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])

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

March 2021

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1.0 INTRODUCTION

1.1 Purpose and Need for Restoration

This Draft Restoration Plan (DRP) has been prepared by natural resource trustees for the State of Louisiana (referred to herein as "Trustees") to address injuries to natural resources[1] and services[2] resulting from an unauthorized discharge of crude oil into Lake Washington, Plaquemines Parish, Louisiana on March 2, 2003 (hereafter referred to as "Incident" or "Lake Washington Incident"). The discharge occurred from a pipeline owned and operated by ExxonMobil Pipeline Company (EMPCo). The purpose of the Trustees' proposed restoration action, as outlined in this DRP, is to make the public whole for injuries to natural resources and services resulting from the Incident by returning them to "baseline" condition (i.e., the condition that would have existed but for the spill) and compensating for interim losses of ecological services. This Trustee action is consistent with the Oil Pollution Act of 1990 (OPA) (33 U.S.C. 2701 et seq.) and it's implementing regulations (15 C.F.R. Part 990).

The goal of Natural Resource Damage Assessment (NRDA) under OPA and the Louisiana Oil Spill Prevention and Response Act of 1991 (OSPRA) is to restore, rehabilitate, replace and/or acquire the equivalent of the injured resources and services. This document is part of the NRDA process being performed pursuant to OPA and OSPRA by Trustees for the Incident, which include the Louisiana Oil Spill Coordinator's Office, Department of Public Safety (LOSCO); the Louisiana Department of Environmental Quality (LDEQ); the Louisiana Department of Natural Resources (LDNR); the Louisiana Department of Wildlife and Fisheries (LDWF); and the Coastal Protection and Restoration Authority of Louisiana (CPRA). This DRP is being issued to inform the public concerning the Trustees' authorities and responsibilities under the OPA and OSPRA and to solicit public comments on a proposed plan to restore natural resources injured by the Incident. An evaluation of potential restoration alternatives that would restore for injuries to lesser scaup (*Aythya affinis*) and compensate the public for lost interim services is presented. The Trustees propose a *Preferred Alternative* involving the creation of crevasse-splay marsh habitat in the State of Louisiana's Pass-A-Loutre Wildlife Management Area (PALWMA), located in the Mississippi River Bird's Foot Delta.

The proposed *Preferred Alternative* would be funded using a portion of the settlement funds from the LWMIWCB Incidents (defined below in section 1.2)

[1] Natural resources are defined under the Oil Pollution Act as "land, fish, wildlife, biota, air, water, ground water, drinking water supplies, and other such resources belonging to, managed by, held in trust by, appertaining to, or otherwise controlled by the United States, any State or local government or Indian tribe, or any foreign government."

[2] Services (or natural resources services) means the functions performed by a natural resource for the benefit of another natural resource and/or the public.

specified in section 5.3 of the Final Damage Assessment and Preliminary Restoration Plan (Final DAPRP)[3] (Trustees 2017). The Trustees invite the public to review this DRP and submit comments to the address listed in section 1.8 of this document. This DRP is available for a 30-day comment period, which will begin on the date of the public notice announcing its availability. After the public comment period has ended, the Trustees will consider and respond, if applicable, to all public comments in the Final Restoration Plan (FRP). 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 public comments.

1.2 Background

EMPCo was identified as the responsible party (RP) for three unauthorized crude oil discharges: 1) Lake Washington, Plaquemines Parish, Louisiana on March 2, 2003; 2) Mendicant Island on December 2, 2003; and 3) West Champagne Bay on April 19, 2005 (collectively referred to herein as the LWMIWCB Incidents). The Trustees and EMPCo worked cooperatively to assess the extent of natural resource injuries resulting from each incident. The Trustees concluded that the LWMIWCB Incidents caused injuries to salt marsh habitat (including tidally exposed mudflats and lesser scaup (*Aythya affinis)* for the Lake Washington Incident) and various other birds.[4] EMPCo and the Trustees agreed to combine the NRDAs 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 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 LWMIWCB Incidents. In October 2016, the Trustees and EMPCo agreed to settle the NRDA damage claim for $2,014,500.00 in cash. The settlement was predicated on two Trustee-implemented compensatory restoration projects as well as future Trustee implementation costs. In July 2017, the Trustees released a Draft DAPRP for public comment.[5] The DAPRP, incorporated herein by reference, presented

[3] The Final DAPRP is Attachment 1 of the Final Settlement Agreement. The Final Settlement Agreement and other documents associated with this DRP are available as part of the Administrative Record for the combined LWMIWCB NRDA, which can be found at https://data.losco.org.

[4] A Notice of Intent to Conduct Restoration Planning was published by the Trustees 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.

[5] A Notice of Availability of the Draft DAPRP and Settlement Agreement was published by the Trustees in the July 2017 *Louisiana Register* (Vol. 43, No. 07, pp. 1487-1488).

injury assessment methods employed by the Trustees to quantify natural resource injuries resulting from the LWMIWCB Incidents, identified a preferred alternative to address natural resource injuries, and estimated costs associated with implementing the preferred alternative to be paid by EMPCo in settlement of the damage claim. No comments were received. In October 2017, the Trustees executed a Settlement Agreement and finalized the DAPRP. The preferred alternative involved implementing two separate compensatory restoration projects using funds received as part of the settlement for the LWMIWCB Incidents. One project would create brackish marsh habitat for injuries to salt marsh, mudflats, and associated birds and was implemented in 2018.[6] A second project (which is the focus of this document) would create crevasse-splay marsh habitat to compensate for injuries to lesser scaup (*Aythya affinis)* from the Lake Washington Incident.

1.3 Overview of the Lake Washington Incident

On March 2, 2003, an unauthorized discharge of crude oil was reported involving a subsurface pipeline owned and operated by EMPCo. The release occurred in the vicinity of Lake Washington, which is located in the Barataria estuary, approximately eight miles south-southwest of Port Sulphur, Louisiana (Figure 1). An estimated 995 barrels (41,790 gallons) of crude oil were released into the surrounding coastal waters. Due to the presence of large numbers of migrating waterfowl in the area at the time of the Incident, bird hazing cannons were deployed (March 4, 2003) in various locations as one means to deter birds from accessing oiled areas. Response activities also served to deter birds and other wildlife from areas where clean-up operations were being conducted. The discharge exposed estuarine habitats as well as birds and other wildlife to crude oil.

1.4 NRDA Authority and Legal Requirements

The Oil Pollution Act (OPA) (33 U.S.C. §§ 2701 *et seq*.) and Louisiana's Oil Spill Prevention and Response Act (OSPRA) (LRS §§ 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 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. Federal trustees are designated pursuant to the National Contingency Plan (NCP) (40 C.F.R. §300.600) and Section 1006(b) of OPA (42 U.S.C. §2706(b)) and Executive Order 12777. State trustees for Louisiana are designated by the Governor of Louisiana pursuant to

[6] A Final Restoration Plan (FRP) for the Lost Lake Marsh Creation – NRDA Increment project was released to the public in February 2018.

Figure 1. Location of the LWMIWCB Incidents, including the Lake Washington Incident.

the NCP (40 C.F.R. §300.605) and OSPRA (LRS 30:2451 et seq.), and include LOSCO, LDEQ, LDNR, LDWF, and CPRA.[7]

[7] CPRA was designated a Louisiana trustee in May 2010.

