DRAFT RESTORATION PLAN

FOR THE

MARCH 2, 2003
CRUDE OIL DISCHARGE
INTO LAKE WASHINGTON,
PLAQUEMINES PARISH, LOUISIANA

(NRDA CASE FILE #LA2003_0302_0716 [LAKE WASHINGTON 2003])

DECEMBER 2, 2003
CRUDE OIL DISCHARGE
IN THE VICINITY OF MENDICANT ISLAND,
JEFFERSON PARISH, LOUISIANA

(NRDA CASE FILE #LA2003_1202_1200 [MENDICANT ISLAND 2003])

AND

APRIL 19, 2005
CRUDE OIL DISCHARGE
INTO WEST CHAMPAGNE BAY,
JEFFERSON PARISH, LOUISIANA,

(NRDA CASE FILE #LA2005_0419_1950 [WEST CHAMPAGNE BAY 2005])

LWMIWCB

Prepared By:

Natural Resource Trustees for the State of Louisiana

Louisiana Oil Spill Coordinator's Office
Louisiana Department of Environmental Quality
Louisiana Department of Natural Resources
Louisiana Department of Wildlife and Fisheries
Coastal Protection and Restoration Authority

NOVEMBER 2017

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1.0 INTRODUCTION

1.1 Purpose

This Draft Restoration Plan (DRP) has been prepared by the natural resource trustees for the State of Louisiana (referred to herein as the "Trustees" and identified in section 1.3 below) to identify, and seek public comment on, a preferred restoration project alternative for natural resources and services injured by three separate incidents involving the unauthorized discharge of oil into the waters of the state of Louisiana: the March 2, 2003 crude oil discharge into Lake Washington, Plaquemines Parish, Louisiana and the December 3, 2003 and April 19, 2005 discharges into Barataria Bay (referred to herein as the "Incidents").

This DRP presents an alternatives analysis (at a restoration project level) that was conducted by the Trustees to identify and evaluate specific restoration projects that would compensate the public for injuries to natural resources and services, including benthic (mudflat) habitat, salt marsh habitat, and king rail (*Rallus elegans)*. A separate DRP will be issued by the Trustees that identifies a preferred restoration alternative (at a restoration project level) for addressing injuries to Lesser Scaup (*Aythya affinis*) resulting from the March 2, 2003 crude oil discharge into Lake Washington, Plaquemines Parish, Louisiana.

The Trustees identify a preferred restoration alternative, which would be funded using a portion of the settlement funds as specified in the Final Damage Assessment and Preliminary Restoration Plan (Final DAPRP) (Louisiana Trustees 2017) for the Incidents. The Trustees invite the public to review this DRP and submit comments to the address listed in section 1.7 below. After reviewing and evaluating public comments, the Trustees will prepare a Final Restoration Plan and make it available to the public

1.2 Background

ExxonMobil Pipeline Company (referred to herein as "EMPCo") was identified as the Responsible Party (RP) for the Incidents.[1] The Trustees and EMPCo worked cooperatively to assess the extent of natural resource injuries resulting from each incident. The Trustees concluded that the Incidents caused injuries to salt marsh habitat (including tidally exposed mudflats for the Lake Washington incident) and king rail. EMPCo and the Trustees agreed to combine the Natural Resource Damage Assessments (NRDA) for the three oil spills into one collective NRDA and settlement. A joint settlement was preferred by the Trustees and EMPCo because of the inherent cost efficiencies associated with conducting one

[1] The Trustees' Notice of Intent to Conduct Restoration Planning was published in the September 20, 2003 *Louisiana Register* (Vol. 29, No. 09, pp. 1952-1953) for the March 2003 Lake Washington incident, in the August 20, 2005 *Louisiana Register* (Vol. 31, No. 08, pp. 2151-2152) for the December 2003 Mendicant Island incident, and in the February 20, 2006 *Louisiana Register* (Vol. 32, No. 02, pp. 343-344) for the April 2005 West Champagne Bay incident as well as in newspapers in the affected areas.

restoration planning effort versus three efforts and the resulting benefits to the environment.

The Trustees and EMPCo continued to work cooperatively over several years to identify and evaluate potential restoration alternatives that would provide appropriate compensation for the Incidents. In October 2016, EMPCo agreed to settle the NRDA damage claim for $2,014,500.00 in cash. The cash settlement dollar amount was predicated on two trustee-implemented compensatory restoration projects as well as future restoration project implementation costs of the Trustees. In July 2017, the Trustees released a Draft Damage Assessment and Preliminary Restoration Plan (Draft DAPRP) for public comment. The document: 1) presented the injury assessment methods employed to quantify the natural resource injuries resulting from the Incidents; 2) identified the preferred restoration alternative at a restoration type level as the creation of coastal herbaceous wetlands; and 3) presented the estimated costs of implementing the preferred restoration alternative to be paid by EMPCo in settlement of the damage claim.[2] No comments were received. In October 2017, the Trustees executed a Settlement Agreement and finalized the Damage Assessment and Preliminary Restoration Plan (Final DAPRP).[3]

1.3 Authorities and Natural Resource Trustees

The OPA (33 U.S.C. §§ 2701 ***et seq***.) and Louisiana's OSPRA (La. Rev. Stat. §§ 30:2451 ***et seq***.) are the principal federal and state statutes, respectively, authorizing federal and state agencies and tribal officials to act as trustees for the recovery of damages for injuries to natural resources and services resulting from oil spills in Louisiana. As a designated trustee, each agency identified below is authorized to act on behalf of the public under state and/or federal law to assess and recover natural resource damages and to plan and implement actions to restore natural resources and services injured or lost as a result of an incident. Louisiana's natural resource trustees for the Incidents include the following state agencies: Louisiana Oil Spill Coordinator's Office (LOSCO), Louisiana Department of Environmental Quality (LDEQ), Louisiana Department of Wildlife and Fisheries (LDWF), Louisiana Department of Natural Resources (LDNR), and the Coastal Protection and Restoration Authority of Louisiana (CPRA).[4] The National Oceanic and Atmospheric Administration (NOAA) and U.S. Fish and Wildlife Service (USFWS) were also involved in the early stages.[5]

[2] Notice of the Draft DAPRP was published in the July 2017 Louisiana Register (Vol. 43, No. 07, pp. 1487-1488). The Trustees did not receive comments during the public comment period and executed the Final Settlement Agreement with EMPCo in October 2017. The Final DAPRP is Attachment 1 of the Final Settlement Agreement. The Final Settlement Agreement and other documents associated with this Draft Restoration Plan are available as part of the administrative record for the combined LWMIWCB NRDA.

[3] The Final DAPRP is Attachment 1 of the Final Settlement Agreement. The Final Settlement Agreement and other documents associated with this Draft Restoration Plan are available as part of the administrative record for the combined LWMIWCB NRDA.

[4] CPRA was designated a trustee in May 2010.

[5] Federal trustees are designated in the National Contingency Plan, 40 C.F.R. § 300.600 and Executive Order 12777. The following federal agencies are designated natural resource trustees under OPA: the

1.4 Summary of the Incidents

Lake Washington Incident

On March 2, 2003, the Trustees were notified of an unauthorized discharge of crude oil from a subsurface pipeline located in the Barataria estuary approximately eight miles south-southwest of Port Sulphur, Louisiana, in the vicinity of Lake Washington, Plaquemines Parish (Figure 1.1). An estimated 995 barrels (41,790 gallons) of crude oil were released into the surrounding coastal waters. The pipeline was owned and operated by EMPCo and pursuant to OPA they were identified as the RP for the incident.[6]

Mendicant Island Incident

On December 2, 2003, the Trustees were notified of an unauthorized discharge of crude oil from a subsurface pipeline that discharged 356 barrels (14,952 gallons) of crude oil into West Champagne Bay, located within the Barataria estuary, approximately four miles north of Grand Isle, Louisiana, in the vicinity of Mendicant Island, Jefferson Parish (Figure 1.1). The pipeline was owned and operated by EMPCo and pursuant to OPA they were identified as the RP for the incident.[7]

West Champagne Bay Incident

On April 19, 2005, the Trustees were notified of an unauthorized discharge of crude oil from a subsurface pipeline that discharged 600 barrels (25,200 gallons) of crude oil into West Champagne Bay, located within the Barataria estuary, approximately four miles north of Grand Isle, Louisiana, in the vicinity of Mendicant Island, Jefferson Parish (Figure 1.1). The pipeline was owned and operated by EMPCo and pursuant to OPA they were identified as the RP for the incident.[8]

1.5 Overview of Alternatives Analysis

The purpose of this DRP is to evaluate specific restoration project alternatives that will address injuries to salt marsh (including tidally exposed mudflats for the Lake Washington incident) and king rails, as discussed in the Final DAPRP, and identify a preferred alternative for implementation as compensatory restoration for those injuries. In this DRP, the Trustees identify and evaluate 46 restoration alternatives. Based on this evaluation, the Trustees identified the *Lost Lake*

United States Department of the Interior, as represented by the National Park Service, United States Fish and Wildlife Service (USFWS), and Bureau of Land Management; and the National Oceanic and Atmospheric Administration (NOAA) on behalf of the United States Department of Commerce.

