, even if the Project provides benefits through reduced anthropogenic threats, any positive impacts will be small compared to the many larger negative impacts that are occurring to BBES dolphins.**

**Response ID: 16554**

As explained in Section 2.0 of this Appendix B2 DEIS Public Review and Public Meetings, USACE is not involved in the process to restore damages caused by the DWH oil spill. Response content pertaining to the LA TIG's Draft Restoration Plan has been addressed solely by the LA TIG and represent the views of the LA TIG, not USACE.

The LA TIG acknowledges the anticipated significant adverse impacts to the BBES dolphins in Section 3.2.1.5 (Avoids Collateral Injury - Alternative 1) of the Draft Restoration Plan; thus, no related edits were made to the Final Restoration Plan. The stewardship measures described in the Mitigation and Stewardship Plan, which addresses existing and future anthropogenic effects, including noise, on BBES dolphins, would reach beyond the area that would be affected by the Project, as the measures would be implemented state-wide (that is, in areas where the Barataria Basin stock of dolphins does not reside; see Appendix R1 to the EIS). NMFS is currently using existing data to identify where noise and other anthropogenic stressors that present direct threats to marine mammals (for example, fishing entanglement, intentional shootings) are high to target specific areas for action to reduce such stressors. The LA TIG recognizes that state-wide stewardship measures such as reducing noise impacts, vessel and fishery interactions, etc. will not minimize impacts from the Project nor is this implied in the EIS.

The Mitigation and Stewardship Plan and the Monitoring and Adaptive Management (MAM) Plan provided in Draft EIS Appendix R were submitted by CPRA and represent a range of potential mitigation, stewardship, monitoring and adaptive management measures (collectively, measures). At the time of publication of the Draft EIS for public review, Appendix R contained draft Plans and CPRA had not identified which of the measures contained in those Plans it intended to implement. CPRA expanded and refined the Final Mitigation and Stewardship Plan in response to community and resource agency input. The Final EIS Appendix R contains the final Plans, including the additional Marine Mammal Intervention Plan, and specifies which measures CPRA and the LA TIG intend to implement. Generally, impact determinations discussed in the EIS represent anticipated Project effects without implementation of these measures except in instances where such measures are identified in the discussion. If any mitigation, monitoring or adaptive management measures are required by USACE as part of its approval of the Project, such measures would be required as special conditions of the Department of the Army (DA)



Section 10/404 permit and would be listed in the permit, if one is issued. Implementation of specific measures contained in either Plan, but not included in the Section 10/404 permit as special conditions, would not be required by USACE. USACE does not know whether any particular measure that is not a DA permit condition would be implemented. Measures that USACE currently contemplates as conditions of a DA Section 10/404 permit, if one is issued, are provided in Chapter 4, Section 4.27 Mitigation Summary of the EIS.

The LA TIG explains in Section 1.5 of the Final Restoration Plan that it anticipates requiring implementation of the Mitigation and Stewardship Plan, MAM Plan, and Marine Mammal Intervention Plan as components of the proposed Project, if the Project is approved by the LA TIG for funding. Decisions regarding which measures would be required as part of the LA TIG's funding decision would be set forth in the LA TIG Record of Decision related to the proposed Project.

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**Concern ID: 62923**

**Commenter suggests monitoring of dolphin pods after any future large oil spill be required and that polluters be held liable as responsible parties under the Oil Pollution Act.**

**Response ID: 16542**

The LA TIG's investments in monitoring and adaptive management and stewardship of key resources through the proposed Project and other recent and future efforts by the Deepwater Horizon Natural Resource Trustees have and will continue to enhance the robust marine mammal response network across the Gulf of Mexico. The Mitigation and Stewardship and Monitoring and Adaptive Management (MAM) Plans (see Appendices R1 and R2 to the Final EIS) include additional dedicated monitoring and response efforts in the Barataria Basin and across Louisiana. These resources will enhance the ability of Trustee agencies to respond to all threats to marine mammals and facilitate data collection in response to future spills. Under OPA, the LA TIG is tasked with holding responsible parties accountable for the damages to natural resources injured through discharges and threats of discharge.

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**Concern ID: 62926**

**Funding for a stranding program and UME response could be helpful for dolphins but will not help BBES dolphins.**

**Response ID: 16544**

Chapter 4, Section 4.11.5.2 Barataria Bay Estuarine Stock of the EIS and Section 3.2.1.5 (Avoids Collateral Injury) of the LA TIG's Restoration Plan acknowledge that a large number of dolphins would become ill and strand or die in Barataria Bay as a result of the Project. Funding for the stranding program and elevated stranding response for the Barataria Basin dolphins has been developed in recognition of the anticipated effects of the Project; those efforts would provide valuable data to inform adaptive management actions that CPRA could consider to further minimize adverse impacts on BBES dolphins while meeting Project goals. These investments are necessary to effectively implement the Marine Mammal Intervention Plan developed by the LA

TIG and included in the Final EIS and Final Restoration Plan (see Appendix R5 to the EIS). The Plan outlines a spectrum of response actions ranging from recovery/relocation to no intervention to euthanasia. While the more severe actions such as euthanasia may not offset the ultimate outcome of mortality, it can alleviate animal suffering. Where relocation is possible, the goal would be to release dolphins into more hospitable habitat where any health impacts would be minimized.

As described in the Draft EIS, the Monitoring and Adaptive Management (MAM) Plan identifies potential ways in which the LA TIG may reduce impacts to dolphins. The MAM Plan in the Final EIS has been updated to provide more detail about the strategies and protocols that would be used at the onset of operations to minimize impacts on dolphins, as well as the process through which operational data would be used to evaluate potential modifications to those strategies and protocols. However, the adaptive management strategies and actions are largely reliant upon data that would be collected during either the pre-construction monitoring period or once operations commence. Once operational data are available, they would be used to evaluate the potential Project modifications to further minimize impacts to marine mammals.

The Mitigation and Stewardship Plan and the MAM Plan provided in Draft EIS Appendix R were submitted by CPRA and represent a range of potential mitigation, stewardship, monitoring and adaptive management measures (collectively, measures). At the time of publication of the Draft EIS for public review, Appendix R contained draft Plans and CPRA had not identified which of the measures contained in those Plans it intended to implement. CPRA expanded and refined the Final Mitigation and Stewardship Plan in response to community and resource agency input. The Final EIS Appendix R contains the final Plans, including the additional Marine Mammal Intervention Plan, and specifies which measures CPRA and the LA TIG intend to implement. Generally, impact determinations discussed in the EIS represent anticipated Project effects without implementation of these measures except in instances where such measures are identified in the discussion. If any mitigation, monitoring or adaptive management measures are required by USACE as part of its approval of the Project, such measures would be required as special conditions of the Department of the Army (DA) Section 10/404 permit and would be listed in the permit, if one is issued. Implementation of specific measures contained in these Plans, but not included in the Section 10/404 permit as special conditions, would not be required by USACE. USACE does not know whether any particular measure that is not a DA permit condition would be implemented. Measures that USACE currently contemplates as conditions of a DA Section 10/404 permit, if

one is issued, are provided in Chapter 4, Section 4.27 Mitigation Summary of the EIS.

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**Concern ID: 62929**

**Commenters suggested that the Project should consider moving the Menhaden Fishery to reduce interactions with BBES dolphins.**

**Response ID: 16545**

The location of the Menhaden fishery is outside of the authority of the USACE or LA TIG. The LA TIG suggests that existing fishery task forces within the State of Louisiana, including the Joint Fisheries Task Force Working Group within the Louisiana Department of Wildlife and Fisheries and the Finfish Task Force would be an appropriate forum to suggest the re-examination of laws and policies related to the menhaden fishery, given the many factors involved in decision making around that fishery.

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**Concern ID: 62933**

**Commenter suggests monitoring of dolphin pods after any future large oil spill be required and that polluters be held liable as responsible parties under the Oil Pollution Act.**

**Response ID: 16548**

The suggested actions are not within USACE's authorities.

The LA TIG's investments in monitoring and adaptive management and stewardship of key resources through the proposed Project and other recent and future efforts by the Deepwater Horizon Natural Resource Trustees have and will continue to enhance the robust marine mammal response network across the Gulf of Mexico. The Mitigation and Stewardship and Monitoring and Adaptive Management (MAM) Plans (see Appendices R1 and R2 to the Final EIS) include additional dedicated monitoring and response efforts in the Barataria Basin and across Louisiana. These resources will enhance the ability of Trustee agencies to respond to all threats to marine mammals and facilitate data collection in response to future spills. Under OPA, the LA TIG is tasked with holding responsible parties accountable for the damages to natural resources injured through discharges and threats of discharge.

The Mitigation and Stewardship Plan and the MAM Plan provided in Draft EIS Appendix R were submitted by CPRA and represent a range of potential mitigation, stewardship, monitoring and adaptive management measures (collectively, measures). At the time of publication of the Draft EIS for public review, Appendix R contained draft Plans and CPRA had not identified which of the measures contained in those Plans it intended to implement. CPRA expanded and

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refined the Final Mitigation and Stewardship Plan in response to community and resource agency input. The Final EIS Appendix R contains the final Plans, including the additional Marine Mammal Intervention Plan, and specifies which measures CPRA and the LA TIG intend to implement. Generally, impact determinations discussed in the EIS represent anticipated Project effects without implementation of these measures except in instances where such measures are identified in the discussion. If any mitigation, monitoring or adaptive management measures are required by USACE as part of its approval of the Project, such measures would be required as special conditions of the Department of the Army (DA) Section 10/404 permit and would be listed in the permit, if one is issued. Implementation of specific measures contained in either Plan, but not included in the Section 10/404 permit as special conditions, would not be required by USACE. USACE does not know whether any particular measure that is not a DA permit condition would be implemented. Measures that USACE currently contemplates as conditions of a DA Section 10/404 permit, if one is issued, are provided in Chapter 4, Section 4.27 Mitigation Summary of the EIS.

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**Concern ID: 62934**

**A commenter noted the role of gathering scientific information under the MMPA and stated that the research undertaken as part of the Project would be consistent with MMPA policies by calling for monitoring and follow-up research, long-term habitat improvement, and actions for the health and stability of the Gulf ecosystem.**

**Response ID: 16549**

The Monitoring and Adaptive Management (MAM) Plan (Appendix R2 to the Final EIS) contains a monitoring program. Congress required the State of Louisiana to establish a monitoring program to “[m]onitor and evaluate the impacts of the projects on [marine mammal] species and population stocks” as part of the legislation that required the Secretary of Commerce to issue a waiver for MMPA Sections 101(a) and 102(a). See Bipartisan Budget Act of 2018, Section 20201(a).

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**Concern ID: 63827**

**CPRA should consider constructing landscape features to provide higher-salinity refuge areas within the basin.**

**Response ID: 16552**

Based on Coastal Master Plan modeling, CPRA does not anticipate that ridge restoration would effectively deflect freshwater flows from the larger basin. The size and scope of ridges necessary to isolate areas

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in the basin from fresh water makes this solution infeasible. Construction of outfall features, including ridges, was identified as an alternative that was considered but eliminated in Section 2.6 Summary of Alternatives Considered but Eliminated from Detailed Analysis. No related edits have been made to the Final EIS.

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## SMM12000 - Oysters (Commercial Fisheries) SMM

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**Concern ID: 62961**

**Project mitigation must adequately compensate impacts on the oyster industry, including financial compensation for economic losses. Commenters provided suggestions for mitigation such as compensating for increased costs of travel, providing direct financial payments to lease holders whose areas become unproductive, supporting new oyster leases or lease swaps, investing in research and development, using devices to move oysters to higher-salinity water, providing loans to oystermen to develop alternative income streams, providing support for elderly fisherfolk and buying out boats and businesses.**

**Response ID: 16532**

The Draft EIS evaluates how the Project would impact commercial, recreational, and subsistence fishers as compared to No Action conditions in Chapter 4, Sections 4.10 (Aquatic Resources), 4.14 (Commercial Fisheries), 4.15 (Environmental Justice) and 4.16 (Recreation and Tourism).

In response to public comments and resource agency input about the proposed mitigation efforts, CPRA has expanded and refined the oyster mitigation and stewardship measures. CPRA's mitigation and stewardship strategies and associated expenditures would focus on establishing sustainable fisheries for oysters rather than on compensating individual oyster harvesters for their particularized economic losses (see the Mitigation and Stewardship Plan in Appendix R1 to the Final EIS). Without the Project, adverse impacts to oyster fisheries would be expected over the next 50 years. Prior to 2050, those changes would be minor and gradual. After 2050, more drastic changes are anticipated, leading to a steep decline in suitability for oysters in a large portion of the currently suitable habitat. With implementation of the diversion, the Project would cause significant adverse impacts to oyster fisheries in the early years of the Project's operational life. The revised mitigation and stewardship measures include allocating \$4 million to establish new public seed grounds, \$15 million to enhance public and private oyster grounds, \$4 million to enhance broodstock reefs and \$8 million for alternative oyster culture.