1.5 Coordination with Responsible Party

Pursuant to OPA and OSPRA, EMPCo was identified as the RP and is liable for natural resource damages (i.e., the costs of conducting the natural resource damage assessment and implementing the restoration plan) for each of the three incidents. By its participation in the development of the Final DAPRP and entering into any subsequent settlement with the Trustees, EMPCo neither admitted nor denied such liability. OPA and OSPRA regulations direct the Trustees to invite the RP to participate in the NRDA process and under the LRS 30:2480(6)(c), the Lead Administrative Trustee (LAT) is directed to promote participation with the RP in all stages of the NRDA. Although the RP may contribute to the process in many ways, final authority to make determinations regarding injury and restoration rests solely with the Trustees. Accordingly, the Trustees delivered formal invitations to EMPCo to participate in cooperative NRDAs for the incidents and EMPCo formally accepted the Trustees' invitations as follows:

Lake Washington Incident
Invitation sent: June 6, 2003
Invitation accepted: July 7, 2003

Mendicant Island Incident
Invitation sent: December 15, 2004
Invitation accepted: January 7, 2005

West Champagne Bay Incident
Invitation sent: July 28, 2005
Invitation accepted: August 3, 2005

On January 17, 2006, Trustees and EMPCo agreed to combine the NRDAs for the three incidents into one collective NRDA and settlement. The Trustees and EMPCo preferred a joint settlement because of the inherent cost efficiencies associated with conducting one restoration planning effort versus three efforts. EMPCo stated its desire in each of its letters accepting the Trustees' invitations to participate cooperatively in NRDA. Further they agreed that the assessments should be conducted expeditiously and efficiently in order to focus the resources on expenditures and activities that provide maximum direct benefit to the environment. Prior to this formal invitation and acceptance, the Trustees and EMPCo had already begun to work cooperatively to identify and quantify natural resource injuries resulting from the incidents. The National Oceanic and

Atmospheric Administration (NOAA) and U.S. Fish and Wildlife Service (USFWS) were also involved in the early stages of the case.[8]

1.6 Summary of Natural Resource Injuries

The Trustees and EMPCo worked cooperatively to assess the extent of natural resource injuries resulting from the LWMIWCB Incidents. The Trustees and EMPCo used information collected during emergency response, as well as ground and aerial photography, field survey data, field observations, and published literature to quantify the injury. A similar approach to injury assessment was followed at all three incident sites because habitats and type of injuries were similar. Based on this information, the Trustees determined that the LWMIWCB Incidents caused injuries to salt marsh habitat (including tidally exposed mudflats and lesser scaup (*Aythya affinis*) for the Lake Washington Incident) and various other birds. For the Lake Washington Incident specifically, it was estimated that 259.2 acres of habitat had been exposed to oil, including 37.3 acres of benthic (mudflat) habitat. Although the Trustees and EMPCo did document and collect 25 bird carcasses following the unauthorized discharge, the Trustees did not observe or receive reports of oiled wildlife (other than birds) or fish kills that may have been related to the Incident. The Trustees and EMPCo agreed that 23 lesser scaup (*Aythya affinis)* were oiled and died as a result of the Lake Washington Incident. A more detailed description of the injury assessment is provided in Chapter 4 of the Final DAPRP.

1.7 Overview of Alternatives Analysis and Preferred Alternative

In the Final DAPRP, the Trustees' selected a preferred alternative which consisted of two Trustee-implemented compensatory restoration projects to compensate the public for injuries to natural resources and services resulting from the LWMIWCB Incidents. As mentioned previously, the first compensatory restoration project was implemented in 2018 to address the Mendicant Island and West Champagne Bay incidents, and habitat injury for the Lake Washington Incident (the Incident for this DRP). To address the lesser scaup (*Aythya affinis)* injury, the second compensatory restoration project would create approximately eight acres of crevasse-splay marsh habitat in the vicinity of the Incident (i.e., Region 2)[9]. The Final DAPRP took an initial step in identifying restoration (at the restoration type level) that would address injuries to natural resources resulting from the Incident. The purpose of this DRP is to present the Trustees' next and final step in that process, which involves evaluating (at the project level) specific crevasse-splay projects currently available for implementation in Region 2, and

[8] The following federal agencies are designated natural resource trustees under OPA: 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.

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

proposing a *Preferred Alternative* for providing compensatory restoration for injuries to lesser scaup (*Aythya affinis)*. A total of five crevasse-splay projects were analyzed as part of the alternatives analysis. Chapter 2 provides the Trustees' analysis and selection of a proposed *Preferred Alternative* to create at least 8.2 acres of crevasse-splay marsh habitat by implementing the *South Pass Crevasse Cleanout and Spur* project within the State of Louisiana's PALWMA located on the Mississippi River delta.[10] This alternative: 1) has a strong nexus to the injured trust resources; 2) is the most cost effective of the alternatives considered; 3) is a restoration technique that has a high likelihood of success; and 4) is consistent with Louisiana's Comprehensive Master Plan for a Sustainable Coast (CPRA 2017).

1.8 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 LAC 43: Part XXIX, Chapter 1. After the 30-day public comment period, the Trustees will evaluate all comments received from the public and address 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 DRP should be sent to:

Attn: Charles K. 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

1.9 Administrative Record

The Trustees have maintained an Administrative Record (AR) for the LWMIWCB Incidents to document the information considered by the Trustees as they

[10] Settlement monies received from EMPCo as part of a negotiated settlement would be used to fund the project (see section IV.B.2 of the Settlement Agreement).

developed the Final DAPRP and this DRP. Additional information and documents, including public comments received on the DRP and other related restoration planning documents, are also part of the AR. These records are compiled in the AR, which is available to the public online at https://data.losco.org/, as well as at the address listed above for the Louisiana Oil Spill Coordinator's Office. This AR facilitates public participation in the restoration planning process and will be available for use in future administrative or judicial review of Trustee actions to the extent provided by federal or state law.

2.0 RESTORATION ALTERNATIVES

The goal of restoration under OPA and OSPRA is to compensate the public for injuries to natural resources and services resulting from an oil spill. This goal is achieved through the return of injured natural resources and services to baseline conditions and compensation for interim losses from the date of the incident until recovery. To fulfill this purpose, this section presents the Trustees' evaluation of potential alternatives that would restore natural resources and services injured by the Incident and proposes a preferred alternative.