[6] The Trustees' Notice of Intent to Conduct Restoration Planning was published in the September 20, 2003 *Louisiana Register* (Vol. 29, No.09, pp. 1952-1953), the September 22, 2003 Baton Rouge *Advocate* and New Orleans *Times Picayune*, and the September 26, 2003 Plaquemines *Watchman and Gazette*.

[7] The Trustees' Notice of Intent to Conduct Restoration Planning was published in the August 20, 2005 *Louisiana Register* (Vol. 31, No.8, pp. 2151-2152), and the August 19, 2005 Baton Rouge *Advocate,* New Orleans *Times Picayune*, and Houma *Courier*.

[8] The Trustees' Notice of Intent to Conduct Restoration Planning was published in the February 20, 2006 *Louisiana Register* (Vol. 32, No.2, pp. 343-344) and Baton Rouge *Advocate,* the February 18, 2006 New Orleans *Times Picayune*, and the February 19, 2006 Houma *Courier*.

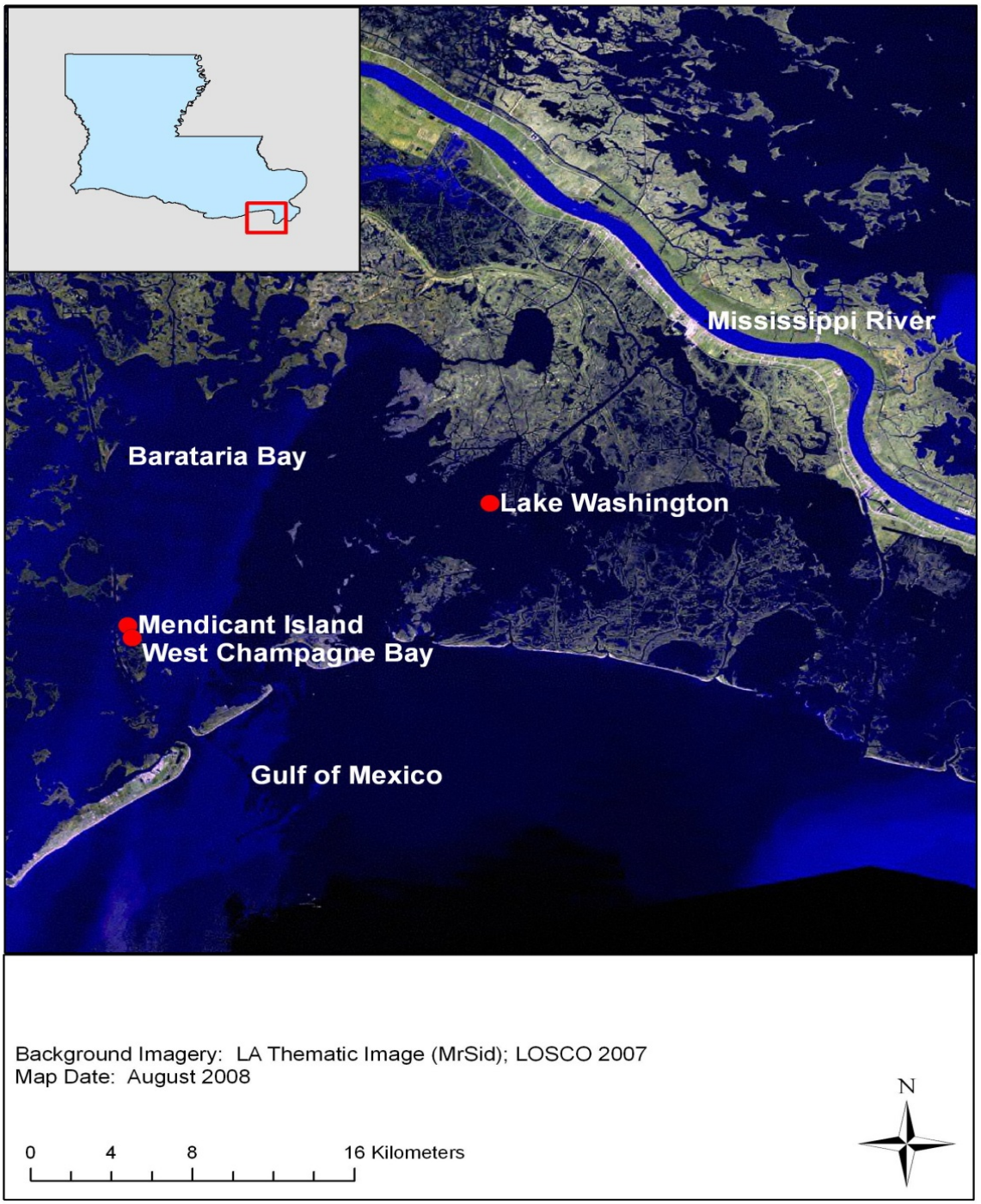

Figure 1.1 Location of Lake Washington, Mendicant Island, and West Champagne Bay Incidents

Marsh Creation NRDA Increment as a preferred compensatory restoration alternative to compensate for interim losses resulting from the Incidents (see section 2.4). This alternative has a nexus to the injured trust resources, is the most cost effective of the alternatives considered, can be implemented with minimal delay, is a restoration technique that has a high likelihood of success,

and is consistent with Louisiana's Comprehensive Master Plan for a Sustainable Coast (CPRA 2017).

1.6 Preferred Restoration Alternative

As a basis for providing compensatory restoration for the Incidents, the Trustees will use a portion of the settlement funds to create at least **14.6** acres of coastal herbaceous wetlands, including brackish marsh habitat, at the *Lost Lake Marsh Creation NRDA Increment* (see section 2.4.3 for rescaling of the restoration alternative) located in the Terrebonne Basin in the vicinity of Lost Lake. The preferred alternative will create additional marsh acreage immediately adjacent to a project footprint known as the "Lost Lake Marsh Creation and Hydrologic Restoration Project (referred to herein as "TE-72)", which was developed and funded through the Coastal Wetlands Planning, Protection and Restoration Act (CWPPRA) Program.

The Trustees' preferred restoration alternative includes dredging sediment from Lost Lake to fill open water and broken marsh areas north of Bayou DeCade. Over time, natural dewatering and compaction of the dredged sediments should result in elevations that fall within the intertidal range which would be conducive to the establishment of emergent marsh. These fill areas may be planted with native marsh vegetation to establish a vegetative community on the constructed marsh platform. The Trustees plan to construct this project in the immediate vicinity of, and concurrent with, ongoing dredging activities for TE-72, which involves hydrologic restoration and the construction of hundreds of acres of marsh in the same general area. Through a partnership with the CPRA and the USFWS, which is the CWPPRA federal sponsor for the project, the Trustees expect the project to benefit from significant economies of scale thereby creating an opportunity to create additional marsh acreage beyond the required 14.6 acres of compensatory restoration for the Incidents.

1.7 Public Participation

Throughout the restoration planning phase of the NRDA process, the Trustees have provided information to the public on the status of injury assessment and restoration planning to facilitate public involvement in the process. This DRP summarizes the restoration planning conducted by the Trustees to date and is being made available to the public for a 30-day comment period, which will begin on the date of the public notice announcing availability of the DRP. Public comment is consistent with all state and federal laws and regulations that apply to the NRDA process, including section 1006 of OPA (33 U.S.C. § 2706), the federal NRDA Regulations at 15 C.F.R. Part 990, section 2480 of OSPRA (La. Rev. Stat. § 30:2480), and the state NRDA Regulations at La. Admin. Code 43: Part XXIX, Chapter 1. After the 30-day public comment period, the Trustees will evaluate all comments received from the public and summarize them in a Final Restoration Plan. An additional opportunity for public review will be provided in the event that the Trustees decide to make significant changes to the DRP based on the initial public comments.