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The Mitigation and Stewardship Plan and the Monitoring and Adaptive Management (MAM) Plan provided in Draft EIS Appendix R were submitted by CPRA and represent a range of potential mitigation, stewardship, monitoring and adaptive management measures (collectively, measures). At the time of publication of the Draft EIS for public review, Appendix R contained draft Plans and CPRA had not identified which of the measures contained in those Plans it intended to implement. CPRA expanded and refined the Final Mitigation and Stewardship Plan in response to community and resource agency input. The Final EIS Appendix R contains the final Plans and specifies which measures CPRA and the LA TIG intend to implement. Generally, impact determinations discussed in the EIS represent anticipated Project effects without implementation of these measures except in instances where such measures are identified in the discussion. If any mitigation, monitoring or adaptive management measures are required by USACE as part of its approval of the Project, such measures would be required as special conditions of the Department of the Army (DA) Section 10/404 permit and would be listed in the permit, if one is issued. Implementation of specific measures contained in either Plan, but not included in the Section 10/404 permit as special conditions, would not be required by USACE. USACE does not know whether any particular measure that is not a DA permit condition would be implemented. Measures that USACE currently contemplates as conditions of a DA Section 10/404 permit, if one is issued, are provided in Chapter 4, Section 4.27 Mitigation Summary of the EIS.

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**Concern ID: 62963**

**Mitigation compensation should prioritize those most affected, likely those who rely on oyster leases in the mid-basin areas or smaller operations, as well as economically vulnerable oyster fishers.**

**Response ID: 16533**

The Draft EIS evaluates how the Project would impact commercial, recreational, and subsistence fishers as compared to No Action conditions in Chapter 4, Sections 4.10 Aquatic Resources, 4.14 Commercial Fisheries, 4.15 Environmental Justice and 4.16 Recreation and Tourism.

In response to public comments and resource agency input about proposed mitigation efforts, CPRA has expanded and refined the oyster mitigation and stewardship measures. CPRA's mitigation and

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stewardship strategies and expenditures focus on establishing sustainable fisheries for oysters rather than on compensating individual oyster harvesters for their particularized economic losses (see the Mitigation and Stewardship Plan in Appendix R1 to the Final EIS). Without the Project, adverse impacts to oyster fisheries would be expected over the next 50 years. Prior to 2050, those changes would be minor and gradual. After 2050, more drastic changes are anticipated, leading to a steep decline in suitability for oysters in a large portion of the currently suitable habitat. With implementation of the diversion, the Project would cause significant adverse impacts to oyster fisheries in the early years of the Project's operational life. The revised mitigation and stewardship measures include allocating \$4 million to establish new public seed ground, \$15 million to enhance public and private oyster grounds, \$4 million to create or enhance broodstock reefs and \$8 million for alternative oyster culture. While the focus of the proposed mitigation and stewardship measures are on establishing sustainable fisheries, oyster mitigation and stewardship measures have been crafted to focus on those impacted by the Project specifically. For example, a portion of each of the stewardship measures for impacts to oyster harvesters would be expressly designated for use by low-income and minority oyster harvesters. See the Final Mitigation and Stewardship Plan (Appendix R1 to the Final EIS).

The Mitigation and Stewardship Plan and the Monitoring and Adaptive Management (MAM) Plan provided in Draft EIS Appendix R were submitted by CPRA and represent a range of potential mitigation, stewardship, monitoring and adaptive management measures (collectively, measures). At the time of publication of the Draft EIS for public review, Appendix R contained draft Plans and CPRA had not identified which of the measures contained in those Plans it intended to implement. CPRA expanded and refined the Final Mitigation and Stewardship Plan in response to community and resource agency input. The Final EIS Appendix R contains the final Plans and specifies which measures CPRA and the LA TIG intend to implement. Generally, impact determinations discussed in the EIS represent anticipated Project effects without implementation of these measures except in instances where such measures are identified in the discussion. If any mitigation, monitoring or adaptive management measures are required by USACE as part of its approval of the Project, such measures would be required as special conditions of the Department of the Army (DA) Section 10/404 permit and would be listed in the permit, if one is issued. Implementation of specific measures contained in either Plan, but not included in the Section 10/404 permit as special conditions, would not be required by USACE. USACE does not know whether any particular measure that is not a DA permit condition would be implemented. Measures that USACE currently contemplates as



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**Concern ID: 62967**

**Commenters noted that moving reefs would not help oyster fishers because it takes years to develop a productive oyster reef.**

**Response ID: 16535**

A productive oyster reef would take years to develop, which may include finding a suitable location for a new reef, establishing suitable substrate for oyster attachment and growth, and oyster growth to sack size (requiring about 18 months, or less if seed oysters are placed; see Chapter 3, Section 3.10.5 and Chapter 4, Section 4.10.4.5 of the EIS). Section 4.14.4.2.3 Eastern Oyster Fishery of the Final EIS has been updated to identify the timeframe for establishment for new oyster reefs. CPRA's oyster mitigation strategies are focused on establishing a sustainable oyster fishery for the long term, not on alleviating the short-term impacts to individual oyster growers. CPRA's oyster mitigation program allocates funding for public seed ground establishment, public and private seed ground enhancement prior to and after commencement of Project operations, creation or enhancement of broodstock reefs, and reimbursement for cultch or spat/shell to leaseholders choosing to rehabilitate leases. See the Final Mitigation and Stewardship Plan (Appendix R1 to the Final EIS).

The Mitigation and Stewardship Plan and the Monitoring and Adaptive Management (MAM) Plan provided in Draft EIS Appendix R were submitted by CPRA and represent a range of potential mitigation, stewardship, monitoring and adaptive management measures (collectively, measures). At the time of publication of the Draft EIS for public review, Appendix R contained draft Plans and CPRA had not identified which of the measures contained in those Plans it intended to implement. CPRA expanded and refined the Final Mitigation and Stewardship Plan in response to community and resource agency input. The Final EIS Appendix R contains the final Plans and specifies which measures CPRA and the LA TIG intend to implement. Generally, impact determinations discussed in the EIS represent anticipated Project effects without implementation of these measures except in instances where such measures are identified in the discussion. If any mitigation, monitoring or adaptive management measures are required by USACE as part of its approval of the Project, such measures would be required as special conditions of the Department of the Army (DA)

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**Concern ID: 62971**

**Commenter recommends CPRA use oyster shells for reef construction.**

**Response ID: 16537**

CPRA's oyster mitigation strategies recommend use of native materials, such as native oyster shell, where and when feasible. This is explained in the Mitigation and Stewardship Plan (Appendix R1 to the Final EIS).

The Mitigation and Stewardship Plan and the Monitoring and Adaptive Management (MAM) Plan provided in Draft EIS Appendix R were submitted by CPRA and represent a range of potential mitigation, stewardship, monitoring and adaptive management measures (collectively, measures). At the time of publication of the Draft EIS for public review, Appendix R contained draft Plans and CPRA had not identified which of the measures contained in those Plans it intended to implement. CPRA expanded and refined the Final Mitigation and Stewardship Plan in response to community and resource agency input. The Final EIS Appendix R contains the final Plans and specifies which measures CPRA and the LA TIG intend to implement. Generally, impact determinations discussed in the EIS represent anticipated Project effects without implementation of these measures except in instances where such measures are identified in the discussion. If any mitigation, monitoring or adaptive management measures are required by USACE as part of its approval of the Project, such measures would be required as special conditions of the Department of the Army (DA) Section 10/404 permit and would be listed in the permit, if one is issued. Implementation of specific measures contained in either Plan, but not included in the Section 10/404 permit as special conditions, would not be required by USACE. USACE does not know whether any particular measure that is not a DA permit condition would be implemented. Measures that USACE currently contemplates as

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**Concern ID: 62976**

**Oyster growers and other stakeholders must be involved and informed about Project progress, construction timing, and operation.**

**Response ID: 16538**

CPRA has engaged numerous stakeholders, including oyster growers, throughout the development of the Project. USACE has ensured public participation during its permitting and environmental review. The LA TIG has invited public participation in its OPA Restoration Plan process. Chapter 7 Public Involvement of the Final EIS contains a summary of the various engagement efforts by CPRA, the LA TIG and USACE regarding the Project. In response to comments, CPRA has added a dashboard website (<https://cims.coastal.louisiana.gov/default.aspx>) to the measures included in CPRA's final Monitoring and Adaptive Management (MAM) Plan (Appendix R2 to the Final EIS). The dashboard would allow CPRA to keep those interested informed about Project construction, operation, and monitoring.

The Mitigation and Stewardship Plan and the MAM Plan provided in Draft EIS Appendix R were submitted by CPRA and represent a range of potential mitigation, stewardship, monitoring and adaptive management measures (collectively, measures). At the time of publication of the Draft EIS for public review, Appendix R contained draft Plans and CPRA had not identified which of the measures contained in those Plans it intended to implement. CPRA expanded and refined the Final Mitigation and Stewardship Plan in response to community and resource agency input. The Final EIS Appendix R contains the final Plans and specifies which measures CPRA and the LA TIG intend to implement. Generally, impact determinations discussed in the EIS represent anticipated Project effects without implementation of these measures except in instances where such measures are identified in the discussion. If any mitigation, monitoring or adaptive management measures are required by USACE as part of its approval of the Project, such measures would be required as special conditions of the Department of the Army (DA) Section 10/404 permit and would be listed in the permit, if one is issued. Implementation of specific measures contained in either Plan, but not included in the Section 10/404 permit as special conditions, would not be required by

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**Concern ID: 62978**

**Collaboration is needed to minimize impacts on oyster industry, including developing innovative uses for bottom oysters and supporting collaboration between CPRA and LDWF.**

**Response ID: 16539**

CPRA and other state agencies, such as LDWF, recognize the importance of collaboration to support the fishing industry in adapting the ongoing changes in the environment. As explained in Section 4.14.4.1 Commercial Fisheries of the Draft EIS, without the Project, adverse impacts to oyster fisheries would be expected over the next 50 years. Prior to 2050, those changes would be minor and gradual. After 2050, more drastic changes are anticipated, leading to a steep decline in suitability for oysters in a large portion of the currently suitable habitat. With implementation of the diversion, the Project would cause significant adverse impacts to oyster fisheries in the early years of the Project's operational life. CPRA and LDWF worked together with numerous oyster fishers as part of Louisiana Sea Grant's Seafood Futures Initiative to develop mitigation and stewardship measures aimed at maintaining a sustainable oyster fishery. CPRA anticipates working with other agencies, such as Louisiana Economic Development, on the workforce development, education and training programs included in the Mitigation and Stewardship Plan (see Appendix R1 to the Final EIS). In addition, CPRA engaged the fishing community potentially impacted by the Project through public meetings to solicit input on mitigation and stewardship strategies and engaged community-based organizations to assist in soliciting additional feedback on the proposed mitigation and stewardship measures from affected fishers. A summary of these public engagement meetings and other outreach efforts is in Chapter 7 (Public Involvement) of the Final EIS. In response to comments, CPRA has expanded and refined this Mitigation and Stewardship Plan in the Final EIS (Appendix R1).

Refer to the Mitigation and Stewardship Plan for mitigation and stewardship measures to be implemented as a result of these engagement efforts.

The Mitigation and Stewardship Plan and the Monitoring and Adaptive Management (MAM) Plan provided in Draft EIS Appendix R were submitted by CPRA and represent a range of potential mitigation, stewardship, monitoring and adaptive management measures (collectively, measures). At the time of publication of the Draft EIS for public review, Appendix R contained draft Plans and CPRA had not identified which of the measures contained in those Plans it intended to implement. CPRA expanded and refined the Final Mitigation and Stewardship Plan in response to community and resource agency input. The Final EIS Appendix R contains the final Plans and specifies which measures CPRA and the LA TIG intend to implement. Generally, impact determinations discussed in the EIS represent anticipated Project effects without implementation of these measures except in instances where such measures are identified in the discussion. If any mitigation, monitoring or adaptive management measures are required by USACE as part of its approval of the Project, such measures would be required as special conditions of the Department of the Army (DA) Section 10/404 permit and would be listed in the permit, if one is issued. Implementation of specific measures contained in either Plan, but not included in the Section 10/404 permit as special conditions, would not be required by USACE. USACE does not know whether any particular measure that is not a DA permit condition would be implemented. Measures that USACE currently contemplates as conditions of a DA Section 10/404 permit, if one is issued, are provided in Chapter 4, Section 4.27 Mitigation Summary of the EIS.

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**Concern ID: 63961**

**The EIS' description of the negative impacts to commercial industries is very vague, lacking necessary information and any acceptable plan to mitigate, relocate, or adequately compensate affected individuals.**

**Response ID: 16540**

The Draft EIS contains a detailed analysis on Project impacts to commercial fishing resources in Chapter 4, Sections 4.10 (Aquatic Resources) and 4.14 (Commercial Fisheries). The commenter has not identified which commercial industries he believes were not sufficiently evaluated or otherwise indicated any specific information or analysis missing from the Draft EIS; accordingly, no changes to this analysis were made in the Final EIS.

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CPRA's mitigation strategies focus on establishing sustainable fisheries, particularly oysters and shrimp, rather than on compensating individual fishers for their particularized economic losses. In response to comments, CPRA has expanded and refined the Mitigation and Stewardship Plan since publication of the Draft EIS and LA TIG's Draft Restoration Plan. These additions, including a \$54 million funding allocation, can be found in the Final Mitigation and Stewardship Plan (Appendix R1 to the Final EIS).