2.1 Developing Restoration Alternatives

Both OPA and OSPRA require trustees to develop and evaluate a reasonable range of restoration alternatives before selecting a preferred alternative. Each alternative must be designed so that, as one or a suite of actions, the preferred alternative would make the environment and public whole for injuries to natural resources and services resulting from the Incident. To assist in carrying out their NRDA responsibilities, Federal and Louisiana natural resource trustees established the Regional Restoration Planning (RRP) Program[11] to address incidents under OPA and OSPRA and streamline the process of evaluating restoration alternatives and identifying a preferred alternative. As part of the process of identifying and evaluating a reasonable range of alternatives, trustees utilize a nexus analysis described in detail in section 4.2.4.1 of the RRP Program Final Programmatic Impact Statement (FPEIS) and summarized in Table 1 of this document. Specifically, the nexus analysis helps to identify appropriate restoration types[12] for restoring injured resources and services for a given incident in Louisiana. Next, trustees use *Restoration Type Selection Criteria*, as described in section 4.2.4.1.5 of the Louisiana RRP Program FPEIS (NOAA et al., 2007), to identify appropriate restoration types for a given incident. These

[11] Federal and Louisiana natural resource trustees developed the statewide RRP Program to assist the natural resource trustees in carrying out their NRDA responsibilities for discharges or substantial threats of discharges of oil. The goals of this statewide Louisiana RRP Program are to: 1) expedite and reduce the cost of the NRDA process; 2) provide for consistency and predictability by describing in detail the NRDA process, thereby increasing understanding of the process by the public and industry; and 3) increase restoration of lost trust resources and services. Attainment of these goals will serve to make the NRDA process as a whole more efficient in Louisiana.

[12] 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).

Table 1. RRP Program Nexus Analysis showing Coastal Restoration Types by Potentially Injured Trust Resources and Services (appropriate restoration types for a given natural resource injury category are marked with a √).

COASTAL			POTENTIALLY INJURED TRUST RESOURCES AND SERVICES								
			Herbaceous Wetlands	Forested Wetlands	Beaches/Shorelines/ Streambeds	Oyster Reefs (and Other Reefs)	Water Column Org.	Birds	Wildlife	Recreation	Cultural
RESTORATION TYPES	Creation/ Enhancement of Habitat	Coastal Herbaceous Wetlands	√	√		√	√	√	√	√	
		Coastal Forested Wetlands	√	√			√	√	√	√	
		Coastal Beaches/Shorelines/Streambeds			√		√	√	√	√	
		Coastal Oyster Reefs (and Other Reefs)				√	√	√	√	√	
		Coastal SAV	√			√	√	√	√	√	
	Physical Protection of Habitat	Coastal Herbaceous Wetlands	√	√		√	√	√	√	√	
		Coastal Forested Wetlands	√	√			√	√	√	√	
		Coastal Beaches/Shorelines/Streambeds			√		√	√	√	√	
	Acquisition/ Legal Protection of Habitat	Coastal Herbaceous Wetlands	√	√		√	√	√	√	√	
		Coastal Forested Wetlands	√	√			√	√	√	√	
		Coastal Beaches/Shorelines/Streambeds			√		√	√	√	√	
		Coastal Oyster Reefs (and Other Reefs)				√	√	√	√	√	
		Coastal SAV	√				√	√	√	√	
	Stocking of Fauna	Coastal Water Column Organisms					√			√	
		Coastal Oyster Reefs and Other Reef Organisms				√	√			√	
		Birds						√		√	
		Wildlife							√	√	
	Physical Protection of Fauna	Birds						√		√	
		Wildlife							√	√	
	Recreational Resource Services									√	
	Cultural Resource Services										√

restoration type selection criteria are based in part on the OPA regulations (15 CFR 990.54[a][1-6]) and include:

1. Strength of nexus
2. Scalability
3. Degree to which the restoration type addresses multiple injuries
4. Availability of projects for this restoration type in the RRP Program

For the Incident, the Trustees selected *Creation/Enhancement of Coastal Herbaceous Wetlands*[13] as the preferred restoration type for addressing injuries to lesser scaup (*Aythya affinis*) (see Final DAPRP). The Trustees also identified *creation of crevasse-splay marsh* (sediment diversion)[14] as the coastal restoration technique[15] for creating/enhancing coastal herbaceous wetlands. Because all restoration projects contained in the RRP Program project database are grouped by restoration type, technique and RRP region, the Trustees were able to quickly identify several restoration projects that matched the selected restoration type and technique for the injured resources in RRP region 2.[16] In total, the Trustees identified five crevasse-splay projects that were suitable to compensate the public for injuries to lesser scaup (*Aythya affinis*) resulting from the Incident (Table 2).

2.2 Evaluation of Potential Restoration Alternatives

Only those alternatives considered technically feasible and in accordance with applicable laws, regulations, and/or permits are moved forward for further consideration by trustees. Once trustees develop a reasonable range of restoration alternatives, they must evaluate the alternatives based on the criteria found in 15 C.F.R. §990.54 and listed below.

1. Cost to carry out each alternative;
2. Extent to which each alternative is expected to meet the Trustees' goals and objectives in returning the injured natural resources and their 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;
6. Effect of each alternative on public health and safety.

The Trustees for this Incident also used the following RRP Program specific criteria[17] to evaluate the restoration alternatives:

7. Ability to implement with minimal delay;

[13] 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).
[14] Sediment Diversions are described in section 4.2.5.1.8 of the Louisiana Regional Restoration Planning Program Final Programmatic Environmental Impact Statement (NOAA et al., 2007).
[15] Coastal Restoration Techniques are described in section 4.2.5.1 of the Louisiana Regional Restoration Planning Program Final Programmatic Environmental Impact Statement (NOAA et al., 2007).
[16] All of the projects in the RRP Program database were either submitted by or obtained from the public and government agencies.
[17] RRP Program specific criteria are described in section 4.2.4.2 of the Louisiana Regional Restoration Planning Program Final Programmatic Environmental Impact Statement (NOAA et al., 2007).

Table 2. Screening Results for Five Restoration Alternatives Evaluated (proposed *Preferred Alternative* based on OPA and RRP Program criteria is highlighted in grey).

RRP Region	Alternatives (ID)	OPA Criteria[18]						RRP Program Criteria[19]			Screening Results
		#1	#2	#3	#4	#5	#6	#7	#8	#9	
2	South Pass Crevasse Cleanout and Spur (RRP Project #872)	++	++	++	+	+	+	++	++	+	**Preferred Alternative**
	Deer Island Crevasse Splay (RRP Project #874)	+	++	++	+	+	+	++	+	0	Non-Preferred Alternative
	Dennis Pass Crevasse Splay (RRP Project #871)	+	++	++	+	+	+	++	+	0	Non-Preferred Alternative
	Joseph's Bayou Crevasse Splay (RRP Project #873)	+	++	++	+	+	+	++	+	0	Non-Preferred Alternative
	Delta NWR Crevasse and Terrace Project (RRP Project #869)	+	++	++	+	+	+	+	+	0	Non-Preferred Alternative

++ 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.

8. Degree to which the project supports existing strategies/plans;
9. Project urgency.

A summary of the Trustees' evaluation based on these criteria is provided in Table 2. As part of project screening, the Trustees also considered 1) stage of project development (e.g., status of engineering and design (E&D) and permitting); 2) extent to which the project 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) ability of the project to be integrated into an existing resource management program or larger project; and

[18] OPA criteria are listed at the beginning of section 2.2 of this document (15 C.F.R. § 990.54[a]).
[19] RRP Program specific criteria are listed at the beginning of section 2.2 of the document.

4) ability of the project to be added to another project already in development or under consideration (i.e. partnering).