Comments on this Draft Restoration Plan should be sent to:

Attn: Charles Armbruster
Louisiana Oil Spill Coordinator's Office,
Department of Public Safety and Corrections
P.O. Box 66614 Mail Slip B15
Baton Rouge, LA 70896
(225) 925-6606
Charles.Armbruster@la.gov

1.8 Administrative Record

LOSCO maintains an Administrative Record (AR) for the Incidents, including restoration planning activities and implementation. Additional information and documents, including public comments received on the DRP and restoration planning documents, will be included in the AR when complete. Arrangements to review the AR or obtain copies of documents in the AR should be made in advance by contacting LOSCO.

2.0 RESTORATION SELECTION

The following sections summarize the process the Trustees followed to identify and screen compensatory restoration alternatives at the project level that would appropriately address injuries to trust resources related to the Incidents and to propose a preferred restoration alternative. This process involved screening restoration alternatives based on restoration type and then applying specific criteria related to OPA and the Regional Restoration Planning Program (RRP Program).[9]

2.1 Selection of Restoration Types

Restoration types[10] are selected by the trustees to streamline the process of evaluating and identifying a preferred restoration alternative. This analysis was first accomplished by identifying restoration types with a strong nexus to the injured resources and then applying screening criteria[11] to assist in determining the most appropriate restoration types for addressing injuries to coastal herbaceous wetlands.[12] For the Incidents, the Trustees selected **creation/enhancement of coastal herbaceous wetlands** as the preferred restoration type (see the "Final DAPRP"). Because this restoration type continues to be a proven and successful strategy for increasing the types of natural resources and services similar to those injured as a result of the Incidents, the Trustees conducted the following analysis to initially identify specific project alternatives that would create and or enhance coastal herbaceous wetlands. The Trustees then analyzed the merits of those alternatives based on the specific criteria outlined below in sections 2.2 and 2.3.

2.2 Identification of Restoration Alternatives

The Trustees identified 23 restoration alternatives that were located in the same RRP region as the injured resources (i.e., RRP Region 2) and would create and or enhance coastal herbaceous wetlands (Appendix A). All of the alternatives were submitted by or obtained from the public and government agencies. These restoration alternatives were screened using the following RRP Program specific criteria:[13]

- Ability to Implement Project with Minimal Delay
- Degree to Which Project Supports Existing Strategies/Plans
- Project Urgency

[9] Regional boundaries for Regions 2 and 3 are described in sections 5.0, 5.1.2, and 5.1.3, respectively, of the Louisiana Regional Restoration Planning Program Draft Programmatic Environmental Impact Statement (NOAA et al., 2007).

[10] Restoration types are described in section 4.2.3 of the Louisiana Regional Restoration Planning Program Final Programmatic Environmental Impact Statement (NOAA et al., 2007).

[11] Restoration type screening criteria are identified in section 4.2.4.2 of the Louisiana Regional Restoration Planning Program Final Programmatic Environmental Impact Statement (NOAA et al., 2007).

[12] Coastal Herbaceous wetlands are described in section 4.2.2.1.1 of the Louisiana Regional Restoration Planning Program Final Programmatic Environmental Impact Statement (NOAA et al., 2007) and were the injured resource for the Incidents.

[13] Restoration type screening criteria are identified in section 4.2.4.2 of the Louisiana Regional Restoration Planning Program Final Programmatic Environmental Impact Statement (NOAA et al., 2007).

Given the above criteria, the Trustees considered: 1) the stage of development of the alternative (e.g., status of engineering and design (E&D) and permitting); 2) the extent to which the alternative supports, or is consistent with national, regional, and/or local restoration initiatives, including Louisiana's Comprehensive Master Plan for a Sustainable Coast (CPRA 2017); 3) the ability of the alternative to be integrated into an existing resource management program or larger project; and 4) the ability of the alternative to be added to a project already under consideration. This analysis resulted in the identification of the *Barataria Basin Ridge and Marsh Creation Project: Spanish Pass Increment (BA-0203)* (ID#811 in Appendix A) as the Trustees' initial preferred restoration alternative. However, considering that this project was still in the early stages of development and was not scheduled to be implemented for several years, the Trustees decided to broaden their search to include alternatives from adjacent coastal RRP Regions 1 and 3 that could be implemented sooner. This search identified 23 additional restoration alternatives (Appendix A) that were screened using the above RRP Program specific criteria. Two projects located in RRP Region 3 were identified that met the above criteria and could be implemented much sooner than the Barataria Basin Ridge and Marsh Creation Project: Spanish Pass Increment (BA-0203):

♦ *Lost Lake Marsh Creation NRDA Increment* (ID#831 in Appendix A)
♦ *LCA BUDMAT HNC Marsh Creation (Fill Area 1)* (ID#812 in Appendix A)

2.3 Analysis of Restoration Alternatives

The Trustees used the criteria listed below and identified in the OPA regulations (15 C.F.R. § 990.54) to select a preferred restoration alternative from the remaining two alternatives described in the previous section. The criteria include the:

1) Cost to carry out the alternative;
2) Extent to which each alternative is expected to meet the trustees' goals and objectives in returning the injured natural resources and services to baseline and/or compensating for interim losses;
3) Likelihood of success of each alternative;
4) 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;
5) Extent to which each alternative benefits more than one natural resource and/or service; and
6) Effect of each alternative on public health and safety.

A summary of this analysis is provided in Table 2.1 and in sections 2.3.1 and 2.3.2.[14]

[14] The Trustees' analysis of natural recovery as a restoration alternative is provided in the LWMIWCB Final DAPRP. This document is available as part of the Administrative Record for the Incidents.

Table 2.1 Screening Results for the Two Restoration Alternatives[15]

RRP Region	Alternatives (ID)	OPA Criteria[16]						Screening Results
		#1	#2	#3	#4	#5	#6	
3	Lost Lake Marsh Creation NRDA Increment (#831)	++	+	++	0	+	+	Preferred Alternative
	LCA BUDMAT HNC Marsh Creation (Fill Area 1) (#812)	+	++	0	0	+	+	Non-Preferred Alternative

2.3.1 Lost Lake Marsh Creation NRDA Increment (#831)

The *Lost Lake Marsh Creation NRDA Increment* project involves the creation of coastal herbaceous wetlands, including brackish marsh habitat immediately adjacent to a project footprint known as the "Lost Lake Marsh Creation and Hydrologic Restoration Project (TE-72)" (developed and funded through the CWPPRA Program). The TE-72 project is located within the Terrebonne Basin in the vicinity of Lost Lake, Terrebonne Parish, Louisiana. Figure 2.1 shows the project vicinity and currently permitted areas for the construction of marsh creation and nourishment areas, earthen terraces, and hydrologic restoration features. The proposed *Lost Lake Marsh Creation NRDA Increment* project would be located at the eastern margin of theTE-72 project area in the vicinity of Lake Pagie and Bayou DeCade (Figure 2.2). The project would utilize areas along the northeastern portion of Lake Pagie in the vicinity of and adjacent to "Fill Area 1" (see white box in figure) to create marsh.[17] Containment dikes would be constructed and sediment would be hydraulically dredged from a borrow area in Lost Lake and pumped via pipeline to create a marsh platform in the project area. Over time, natural dewatering and compaction of dredged sediments would result in platform elevations that fall within the intertidal range and would be conducive to the establishment of emergent marsh habitat. The project area would be planted with native marsh vegetation (e.g. Saltwater Cord Grass and Salt-Meadow Cord Grass) to establish a vegetative community typical of other coastal wetlands in the area.

[15] ++ indicates a very strong relationship exists between the alternative and the criterion; + indicates a strong relationship exists between the alternative and the criterion; 0 indicates a moderate relationship exists between the alternative and the criterion; and - indicates a weak relationship exists between the alternative and the criterion.

[16] The OPA criteria are listed in section 2.3 of this document (15 C.F.R. § 990.54[a]).

[17] The area labelled "Fill area 1" comprises a portion of the CWPPRA Lost Lake Marsh Creation and Hydrologic Restoration Project (TE-72).