The Mitigation and Stewardship Plan and the Monitoring and Adaptive Management (MAM) Plan provided in Draft EIS Appendix R were submitted by CPRA and represent a range of potential mitigation, stewardship, monitoring and adaptive management measures (collectively, measures). At the time of publication of the Draft EIS for public review, Appendix R contained draft Plans and CPRA had not identified which of the measures contained in those Plans it intended to implement. CPRA expanded and refined the Final Mitigation and Stewardship Plan in response to community and resource agency input. The Final EIS Appendix R contains the final Plans and specifies which measures CPRA and the LA TIG intend to implement. Generally, impact determinations discussed in the EIS represent anticipated Project effects without implementation of these measures except in instances where such measures are identified in the discussion. If any mitigation, monitoring or adaptive management measures are required by USACE as part of its approval of the Project, such measures would be required as special conditions of the Department of the Army (DA) Section 10/404 permit and would be listed in the permit, if one is issued. Implementation of specific measures contained in either Plan, but not included in the Section 10/404 permit as special conditions, would not be required by USACE. USACE does not know whether any particular measure that is not a DA permit condition would be implemented. Measures that USACE currently contemplates as conditions of a DA Section 10/404 permit, if one is issued, are provided in Chapter 4, Section 4.27 Mitigation Summary of the EIS.

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**Concern ID: 62966**

**The MAM Plan and Mitigation Plan provide significant resources that can help the oyster industry adapt to Project impacts.**

**Response ID: 16534**

The Mitigation and Stewardship Plan (Appendix R1) included in the Draft EIS proposed mitigation and stewardship measures to assist the

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oyster industry to adapt to changing conditions. Since issuance of the Draft EIS, CPRA further expanded and refined the Mitigation and Stewardship Plan based on community and resource agency input (see Appendix R1 to the Final EIS).

The Mitigation and Stewardship Plan and the Monitoring and Adaptive Management (MAM) Plan provided in Draft EIS Appendix R were submitted by CPRA and represent a range of potential mitigation, stewardship, monitoring and adaptive management measures (collectively, measures). At the time of publication of the Draft EIS for public review, Appendix R contained draft Plans and CPRA had not identified which of the measures contained in those Plans it intended to implement. CPRA expanded and refined the Final Mitigation and Stewardship Plan in response to community and resource agency input. The Final EIS Appendix R contains the final Plans and specifies which measures CPRA and the LA TIG intend to implement. Generally, impact determinations discussed in the EIS represent anticipated Project effects without implementation of these measures except in instances where such measures are identified in the discussion. If any mitigation, monitoring or adaptive management measures are required by USACE as part of its approval of the Project, such measures would be required as special conditions of the Department of the Army (DA) Section 10/404 permit and would be listed in the permit, if one is issued. Implementation of specific measures contained in either Plan, but not included in the Section 10/404 permit as special conditions, would not be required by USACE. USACE does not know whether any particular measure that is not a DA permit condition would be implemented. Measures that USACE currently contemplates as conditions of a DA Section 10/404 permit, if one is issued, are provided in Chapter 4, Section 4.27 Mitigation Summary of the EIS.

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**Concern ID: 62970**

**Commenters suggested that alternative off-bottom oyster culture is not a viable mitigation strategy for the oyster fishers who will be harmed by the diversion.**

**Response ID: 16536**

Off-bottom culture is not intended to fully offset impacts on oysters from the Project. Rather, CPRA would fund alternative culture techniques as one piece of a multi-pronged strategy for establishing a long-term, sustainable oyster fishery. This would allow for individual decisions with

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regard to strategies that are most effective in a particular area. See the Final Mitigation and Stewardship Plan (Appendix R1 to the Final EIS).

The Mitigation and Stewardship Plan and the Monitoring and Adaptive Management (MAM) Plan provided in Draft EIS Appendix R were submitted by CPRA and represent a range of potential mitigation, stewardship, monitoring and adaptive management measures (collectively, measures). At the time of publication of the Draft EIS for public review, Appendix R contained draft Plans and CPRA had not identified which of the measures contained in those Plans it intended to implement. CPRA expanded and refined the Final Mitigation and Stewardship Plan in response to community and resource agency input. The Final EIS Appendix R contains the final Plans and specifies which measures CPRA and the LA TIG intend to implement. Generally, impact determinations discussed in the EIS represent anticipated Project effects without implementation of these measures except in instances where such measures are identified in the discussion. If any mitigation, monitoring or adaptive management measures are required by USACE as part of its approval of the Project, such measures would be required as special conditions of the Department of the Army (DA) Section 10/404 permit and would be listed in the permit, if one is issued. Implementation of specific measures contained in either Plan, but not included in the Section 10/404 permit as special conditions, would not be required by USACE. USACE does not know whether any particular measure that is not a DA permit condition would be implemented. Measures that USACE currently contemplates as conditions of a DA Section 10/404 permit, if one is issued, are provided in Chapter 4, Section 4.27 Mitigation Summary of the EIS.

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## SMM13000 – Brown Shrimp, Crabs, and Finfish (Commercial Fisheries)

## SMM

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**Concern ID: 63131**

**Mitigation must be adequate, clearly explained and developed through collaboration with impacted communities. Commenters suggested multiple examples of mitigation and stewardship measures, including: developing a formula to calculate lost income, providing financial and technical assistance for alternative business ventures, providing job training for alternate jobs, tuition assistance for fishers and their children, providing funding for larger boats and/or boat improvements like refrigeration (including maintenance for such improvements), improving facilities like docks, providing money for lost income, offering boat, license and job buyout programs, loan programs, providing subsidies for things like fuel, R&D for collaborating with fishers to innovate and change the way their operations work, creating a MBSD Fisheries Mitigation Fund, offering targeted mitigation for inshore fishers who rely on brown shrimp and could not easily transition to catching white shrimp (LDWF, 2016), and providing low cost internet.**

**Bourgeois, M., K. Chapiesky, L. Landry, J. Lightener, and J. Marx. 2016. Louisiana Shrimp: Fishery Management Plan. Louisiana: Louisiana Department of Wildlife and Fisheries, Office of Fisheries. Updated April 11, 2016.**

**Response ID: 16515**

The Draft Mitigation and Stewardship Plan (Appendix R1 to the Draft EIS) included measures focused on establishing a sustainable fishing industry in the long term, rather than measures for compensating the short-term economic losses of individual fishers. In response to comments, CPRA has expanded and refined this Mitigation and Stewardship Plan in the Final EIS (Appendix R1). The Final Mitigation and Stewardship Plan includes the following measures aimed at supporting and sustaining the fishing industry:

- Providing financial and technical assistance for alternate business ventures and job training for alternate jobs (Workforce/Business training -- \$2 million allocation)
- Funding for shrimp vessel improvements, including, potentially, larger boats, and improving docks (shrimp Vessel/Facility improvements -- \$15 million allocation)
- Establishing new oyster seed grounds (\$4 million allocation)
- Enhancing public and private oyster grounds (\$15 million allocation)

- Enhancing oyster broodstock reefs (\$4 million allocation)
- R&D for collaboration with fishers to innovate and change the way their operations work (Alternative Oyster Culture techniques -- \$8 million allocation)
- Marketing and outreach support (\$5 million allocation including oysters, brown shrimp, finfish, and crab).

CPRA engaged the fishing community potentially impacted by the Project through public meetings and community-based organizations to solicit input on mitigation strategies. A summary of these public engagement meetings and outreach efforts is in Chapter 7 (Public Involvement) of the Final EIS. CPRA plans to continue utilizing community-based organizations to help ensure that diverse populations become aware of and take advantage of the mitigation and stewardship measures that CPRA would offer if the Project is approved and funded.

The literature cited by a commenter, (Bourgeois, M., K. Chapiesky, L. Landry, J. Lightener, and J. Marx. 2016. Louisiana Shrimp: Fishery Management Plan. Louisiana: Louisiana Department of Wildlife and Fisheries, Office of Fisheries. Updated April 11, 2016) or (LDWF 2016), was considered as part of the analysis set forth in the Draft EIS and as part of developing the Mitigation and Stewardship Plan.

The Mitigation and Stewardship Plan and the Monitoring and Adaptive Management (MAM) Plan provided in Draft EIS Appendix R were submitted by CPRA and represent a range of potential mitigation, stewardship, monitoring and adaptive management measures (collectively, measures). At the time of publication of the Draft EIS for public review, Appendix R contained draft Plans and CPRA had not identified which of the measures contained in those Plans it intended to implement. CPRA expanded and refined the Final Mitigation and Stewardship Plan in response to community and resource agency input. The Final EIS Appendix R contains the final Plans and specifies which measures CPRA and the LA TIG intend to implement. Generally, impact determinations discussed in the EIS represent anticipated Project effects without implementation of these measures except in instances where such measures are identified in the discussion. If any mitigation, monitoring or adaptive management measures are required by USACE as part of its approval of the Project, such measures would be required as special conditions of the Department of the Army (DA) Section 10/404 permit and would be listed in the permit, if one is issued. Implementation of specific measures contained in either Plan, but not included in the Section 10/404 permit as special conditions, would not be required by USACE. USACE does not know whether any particular measure that is not a DA permit condition would be implemented. Measures that USACE currently contemplates as

conditions of a DA Section 10/404 permit, if one is issued, are provided in Chapter 4, Section 4.27 Mitigation Summary of the EIS.

The LA TIG explains in Section 1.5 of the Final Restoration Plan that it anticipates requiring implementation of the Mitigation and Stewardship Plan, MAM Plan, and Marine Mammal Intervention Plan as components of the proposed Project, if the Project is approved by the LA TIG for funding. Decisions regarding which measures would be required as part of the LA TIG's funding decision would be set forth in the LA TIG Record of Decision related to the proposed Project.

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**Concern ID: 63132**

**Organizations, such as GNO, Inc., Coastal Communities Consulting, and community-based organizations should serve as connectors between CPRA, other state and federal agencies, and fishers and the seafood industry to plan and implement mitigation, and to ensure mitigation reflects environmental, economic, and community needs and changes over time. Mitigation should include funding for community-based organizations to provide this support in developing and carrying out mitigation.**

**Response ID: 16516**

CPRA engaged the fishing community potentially impacted by the Project through public meetings to solicit input on mitigation strategies. Further, CPRA engaged community-based organizations including Coastal Communities Consulting to assist in engaging minority fishers in reviewing and commenting on the Draft EIS, and soliciting additional feedback on the proposed mitigation and stewardship measures. A summary of these public engagement meetings and outreach efforts is in Chapter 7 Public Involvement of the Final EIS. CPRA plans to continue utilizing community-based organizations to help ensure that diverse populations become aware of and take advantage of the mitigation and stewardship measures that CPRA would offer if the Project is approved and funded. CPRA also plans to create outreach materials in easy to read and understand formats for distribution to the public. This would include translated materials for members of the community who do not speak or read English.

CPRA's Mitigation and Stewardship Plan does not currently provide for use of community-based organizations to distribute mitigation funds or to implement mitigation and stewardship measures. However, community-based organizations have been engaged to assist in providing information to community members regarding available programs, to assist in developing eligibility criteria, and to assist in completing any application processes. CPRA will continue to coordinate with community-based organizations in implementing the Final Mitigation and Stewardship Plan.

The Mitigation and Stewardship Plan and the Monitoring and Adaptive Management (MAM) Plan provided in Draft EIS Appendix R were submitted by CPRA and represent a range of potential mitigation,

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stewardship, monitoring and adaptive management measures (collectively, measures). At the time of publication of the Draft EIS for public review, Appendix R contained draft Plans and CPRA had not identified which of the measures contained in those Plans it intended to implement. CPRA expanded and refined the Final Mitigation and Stewardship Plan in response to community and resource agency input. The Final EIS Appendix R contains the final Plans and specifies which measures CPRA and the LA TIG intend to implement. Generally, impact determinations discussed in the EIS represent anticipated Project effects without implementation of these measures except in instances where such measures are identified in the discussion. If any mitigation, monitoring or adaptive management measures are required by USACE as part of its approval of the Project, such measures would be required as special conditions of the Department of the Army (DA) Section 10/404 permit and would be listed in the permit, if one is issued. Implementation of specific measures contained in either Plan, but not included in the Section 10/404 permit as special conditions, would not be required by USACE. USACE does not know whether any particular measure that is not a DA permit condition would be implemented. Measures that USACE currently contemplates as conditions of a DA Section 10/404 permit, if one is issued, are provided in Chapter 4, Section 4.27 Mitigation Summary of the EIS.

The LA TIG explains in Section 1.5 of the Final Restoration Plan that it anticipates requiring implementation of the Mitigation and Stewardship Plan, MAM Plan, and Marine Mammal Intervention Plan as components of the proposed Project, if the Project is approved by the LA TIG for funding. Decisions regarding which measures would be required as part of the LA TIG's funding decision would be set forth in the LA TIG Record of Decision related to the proposed Project.

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**Concern ID: 63133**

**Commenters support the proposed mitigation and stewardship measures for the commercial fishing industry.**

**Response ID: 16517**

The comments received in support of the Draft Mitigation and Stewardship Plan (Appendix R1 to the Draft EIS) are acknowledged. Since publication of the Draft EIS and in response to comments, CPRA has expanded and refined this Mitigation and Stewardship Plan in the Final EIS (Appendix R1). The Final Mitigation and Stewardship Plan includes the following measures aimed at supporting and sustaining the fishing industry:

- Providing financial and technical assistance for alternate business ventures and job training for alternate jobs (Workforce/Business training -- \$2 million allocation)

- Funding for shrimp vessel improvements, including, potentially, larger boats, and improving docks (shrimp Vessel/Facility improvements -- \$15 million allocation)
- Establishing new oyster seed grounds (\$4 million allocation)
- Enhancing public and private oyster grounds (\$15 million allocation)
- Enhancing oyster broodstock reefs (\$4 million allocation)
- R&D for collaboration with fishers to innovate and change the way their operations work (Alternative Oyster Culture techniques -- \$8 million allocation)
- Marketing and outreach support (\$5 million allocation including oysters, brown shrimp, finfish, and crab).