2.2.1 No Action/Natural Recovery Alternative

OPA requires consideration of the "natural recovery" option[20]. Under this alternative, the Trustees would take no direct action to restore injured natural resources or compensate the public for interim losses of ecological services pending environmental recovery. Instead, the Trustees would rely on natural recovery of the injured natural resources. The principal advantages of this approach are ease of implementation and cost-effectiveness. This approach relies on the capacity of ecosystems to "self-heal" and, in this case, is appropriate for primary restoration.

The Trustees' assessment of natural resource injuries indicates that natural resource and service losses occurred as a result of the Incident. Actions undertaken during emergency response may facilitate recovery of injured natural resources sooner, but those actions would not compensate the public for interim losses of ecological services that would accrue over time as the resources recover. OPA provides that the public be compensated for such losses based on actions that restore, replace, or provide services equivalent to those lost. Such compensation serves to make the public and the environment whole. Under the no-action alternative, restoration actions to make the environment and public whole would not occur. This would be inconsistent with the goals of the natural resource damages provisions of OPA. As evidenced by the restoration alternatives identified in developing this DRP, there are feasible and appropriate opportunities within RRP Program Region 2 to restore, replace, or provide services equivalent to those lost due to the Incident. Thus, the No Action/Natural Recovery alternative was rejected by the Trustees on that basis.

2.2.2 South Pass Crevasse Cleanout and Spur (RRP Project #872)

The *South Pass Crevasse Cleanout and Spur* project involves the creation and enhancement of deltaic marsh in open water, including wintering habitat for lesser scaup (*Aythya affinis*). The project would become a component of the South Pass Bird Island Project (MR-172), which would concurrently create a colonial bird nesting island in East Bay on PALWMA in the Mississippi River Bird's Foot Delta utilizing sediment from a portion of two nearby crevasses (Figure 2). The MR-172 project is located in lower Plaquemines Parish, approximately 17 miles south-southeast of Venice, Louisiana. The *South Pass Crevasse Cleanout and Spur* project would be situated within the footprint of the MR-172 project along an existing crevasse channel (southern channel shown in Figure 2) that extends southwest from the west bank of South Pass and flows

[20] An evaluation of the No Action/Natural Recovery alternative was provided in the Final DAPRP and is provided again in this document for continuity.

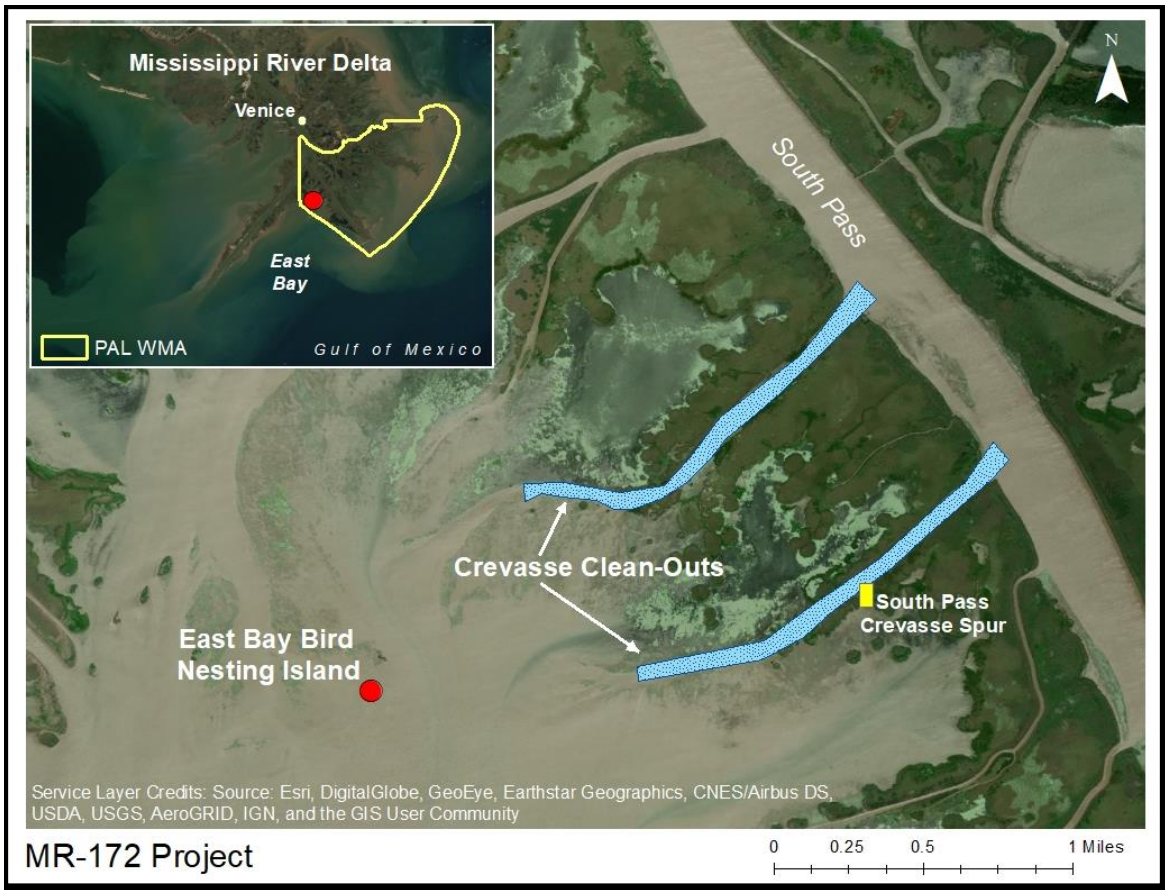

Figure 2. Location of the *South Pass Crevasse Cleanout and Spur* component of the *South Pass Bird Island Project (MR-172)*.

into East Bay. The *South Pass Crevasse Cleanout and Spur* project would involve dredging a portion of the channel (cleanout) and cutting a crevasse (spur) in its left descending bank. Dredge spoil would be beneficially used to enhance the bird island component of the MR-172 project. The cleanout of the crevasse channel would improve water flow and potentially increase sedimentation and splay marsh development in the outfall area farther down the channel in East Bay. The cut would allow riverine sediments to flow through the spur and into an open water receiving basin (outfall area) located just south of the cleanout channel. Suspended riverine sediments would subsequently be deposited and accumulate over time to form a crevasse-splay deltaic marsh complex in the outfall area. A mechanical dredge would be used to cleanout the existing crevasse. Marsh buggies would be used to create the spur, which would be approximately 660 feet long, 50 feet wide and excavated to a depth of -8.0 feet NAVD88 (Figure 3). The MR-172 project has a Section 404 Clean Water Act and Section 10 Rivers and Harbors Act permit (Permit No. MVN-2014-02578-MM) and a Coastal Zone Consistency conditional permit (Permit No. C20140219 MOD 02) pursuant to 15 CFR §930.4(a)(1). The *South Pass Crevasse Cleanout and*