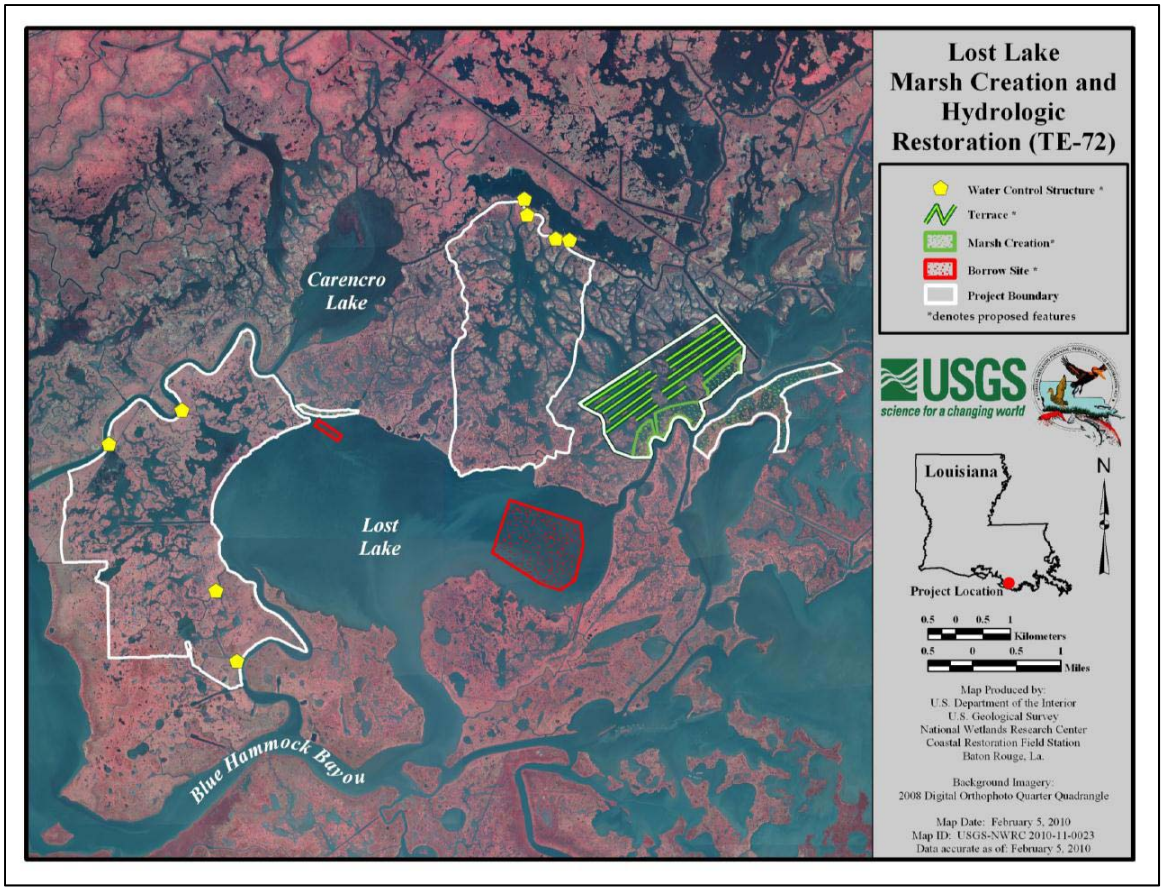

Figure 2.1 Vicinity map of the CWPPRA TE-72 project located within the Terrebonne Basin

Evaluation Based on OPA Criteria

Criterion #1: *Cost to carry out the alternative.*

Because this project would be constructed in the immediate vicinity of, and concurrent with, ongoing dredging activities involving the construction of hundreds of acres of marsh, the Trustees expect the project to benefit from significant economies of scale, including substantial time and cost savings achieved through administrative, logistical, and construction efficiencies associated with larger projects. The project will achieve additional cost efficiencies related to the close proximity of the marsh creation fill area to the borrow site and containment dike construction occurring concurrent with containment dike construction for the TE-72 project. Cost estimates for this project suggest that the project would be a very cost-effective alternative for creating marsh habitat given typical costs associated with other marsh creation projects. Based on current information, the Trustees anticipate that these cost savings will allow for the creation of more acreage than is required for compensatory restoration.

Figure 2.2 Plan view of the proposed location of the *Lost Lake Marsh Creation NRDA Increment* project (white box) located adjacent to Fill Area 1 of the CWPPRA TE-72 project

Criterion #2: *Extent to which each alternative is expected to meet the trustees' goals and objectives in returning the injured natural resources and services to baseline and/or compensating for interim losses.*

The project would create coastal herbaceous wetlands, including brackish marsh habitat in the Terrebonne Basin, which is located in the adjacent coastal watershed to the Incidents (i.e., Region 3). The marsh restored by the project is

anticipated to provide similar or complimentary ecological services to the injured trust resources and therefore have a sufficient nexus to the injured resources. In the past, the majority of the project area has been classified as brackish marsh (Visser et al., 1998) and brackish and intermediate marsh (Sasser et al., 2014). Brackish marshes generally form along the upland edge of salt marshes where freshwater input dilutes the salinity, creating brackish conditions (i.e., 0.5 – 18 ppt). This environment supports species that are less tolerant of extremely high or low salinities as well as species that are restricted to brackish conditions. Although the Incidents injured salt marsh and king rail, the Trustees concluded there is sufficient nexus to creating brackish marsh as an alternative due to the complementary services provided by brackish marshes. Finally, the Trustees have developed procedures for scaling the benefits of creating brackish marsh and will be able to determine the size of the project needed to provide adequate compensation for the injured trust resources.

Criterion #3: *Likelihood of success of each alternative.*

The project is technically feasible and utilizes proven techniques with established methods and documented results. Dredging to create marsh in shallow, open-water areas has been successfully used as a restoration technique across coastal Louisiana for several years. Since CWPPRA was authorized in 1990, several marsh creation projects have been constructed and more are authorized for engineering and design or construction (Lindquist and Martin, 2007). Many other marsh creation projects have been constructed by the State of Louisiana as mitigation for wetland impacts under section 404 of the Clean Water Act (CWA), and by the U.S. Army Corps of Engineers (USACE) under other authorities such as sections 204 and 1135 of the Water Resources Development Act. In addition, a geotechnical investigation conducted by the CPRA design team indicates that based on the construction methods to be employed, the proposed marsh creation fill area will remain intertidal for 17 years, which is 85% of the project's design life (CPRA 2012). The Trustees scaled the project benefits over a 15-year time horizon (see section 2.4.3 for scaling of project benefits), providing additional confidence that the project will provide sufficient compensatory restoration for the Incidents. Finally, because the TE-72 project is currently under construction and permitted areas adjacent to it currently exist for additional marsh creation, an opportunity exists to leverage those activities to construct the *Lost Lake Marsh Creation NRDA Increment* project in the near future. Furthermore, it is likely that building additional acreage (beyond the required amount) will be possible. For these reasons, the restoration alternative has a high likelihood of success.
Criterion #4: *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 creation of estuarine emergent wetlands would result in the loss of mud bottom and estuarine water column, as emergent marsh would replace those habitat types. Loss of mud bottom essential fish habitat (EFH) could result in

negative impacts to subadult brown shrimp (*Penaeus aztecus*) and postlarval/juvenile red drum (*Sciaenops ocellatus*). Although adverse impacts may occur to some types of EFH, more productive types of EFH (i.e., estuarine emergent wetlands) would be created resulting in a net positive benefit to all managed species that occur in the project area including larval red drum, Gulf menhaden (*Brevoortia patronus*), and critical prey species.

Criterion #5: *Extent to which each alternative benefits more than one natural resource or service*.

The creation of brackish marsh will directly restore the coastal herbaceous wetland resources and services that were injured by the Incidents as well as provide additional habitat benefits to the birds, wildlife, and sediment infauna that utilize that habitat and were injured by the Incidents.

Criterion #6: *Effect of each alternative on public health and safety.*

The Trustees do not anticipate this project adversely affecting public health or safety.