The Mitigation and Stewardship Plan and the Monitoring and Adaptive Management (MAM) Plan provided in Draft EIS Appendix R were submitted by CPRA and represent a range of potential mitigation, stewardship, monitoring and adaptive management measures (collectively, measures). At the time of publication of the Draft EIS for public review, Appendix R contained draft Plans and CPRA had not identified which of the measures contained in those Plans it intended to implement. CPRA expanded and refined the Final Mitigation and Stewardship Plan in response to community and resource agency input. The Final EIS Appendix R contains the final Plans and specifies which measures CPRA and the LA TIG intend to implement. Generally, impact determinations discussed in the EIS represent anticipated Project effects without implementation of these measures except in instances where such measures are identified in the discussion. If any mitigation, monitoring or adaptive management measures are required by USACE as part of its approval of the Project, such measures would be required as special conditions of the Department of the Army (DA) Section 10/404 permit and would be listed in the permit, if one is issued. Implementation of specific measures contained in either Plan, but not included in the Section 10/404 permit as special conditions, would not be required by USACE. USACE does not know whether any particular measure that is not a DA permit condition would be implemented. Measures that USACE currently contemplates as conditions of a DA Section 10/404 permit, if one is issued, are provided in Chapter 4, Section 4.27 Mitigation Summary of the EIS.

The LA TIG explains in Section 1.5 of the Final Restoration Plan that it anticipates requiring implementation of the Mitigation and Stewardship Plan, MAM Plan, and Marine Mammal Intervention Plan as components of the proposed Project, if the Project is approved by the LA TIG for funding. Decisions regarding which measures would be required as



part of the LA TIG's funding decision would be set forth in the LA TIG Record of Decision related to the proposed Project.

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**Concern ID: 63134**

**Commenters suggested that job training would not be helpful for older workers or for those facing language or technological barriers. Direct payments should be considered for these fisherman that cannot change careers easily.**

**Response ID: 16518**

The Draft EIS considered how changes in the Project area both with and without implementation of the Project would potentially impact commercial fisheries, including shrimp, in Chapter 4, Section 4.14 (Commercial Fisheries). In response to public comments and resource agency input about proposed mitigation and stewardship measures, CPRA has expanded and refined the fisheries mitigation and stewardship measures since the release of the Draft EIS. CPRA's mitigation and stewardship strategies and expenditures focus on establishing sustainable fisheries for oysters and shrimp rather than on compensating individual shrimpers or oyster harvesters for their particularized economic losses (see the Mitigation and Stewardship Plan in Appendix R1 to the Final EIS). Without the Project, adverse impacts to fisheries would be expected over the next 50 years. Prior to 2050, those changes would be minor and gradual. After 2050, more drastic changes are anticipated, leading to a steep decline in suitability for fisheries in a large portion of the currently suitable habitat. With implementation of the diversion, the Project would cause significant adverse impacts to fisheries in the early years of the Project's operational life.

The revised mitigation and stewardship measures allocate approximately \$54 million to commercial fisheries, which supplement other restoration actions and programs being funded by the LA TIG and by the State through LDWF. This includes \$2 million for Workforce/Business training which can be used for older workers facing language or technical assistance barriers (see Appendix R1 to the Final EIS). Additionally, if the MBSD Project is permitted by the USACE and funded by the LA TIG, it would take approximately 5 years to complete construction of the Project and to begin operations. This relatively long period would provide affected senior fishers with the time and opportunity to decide how they want to go forward, ranging from taking advantage of the adaptation opportunities offered through the Mitigation and Stewardship Plan to transition out of the fishing industry. The final fishery mitigation plan can be found in the Mitigation and Stewardship Plan (Appendix R1 to the EIS).

The Mitigation and Stewardship Plan and the Monitoring and Adaptive Management (MAM) Plan provided in Draft EIS Appendix R were submitted by CPRA and represent a range of potential mitigation, stewardship, monitoring and adaptive management measures

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(collectively, measures). At the time of publication of the Draft EIS for public review, Appendix R contained draft Plans and CPRA had not identified which of the measures contained in those Plans it intended to implement. CPRA expanded and refined the Final Mitigation and Stewardship Plan in response to community and resource agency input. The Final EIS Appendix R contains the final Plans and specifies which measures CPRA and the LA TIG intend to implement. Generally, impact determinations discussed in the EIS represent anticipated Project effects without implementation of these measures except in instances where such measures are identified in the discussion. If any mitigation, monitoring or adaptive management measures are required by USACE as part of its approval of the Project, such measures would be required as special conditions of the Department of the Army (DA) Section 10/404 permit and would be listed in the permit, if one is issued. Implementation of specific measures contained in either Plan, but not included in the Section 10/404 permit as special conditions, would not be required by USACE. USACE does not know whether any particular measure that is not a DA permit condition would be implemented. Measures that USACE currently contemplates as conditions of a DA Section 10/404 permit, if one is issued, are provided in Chapter 4, Section 4.27 Mitigation Summary of the EIS.

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**Concern ID: 63136**

**Commenters were concerned that proposed mitigation does not include measures for crab fishermen.**

**Response ID: 16520**

As noted in Chapter 4, Section 4.10 Aquatic Resources of the Draft EIS, impacts on blue crab from the Project are anticipated to be neutral to beneficial. In addition, as stated in Section 4.14 Commercial Fisheries impacts on the blue crab fishery are anticipated to be negligible to minor beneficial. This determination considers potential impacts on blue crab abundance as well as the anticipated response from the commercial fishing industry. In response to public comments, CPRA has included \$1 million in funding for a crab marketing and outreach program and improvements to crab fishing gear as part of the Final Mitigation and Stewardship Plan (see Appendix R1 to the Final EIS).

The Mitigation and Stewardship Plan and the Monitoring and Adaptive Management (MAM) Plan provided in Draft EIS Appendix R were submitted by CPRA and represent a range of potential mitigation,

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stewardship, monitoring and adaptive management measures (collectively, measures). At the time of publication of the Draft EIS for public review, Appendix R contained draft Plans and CPRA had not identified which of the measures contained in those Plans it intended to implement. CPRA expanded and refined the Final Mitigation and Stewardship Plan in response to community and resource agency input. The Final EIS Appendix R contains the final Plans and specifies which measures CPRA and the LA TIG intend to implement. Generally, impact determinations discussed in the EIS represent anticipated Project effects without implementation of these measures except in instances where such measures are identified in the discussion. If any mitigation, monitoring or adaptive management measures are required by USACE as part of its approval of the Project, such measures would be required as special conditions of the Department of the Army (DA) Section 10/404 permit and would be listed in the permit, if one is issued. Implementation of specific measures contained in either Plan, but not included in the Section 10/404 permit as special conditions, would not be required by USACE. USACE does not know whether any particular measure that is not a DA permit condition would be implemented. Measures that USACE currently contemplates as conditions of a DA Section 10/404 permit, if one is issued, are provided in Chapter 4, Section 4.27 Mitigation Summary of the EIS.

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**Concern ID: 63137**

**A commenter noted that the coast and shrimpers should be saved simultaneously and suggested that when USACE placed rocks behind Grand Isle, it should have left a channel behind Grand Isle for use by the fishers and placed the fill from that channel on Grand Isle as a levee.**

**Response ID: 16521**

The commenter's suggestion to save the coast and fishers at the same time is noted. The Grand Isle work is not related to this Project.

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**Concern ID: 63139**

**Commenters noted that work is needed to promote Louisiana seafood, including collaborating with restaurants and distributors, and enforcing House Bill No. 335 (Regular Session 2019).**

**Response ID: 16522**

Since publication of the Draft EIS and in response to public comments, CPRA has expanded and refined the Mitigation and Stewardship Plan in the Final EIS (Appendix R1). In its Mitigation and Stewardship Plan appended to the Final EIS, CPRA has included a total of \$5 million in funding for shrimp, crab, oyster, and finfish marketing as part of its

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Mitigation and Stewardship Plan (see Appendix R1 to the Final EIS). The expenditure of those funds would be directed by LDWF, in coordination with the LDWF Crab, Shrimp, Oyster and Finfish task forces. Those groups would determine whether collaboration with restaurants and enforcement of House Bill 335/Act 372 (adopted as Louisiana RS 40.5.5.4 and which requires any food service establishment that serves imported shrimp or crawfish to post a notice that informs patrons that the seafood has been imported from a foreign place) is the best use of those funds.

The Mitigation and Stewardship Plan and the Monitoring and Adaptive Management (MAM) Plan provided in Draft EIS Appendix R were submitted by CPRA and represent a range of potential mitigation, stewardship, monitoring and adaptive management measures (collectively, measures). At the time of publication of the Draft EIS for public review, Appendix R contained draft Plans and CPRA had not identified which of the measures contained in those Plans it intended to implement. CPRA expanded and refined the Final Mitigation and Stewardship Plan in response to community and resource agency input. The Final EIS Appendix R contains the final Plans and specifies which measures CPRA and the LA TIG intend to implement. Generally, impact determinations discussed in the EIS represent anticipated Project effects without implementation of these measures except in instances where such measures are identified in the discussion. If any mitigation, monitoring or adaptive management measures are required by USACE as part of its approval of the Project, such measures would be required as special conditions of the Department of the Army (DA) Section 10/404 permit and would be listed in the permit, if one is issued. Implementation of specific measures contained in either Plan, but not included in the Section 10/404 permit as special conditions, would not be required by USACE. USACE does not know whether any particular measure that is not a DA permit condition would be implemented. Measures that USACE currently contemplates as conditions of a DA Section 10/404 permit, if one is issued, are provided in Chapter 4, Section 4.27 Mitigation Summary of the EIS.

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**Concern ID: 63140**

**Commenters requested restoration assistance such as safe haven sites to offer protection to boats and assistance with dredging channels for safe vessel passage, including shrimp boats.**

**Response ID: 16523**

The commenter's concern regarding vessel passage was considered in the Draft EIS. Chapter 4, Section 4.21 Navigation provided that the USACE would continue to maintain federal navigation channels in the Project area during Project operations. In response to public comments, CPRA's Mitigation and Stewardship Plan includes measures that CPRA states it would implement to mitigate impacts on navigation resulting from operation of the Project, including monitoring and dredging or other measures for certain non-federal navigation channels (see Appendix R1 [Mitigation and Stewardship Plan] to the Final EIS for additional details).

The impact analysis in the Final EIS does not suggest that the Project would create the need for safe haven sites.

The Mitigation and Stewardship Plan and the Monitoring and Adaptive Management (MAM) Plan provided in Draft EIS Appendix R were submitted by CPRA and represent a range of potential mitigation, stewardship, monitoring and adaptive management measures (collectively, measures). At the time of publication of the Draft EIS for public review, Appendix R contained draft Plans and CPRA had not identified which of the measures contained in those Plans it intended to implement. CPRA expanded and refined the Final Mitigation and Stewardship Plan in response to community and resource agency input. The Final EIS Appendix R contains the final Plans and specifies which measures CPRA and the LA TIG intend to implement. Generally, impact determinations discussed in the EIS represent anticipated Project effects without implementation of these measures except in instances where such measures are identified in the discussion. If any mitigation, monitoring or adaptive management measures are required by USACE as part of its approval of the Project, such measures would be required as special conditions of the Department of the Army (DA) Section 10/404 permit and would be listed in the permit, if one is issued. Implementation of specific measures contained in either Plan, but not included in the Section 10/404 permit as special conditions, would not be required by USACE. USACE does not know whether any particular measure that is not a DA permit condition would be implemented. Measures that USACE currently contemplates as conditions of a DA Section 10/404 permit, if one is issued, are provided in Chapter 4, Section 4.27 Mitigation Summary of the EIS.

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**Concern ID: 63141****Commenter requests additional information on the \$33 million for the stewardship to fisheries.****Response ID: 16524**

The Draft Mitigation and Stewardship Plan published with the Draft EIS (Appendix R1) contained mitigation and stewardship measures proposed by CPRA. In response to comments and resource agency input, CPRA has expanded and refined these measures, including allocating \$54 million for fisheries mitigation and stewardship measures. Details regarding these measures are set forth in the Final Mitigation and Stewardship Plan published in the Final EIS (Appendix R1).

The Mitigation and Stewardship Plan and the Monitoring and Adaptive Management (MAM) Plan provided in Draft EIS Appendix R were submitted by CPRA and represent a range of potential mitigation, stewardship, monitoring and adaptive management measures (collectively, measures). At the time of publication of the Draft EIS for public review, Appendix R contained draft Plans and CPRA had not identified which of the measures contained in those Plans it intended to implement. CPRA expanded and refined the Final Mitigation and Stewardship Plan in response to community and resource agency input. The Final EIS Appendix R contains the final Plans and specifies which measures CPRA and the LA TIG intend to implement. Generally, impact determinations discussed in the EIS represent anticipated Project effects without implementation of these measures except in instances where such measures are identified in the discussion. If any mitigation, monitoring or adaptive management measures are required by USACE as part of its approval of the Project, such measures would be required as special conditions of the Department of the Army (DA) Section 10/404 permit and would be listed in the permit, if one is issued. Implementation of specific measures contained in either Plan, but not included in the Section 10/404 permit as special conditions, would not be required by USACE. USACE does not know whether any particular measure that is not a DA permit condition would be implemented. Measures that USACE currently contemplates as conditions of a DA Section 10/404 permit, if one is issued, are provided in Chapter 4, Section 4.27 Mitigation Summary of the EIS.