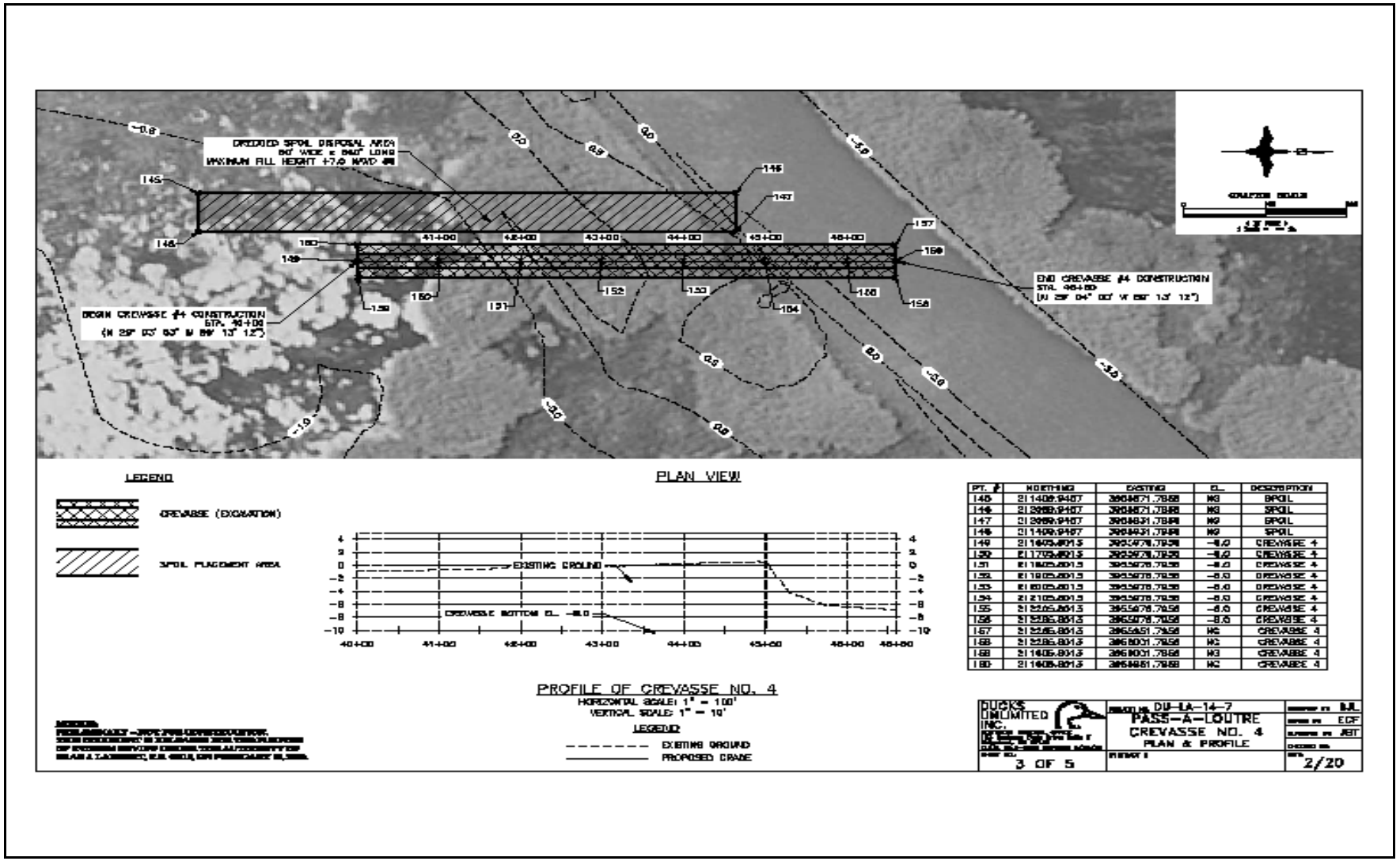

Figure 3. Plan and profile of crevasse excavation and spoil placement area.

Spur project has a Section 404 Clean Water Act and Section 10 Rivers and Harbors Act permit (Permit No. MVN-2018-01112-MM) and a Coastal Zone Consistency conditional permit (Permit No. C20180143) pursuant to 15 CFR §930.4(a)(1). Partners involved in the MR-172 project include: the NRDA Trustees for the Incident, NRDA trustees for the Glider incident (NRDA Case File #LA2016_0512_0630), LDWF, LDNR, and CPRA. The *South Pass Crevasse Cleanout and Spur* project would be funded using settlement funds previously received from the LWMIWCB Incidents. The Bird Nesting Island and crevasse cleanout component would be funded using settlement funds from the Glider incident, grant monies received from the USFWS's State and Tribal Wildlife Grants Program (SWG)[21], and funds from LDNR/Office of Coastal Management (LDNR/OCM) through the Beneficial Use Program[22]. CPRA is currently designing the project and would be primarily involved in project implementation.

Evaluation of Alternatives Based on OPA Criteria

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

After considering the cost to carry out each of the alternatives, the Trustees believe each of the alternatives could be constructed in a cost-effective manner. However, the Trustees expect the *South Pass Crevasse Cleanout and Spur* project to benefit from economies of scale, including substantial time and cost savings achieved through administrative, logistical, and construction efficiencies that would be achieved through partnerships with other ongoing restoration efforts. Because the project would be constructed concurrent with and in the immediate vicinity of the MR-172 project, funds can be leveraged to take advantage of mobilized equipment and personnel, thereby reducing costs of dredging and other activities associated with construction across both projects. Due to these partnering synergies, current estimates suggest that this project would be the most cost-effective alternative for creating marsh and habitat given typical costs associated with other marsh creation projects. The Trustees anticipate that these cost savings would allow for the creation of more acreage than is required for compensatory restoration. The additional benefits realized from the cleanout improving flow in the crevasse channel and spur, include promoting more sedimentation and marsh development in the outfall areas adjacent to the spur and farther down the crevasse cleanout channel in East Bay.

[21] The State and Tribal Wildlife Grants Program (SWG) provides federal funding to the states for conservation of nongame species and their habitat.

[22] The Beneficial Use Program funding consists of moneys collected from an application for a coastal use permit or a general permit authorization for an individual activity that involves 25,000 cubic yards or more of dredging when the primary purpose of the proposed dredging is to facilitate the movement or mooring of vessels. The LDNR/ Office of Coastal Management utilizes these funds by selecting projects that have all been thoroughly evaluated and piggy-backs on to approved restoration projects that are ready to be constructed but that may need additional funds to complete the project or may have additional areas for marsh creation.

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

Each alternative, to a similar extent, is expected to meet the Trustees' goals and objectives in returning the injured natural resources and services to baseline and compensating for interim losses. The objective of each of the alternatives is to create deltaic marsh in open water and wintering habitat for lesser scaup (*Aythya affinis*). The Lower Mississippi River Bird's Foot Delta provides both biological and geographic nexus to the injured resources, as well as favorable geomorphic conditions for wetland formation via a crevasse-splay that would restore lesser scaup wintering habitat and also benefit other natural resources and services associated with the creation of coastal marsh. The extensive loss of coastal marsh within the Lower Mississippi River over the last century has been extensively documented (Boyer et al. 1997; Cahoon et al. 2011). Numerous factors contributed to the loss of coastal marsh in the Lower Mississippi River, including, but not limited to, the reduction in sediment load from upstream dams, the construction of levees along the river that prevent sediment deposition during normal high water events, and soil subsidence. Constructed crevasses reverse this process by mimicking the historic and natural riverine processes of the Lower Mississippi River. During high river stages, riverine sediments are reintroduced to the adjacent receiving basin (outfall area) and form a splay over time. Emergent vegetation subsequently becomes established on the newly formed splay accelerating accretion and further contributing to the development of deltaic marsh habitats. By creating a crevasse-splay, the Trustees anticipate restoring deltaic marsh benefiting many of the aforementioned resources and species. Each of the alternatives is intended to provide a variety of habitats (e.g. emergent vegetation, submerged aquatic vegetation, tidal flats, shallow open water) that would be beneficial to wildlife and fishery resources that utilize the refuge, including wintering lesser scaup (*Aythya affinis*). The creation of a crevasse-splay would also enhance marsh habitat used by other birds. These benefits would be sufficient to compensate the public and the environment for birds injured during the Incident and provide both biological and geographic nexus to the injured resources.