2.3.2 LCA BUDMAT HNC Marsh Creation (Fill Area 1) (#812)

The *LCA BUDMAT HNC Marsh Creation* (Fill Area 1) project involves the placement and beneficial use of dredged material removed during the maintenance dredging of the Houma Navigation Canal (HNC) to create saline marsh. The designated disposal area is located in Terrebonne Parish, Louisiana, along the HNC (Figure 2.3). The proposed action involves utilizing dredged material removed from the HNC in the 2018 dredge cycle to construct platforms suitable for saline marsh development in the general vicinity of the reach between Miles 12 and Mile 9. This borrow material would be hydraulically dredged and transported to Fill Area 1 for wetland creation via long distance pipeline transport. Dredging activities would occur between Miles 8.5 and 5.5 (approximate) of the HNC, using a hydraulic cutterhead dredge. Retention dikes, internal training dikes, and/or closures would be constructed, as necessary, to contain the dredged material within the placement area. Flotation access channels would be excavated, as needed, to allow construction equipment to access the placement areas. Over time, natural dewatering and compaction of dredged sediments would result in platform elevations that fall within the intertidal range and would be conducive to the establishment of emergent marsh. The fill area would be planted with native marsh vegetation to establish a vegetative community typical of other coastal wetlands in the area.

<u>Evaluation Based on OPA Criteria</u>
Criterion #1: *Cost to carry out the alternative.*

Because this project would be constructed in the immediate vicinity of and concurrent with maintenance dredging activities, the Trustees expect the project

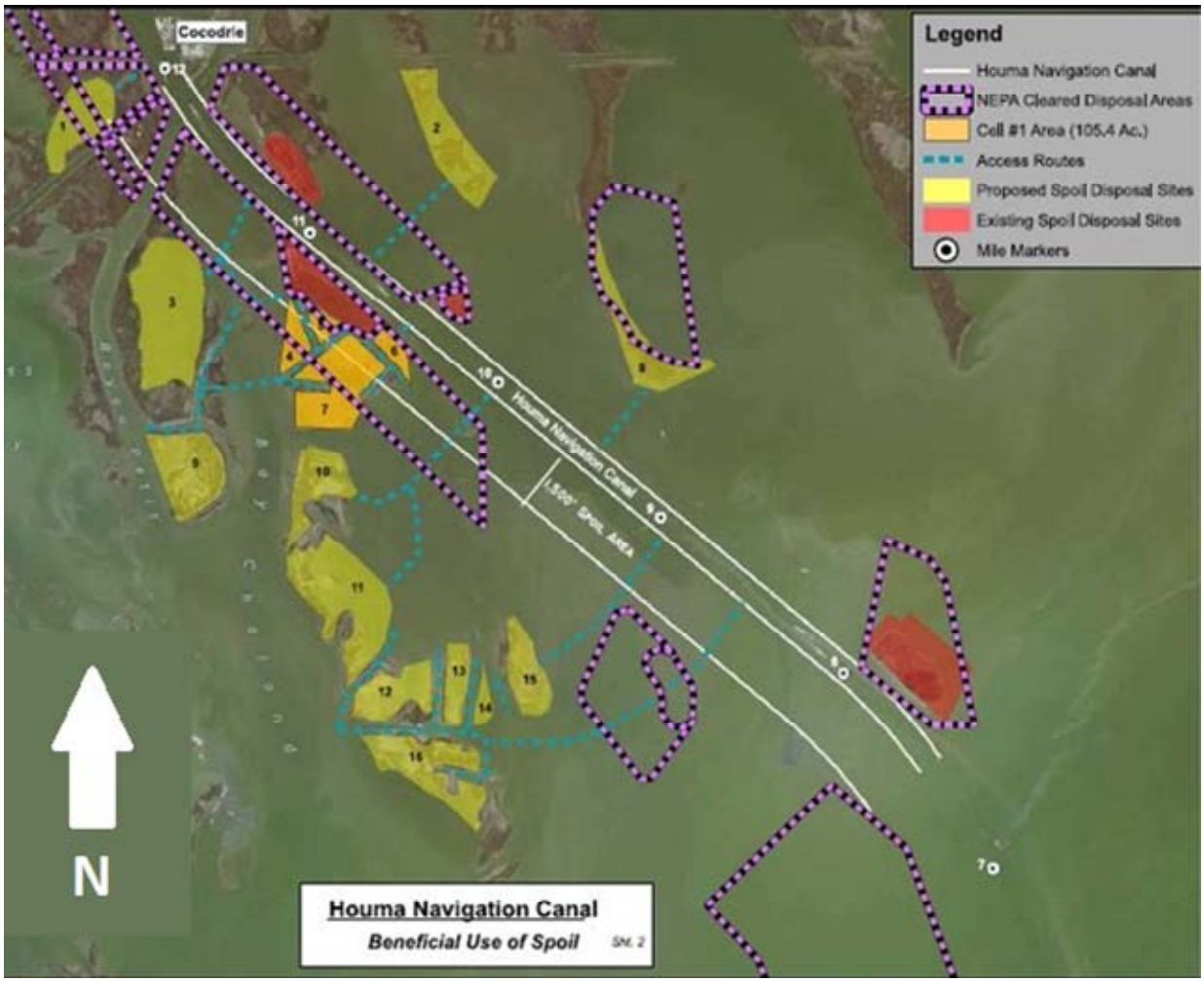

Figure 2.3 Plan view of the proposed *LCA BUDMAT HNC Marsh Creation (Fill Area 1)* project located along the HNC

to benefit from cost efficiencies, including substantial time and cost savings achieved through administrative, logistical, and construction efficiencies associated with placement and beneficial use of dredged material type projects. Cost estimates for this project are provided in USACE 2017. Cost sharing this project with CPRA and the USACE would create cost efficiencies making the project a cost-effective alternative for creating marsh habitat, given the typical costs associated with dredge and fill marsh creation projects in Louisiana. Criterion #2: *Extent to which each alternative is expected to meet the trustees' goals and objectives in returning the injured natural resources and services to baseline and/or compensating for interim losses.*

The project will create coastal herbaceous wetlands, including saline marsh habitat in the in the Terrebonne Basin, which is located in the adjacent coastal watershed as the Incidents (i.e., Region 3). The marsh restored by the project is anticipated to provide similar or complementary ecological services to the injured

trust resources and therefore have a sufficient nexus to the injured resources to warrant moving outside the Region of injury. In the past, the majority of the project area has been classified as saline marsh (Visser et al., 1998). The dominant species in the saline marshes of the project area is Saltwater Cord Grass (Spartina alterniflora), a perennial grass that grows from extensive rhizomes. Salt-Meadow Cord Grass (Spartina patens) dominates the high marsh areas subject to intermittent flooding, although the highly salt-tolerant salt grass, black needle rush, and glassworts are also frequently present (USACE 2017). Since the Incidents injured salt marsh and king rail, the Trustees concluded there is a strong nexus to creating saline marsh habitat. Finally, the Trustees have developed procedures for scaling the benefits of creating saline marsh and will be able to determine the size of the project needed to provide adequate compensation for the injured trust resources.

Criterion #3: *Likelihood of success of each alternative.*

The project is being proposed under the LCA BUDMAT Program which has an approved Programmatic EIS entitled Louisiana Coastal Area Beneficial Use of Dredge Material Programmatic EIS and ROD dated August 13, 2010. In addition, the project is being designed and implemented in partnership with CPRA, which has successfully utilized dredging as a restoration technique across coastal Louisiana for several years to create marsh in shallow, open-water areas. Many other marsh creation projects have been successfully constructed by the State of Louisiana as mitigation for wetland impacts under section 404 of the CWA, and by the USACE under other authorities such as sections 204 and 1135 of the Water Resources Development Act. The project is technically feasible and utilizes proven techniques with established methods and documented results. However, there is some uncertainty at this time as to the availability of sufficient borrow material at the time of the 2018 dredging cycle to create sufficient marsh acreage as compensatory restoration for the spill in the near-term. In addition, geotechnical information suggests that the local material to be used for creating earthen retention dikes is of a quality that adds some uncertainty to the likelihood of success for the purposes of compensatory restoration. Finally, there exists some uncertainty at this time as to the implementation date of the project given the current timeline for the 2018 dredging cycle and the present stage of planning.

Criterion #4: *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 creation of estuarine emergent wetlands would result in the loss of mud bottom and estuarine water column as emergent marsh would replace those habitat types. Loss of mud bottom EFH could result in negative impacts to subadult brown shrimp (*Penaeus aztecus*) and postlarval/juvenile red drum (*Sciaenops ocellatus*). Although adverse impacts may occur to some types of EFH, more productive types of EFH (i.e., estuarine emergent wetlands) would be

created resulting in a net positive benefit to all managed species that occur in the project area.

Criterion #5: *Extent to which each alternative benefits more than one natural resource or service*.