The LA TIG explains in Section 1.5 of the Final Restoration Plan that it anticipates requiring implementation of the Mitigation and Stewardship Plan, MAM Plan, and Marine Mammal Intervention Plan as components of the proposed Project, if the Project is approved by the LA TIG for funding. Decisions regarding which measures would be required as part of the LA TIG's funding decision would be set forth in the LA TIG Record of Decision related to the proposed Project.

**Concern ID: 63142****Commenter requests information on how brown shrimp would shift in distribution in the basin and raised concern about the**

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**impact it would have on smaller shrimping boats that could not travel the added distance to catch them.****Response ID: 16525**

Chapter 4, Section 4.10 Aquatic Resources of the Draft EIS analyzed Project impacts on brown shrimp, including the decrease in habitat suitability of portions of Barataria Basin for brown shrimp and the potential of a shift in location for future brown shrimp fishing. Chapter 4, Section 4.14.4.2 in Commercial Fisheries of the Draft EIS discusses impacts of the proposed MBSD Project on commercial fisheries. As summarized in Section 4.14.2, under the Applicant's Preferred Alternative, brown shrimp are expected to experience major, permanent, adverse impacts earlier, while white shrimp are expected to experience negligible to minor, permanent, beneficial impacts, relative to the No Action Alternative. However, because a number of the same commercial fishers catch both brown and white shrimp during different seasons, overall impacts on the shrimp industry as a whole (including brown and white shrimp) would be expected to be moderate to major, permanent, and adverse, with the potential for a substantial loss of income in some months due to the decreased abundance of brown shrimp. Section 4.14.4.2 Applicant's Preferred Alternative discusses the potential adaptive responses of fishermen to changes in species abundance, including the potential for substitution of species and need for gear upgrades, as well as increasing the length of fishing trips. CPRA's Mitigation and Stewardship Plan includes measures to mitigate some Project impacts on the brown shrimp fishery, including funding to assist shrimpers with gear improvements necessary to travel farther distances (see Section 6.3 [Other Mitigation and Stewardship Measures] of Appendix R1 to the EIS). In response to comments, CPRA has expanded and refined this Mitigation and Stewardship Plan in the Final EIS (Appendix R1), including allocating \$15 million for vessel and facility improvements. There is no plan to relocate brown shrimp.

The Mitigation and Stewardship Plan and the Monitoring and Adaptive Management (MAM) Plan provided in Draft EIS Appendix R were submitted by CPRA and represent a range of potential mitigation, stewardship, monitoring and adaptive management measures (collectively, measures). At the time of publication of the Draft EIS for public review, Appendix R contained draft Plans and CPRA had not identified which of the measures contained in those Plans it intended to implement. CPRA expanded and refined the Final Mitigation and Stewardship Plan in response to community and resource agency input. The Final EIS Appendix R contains the final Plans and specifies which measures CPRA and the LA TIG intend to implement. Generally, impact determinations discussed in the EIS represent anticipated Project effects without implementation of these measures except in instances where such measures are identified in the discussion. If any

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mitigation, monitoring or adaptive management measures are required by USACE as part of its approval of the Project, such measures would be required as special conditions of the Department of the Army (DA) Section 10/404 permit and would be listed in the permit, if one is issued. Implementation of specific measures contained in either Plan, but not included in the Section 10/404 permit as special conditions, would not be required by USACE. USACE does not know whether any particular measure that is not a DA permit condition would be implemented. Measures that USACE currently contemplates as conditions of a DA Section 10/404 permit, if one is issued, are provided in Chapter 4, Section 4.27 Mitigation Summary of the EIS.

The LA TIG explains in Section 1.5 of the Final Restoration Plan that it anticipates requiring implementation of the Mitigation and Stewardship Plan, MAM Plan, and Marine Mammal Intervention Plan as components of the proposed Project, if the Project is approved by the LA TIG for funding. Decisions regarding which measures would be required as part of the LA TIG's funding decision would be set forth in the LA TIG Record of Decision related to the proposed Project.

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**Concern ID: 63144**

**A commenter recommended that additional cold storage in the seafood supply chain is needed.**

**Response ID: 16526**

CPRA's Draft Mitigation and Stewardship Plan (Appendix R1 to the Draft EIS) included vessel refrigeration as a proposed measure to address the anticipated impacts of the Project. In response to comments, CPRA has expanded and refined this Mitigation and Stewardship Plan in the Final EIS (Appendix R1), including allocating \$15 million for vessel and facility improvements. This funding could be used to provide additional cold storage, as suggested by the commenters.

The Mitigation and Stewardship Plan and the Monitoring and Adaptive Management (MAM) Plan provided in Draft EIS Appendix R were submitted by CPRA and represent a range of potential mitigation, stewardship, monitoring and adaptive management measures (collectively, measures). At the time of publication of the Draft EIS for public review, Appendix R contained draft Plans and CPRA had not identified which of the measures contained in those Plans it intended to implement. CPRA expanded and refined the Final Mitigation and Stewardship Plan in response to community and resource agency input. The Final EIS Appendix R contains the final Plans and specifies which measures CPRA and the LA TIG intend to implement. Generally, impact determinations discussed in the EIS represent anticipated Project effects without implementation of these measures except in instances where such measures are identified in the discussion. If any mitigation, monitoring or adaptive management measures are required by USACE as part of its approval of the Project, such measures would



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**Concern ID: 63145****Mississippi fisheries should also be included in mitigation compensation.****Response ID: 16527**

Chapter 3, Section 3.1.1 Project Area of the Draft EIS identifies the analysis area for the EIS. This is the area in which the Project is anticipated to have discernable effects. For Commercial Fisheries, the Project area includes two basins (the Barataria Basin and a portion of the Mississippi River Basin). The proposed Project is not anticipated to have discernable effects on aquatic resources outside of the Project area. Mississippi was not included in the analysis because no more than negligible impacts were projected to occur for Mississippi resources. See Chapter 3, Section 3.14 Commercial Fisheries of the EIS. All measurable impacts of the Project, both beneficial and adverse, are anticipated to occur in Louisiana and within Louisiana coastal waters. As a result, CPRA has not included mitigation for impacts to fisheries in Mississippi coastal waters in the Mitigation and Stewardship Plan (Appendix R1 to the EIS).

Commercial fishers that travel to Barataria Basin to fish for species that would be adversely affected, particularly shrimp and oysters, could also be adversely affected by the proposed Project. The Final EIS has been revised to acknowledge this in Section 4.14.4.2 Commercial Fisheries. The Mitigation and Stewardship Plan (Appendix R1 to the Final EIS) provides a suite of mitigation and stewardship strategies applicable to fishers that may be impacted by the Project. Those mitigation and stewardship programs would be equally available to any impacted fisher who relies on fisheries in the Barataria Basin, regardless of whether or not they reside in the Basin.

The Mitigation and Stewardship Plan and the Monitoring and Adaptive Management (MAM) Plan provided in Draft EIS Appendix R were

submitted by CPRA and represent a range of potential mitigation, stewardship, monitoring and adaptive management measures (collectively, measures). At the time of publication of the Draft EIS for public review, Appendix R contained draft Plans and CPRA had not identified which of the measures contained in those Plans it intended to implement. CPRA expanded and refined the Final Mitigation and Stewardship Plan in response to community and resource agency input. The Final EIS Appendix R contains the final Plans and specifies which measures CPRA and the LA TIG intend to implement. Generally, impact determinations discussed in the EIS represent anticipated Project effects without implementation of these measures except in instances where such measures are identified in the discussion. If any mitigation, monitoring or adaptive management measures are required by USACE as part of its approval of the Project, such measures would be required as special conditions of the Department of the Army (DA) Section 10/404 permit and would be listed in the permit, if one is issued. Implementation of specific measures contained in either Plan, but not included in the Section 10/404 permit as special conditions, would not be required by USACE. USACE does not know whether any particular measure that is not a DA permit condition would be implemented. Measures that USACE currently contemplates as conditions of a DA Section 10/404 permit, if one is issued, are provided in Chapter 4, Section 4.27 Mitigation Summary of the EIS.

The LA TIG explains in Section 1.5 of the Final Restoration Plan that it anticipates requiring implementation of the Mitigation and Stewardship Plan, MAM Plan, and Marine Mammal Intervention Plan as components of the proposed Project, if the Project is approved by the LA TIG for funding. Decisions regarding which measures would be required as part of the LA TIG's funding decision would be set forth in the LA TIG Record of Decision related to the proposed Project.

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**Concern ID: 63147**

**Commenter requests information on steps being taken before Project construction to protect commercial and recreational fisheries.**

**Response ID: 16529**

CPRA's Draft Mitigation and Stewardship Plan (Appendix R1 to the Draft EIS) contained information on fisheries mitigation, including mitigation and stewardship measures that would be undertaken before and during Project construction. In response to public comments, CPRA has expanded and refined this Mitigation and Stewardship Plan in the Final EIS, including providing additional detail on several fisheries mitigation and stewardship efforts that would be undertaken before Project construction, including funding for public and private oyster seed ground enhancement, funding for alternative oyster aquaculture, marketing, shrimp vessel and facility improvements, workforce and

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business training, and subsistence fishing access (see Appendix R1 to the Final EIS for additional details).

The Mitigation and Stewardship Plan and the Monitoring and Adaptive Management (MAM) Plan provided in Draft EIS Appendix R were submitted by CPRA and represent a range of potential mitigation, stewardship, monitoring and adaptive management measures (collectively, measures). At the time of publication of the Draft EIS for public review, Appendix R contained draft Plans and CPRA had not identified which of the measures contained in those Plans it intended to implement. CPRA expanded and refined the Final Mitigation and Stewardship Plan in response to community and resource agency input. The Final EIS Appendix R contains the final Plans and specifies which measures CPRA and the LA TIG intend to implement. Generally, impact determinations discussed in the EIS represent anticipated Project effects without implementation of these measures except in instances where such measures are identified in the discussion. If any mitigation, monitoring or adaptive management measures are required by USACE as part of its approval of the Project, such measures would be required as special conditions of the Department of the Army (DA) Section 10/404 permit and would be listed in the permit, if one is issued. Implementation of specific measures contained in either Plan, but not included in the Section 10/404 permit as special conditions, would not be required by USACE. USACE does not know whether any particular measure that is not a DA permit condition would be implemented. Measures that USACE currently contemplates as conditions of a DA Section 10/404 permit, if one is issued, are provided in Chapter 4, Section 4.27 Mitigation Summary of the EIS.

The LA TIG explains in Section 1.5 of the Final Restoration Plan that it anticipates requiring implementation of the Mitigation and Stewardship Plan, MAM Plan, and Marine Mammal Intervention Plan as components of the proposed Project, if the Project is approved by the LA TIG for funding. Decisions regarding which measures would be required as part of the LA TIG's funding decision would be set forth in the LA TIG Record of Decision related to the proposed Project.

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**Concern ID: 63148**

**Commenter prefers implementation of alternative 1 (75k diversion) only when the low-income fishing communities surrounding Barataria Bay have established resilient, secure economies given their reliance on the commercial fishing industry. The commenter recommended emphasis on support for low-income, vulnerable communities and the need for a strategy for resiliency in the future ecosystem.**

**Response ID: 16708**

The commenters' request that the implementation of the proposed Project occur only once the low-income fishing communities

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surrounding Barataria Bay have established secure and resilient economies is acknowledged.

While the Draft EIS acknowledged that oyster and brown shrimp fisheries would be adversely impacted by the proposed Project, it also concludes that the Project would create and maintain wetlands, and increase the abundance of SAV, that would provide refugia, foraging, and resting habitats, including essential fish habitats that support multiple managed species (see Chapter 4, Section 4.10 Aquatic Resources of the EIS). In addition, while the proposed Project would have minor to moderate increases in storm surge in areas south of the diversion, it would also help reduce the impacts of storm surge on communities north of the diversion by creating and nourishing coastal marshes that would provide natural storm protection; see Section 4.20 Public Health and Safety, Including Flood and Storm Hazard Reduction of the EIS for more details. The proposed Project is projected to have some temporary, moderate to major, beneficial impacts on the regional economy expected as a result of construction related spending, as described in Section 4.13 Socioeconomics of the EIS. Fishing communities in the Barataria Basin may experience some of these benefits.

As explained in the analysis of the No Action Alternative in the EIS and Section 1.6 (No Action Alternative) of the LA TIG's Restoration Plan, conditions in Barataria Basin would continue to deteriorate and destabilize under the No Action Alternative. While the proposed Project would not stop subsidence and sea-level rise and their associated impacts in the Barataria Basin, the proposed Project is projected to create and/or maintain approximately 12,700 acres of wetland by the year 2070 when compared with the No Action Alternative. In its Restoration Plan, the LA TIG has determined that slowing land loss in the Barataria Basin is essential to the overall ecological and economic sustainability of the Basin. More specifically, the proposed Project would help nearshore marine ecosystems, water column resources (including fish and invertebrates), and birds and terrestrial wildlife.

In recognition of the potential impacts that would occur due to the proposed Project, CPRA included mitigation and stewardship measures to address vulnerable communities in the Draft Mitigation and Stewardship Plan (Appendix R1 to the Draft EIS). In response to public comments, CPRA has expanded and refined this Mitigation and Stewardship Plan in the Final EIS (Appendix R1).