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

It is highly likely that each alternative could be implemented successfully in a reasonable amount of time. The alternatives are technically feasible and utilize proven techniques with established methods and documented results. Dredging to create marsh in shallow open water areas via crevasse cuts and cleanouts has been successfully used as a cost-effective restoration technique in the Mississippi River and Atchafalaya River deltas for decades. Since CWPPRA was authorized in 1990, several crevasse cleanout and crevasse-splay projects have been authorized and constructed and continue to be authorized for construction. Also, trustees on previous NRDA cases have been successful in creating

crevasse-splay marsh habitat over relatively short periods of time. Over the past several decades, the USFWS has successfully implemented several crevasse-splay projects in the Delta National Wildlife Refuge. Because of these reasons, the Trustees believe all of the restoration alternatives have 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.*

Each alternative, to some extent, would cause collateral injury as a result of implementation but impacts would be *de minimis* and temporary. The proposed alternatives would involve the use of construction equipment such as mechanical dredges as well as marsh buggies to create a crevasse-splay in the Lower Mississippi River Bird's Foot Delta. The construction of a crevasse to create splay marsh habitat is modeled after natural fluvial geomorphic processes. Crevasse-splays are constructed with the intention of trapping suspended sediment within the splay, which would in turn increase the elevation to become suitable for the natural recruitment of marsh vegetation. The functional value of herbaceous wetlands (i.e. marsh) is well documented in the scientific literature to have a positive effect on water and sediment quality (e.g. increased water filtration and sediment suitable for a variety of benthic invertebrates), as well as improving the estuarine food web. Because of this natural process of creating marsh, the Trustees do not anticipate significant short-term or long-term adverse impacts associated with the construction or maintenance of a crevasse-splay. Dredging activities within any of the proposed restoration project action areas could result in temporary impacts to emergent herbaceous marsh vegetation (e.g. *Phragmites*), shallow open water areas, and water quality due to increases in turbidity during dredging.

Machinery and equipment used during construction of the crevasse-splay, for each of the alternatives, could temporarily disturb wildlife near the construction activity. Adverse impacts on mobile species (e.g., birds, mammals) are expected to be minor, consisting of short-term displacement. The proposed restoration project areas do not harbor extensive sea grass beds that may be used as foraging habitats for sea turtles, thus foraging habitat loss is not an expected impact. In order to ensure *de minimis* impacts, Best Management Practices (BMPs) would be implemented to minimize and avoid any potential impacts within the proposed restoration project action areas. Overall, the creation of a crevasse-splay would enhance the functionality of the ecosystem in the area impacted by the Incident by improving aquatic habitat, water quality and bird nesting and foraging habitats. There could be some short-term and localized negative impacts, though not significant.

Habitat improvements associated with the creation of a crevasse-splay in the Lower Mississippi River Bird's Foot Delta are also expected to have a short-term

adverse impact on recreation, namely fishing, in the near proximity of construction. Given the vast size of the Lower Mississippi River Bird's Foot Delta, the small size of the anticipated construction area, and ample fishing opportunities, the Trustees do not anticipate more than minor, temporary adverse impacts to recreation associated with the construction of the crevasse. There are no anticipated impacts to public access of the levees that would be breached during construction, as access to the levees is by boat only. Recreational fishing is expected to improve in the proximity of the crevasse-splay as the marsh forms and fisheries habitat is enhanced. Specifically, the marsh is expected to improve productivity and access for fish, both of which could beneficially impact recreation by enhancing recreational fishing opportunities.

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

Each alternative, to some extent, would provide multiple resource benefits and services if implemented. Crevasse-splay projects create herbaceous wetlands through the deposition of alluvial sediments. Emergent vegetation then forms on the splay and accelerates land accretion and marsh expansion. Each of the alternatives would provide valuable habitat and forage for a variety of fish and wildlife, including Essential Fish Habitat (EFH) that supports a diverse assemblage of estuarine-dependent fishes, shell-fishes, and other EFH species. Example fisheries species that would benefit from the crevasse-splay projects are red drum (*Sciaenops ocellatus*), blue crab (*Callinectes sapidus*), brown shrimp (*Farfantepenaeus aztecus*) and white shrimp (*Litopenaeus setiferus*). Overall, any of the alternatives would provide long-term beneficial impacts to wildlife and fisheries through creation and enhancement of their habitat and support an ecosystem that would benefit lesser scaup *(Aythya affinis*) wintering in Louisiana.

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

After considering the effects of each alternative on public health and safety, the Trustees do not believe any of the alternatives would adversely affect public health and safety. The alternatives are not controversial, nor do they have highly uncertain impacts or risks to public health and safety. Due to the remote locations of the alternatives in the Lower Mississippi River Bird's Foot Delta, machinery and equipment (e.g. hydraulic dredge, marsh buggies) used during construction could generate sound and air emissions that are unlikely to disturb humans near the construction activity. Construction noise would be localized and temporary. Air emissions from equipment and/or machinery may temporarily increase emissions in the immediate area, but such effects would be similar to emissions of nearby vehicle or boat traffic and would not result in an overall increase in air emissions. There may be temporary and localized adverse visual impacts during implementation of the proposed action associated with construction activities (e.g. sediment pipeline, dredging equipment). Once the

construction activities are completed, users of the area are expected to perceive the project areas as having improved aesthetics and recreational fishing opportunities. Based on these considerations the Trustees believe that the alternatives' effect on public health and safety would be temporary and *de minimis*.

Evaluation of Alternatives Based on RRP Program-Specific Criteria

Criterion #7: *Ability to implement with minimal delay*.

After considering each alternative, the Trustees believe that four of the five alternatives could be implemented with minimal delay. The Trustees considered the stage of development in their evaluation of each alternative. This involved determining the alternatives' status of E&D and permitting, as well as flexibility of implementation. Four alternatives were in the final stages of E&D and had received permits from the USACE and consistency determinations from the LDNR/OCM. The Delta NWR Crevasse and Terrace Project (RRP Project #869) has not yet received permits from the USACE or consistency determinations from the LDNR/OCM and so it is likely that this alternative would take a greater amount of time to be implemented. Each permitted alternative could likely be implemented in the near future if monies became available to fund implementation. Since the Trustees already have settlement monies to construct a project, any one of the permitted alternatives could be implemented with minimal delay.

Criterion #8: *Degree to which the project supports existing strategies/plans*.