The creation of saline marsh will directly restore the resources and services related to the marsh that was injured during the Incidents as well as provide additional habitat benefits to the birds, wildlife, and infauna that utilize that habitat.

Criterion #6: *Effect of each alternative on public health and safety.*

The Trustees do not anticipate this project adversely affecting public health or safety.

2.4 Preferred Restoration Alternative

Based on the analysis of restoration alternatives provided in section 2.3, the *Lost Lake Marsh Creation NRDA Increment* project was selected by the Trustees as a preferred restoration alternative for addressing natural resource injuries resulting from the Incidents. This alternative would create at least 14.6 acres of brackish marsh for the Incidents (see rescaling of preferred restoration alternative provided below in section 2.4.3). The following sections provide more specific information on the project goal, scaling approach, and anticipated performance measures and monitoring.

2.4.1 Restoration Goal

The goal of the preferred restoration alternative is to create brackish marsh habitat that compensates the public for lost resources and ecological services, including birds and wildlife, resulting from the Incidents.

2.4.2 Effects on Threatened or Endangered Species

The Endangered Species Act (ESA) of 1973 (16 U.S.C. §§1531, *et seq.)* requires federal agencies to conserve endangered and threatened species and to conserve the ecosystems upon which these species depend. The USFWS accomplishes this goal in part by evaluating projects that could affect listed species.

An environmental analysis was conducted by the USFWS in the planning stages of the TE-72, including the effects on T&E species (USFWS 2012). The decision to implement the TE-72 project was made after thorough public review and consideration of comments. Given the USFWS analysis, the Trustees do not anticipate that the preferred alternative discussed in this DRP is likely to adversely affect any threatened or endangered species in the area since it will be creating coastal herbaceous wetlands within the permitted footprint of the TE-72 project. The activities associated with implementation of this project will be performed in compliance with all applicable environmental laws (Appendix B).

2.4.3 Rescaling of Preferred Restoration Alternative

Rescaling of the restoration alternative selected in the Final DAPRP was conducted to determine the scale of restoration required at the *Lost Lake Marsh Creation NRDA Increment* project. The Habitat Equivalency Analysis (HEA) method (NOAA 1995) was used to quantify restoration needed to compensate for interim losses of natural resources and services resulting from the Incidents, including benthic (mudflat) habitat, salt marsh habitat, and king rail. The Final DAPRP indicated that the total injury to these resources was 47.5 Discounted Service Acre Years (DSAYs). For the purposes of scaling the *Lost Lake Marsh Creation NRDA Increment* project to the injury, the Trustees used several project-specific factors in scaling restoration, including elapsed time from the onset of injury to restoration implementation, relative productivity of restored habitats (i.e. the equivalence of ecological services provided by the compensatory restoration project relative to the baseline productivity of the injured habitat), and time required for restored habitats to reach full function and project lifespan. Table 2.1 shows the HEA assumptions and credit generated by the project. To account for an earlier completion date than estimated in the Final DAPRP, the Trustees revised the HEA parameter for "Year compensatory project is completed" from 2020 to 2018, resulting in **14.6 acres** of required habitat creation at the *Lost Lake Marsh Creation NRDA Increment* project.

Table 2.1 HEA Assumptions and DSAY Credits Generated by the Project.

HEA Assumptions			
Compensatory Restoration:			
Is compensatory restoration required?			Yes
Year compensatory project is completed			2018
Years to full maturity following restoration activities			5.00
Year compensatory project reaches maturity			2023
Functional form of maturity function			Non-linear
Relative productivity of restored to natural habitat			50.00%
Initial percent service level of compensatory restoration site			0.00%
Percent recovery of injured habitat			100.00%
Time horizon for service production of restored habitat (years)			15.00
Year restored habitat stops producing services			2033
Real discount rate per year			3.00%
	DSAYs		
Injury Debit ---------->	47.5		
Restoration Credit:		DSAYs/Ac	Acres
Salt Marsh-------->	47.5	3.25	14.6

2.4.4 Performance Measures and Monitoring

Project performance will be assessed by comparing quantitative monitoring results to appropriate performance standards that define the minimum physical or structural conditions deemed to represent normal and acceptable development of a marsh. The monitoring program for the preferred alternative will use these standards to determine whether the project goals and objectives have been achieved or whether corrective actions are necessary. Some potential performance metrics might include: elevation and spatial extent of the created marsh, plant survival, vegetation cover, and species richness. In the event that performance standards are not achieved during the monitoring period or monitoring results suggest that there is unsatisfactory progress toward meeting established performance standards, mid-course corrections or corrective actions may be undertaken. These actions might include, but are not limited to, replanting vegetation in areas that experience dieback, implementing measures to control herbivory, and/or fertilizer applications.

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APPENDIX A: RESTORATION PROJECT ALTERNATIVES IN RRP REGIONS 1, 2 AND 3 THAT CREATE OR ENHANCE COASTAL HERBACEOUS WETLANDS (TOP 3 ALTERNATIVES SHADED IN GREY)

COUNT	ID	Project Name	Parish	RRP Region
1	225	Edward Wisner Marsh Creation	Lafourche	2
2	233	Wetland Creation-Parishwide | West Bank	St James	2
3	245	Bay Champagne Marsh Creation | North Rim	Lafourche	2
4	246	Martin Shoreline Protection and Marsh Creation	Lafourche	2
5	272	Delta-Breton NWR Main Pass Crevasse Splay	Plaquemines	2
6	320	Clovelly	Lafourche	2
7	323	Restoring a Small Island in Barataria Bay: Providing Habitat for Nesting Birds	Plaquemines	2
8	380	Long Distance Sediment Pipeline - Phase 1 and 2 (BA-0043)	Jefferson, Plaquemines	2
9	480	LL&E South Lafourche Marsh Restoration and Levee Protection	Lafourche	2
10	752	Mississippi River long distance sediment pipeline/marsh creation - NRDA increment	Plaquemines	2
11	810	Protection, Establishment, and Restoration of Bird Nesting Islands and Colonies - Queen Bess Island (BA-0202)	Jefferson	2
12	811	Barataria Basin Ridge and Marsh Creation Project: Spanish Pass Increment (BA-0203)	Plaquemines	2

COUNT	ID	Project Name	Parish	RRP Region
13	813	Caminada Headlands Back Barrier Marsh Creation Increment 2 (BA-0193)	Lafourche, Jefferson	2
14	814	East Leeville Marsh Creation and Nourishment (BA-0194)	Lafourche	2
15	815	Barataria Bay Rim Marsh Creation and Nourishment (BA-0195)	Jefferson, Plaquemines	2
16	816	LaBranche East Marsh Creation (PO-0075)	St Charles	2
17	817	LaBranche Central Marsh Creation (PO-0133)	St Charles	2
18	822	North Catfish Lake Marsh Creation (TE-0112)	Lafourche	2
19	826	Caminada Headlands Back Barrier Marsh Creation (BA-0171)	Lafourche	2
20	827	Bayou Grand Cheniere Marsh and Ridge Restoration (BA-0173)	Plaquemines	2
21	828	Terracing and Marsh Creation South of Big Mar (BS-0024)	Plaquemines	2
22	493	PPL20 - Lake Lery Marsh Restoration	St Bernard	1, 2
23	484	Twin Pipeline Canal Ridge Restoration and Fringe Marsh Creation	Lafourche, Terrebonne	2, 3
24	229	Wetland Creation-Parishwide | East Bank	St James	1
25	373	La Branche East Marsh Creation (PO-0075)	St Charles	1

COUNT	ID	Project Name	Parish	RRP Region
26	501	Lake Pontchartrain Shoreline Restoration - Little Woods area	Jefferson, Orleans, St Tammany,	1
27	502	Lake Pontchartrain Shoreline Restoration - South Shore	Jefferson, Orleans, St Tammany,	1
28	803	Tchefuncte River Lighthouse Habitat Restoration & Shoreline Protection	St Tammany	1
29	818	New Orleans Landbridge Shoreline Stabilization and Marsh Creation (PO-0169)	Orleans	1
30	819	Fritchie Marsh Terracing and Marsh Creation (PO-0173)	St Tammany	1
31	820	Bayou La Loutre Ridge Restoration and Marsh Creation (PO-0178)	St Bernard	1
32	821	St. Catherine Island Marsh Creation and Shoreline Protection (PO-179)	Orleans	1
33	829	Shell Beach South Marsh Creation (PO-0168)	St Bernard	1
34	80	Plug Canals along East Bank of Bayou Terrebonne	Terrebonne	3
35	326	Atchafalaya Long Distance Sediment Pipeline (AT-0015)	Terrebonne	3
36	350	Central Terrebonne Freshwater Enhancement (TE-0066)	Terrebonne	3
37	418	Terrebonne Bay Marsh Creation and Nourishment (TE-0083)	Terrebonne	3
38	475	Timbalier Bay Abandoned Canal Hurricane Protection	Lafourche, Terrebonne	3