The Mitigation and Stewardship Plan and the Monitoring and Adaptive Management (MAM) Plan provided in Draft EIS Appendix R were submitted by CPRA and represent a range of potential mitigation, stewardship, monitoring and adaptive management measures (collectively, measures). At the time of publication of the Draft EIS for

public review, Appendix R contained draft Plans and CPRA had not identified which of the measures contained in those Plans it intended to implement. CPRA expanded and refined the Final Mitigation and Stewardship Plan in response to community and resource agency input. The Final EIS Appendix R contains the final Plans and specifies which measures CPRA and the LA TIG intend to implement. Generally, impact determinations discussed in the EIS represent anticipated Project effects without implementation of these measures except in instances where such measures are identified in the discussion. If any mitigation, monitoring or adaptive management measures are required by USACE as part of its approval of the proposed Project, such measures would be required as special conditions of the Department of the Army (DA) Section 10/404 permit and would be listed in the permit, if one is issued. Implementation of specific measures contained in either Plan, but not included in the Section 10/404 permit as special conditions, would not be required by USACE. USACE does not know whether any particular measure that is not a DA permit condition would be implemented. Measures that USACE currently contemplates as conditions of a DA Section 10/404 permit, if one is issued, are provided in Chapter 4, Section 4.27 Mitigation Summary of the EIS.

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**Concern ID: 63254**

**To ensure that fishers have the best chance of maintaining their industries over the life of the MBSD Project, restrictions that prevent them from working in federal waters must be lifted.**

**Response ID: 16530**

The federal moratorium will be up for renewal in 2025, and NOAA is committed to reviewing all relevant facts and circumstances at that time; however, adjustment to federal fishing moratoria is outside the purview of NRDA actions and USACE permitting actions.

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**Concern ID: 63135**

**Commenters state that they plan to sell their vessels.**

**Response ID: 16519**

Because the Project is projected to impact commercial fisheries, the CPRA has developed a range of measures in its Mitigation and Stewardship Plan to minimize adverse effects on commercial fisheries resources. The intention of CPRA's mitigation and stewardship measures is to establish sustainable fisheries for oysters and shrimp. These measures are described in more detail in the Mitigation and Stewardship Plan (Appendix R1 to the Final EIS), and include funding allocations for new oyster public seed grounds, to enhance public and private oyster seed grounds, for Alternative Oyster Cultures, and for

oyster broodstock reefs. In addition, the mitigation and stewardship measures are aimed at assisting fishers to continue in the industry through measures such as equipping shrimping vessels with refrigeration to extend the time the vessel can transit to and remain on the fishing grounds (or fish new areas), marketing and outreach support, workforce training, and grants to help offset costs of rigging vessels with different types of gear or to substitute gear to improve efficiency and lower costs.

The Mitigation and Stewardship Plan and the Monitoring and Adaptive Management (MAM) Plan provided in Draft EIS Appendix R were submitted by CPRA and represent a range of potential mitigation, stewardship, monitoring and adaptive management measures (collectively, measures). At the time of publication of the Draft EIS for public review, Appendix R contained draft Plans and CPRA had not identified which of the measures contained in those Plans it intended to implement. CPRA expanded and refined the Final Mitigation and Stewardship Plan in response to community and resource agency input. The Final EIS Appendix R contains the final Plans and specifies which measures CPRA and the LA TIG intend to implement. Generally, impact determinations discussed in the EIS represent anticipated Project effects without implementation of these measures except in instances where such measures are identified in the discussion. If any mitigation, monitoring or adaptive management measures are required by USACE as part of its approval of the Project, such measures would be required as special conditions of the Department of the Army (DA) Section 10/404 permit and would be listed in the permit, if one is issued. Implementation of specific measures contained in either Plan, but not included in the Section 10/404 permit as special conditions, would not be required by USACE. USACE does not know whether any particular measure that is not a DA permit condition would be implemented. Measures that USACE currently contemplates as conditions of a DA Section 10/404 permit, if one is issued, are provided in Chapter 4, Section 4.27 Mitigation Summary of the EIS.

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**Concern ID: 63146**

**Commenters suggested that CPRA should consider restoring natural landscapes such as ridges to minimize impact on oysters, shrimp, and other species (as well as the fisherman and communities that rely on them).**



**Response ID: 16528**

As part of the Louisiana Coastal Master Plan, CPRA has funded a number of projects to restore landscapes such as natural ridges in appropriate locations, such as Spanish Pass Ridge and Marsh Restoration, and anticipates continuing to fund such projects in the future. However, based on Coastal Master Plan modeling, CPRA does not believe that ridge restoration would effectively deflect freshwater flows from the larger basin. The size and scope of ridges necessary to isolate areas in the basin from fresh water makes this solution infeasible. Therefore, no changes have been made to the Final EIS in response to this comment.

**Concern ID: 63959**

**CPRA's stated \$300 million fund for mitigation of Project damages is wholly inadequate to mitigate the actual damages to the State's shrimp and shellfish industries as those speculative funds would only account for half of the seafood landings in the past 2 years.**

**Response ID: 16531**

The Draft EIS considered how changes in the Project area both with and without implementation of the Project would potentially impact commercial fisheries, including shrimp and oyster fisheries, in Chapter 4, Sections 4.14 Commercial Fisheries. Without the Project, adverse impacts on fisheries would be expected over the next 50 years. Prior to 2050, those changes would be minor and gradual. After 2050, more drastic changes are anticipated, leading to a steep decline in suitability for fisheries in a large portion of the currently suitable habitat. With implementation of the diversion, the Project would cause significant adverse impacts on fisheries in the early years of the Project's operational life.

In response to public comments and resource agency input about the proposed mitigation and stewardship measures, CPRA has expanded and refined its fisheries mitigation and stewardship measures since the release of the Draft EIS. CPRA's mitigation and stewardship strategies and expenditures focus on establishing sustainable fisheries for oysters and shrimp rather than on compensating individual oyster harvesters for their particularized economic losses (see the Mitigation and Stewardship Plan in Appendix R1 to the Final EIS).

The provisions of CPRA's fishery mitigation plan, valued at approximately \$54 million, along with other restoration actions and programs being funded by the LA TIG and the State through LDWF, would alleviate some impacts of the Project. CPRA's final fishery mitigation plan can be found in its Mitigation and Stewardship Plan (Appendix R1 to the Final EIS).

The Mitigation and Stewardship Plan and the Monitoring and Adaptive Management (MAM) Plan provided in Draft EIS Appendix R were submitted by CPRA and represent a range of potential mitigation, stewardship, monitoring and adaptive management measures (collectively, measures). At the time of publication of the Draft EIS for



public review, Appendix R contained draft Plans and CPRA had not identified which of the measures contained in those Plans it intended to implement. CPRA expanded and refined the Final Mitigation and Stewardship Plan in response to community and resource agency input. The Final EIS Appendix R contains the final Plans and specifies which measures CPRA and the LA TIG intend to implement. Generally, impact determinations discussed in the EIS represent anticipated Project effects without implementation of these measures except in instances where such measures are identified in the discussion. If any mitigation, monitoring or adaptive management measures are required by USACE as part of its approval of the Project, such measures would be required as special conditions of the Department of the Army (DA) Section 10/404 permit and would be listed in the permit, if one is issued. Implementation of specific measures contained in either Plan, but not included in the Section 10/404 permit as special conditions, would not be required by USACE. USACE does not know whether any particular measure that is not a DA permit condition would be implemented. Measures that USACE currently contemplates as conditions of a DA Section 10/404 permit, if one is issued, are provided in Chapter 4, Section 4.27 Mitigation Summary of the EIS.

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## SMM14000 – Recreational and Subsistence Use SMM

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**Concern ID: 63090**

**A commenter requests an explanation of steps that will be undertaken before construction to protect sustainability of commercial and recreational fisheries.**

**Response ID: 16513**

The commenter's requested explanation of the steps that will be undertaken before construction of the Project to protect fisheries was addressed in CPRA's Mitigation and Stewardship Plan (Appendix R1 to the Draft EIS). For example, CPRA's oyster mitigation program allocates a portion of the \$15 million in public and private seed ground enhancement funding to providing enhancement in areas adjacent to Barataria Basin prior to commencement of Project operations and to reimburse for cultch or spat/shell to leaseholders choosing to rehabilitate leases, or create new leases, in Lower Barataria Basin. In total, \$54 million has been allocated for mitigation and stewardship

measures to address impacts to commercial and recreational fisheries. In addition, details on CPRA monitoring activities pre- and post-operations can be found in the MAM Plan (Appendix R2 to the Final EIS). In response to comments, CPRA has expanded and refined the Mitigation and Stewardship Plan in the Final EIS (Appendix R1).

The Mitigation and Stewardship Plan and the Monitoring and Adaptive Management (MAM) Plan provided in Draft EIS Appendix R were submitted by CPRA and represent a range of potential mitigation, stewardship, monitoring and adaptive management measures (collectively, measures). At the time of publication of the Draft EIS for public review, Appendix R contained draft Plans and CPRA had not identified which of the measures contained in those Plans it intended to implement. CPRA expanded and refined the Final Mitigation and Stewardship Plan in response to community and resource agency input. The Final EIS Appendix R contains the final Plans and specifies which measures CPRA and the LA TIG intend to implement. Generally, impact determinations discussed in the EIS represent anticipated Project effects without implementation of these measures except in instances where such measures are identified in the discussion. If any mitigation, monitoring or adaptive management measures are required by USACE as part of its approval of the Project, such measures would be required as special conditions of the Department of the Army (DA) Section 10/404 permit and would be listed in the permit, if one is issued. Implementation of specific measures contained in either Plan, but not included in the Section 10/404 permit as special conditions, would not be required by USACE. USACE does not know whether any particular measure that is not a DA permit condition would be implemented. Measures that USACE currently contemplates as conditions of a DA Section 10/404 permit, if one is issued, are provided in Chapter 4, Section 4.27 Mitigation Summary of the EIS.

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**Concern ID: 63091**

**The proposed mitigation to provide access points farther down the basin will not adequately address the impacts to subsistence fishers (for example, increased costs of fuel or additional wear and tear on vessels associated with the additional travel). CPRA should use community expertise to co-design community-specific adaptation programs to ensure that disparately impacted**

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**communities are able to effectively respond to Project near-term and long-term impacts.****Response ID: 16514**

CPRA is including funding for additional access points within the basin as part of its Mitigation and Stewardship Plan (Appendix R1 to the EIS). As part of developing and evaluating this measure, CPRA engaged the subsistence fishing community potentially impacted by the Project through public meetings and utilized community-based organizations to assist in soliciting additional feedback on the proposed mitigation and stewardship measures. A summary of these public engagement meetings and other outreach efforts is in Chapter 7 Public Involvement of the Final EIS.

Locations for the additional access points have not yet been selected, and CPRA would work with impacted subsistence fishers to ensure those access points are placed in appropriate locations. In addition, fishers would have access to other fisheries mitigation and stewardship measures, such as gear improvements and retraining, aimed at assisting them to adapt to changing conditions. See Sections 6.3.3 (Aquatic/Fisheries Impacts) and 6.3.8 (Environmental Justice) of the Mitigation and Stewardship Plan (Appendix R1 to the Final EIS).

The Mitigation and Stewardship Plan and the Monitoring and Adaptive Management (MAM) Plan provided in Draft EIS Appendix R were submitted by CPRA and represent a range of potential mitigation, stewardship, monitoring and adaptive management measures (collectively, measures). At the time of publication of the Draft EIS for public review, Appendix R contained draft Plans and CPRA had not identified which of the measures contained in those Plans it intended to implement. CPRA expanded and refined the Final Mitigation and Stewardship Plan in response to community and resource agency input. The Final EIS Appendix R contains the final Plans and specifies which measures CPRA and the LA TIG intend to implement. Generally, impact determinations discussed in the EIS represent anticipated Project effects without implementation of these measures except in instances where such measures are identified in the discussion. If any mitigation, monitoring or adaptive management measures are required by USACE as part of its approval of the Project, such measures would be required as special conditions of the Department of the Army (DA) Section 10/404 permit and would be listed in the permit, if one is issued. Implementation of specific measures contained in either Plan, but not included in the Section 10/404 permit as special conditions, would not be required by USACE. USACE does not know whether any particular measure that is not a DA permit condition would be implemented. Measures that USACE currently contemplates as conditions of a DA Section 10/404 permit, if one is issued, are provided in Chapter 4, Section 4.27 Mitigation Summary of the EIS.

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**Concern ID: 64832**

**A commenter is concerned about the negative impacts of the diversion on fishing near their home and request compensation for this loss.**

**Response ID: 16700**

The Draft EIS considered how changes in the Project area both with and without implementation of the Project will potentially impact commercial fisheries in Chapter 4, Sections 4.14 (Commercial Fisheries) and recreational fisheries in Section 4.16 (Recreation and Tourism).

CPRA's proposed Mitigation and Stewardship Plan (Appendix R1 to the Draft EIS) contained information on potential fisheries mitigation, including mitigation that would be undertaken before Project construction. In response to public comments, CPRA has expanded and refined this Mitigation and Stewardship Plan in the Final EIS, including providing additional detail on several fisheries mitigation and stewardship efforts that would be undertaken before Project construction, including funding for public and private oyster seed ground enhancement, marketing, shrimp vessel and facility improvements, workforce and business training, and subsistence and recreational fishing access (see Appendix R1 to the Final EIS for additional details). Specific to recreational fishing, CPRA will provide public access opportunities within the Barataria Basin and Mississippi River Basin. This is intended to address effects on proximity of resources for both consumptive and non-consumptive use. These effects will be primarily addressed through the provision of public shoreline access and watercraft launching around the Project area to assist recreational and subsistence fishing. In total, \$54 million would be allocated for mitigation and stewardship measures to address impacts to commercial and recreational fisheries.