After considering each alternative, the Trustees believe that all of the alternatives support existing strategies/plans. As part of their evaluation, the Trustees considered the extent to which a restoration project supports, or is consistent with, national, regional, and/or local restoration initiatives and mandates, local resource management plans, town ordinances, and/or the agendas of various community groups, including Louisiana's Comprehensive Master Plan for a Sustainable Coast (CPRA 2017). Given that crevasse-splays have been previously implemented in the Lower Mississippi River Bird's Foot Delta by several state and federal agencies for various purposes including, resource management, coastal restoration, and compensatory restoration for oil spills, all of the alternatives support existing strategies.

The Trustees also considered if the alternatives could stand-alone or be integrated into an existing resource management program or larger project through partnering. Restoration efforts that can be integrated may increase the environmental benefits of the existing program and realize significant administrative cost savings. However, although integration with other program efforts may be beneficial, the Trustees need to ensure that any constraints

imposed by those programs do not conflict with the Trustees' restoration goals under OPA.

The *South Pass Crevasse Cleanout and Spur* project had added advantages over the other alternatives. First, restoration at the MR-172 project was currently being planned in the area by LDWF and CPRA, and had already received a USACE permit and LDNR/OCM consistency determination. Second, by partnering with the Trustees, the MR-172 bird island component could be enhanced and made larger by beneficially using dredge material from the *South Pass Crevasse Cleanout and Spur* project. Third, by partnering with the MR-172 project, the Trustees' *South Pass Crevasse Cleanout and Spur* project would enable leveraging of funds to conduct a more extensive crevasse channel cleanout likely increasing ecological benefits to natural resources and services injured as a result of the Incident. Through partnering, both projects could proceed to final design and construction in 2021 with realized cost efficiencies, and would be in accordance with the Trustees' goals under OPA.

Criterion #9: *Project Urgency*

The Trustees considered the window of opportunity in which each alternative may be constructed. For example, the planned construction of a restoration project by another program or individual could be combined with an alternative under consideration. Since the MR-172 project is in late stage design and moving forward with anticipated construction in 2021, there is a closing window of opportunity for the Trustees to partner with the MR-172 implementing agencies and construct the *South Pass Crevasse Cleanout and Spur* project. None of the other alternatives had this level of urgency.

2.3 Preferred Alternative

Based on the analysis provided in section 2.2, the *South Pass Crevasse Cleanout and Spur* project is the Trustees' proposed *Preferred Alternative* for addressing natural resource injuries resulting from the Incident. This alternative would create at least 8.2 acres of deltaic marsh and wintering habitat for lesser scaup (*Aythya affinis*) in the PALWMA located in the Lower Mississippi River Bird's Foot Delta. The PALWMA provides both biological and geographic nexus to the injured resources, as well as favorable geomorphic conditions for wetland formation via a crevasse-splay. The Trustees believe the project would benefit multiple natural resources and services and make the public whole for injuries resulting from the Incident. The following sections provide more specific information on the project goal, scaling approach, and anticipated performance measures and monitoring.

2.3.1 Restoration Goal

The primary goal of this project is to create and enhance wintering habitat for lesser scaup (*Aythya affinis*) that would compensate the public for lost natural resources and services resulting from the Incident.

2.3.2 Effects on Threatened or Endangered Species

The Endangered Species Act 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. NOAA and the USFWS accomplishes this goal in part by determining the potential presence of listed species and evaluating projects that could affect listed species (see the Federally-listed species listed in Table 3). Based on other crevasse cleanout and crevasse-splay projects that have occurred in the area and BMPs used during

Table 3. Federal and State Endangered and Threatened Species and their critical habitats in Plaquemines Parish, Louisiana[23].

Species	Critical Habitat (CH)	Federal Status	State Status
Mammals			
West Indian manatee (*Trichechus manatus*)	None in Louisiana	Threatened	S1N[24]
Sperm whale (*Physeter macrocephalus*)	None in Louisiana	Endangered	SZ[25]
Bryde's whale (*Balaenoptera edeni*)	None in Louisiana	Endangered	------
Birds			
Eastern black rail (*Laterallus jamaicensis jamaicensis*)	None in Louisiana	Threatened	S2N[26]/ S1B[27]
Piping plover (*Charadrius melodus*)	Yes	Threatened	S2N
Red knot	None in Louisiana	Threatened	S2N

[23] Current federally and state listed species lists for Plaquemines Parish were accessed on March 15, 2021, at https://www.fws.gov/southeast/pdf/fact-sheet/louisiana-ecological-services-field-office-t-and-e-species.pdf, https://www.fisheries.noaa.gov/southeast/consultations/southeast-region, and https://www.wlf.louisiana.gov/assets/Resources/Publications/Wildlife_Action_Plans/Wildlife_Action_Plan_Revisions_2019.pdf.

[24] S1N = Critically imperiled in Louisiana because of extreme rarity (5 or fewer known extant populations) or because of some factor(s) making it especially vulnerable to extirpation; the occurrence of nonbreeding individuals.

[25] SZ = Transient species in which no specific consistent area of occurrence is identifiable

[26] S2N = imperiled in Louisiana because of rarity (6 to 20 known extant populations) or because of some factor(s) making it very vulnerable to extirpation; the occurrence of nonbreeding individuals.

[27] S1B = Critically imperiled in Louisiana because of extreme rarity (5 or fewer known extant populations) or because of some factor(s) making it especially vulnerable to extirpation; the occurrence of breeding individuals.

Species	Critical Habitat (CH)	Federal Status	State Status
(*Calidris canutus rufa*)			
Reptiles			
Green sea turtle (*Chelonia mydas*)	None in Louisiana	Threatened[28]	S1N
Hawksbill sea turtle (*Eretmochelys imbricata*)	None in Louisiana	Endangered[28]	SZ
Kemp's Ridley sea turtle (*Lepidochelys kempii*)	None in Louisiana	Endangered[28]	S1B, S3N[29]
Leatherback sea turtle (*Dermochelys coriacea*)	None in Louisiana	Endangered[28]	SZ
Loggerhead sea turtle (*Caretta caretta*)	None in Louisiana	Threatened[28]	S1B, S3N
Fish			
Gulf sturgeon (*Acipenser oxyrhynchus desotoi*)	Yes	Threatened[28]	S1[30]
Pallid sturgeon (*Scaphirhynchus albus*)	None in Louisiana	Endangered	S1
Shovelnose sturgeon (*Scaphirhynchus platorynchus*)	None in Louisiana	Threatened (S/A)[31]	S4[32]
Smalltooth sawfish (*Pristis pectinata*)	None in Louisiana	Endangered	S1

construction, the Trustees do not anticipate that the proposed *Preferred Alternative* is likely to adversely affect any threatened or endangered species in the area. The activities associated with implementation of this project would be performed in compliance with all applicable environmental laws (Appendix A).