COUNT	ID	Project Name	Parish	RRP Region
39	560	Marsh Restoration Project at Point Au Fer	Terrebonne	3
40	809	Protection, Establishment, and Restoration of Bird Nesting Islands and Colonies - Wax Lake Delta	Terrebonne	3
41	812	LCA BUDMAT HNC Marsh Creation (Fill Area 1)	Terrebonne	3
42	823	Island Road Marsh Creation and Nourishment (TE-0117)	Terrebonne	3
43	824	West Fourchon Marsh Creation (TE-0134)	Lafourche	3
44	825	Bayou DeCade Ridge and Marsh Creation (TE-0138)	Terrebonne	3
45	830	South Lake DeCade Freshwater Introduction (TE-0039)	Terrebonne	3
46	831	Lost Lake Marsh Creation NRDA Increment	Terrebonne	3

APPENDIX B: COMPLIANCE WITH KEY STATUTES, REGULATIONS, AND POLICIES

Oil Pollution Act of 1990, 33 U.S.C. §§ 2701, ***et seq***., and OPA Regulations, 15 C.F.R. Part 990

OPA establishes a liability regime for oil spills that injure or are likely to injure natural resources and/or the services that those resources provide to the ecosystem or humans. OPA provides a framework for conducting sound natural resource damage assessments that achieve restoration. The process emphasizes both public involvement and participation by the responsible parties. The Trustees have conducted this assessment in accordance with the OPA and OSPRA regulations.

Coastal Zone Management Act (CZMA), 16 U.S.C. §§ 1451, ***et seq***., and CZMA Regulations, 15 C.F.R. Part 923

The goal of the CZMA is to preserve, protect, develop and, where possible, restore and enhance the nation's coastal resources. The federal government provides grants to states with federally approved coastal management programs. Section 1456 of the CZMA requires that any federal action inside or outside of the coastal zone shall be consistent, to the maximum extent practicable, with the enforceable policies of approved state management programs. No federal license or permit may be granted without giving the state the opportunity to concur that the project is consistent with the state's coastal policies. The regulations outline the consistency procedures that will be followed by the Trustees. The Trustees believe that the restoration projects selected for implementation will be consistent with the Louisiana CZMA program, and will seek concurrence from the state.

Clean Water Act (CWA), 33 U.S.C. §§ 1251, ***et seq***.

The CWA is the principal law governing pollution control and water quality of the nation's waterways. Section 404 of the law authorizes a permit program for the beneficial uses of dredged or fill material in navigable waters. The United States Army Corps of Engineers (USACE) administers the program. In general, restoration projects, which move significant amounts of material into or out of waters or wetlands—for example, hydrologic restoration or creation of tidal marshes—require 404 permits. Under section 401 of the CWA, restoration projects that involve discharge or fill to wetlands or navigable waters must obtain certification of compliance with state water quality standards. All necessary 404 permits will be obtained for the selected project.

Coastal Wetlands Planning, Protection and Restoration Act of 1990 (CWPPRA), 16 U.S.C. §§ 3951, ***et seq***.

Through implementation of this Act, the federal government funds wetland enhancement projects nationwide, with approximately $50 million appropriated for restoration activities in Louisiana alone. A task force initiated under the authority of CWPPRA annually develops a list of high-priority projects for

implementation. The projects targeted by CWPPRA focus on marsh creation, wetland restoration, and various other modes of protection and enhancement of these valuable resources. The Trustees hope to be able to partner with the task force by contributing funding to appropriate restoration projects that meet both the CWPPRA and OPA mandates.

Louisiana Oil Spill Prevention and Response Act (OSPRA) (La. Rev. Stat. § 30:2451 *et seq.*)
Louisiana's OSPRA established LOSCO, created the position of Oil Spill Coordinator as the state's lead administrator on oil spill matters, and charged that office with the authority to assess natural resources damages. Louisiana's OSPRA also designated the state natural resource trustees as LDEQ, LDNR, and LDWF. These agencies are jointly responsible for assessing injuries to natural resources and services resulting from unauthorized discharges of oil, and ensuring that the public is made whole for the losses of natural resources and services through the restoration, replacement, or acquisition of the equivalent of the injured resources. The Trustees have conducted this assessment in accordance with the OPA and OSPRA regulations.

Management of State Lands (La. Rev. Stat. § 41:1701.1 *et seq.)*
This statute provides authority for the management of state lands to LDNR and Louisiana State Land Office (LSLO). This statute creates provisions regarding permitting, land reclamation, and usage of land and water bottoms belonging to the state. The Trustees will coordinate with these agencies as necessary regarding the construction of the selected project on state owned lands and water bottoms.

Archaeological Finds on State Lands (La. Rev. Stat. § 41:1605)
This statute provides for the permitting of all activities that fall within sites of archaeological importance on state lands. No activity shall commence within these sites without obtaining a permit from the Louisiana Department of Culture, Recreation, and Tourism. The Trustees will ensure permits are obtained where required.

Coastal Wetlands Conservation and Restoration Authority (La. Rev. Stat. § 49:213.1 *et seq.*)
This statute establishes the restoration authority, which is comprised of state agency leaders and is located within the Office of the Governor. Their main purpose is to govern the state's Wetlands Trust Fund, as well as provide direction and development of the state's Coastal Vegetated Wetlands Conservation and Restoration Plan. The Trustees will coordinate with the authority on matters regarding coastal restoration priorities, and will plan restoration activities consistent with the state's overall strategies.

Coastal Wetlands Conservation and Restoration Plan (La. Rev. Stat. § 49:213.6)
The above-mentioned authority is tasked on an annual basis to develop a plan that serves as the state's overall strategy for conducting coastal restoration activities and management of restoration projects. This plan specifies the funding requirements of that year in regards to the state's Wetlands Trust Fund. The plan is presented to the public and, ultimately, the legislative natural resources committees for approval. The Trustees will review the plan to ensure the selected project is consistent with the state's overall planning strategies.

Louisiana Coastal Wetlands Conservation and Restoration Act (La. Rev. Stat. § 49: 214.1 *et seq*.)
This act establishes the Wetland Conservation and Restoration Program. The program is to be implemented in accordance with the Coastal Wetlands Conservation and Restoration Plan developed by the Coastal Wetlands Conservation and Restoration Authority. The Trustees will coordinate with the Coastal Restoration Division of LDNR on matters regarding coastal restoration, and will plan restoration activities consistent with the State's overall strategies.

Governor's Advisory Commission on Coastal Restoration and Conservation (La. Rev. Stat. § 49:214.11 *et seq*.)
This provides for the creation of an advisory committee to provide input for developing restoration strategies. The commission represents a broad range of people and groups that are critical to the efforts of coastal restoration. The Trustees will coordinate with this commission in so that restoration planning will complement the commission's efforts.

Louisiana State and Local Coastal Resources Management Act (SLCRMA) (La. Rev. Stat. § 49:214.21 *et seq*.)
The purpose of this Act is to protect, develop, and, where feasible, restore or enhance the resources of the state's coastal zone. Under SLCRMA, the Office of Coastal Management (OCM) of LDNR is charged with implementing the Louisiana Coastal Resources Program (LCRP). The LCRP strives to balance conservation and resource use, aids in resolving user conflicts, encourages coastal zone recreational value, and determines the future course of coastal development and conservation. The statutes below are of particular interest to project planning and construction within the coastal zone.

- **Special Areas, Projects, and Programs (La. Rev. Stat. § 49:214.29)**
  Special areas are designations by LDNR that have unique or valuable characteristics requiring special management practices. Special areas may include beaches, barrier islands, shell deposits, salt domes, or other geological areas of interest both to coastal habitat and infrastructure. The LDNR may set priorities to these areas, specifically for funding available under section 308 of the federal CZMA (P.L. 92-583 as amended by P.L. 94-370). The Trustees will, to the maximum extent practicable, identify these sites for special consideration as they may pertain to the selected project.