The Mitigation and Stewardship Plan and the Monitoring and Adaptive Management (MAM) Plan provided in Draft EIS Appendix R were submitted by CPRA and represent a range of potential mitigation, stewardship, monitoring and adaptive management measures (collectively, measures). At the time of publication of the Draft EIS for public review, Appendix R contained draft Plans and CPRA had not identified which of the measures contained in those Plans it intended to implement. CPRA expanded and refined the Final Mitigation and Stewardship Plan in response to community and resource agency

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input. The Final EIS Appendix R contains the final Plans and specifies which measures CPRA and the LA TIG intend to implement. Generally, impact determinations discussed in the EIS represent anticipated Project effects without implementation of these measures except in instances where such measures are identified in the discussion. If any mitigation, monitoring or adaptive management measures are required by USACE as part of its approval of the Project, such measures would be required as special conditions of the Department of the Army (DA) Section 10/404 permit and would be listed in the permit, if one is issued. Implementation of specific measures contained in either Plan, but not included in the Section 10/404 permit as special conditions, would not be required by USACE. USACE does not know whether any particular measure that is not a DA permit condition would be implemented. Measures that USACE currently contemplates as conditions of a DA Section 10/404 permit, if one is issued, are provided in Chapter 4, Section 4.27 Mitigation Summary of the EIS.

The LA TIG explains in Section 1.5 of the Final Restoration Plan that it anticipates requiring implementation of the Mitigation and Stewardship Plan, MAM Plan, and Marine Mammal Intervention Plan as components of the proposed Project, if the Project is approved by the LA TIG for funding. Decisions regarding which measures would be required as part of the LA TIG's funding decision would be set forth in the LA TIG Record of Decision related to the proposed Project.

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## SMM15000 – Property Acquisition SMM

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**Concern ID: 63092**

**Further development of the Mitigation Plan is needed for properties that would be impacted by flooding caused by Project operations. Multiple commenters made specific requests for how their property should be handled (for example, through sales or easements), while others wondered why a more detailed, “real estate plan” for impacted communities was not available.**

**Response ID: 16511**

The Draft Mitigation and Stewardship Plan included with the Draft EIS (Appendix R1) included CPRA's initial framework for mitigation and stewardship measures to assist property owners in these communities impacted by increased tidal flooding and to address the Project impacts of Project operations on water levels. Since publication of the Draft EIS and in response to comments, CPRA has expanded and refined this Mitigation and Stewardship Plan in the Final EIS (Appendix R1).

CPRA states that it is interested in assisting affected communities to remain in place as long as they would like. Mitigation would include a combination of structural measures (for example, raising roads, boat

houses, docks and utilities) and non-structural measures. Structural measures in CPRA's Mitigation and Stewardship Plan are not included in CPRA's DA permit application and if this permit is approved, would not be authorized under the DA permit. Many of these structural measures would require additional DA and other permits prior to installation. Such permits are not guaranteed and would take time for USACE and other regulating agencies to process.

Where the proposed Project would cause increased water levels and/or increased incidence of flooding, CPRA plans to acquire the right to add and/or increase water flow on landowners' properties through the purchase of Project servitudes from landowners in these communities. The Project servitude would allow CPRA to flow water over the landowner's property at heights and durations that are greater than would be in the case in the future without the Project. The Project servitude would be recorded against title to the property and would run with the land. CPRA would attempt to negotiate with the affected landowner to acquire this servitude. If the CPRA and the landowner were unable to reach a negotiated agreement, CPRA would exercise its eminent domain authority to purchase the servitude. CPRA would compensate those landowners for the value of the Project servitude. A property owner would be able to use the funds received in exchange for the servitude to implement flood mitigation and stewardship measures. As an alternative to purchasing a flowage servitude, CPRA may consider purchasing an impacted property outright (that is, in fee) if requested by the owner. Decisions about whether to purchase a property (rather than a servitude) would be made on a case-by-case basis depending on the particular circumstances.

A complete listing of the mitigation and stewardship measures that CPRA would implement if the proposed Project is approved and funded is included in CPRA's Mitigation and Stewardship Plan included in the Final EIS (Appendix R1).

The Mitigation and Stewardship Plan and the Monitoring and Adaptive Management (MAM) Plan provided in Draft EIS Appendix R were submitted by CPRA and represent a range of potential mitigation, stewardship, monitoring and adaptive management measures (collectively, measures). At the time of publication of the Draft EIS for public review, Appendix R contained draft Plans and CPRA had not identified which of the measures contained in those Plans it intended to implement. CPRA expanded and refined the Final Mitigation and Stewardship Plan in response to community and resource agency input. The Final EIS Appendix R contains the final Plans and specifies which measures CPRA and the LA TIG intend to implement. Generally, impact determinations discussed in the EIS represent anticipated Project effects without implementation of these measures except in instances where such measures are identified in the discussion. If any



mitigation, monitoring or adaptive management measures are required by USACE as part of its approval of the proposed Project, such measures would be required as special conditions of the Department of the Army (DA) Section 10/404 permit and would be listed in the permit, if one is issued. Implementation of specific measures contained in either Plan, but not included in the Section 10/404 permit as special conditions, would not be required by USACE. USACE does not know whether any particular measure that is not a DA permit condition would be implemented. Measures that USACE currently contemplates as conditions of a DA Section 10/404 permit, if one is issued, are provided in Chapter 4, Section 4.27 Mitigation Summary of the EIS.

The LA TIG explains in Section 1.5 of the Final Restoration Plan that it anticipates requiring implementation of the Mitigation and Stewardship Plan, MAM Plan, and Marine Mammal Intervention Plan as components of the proposed Project, if the Project is approved by the LA TIG for funding. Decisions regarding which measures would be required as part of the LA TIG's funding decision would be set forth in the LA TIG Record of Decision related to the proposed Project.

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**Concern ID: 63719**

**The valuation of any properties acquired for the construction of the Project should account for the value of borrow materials that could be excavated and sold by the owners of these properties.**

**Response ID: 16512**

As part of any property rights acquisition to construct the Project, CPRA would compensate landowners for the property interest acquired in accordance with applicable law. Determining the appropriate amount that CPRA would pay for properties and rights it acquires for the Project is outside of the scope of the USACE EIS process and the LA TIG's OPA Restoration Plan.

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## SMM16000 – Environmental Justice SMM

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**Concern ID: 62878**

**The EIS and Mitigation Plan does not adequately consider or mitigate for impacts to Ironton. The EIS should include air pollution buffers for Ironton and flood protection easement areas for Ironton and other vulnerable communities outside of levee protection.**

**Response ID: 16505**

The concerns raised by the commenters were considered in the Draft EIS in Chapter 3, Section 3.7.2 Air Quality, Existing Conditions; and Chapter 4, Sections 4.8 Noise, 4.13 Socioeconomics, 4.15 Environmental Justice, 4.22 Land-Based Transportation and 4.25 Cumulative Impacts. Chapter 3, Section 3.7.2 Air Quality - Existing Conditions identifies the existing air quality in the proposed Project area and provides that Plaquemines Parish is designated as "unclassifiable/in attainment" for all criteria pollutants. The resource

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sections in Chapter 4 address potential air quality, noise, transportation, and tidal flooding impacts specifically concerning the community of Ironton. In addition, Chapter 2 of Appendix H1 Socioeconomics Technical Report to the EIS provides contextual information about the Ironton community.

CPRA committed to implementing best management practices (BMPs) to minimize construction impacts in the EIS in Chapter 4, Section 4.27.1 Avoidance and Minimization and Appendix R1 Mitigation and Stewardship Plan; additional information on BMPs is also included in the Mitigation Summary Table in Appendix R3. Construction emissions would be highly localized, and consequently the Project is only anticipated to impact air quality within 0.5 mile of the construction footprint; however, Ironton is located approximately 0.5 mile from the construction footprint (see EIS, Chapter 4, Section 4.7.1 Area of Potential Impacts). As stated in the EIS in Chapter 4, Section 4.15 Environmental Justice, populations in Ironton would experience minor to moderate, temporary adverse, impacts due to increased noise levels, dust, and transportation delays during the approximately 5-year construction period. During operations, air emissions would be negligible since the diversion structure would be electric-powered (see EIS Chapter 4, Section 4.7.4.2).

Beyond the near-term impacts of construction, operation of the Applicant's Preferred Alternative may have impacts on Ironton. Because it is within the New Orleans to Venice (NOV) Non-Federal Levee (NFL) W-05a.1 (La Reussite to Myrtle Grove levee reach) levee system, Ironton is not expected to be impacted by increases in frequency and duration of tidal flooding due to Project operations (see Section 4.15.4.2.2 Storm Hazards and 4.20.4.2 Public Health and Safety). Further, guide levees constructed parallel to the diversion channel will be constructed to an elevation of approximately 15.6 feet and will serve as hurricane and storm damage risk reduction against storm surges. However, negligible to minor increases in risk of NOV-NFL Levee overtopping south of the immediate outfall area (following the delta formation in the outfall area) due to storm surge during certain 1 percent storms, may impact low-income and minority populations within Ironton. These potential impacts may be exacerbated to the extent that Ironton residents experience unique vulnerabilities.

To ensure that impacts on the community of Ironton have been adequately disclosed and to make that analysis readily accessible in one location within the EIS (rather than throughout the various resource sections), a section has been added to the Final EIS that provides a summary of impacts on the community of Ironton under the Applicant's Preferred Alternative (see Chapter 4, Section 4.15.5.1 Environmental Justice).

CPRA is not proposing specific mitigation to address or offset the negligible to minor increased risk in levee overtopping that could affect the community of Ironton inside the NOV-NFL system because this potential increased risk does not accrue until Project operations have resulted in the development of a delta (wetlands and marsh) in the area outside the NOV-NFL Levee adjacent to Ironton (circa 2040), and because this risk was identified for only one of the 100-year storm scenarios modeled. However, to help Ironton prepare for and mitigate flood risk from storms generally, CPRA would designate a liaison to work with residents in Ironton prior to commencing operations of the Project on community preparedness for storm-based flooding and damage.

CPRA has engaged in public outreach meetings with the communities projected to be impacted by the MBSD to solicit input on mitigation and stewardship strategies, including reaching out to local non-profits to assist with and facilitate meetings with the impacted communities. Outreach efforts were undertaken to better understand and address potential impacts on communities with environmental justice concerns, such as low-income and minority populations, that may be disproportionately impacted by the Project, as discussed in Chapter 7 of the Final EIS. This included meetings in the community of Ironton. CPRA has expanded and refined the Mitigation and Stewardship Plan, Appendix R1 to the Final EIS, since publication of the Draft EIS and LA TIG's Draft Restoration Plan based on community and resource agency input. The mitigation and stewardship measures now provide additional detail regarding specific efforts targeted at assisting low-income and minority populations in addressing the potential impacts of the Project. CPRA will continue to engage with potentially impacted environmental justice communities and organizations concerning the implementation of the mitigation and stewardship measures.

The Mitigation and Stewardship Plan and the Monitoring and Adaptive Management (MAM) Plan provided in Draft EIS Appendix R were submitted by CPRA and represent a range of potential mitigation, stewardship, monitoring and adaptive management measures (collectively, measures). At the time of publication of the Draft EIS for public review, Appendix R contained draft Plans and CPRA had not identified which of the measures contained in those Plans it intended to implement. CPRA expanded and refined the Final Mitigation and Stewardship Plan in response to community and resource agency input. The Final EIS Appendix R contains the final Plans and specifies which measures CPRA and the LA TIG intend to implement. Generally, impact determinations discussed in the EIS represent anticipated Project effects without implementation of these measures except in instances where such measures are identified in the discussion. If any mitigation, monitoring or adaptive management measures are required

by USACE as part of its approval of the Project, such measures would be required as special conditions of the Department of the Army (DA) Section 10/404 permit and would be listed in the permit, if one is issued. Implementation of specific measures contained in either Plan, but not included in the Section 10/404 permit as special conditions, would not be required by USACE. USACE does not know whether any particular measure that is not a DA permit condition would be implemented. Measures that USACE currently contemplates as conditions of a DA Section 10/404 permit, if one is issued, are provided in Chapter 4, Section 4.27 Mitigation Summary of the EIS.

The LA TIG explains in Section 1.5 of the Final Restoration Plan that it anticipates requiring implementation of the Mitigation and Stewardship Plan, MAM Plan, and Marine Mammal Intervention Plan as components of the proposed Project, if the Project is approved by the LA TIG for funding. Decisions regarding which measures would be required as part of the LA TIG's funding decision would be set forth in the LA TIG Record of Decision related to the proposed Project.

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**Concern ID: 63703**

**Commenters request that the agencies involved with developing the EIS meaningfully engage with affected EJ communities/organizations to inform the development of EJ mitigation and stewardship measures. Specifically, it was requested that relevant materials are translated and presented in plain, non-technical language.**

**Response ID: 16508**

CPRA engaged the communities potentially impacted by the Project, including low-income and minority communities, through public meetings to solicit input on mitigation strategies. Further, CPRA engaged community-based organizations to assist in soliciting additional feedback from low-income and minority community members on the proposed mitigation and stewardship measures. A summary of these public engagement meetings and other outreach efforts is in Chapter 7 of the Final EIS. In response to comments, CPRA has expanded and refined this Mitigation and Stewardship Plan in the Final EIS (Appendix R1). CPRA will continue to engage with potentially impacted communities and organizations with EJ concerns concerning the implementation of the mitigation and stewardship measures. Additionally, CPRA has and will continue to provide requested translation and provide key documents and information on the Project in English, Spanish, and Vietnamese.

The Mitigation and Stewardship Plan and the Monitoring and Adaptive Management (MAM) Plan provided in Draft EIS Appendix R were submitted by CPRA and represent a range of potential mitigation, stewardship, monitoring and adaptive management measures (collectively, measures). At the time of publication of the Draft EIS for public review, Appendix R contained draft Plans and CPRA had not

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identified which of the measures contained in those Plans it intended to implement. CPRA expanded and refined the Final Mitigation and Stewardship Plan in response to community and resource agency input. The Final EIS Appendix R contains the final Plans and specifies which measures CPRA and the LA TIG intend to implement. Generally, impact determinations discussed in the EIS represent anticipated Project effects without implementation of these measures except in instances where such measures are identified in the discussion. If any mitigation, monitoring or adaptive management measures are required by USACE as part of its approval of the Project, such measures would be required as special conditions of the Department of the Army (DA) Section 10/404 permit and would be listed in the permit, if one is issued. Implementation of specific measures contained in either Plan, but not included in the Section 10/404 permit as special conditions, would not be required by USACE. USACE does not know whether any particular measure that is not a DA permit condition would be implemented. Measures that USACE currently contemplates as conditions of a DA Section 10/404 permit, if one is issued, are provided in Chapter 4, Section 4.27 Mitigation Summary of the EIS.

The LA TIG explains in Section 1.5 of the Final Restoration Plan that it anticipates requiring implementation of the Mitigation and Stewardship Plan, MAM Plan, and Marine Mammal Intervention Plan as components of the proposed Project, if the Project is approved by the LA TIG for funding. Decisions regarding which measures would be required as part of the LA TIG's funding decision would be set forth in the LA TIG Record of Decision related to the proposed Project.

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**Concern ID: 63693**

**Commenter requests that the EIS and Mitigation Plan include more details about EJ mitigation and stewardship measures specifically related to the construction of the diversion.**

**Response ID: 16506**

The Draft EIS considered impacts to low-income and minority communities due to Project construction in Chapter 4, Section 4.15.3 Construction Impacts in Environmental Justice. The majority of construction impacts would be experienced within 0.5 miles of the Project construction footprint. The nearest community to the construction footprint is Ironton, which has a majority African American population. As explained in the EIS, populations in Ironton would experience minor to moderate, temporary, adverse impacts due to increased noise levels, dust and transportation delays during the approximately five-year construction period (see Chapter 4, Section 4.15.3.2 Applicant's Preferred Alternative).

CPRA committed to implementing best management practices (BMPs) to minimize construction impacts in the EIS in Chapter 4, Section 4.27.1 (Avoidance and Minimization) and Appendix R1 (Mitigation and Stewardship Plan); additional information on BMPs is also included in

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the Mitigation Summary Table in Appendix R3. In addition, since publication of the Draft EIS and the LA TIG's Draft Restoration Plan, CPRA undertook additional outreach to low-income and minority communities potentially affected by the Project to solicit their feedback regarding the mitigation and stewardship measures proposed by CPRA. Based on the feedback received through that process and other sources of public comment, CPRA updated the Final Mitigation and Stewardship Plan to include those measures that CPRA would implement if the Project is approved and funded (see Appendix R1 to the Final EIS).

The Mitigation and Stewardship Plan and the Monitoring and Adaptive Management (MAM) Plan provided in Draft EIS Appendix R were submitted by CPRA and represent a range of potential mitigation, stewardship, monitoring and adaptive management measures (collectively, measures). At the time of publication of the Draft EIS for public review, Appendix R contained draft Plans and CPRA had not identified which of the measures contained in those Plans it intended to implement. CPRA expanded and refined the Final Mitigation and Stewardship Plan in response to community and resource agency input. The Final EIS Appendix R contains the final Plans and specifies which measures CPRA and the LA TIG intend to implement. Generally, impact determinations discussed in the EIS represent anticipated Project effects without implementation of these measures except in instances where such measures are identified in the discussion. If any mitigation, monitoring or adaptive management measures are required by USACE as part of its approval of the Project, such measures would be required as special conditions of the Department of the Army (DA) Section 10/404 permit and would be listed in the permit, if one is issued. Implementation of specific measures contained in either Plan, but not included in the Section 10/404 permit as special conditions, would not be required by USACE. USACE does not know whether any particular measure that is not a DA permit condition would be implemented. Measures that USACE currently contemplates as conditions of a DA Section 10/404 permit, if one is issued, are provided in Chapter 4, Section 4.27 Mitigation Summary of the EIS.

The LA TIG explains in Section 1.5 of the Final Restoration Plan that it anticipates requiring implementation of the Mitigation and Stewardship Plan, MAM Plan, and Marine Mammal Intervention Plan as components of the proposed Project, if the Project is approved by the LA TIG for funding. Decisions regarding which measures would be required as part of the LA TIG's funding decision would be set forth in the LA TIG Record of Decision related to the proposed Project.

**Concern ID: 63697**

**Commenters request that the EIS and Mitigation Plan include more details about planned EJ mitigation and stewardship measures for diversion operations.**

**Response ID: 16507**

The Draft EIS considered impacts to low-income and minority communities due to Project operations in Chapter 4, Section 4.15.4 Operational Impacts in Environmental Justice.

In addition, since completion of the Draft EIS and the LA TIG's Draft Restoration Plan, CPRA engaged the communities potentially impacted by the Project, including low-income and minority community members, through public meetings to solicit input on CPRA's mitigation strategies. Further, CPRA engaged community-based organizations to assist in soliciting additional feedback from low-income and minority community members on the proposed mitigation and stewardship measures. A summary of these public engagement meetings and other outreach efforts is provided in Chapter 7 of the Final EIS. In response to comments, CPRA has expanded and refined this Mitigation and Stewardship Plan in the Final EIS (see Appendix R1). This includes additional detail regarding specific efforts targeted at assisting low-income and minority populations in addressing the potential impacts of the Project. CPRA will continue to engage with potentially impacted EJ communities and organizations concerning the implementation of the mitigation and stewardship measures.

The Mitigation and Stewardship Plan and the Monitoring and Adaptive Management (MAM) Plan provided in Draft EIS Appendix R were submitted by CPRA and represent a range of potential mitigation, stewardship, monitoring and adaptive management measures (collectively, measures). At the time of publication of the Draft EIS for public review, Appendix R contained draft Plans and CPRA had not identified which of the measures contained in those Plans it intended to implement. CPRA expanded and refined the Final Mitigation and Stewardship Plan in response to community and resource agency input. The Final EIS Appendix R contains the final Plans and specifies which measures CPRA and the LA TIG intend to implement. Generally, impact determinations discussed in the EIS represent anticipated Project effects without implementation of these measures except in instances where such measures are identified in the discussion. If any mitigation, monitoring or adaptive management measures are required by USACE as part of its approval of the Project, such measures would be required as special conditions of the Department of the Army (DA) Section 10/404 permit and would be listed in the permit, if one is issued. Implementation of specific measures contained in either Plan, but not included in the Section 10/404 permit as special conditions, would not be required by USACE. USACE does not know whether any particular measure that is not a DA permit condition would be implemented. Measures that USACE currently contemplates as



conditions of a DA Section 10/404 permit, if one is issued, are provided in Chapter 4, Section 4.27 Mitigation Summary of the EIS.

The LA TIG explains in Section 1.5 of the Final Restoration Plan that it anticipates requiring implementation of the Mitigation and Stewardship Plan, MAM Plan, and Marine Mammal Intervention Plan as components of the proposed Project, if the Project is approved by the LA TIG for funding. Decisions regarding which measures would be required as part of the LA TIG's funding decision would be set forth in the LA TIG Record of Decision related to the proposed Project.

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**Concern ID: 63706**

**A commenter noted that traditional notions of fair market value might not be sufficient or fair compensation for low-income and minority populations affected by the diversion.**

**Response ID: 16509**

As part of any property acquisition to implement the Project, CPRA would compensate landowners for projected impacts to their properties caused by the Project in accordance with Louisiana and Federal law, including the Louisiana Constitution and the Fifth Amendment of the U.S. Constitution.

Recognizing the limitations on the degree of compensation permitted by federal and state law for property acquisition, CPRA's Mitigation and Stewardship Plan, Appendix R1 to the EIS, outlines numerous additional mitigation and stewardship measures aimed at assisting low-income and minority populations potentially affected by the Project. In particular, CPRA's Final Mitigation and Stewardship Plan (EIS, Appendix R1) includes additional mitigation and stewardship measures for the community of Grand Bayou, which is home to members of the Atakapa-Ishak Nation/Chawasha Tribe, including a ridge restoration canal backfilling project, and sidewalks and floating gardens. In addition, CPRA's Final Mitigation and Stewardship Plan prioritizes portions of funding from several of the mitigation and stewardship measures for low-income and minority community members.

The Mitigation and Stewardship Plan and the Monitoring and Adaptive Management (MAM) Plan provided in Draft EIS Appendix R were submitted by CPRA and represent a range of potential mitigation, stewardship, monitoring and adaptive management measures (collectively, measures). At the time of publication of the Draft EIS for public review, Appendix R contained draft Plans and CPRA had not identified which of the measures contained in those Plans it intended to implement. CPRA expanded and refined the Final Mitigation and Stewardship Plan in response to community and resource agency input. The Final EIS Appendix R contains the final Plans and specifies which measures CPRA and the LA TIG intend to implement. Generally, impact determinations discussed in the EIS represent anticipated Project effects without implementation of these measures except in instances where such measures are identified in the discussion. If any



mitigation, monitoring or adaptive management measures are required by USACE as part of its approval of the Project, such measures would be required as special conditions of the Department of the Army (DA) Section 10/404 permit and would be listed in the permit, if one is issued. Implementation of specific measures contained in either Plan, but not included in the Section 10/404 permit as special conditions, would not be required by USACE. USACE does not know whether any particular measure that is not a DA permit condition would be implemented. Measures that USACE currently contemplates as conditions of a DA Section 10/404 permit, if one is issued, are provided in Chapter 4, Section 4.27 Mitigation Summary of the EIS.

The LA TIG explains in Section 1.5 of the Final Restoration Plan that it anticipates requiring implementation of the Mitigation and Stewardship Plan, MAM Plan, and Marine Mammal Intervention Plan as components of the proposed Project, if the Project is approved by the LA TIG for funding. Decisions regarding which measures would be required as part of the LA TIG's funding decision would be set forth in the LA TIG Record of Decision related to the proposed Project.

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**Concern ID: 63710**

**Commenter requests that EJ mitigation efforts be made specifically for economically vulnerable oyster fishermen, potentially by providing them with alternate lease locations.**

**Response ID: 16510**

The Draft EIS (Chapter 4, Section 4.15.4.2 - Environmental Justice - Operational Impacts) identified the potential for the Project to result in disproportionately high and adverse impacts on some low-income and minority commercial oyster fishers. In response to these identified impacts and based on public comments, CPRA expanded and refined its Mitigation and Stewardship Plan, Appendix R1 to the Final EIS, since publication of the Draft EIS and LA TIG's Draft Restoration Plan. CPRA's Mitigation and Stewardship Plan included with the Final EIS provides additional details on specific mitigation and stewardship measures for impacts on oysters (see Appendix R1 of the EIS, Section 6.3.3). According to CPRA, a portion of the funding for several of these mitigation and stewardship measures would be prioritized for low-income and minority fishers to ensure that such fishers receive the benefits of these programs. Additionally, rulemaking by LDWF effective April of 2020 ended a moratorium on new leases on state-owned water bottoms enacted in 2002. The LDWF oyster lease process establishes a phased approach for settling previous applications and providing for new lease opportunities. More information on this program is available at <https://www.wlf.louisiana.gov/page/oyster-lease-moratorium-lifting> or within the LDWF Rule found in LAC 76:VII.505.

The Mitigation and Stewardship Plan and the Monitoring and Adaptive Management (MAM) Plan provided in Draft EIS Appendix R were submitted by CPRA and represent a range of potential mitigation,

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stewardship, monitoring and adaptive management measures (collectively, measures). At the time of publication of the Draft EIS for public review, Appendix R contained draft Plans and CPRA had not identified which of the measures contained in those Plans it intended to implement. CPRA expanded and refined the Final Mitigation and Stewardship Plan in response to community and resource agency input. The Final EIS Appendix R contains the final Plans and specifies which measures CPRA and the LA TIG intend to implement. Generally, impact determinations discussed in the EIS represent anticipated Project effects without implementation of these measures except in instances where such measures are identified in the discussion. If any mitigation, monitoring or adaptive management measures are required by USACE as part of its approval of the Project, such measures would be required as special conditions of the Department of the Army (DA) Section 10/404 permit and would be listed in the permit, if one is issued. Implementation of specific measures contained in either Plan, but not included in the Section 10/404 permit as special conditions, would not be required by USACE. USACE does not know whether any particular measure that is not a DA permit condition would be implemented. Measures that USACE currently contemplates as conditions of a DA Section 10/404 permit, if one is issued, are provided in Chapter 4, Section 4.27 Mitigation Summary of the EIS.

The LA TIG explains in Section 1.5 of the Final Restoration Plan that it anticipates requiring implementation of the Mitigation and Stewardship Plan, MAM Plan, and Marine Mammal Intervention Plan as components of the proposed Project, if the Project is approved by the LA TIG for funding. Decisions regarding which measures would be required as part of the LA TIG's funding decision would be set forth in the LA TIG Record of Decision related to the proposed Project.

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