- **Coastal Use Permit (CUP) (La. Rev. Stat.** § **49:214.30)**
  This statute stipulates that no entity shall commence a coastal use of state or local concern without acquiring a CUP through the LDNR/OCM. Parishes with an approved local program under La. Rev. Stat. § 49:214.28 can permit coastal activities of local concern. State permitting authority is still retained over uses of state concern in the coastal zone. The permit process is a means to ensure that project activities, especially dredging and filling, are done in accordance with the LCRP. Like most permits, the CUP provides for a public comment period and a public hearing. The Trustees will ensure that proper actions are taken to obtain a CUP for the selected project.

- **Consistency Determination (La. Rev. Stat.** § **49:214.32)**
  This statute provides for the regulation of projects constructed within the coastal zone to be consistent with guidelines established under the CZMA (16 U.S.C. § 1451 et seq.) and SLCRMA (La. Rev. Stat. § 49:214 et seq.). Consistency determinations are provided by LDNR/OCM. The Trustees will ensure that no restoration project moves forward without a favorable consistency determination, and complies with approved federal, state, and local coastal zone programs.

Title 56 (La. Rev. Stat. 56)
This title outlines the duties and authorities of LDWF. In addition, the Wildlife and Fisheries Commission is created within the Executive Branch, and is responsible for determining policy and rules governing the wildlife and fisheries populations throughout the state.

- **Fish Restoration and Management Projects (La. Rev. Stat.** § **56:25)**
  This statute provides that the state adhere to the provisions of 16 U.S.C. § 777 et seq., which requires the federal government to aid states in fish restoration and management projects. Furthermore, the Louisiana Wildlife and Fisheries Commission is authorized, empowered, and directed to perform such acts as may be necessary to conduct fish restoration projects as defined and stipulated by the Act. The Trustees will conduct restoration planning in accordance with this Act.

- **Civil Penalties for Restitution of Value of Wildlife and Aquatic Life (La. Rev. Stat. § 56:40 et seq.)**
  This statute provides that LDWF may impose penalties on parties responsible for injury to, or unlawful capture of, wildlife and aquatic life. Furthermore, the Louisiana Wildlife and Fisheries Commission shall create procedures for determining the value of said injuries. The Trustees will ensure, to the greatest extent practicable, that selected restoration projects do not inflict injury on surrounding wildlife and aquatic life.

- **Wildlife Management Areas (La. Rev. Stat.** § **56:109)**
  This statute provides that LDWF establish, manage, and regulate use of wildlife management areas, preserves, refuges, and sanctuaries. Commercial activities and project construction within these areas are allowed at the consent of the department. The Trustees will coordinate with the department regarding any project activities that may fall within these designated areas.

- **Oysters and Oyster Industry (La. Rev. Stat.** § **56:421 *et seq*.)**
  This section establishes the Oyster Task Force and regulations of the industry. In addition, this section establishes authority under LDWF to create a private leasing program within state water bottoms for the purpose of oyster cultivation. Lessee notification is required for any coastal activity located in close proximity to leased water bottom. The Trustees will coordinate with LDWF and/or private lessees regarding any part of the selected project that may impact private or public oyster grounds.

- **Management of Natural and Scenic River Systems (La. Rev. Stat. § 56:1841 et seq.)**
  This statute provides for the establishment of the Natural and Scenic Rivers System under the authority of LDWF. This system is administered for the purposes of preserving, protecting, developing, reclaiming, and enhancing the wilderness qualities, scenic beauties, and ecological diversity of certain free-flowing streams. This statute provides criteria for classifying a scenic river system, and calls for the creation of a management plan for each system. The LDWF is responsible for plan implementation, and for reviewing permit requests to determine consistency with management objectives. The Trustees will coordinate with LDWF in regards to project planning in the vicinity of designated scenic river systems.

- **Threatened or Endangered Species Conservation (La. Rev. Stat. § 56:1901 et seq.)**
  This section provides for LDWF to designate and conserve endangered or threatened species pursuant to the federal ESA (16 U.S.C. § 1531 et seq.). Species listed under this act are federally and state protected from unlawful sale, trade, or capture. Furthermore, the state has the authority to draft regulations regarding the permitting of such activities that may be harmful to listed species or their habitat. The Trustees will coordinate with LDWF regarding any part of the selected project that may impact endangered or threatened species.

Water Quality Control (La. Rev. Stat. § 30:2074 *et seq*.)
The LDEQ is provided, under this statute, the authority to manage and regulate discharges of waste materials and pollutants into any waters within the state. Furthermore, LDEQ provides water quality certifications for all activities involving discharge of fill material into state waters. This certification is required prior to

construction and is granted in accordance with section 404 of the federal CWA. Other water permits may be required for project construction depending upon the nature of the activity. The regulations governing the permitting process through LDEQ are provided under La. Admin. Code 33.I.1701. The Trustees will ensure that all appropriate permits are obtained prior to project construction.

Management of Archaeological and Historical Sites (La. Rev. Stat. § 1:375)
These regulations were created pursuant to La. Rev. Stat. § 41:1605 regarding the preservation of archaeological sites located on state lands. Permits are required prior to conducting any project activities located within these sites. The Trustees will seek such permits where required.

Louisiana Surface Water Quality Standards (La. Admin. Code 33.IX, Chapter 11)
These regulations establish standards used as the basis for implementing water quality programs, including the procedures that LDEQ follows regarding the permitting of wastewater discharge into state waters. Permitting procedures follow general permitting guidelines stated under La. Admin. Code 33.I.1701, and are pursuant to La. Rev. Stat. § 30:2074 ***et seq.*** The Trustees will ensure that all appropriate permits are obtained prior to project construction.

Coastal Management Regulations (La. Admin. Code 43:I Chapter 7)
Pursuant to SLCRMA (La. Rev. Stat. § 49:214.21 ***et seq.***), the LCRP regulations provide specific coastal use guidelines, rules, and procedures for CUPs and mitigation, regulations for development, approval, and consistency review of local coastal programs, and procedures for the designation, utilization, and management of special areas. The Trustees will ensure that these state provisions are adhered to and that the appropriate permits and determinations are acquired.

Oyster Lease Relocation Program (La. Admin. Code 43:I, 850-859, Subchapter B).
The purpose of this Program is to reduce conflict between public coastal restoration projects and private oyster leases that may be impacted by the projects. The Program is voluntary and establishes four options from which the lessee may choose. A matrix determines relocation costs and the lease is reverted back to the state. The Trustees will investigate these regulations for its pertinence to the selected project, and will consider any conflicts that may arise with private oyster leases as a result of the selected project.

APPENDIX C: LIST OF ACRONYMS AND ABBREVIATIONS

AR	Administrative Record
C.F.R.	Code of Federal Regulations
CPRA	Coastal Protection and Restoration Authority
CUP	Coastal Use Permit
CWA	Clean Water Act
CWPPRA	Coastal Wetlands Planning, Protection, and Restoration Act
CZMA	Coastal Zone Management Act
DAPRP	Damage Assessment and Preliminary Restoration Plan
DRP	Draft Restoration Plan
DSAYs	Discounted Service Acre Years
EA	Environmental Assessment
E&D	Engineering and Design
EFH	Essential Fish Habitat
ESA	Endangered Species Act
FONSI	Finding of No Significant Impact
HEA	Habitat Equivalency Analysis
HNC	Houma Navigation Canal
La. Admin. Code	Louisiana Administrative Code
La. Rev. Stat.	Louisiana Revised Statute
LCRP	Louisiana Coastal Resources Program
LDEQ	Louisiana Department of Environmental Quality
LDNR	Louisiana Department of Natural Resources
LDWF	Louisiana Department of Wildlife and Fisheries
LOSCO	Louisiana Oil Spill Coordinator's Office/Department of Public Safety and Corrections
LSLO	Louisiana State Land Office
NOAA	National Oceanic and Atmospheric Administration
NRDA	Natural Resource Damage Assessment
OCM	Office of Coastal Management
OPA	Oil Pollution Act
OSPRA	Oil Spill Prevention and Response Act
RP	Responsible Party
RRP Program	Regional Restoration Planning Program
SLCRMA	State and Local Coastal Resources Management Act
USACE	United States Army Corps of Engineers

U.S.C.	United States Code
USFWS	United States Fish and Wildlife Service