2.3.3 Rescaling of Preferred Restoration Alternative

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 Incident. The Final DAPRP indicated that the total

[28] The United States Fish and Wildlife Service and the National Marine Fisheries Service share consultation authority for these species.
[29] S3N = Rare and local throughout the state or found locally (even abundantly at some of its locations) in a restricted region of the state, or because of other factors making it vulnerable to extirpation (21 to 100 known extant populations); the occurrence of nonbreeding individuals.
[30] S1 = Critically imperiled in Louisiana because of extreme rarity (5 or fewer known extant populations) or because of some factor(s) making it especially vulnerable to extirpation
[31] S/A = Similarity of Appearance. For law enforcement purposes shovelnose sturgeon are classified as "Threatened due to Similarity of Appearance" wherever they coexist with the endangered pallid sturgeon. They are biologically neither endangered nor threatened but this designation extends the Endangered Species Act take prohibitions to shovelnose sturgeon, shovelnose-pallid sturgeon hybrids, and their roe when associated with a commercial fishing activity.
[32] S4 = apparently secure in Louisiana with many occurrences (100 to 1,000 known extant populations).

injury to these resources was equivalent to 46.0 Discounted Service Acre Years (DSAYs). 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, time required for restored habitats to reach full function, and project lifespan. Rescaling of the restoration alternative selected in the Final DAPRP was conducted to determine the scale of restoration required at the *South Pass Crevasse Cleanout and Spur* project. Table 4 shows the HEA assumptions and credit generated by the project. To account for a later construction date than estimated in the Final DAPRP, the Trustees revised the HEA parameter for "Year compensatory project is completed" from 2020 to 2021, resulting in **8.2 acres** of required habitat creation at the *South Pass Crevasse Cleanout and Spur* project.

Table 4. HEA Assumptions and DSAY Credits Generated by the Project.

HEA Assumptions			
Compensatory Restoration:			
Is compensatory restoration required?			Yes
Year compensatory project is completed			2021
Years to full maturity following restoration activities			15.00
Year compensatory project reaches maturity			2036
Functional form of maturity function			Bell-shaped
Relative productivity of restored to natural habitat			100.00%
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)			30.00
Year restored habitat stops producing services			2050
Real discount rate per year			3.00%
	DSAYs		
Injury Debit ---------->	46.0		
Restoration Credit:		DSAYs/Acre	Acres
Splay Marsh-------->	46.0	5.61	8.2

2.3.4 Performance Measures and Monitoring

Performance monitoring would be performed over a 5-year period following construction to provide an assessment of project progress and help guide corrective actions, if needed, to meet the project's goals and objectives. Project performance would be assessed by comparing quantitative monitoring results to 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 proposed *Preferred Alternative* would use these standards to determine whether the project goals and objectives have been

achieved or whether corrective actions are necessary. Specific standards for this project are that at the end of five years at least 1.2 new acres of vegetated splay marsh would have been created, the crevasse remains open, and plant species characteristic of splay marshes are present. An aerial photograph taken prior to the cutting of the crevasse would be used to determine the baseline for measurement of future growth of the splay. Aerial photographs would be taken periodically for five years to gauge the progress of the splay development. In the event that performance standards are not met 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: monitoring for an additional period of time to see if the project begins to match predicted trends in growth, re-opening the crevasse, opening a new crevasse, or other actions agreed upon that would correct the deficiency. If the performance criteria are satisfied at the 5-year monitoring event, then the Trustees are confident, based on previous experience, that the project would be successful and no further monitoring would be required.

2.4 Proposed Action

The proposed action and *Preferred Alternative* detailed in this DRP is to implement the *South Pass Crevasse Cleanout and Spur* project in the PALWMA located in the Lower Mississippi River Bird's Foot Delta as compensatory restoration for the Lake Washington Incident. The Trustees believe that the project can be successfully implemented and carried out with minimal delay in a cost-effective manner. In addition, the *South Pass Crevasse Cleanout and Spur* project supports existing plans and strategies to restore coastal marsh habitat in Louisiana that was impacted by the Incident. As a basis for providing compensatory restoration for the Incident, the Trustees will use a portion of the settlement funds from the LWMIWCB Incidents to create at least 8.2 acres of deltaic marsh and wintering habitat for lesser scaup (*Aythya affinis*) in RRP Region 2.

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APPENDIX A: COMPLIANCE WITH OTHER AUTHORITIES

Federal Laws

Additional federal laws may apply to the action proposed in this DRP. Federal laws, regulations, and Executive Orders (EO) that may be applicable include, but are not limited to, the following:

- Endangered Species Act (16 USC 1531 et seq.)
- Magnuson-Stevens Fishery Conservation and Management Act (16 USC 1801 et seq.)
- Marine Mammal Protection Act (16 USC 1361 et seq.)
- Coastal Zone Management Act (16 USC 1451 et seq.)
- National Historic Preservation Act (16 USC 470 et seq.)
- Migratory Bird Treaty Act (16 USC 703 et seq.)
- Bald and Gold Eagle Protection Act (16 USC 668 et seq.)
- Clean Air Act (42 USC 7401 et seq.)
- Federal Water Pollution Control Act (Clean Water Act) (33 USC 1251 et seq.) and/or Rivers and Harbors Act (33 USC 401 et seq.)
- Marine Protection, Research and Sanctuaries Act (16 USC 1431 et seq. and 33 USC 1401 et seq.)
- Estuary Protection Act (16 USC 1221–1226)
- Archaeological Resource Protection Act (16 USC 470aa–470mm)
- National Marine Sanctuaries Act (16 USC 1431 et seq.)
- Farmland Protection Policy Act (7 USC 4201–4209)
- Rivers and Harbors Act (33 USC 401 et seq.)
- EO 11988: Floodplain Management (augmented by EO 13690, January 30, 2015)
- EO 11990: Protection of Wetlands
- EO 12898: Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations
- EO 12962: Recreational Fisheries
- EO 13007: Indian Sacred Sites
- EO 13112: Safeguarding the Nation from the Impacts of Invasive Species
- 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

State and Local Laws

The Trustees would ensure compliance with all applicable state and local laws relevant to the State of Louisiana. Applicable laws and regulations may include, but are not limited to, the following:

- Archeological Finds on State Lands (LRS 41:1605)
- Louisiana State and Local Coastal Resources Management Act (LRS 49:214.21–214.42)
- Louisiana Oil Spill Prevention and Response Act (LRS 30:2451 et seq.)
- Management of State Lands (RS 41:1701.1 et seq.)
- Louisiana Coastal Resources Program (LAC 43:700 et seq.)
- Louisiana Surface Water Quality Standards (LAC 33.IX, Chapter 11)
- Oyster Lease Relocation Program (LAC 76: VII, Section 531)
- Louisiana Scenic Rivers Program (LRS 56:1856)

APPENDIX B: LIST OF ACRONYMS AND ABBREVIATIONS

AR	Administrative Record
BMPs	Best Management Practices
C.F.R.	Code of Federal Regulations
CH	Critical Habitat
CPRA	Coastal Protection and Restoration Authority
CWPPRA	Coastal Wetlands Planning, Protection, and Restoration Act
DAPRP	Damage Assessment and Preliminary Restoration Plan
DRP	Draft Restoration Plan
DSAYs	Discounted Service Acre Years
E&D	Engineering and Design
EFH	Essential Fish Habitat
EMPCo	ExxonMobil Pipeline Company
EO	Executive Orders
FPEIS	Final Programmatic Impact Statement
FRP	Final Restoration Plan
HEA	Habitat Equivalency Analysis
LAT	Lead Administrative Trustee
LAC	Louisiana Administrative Code
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
LRS	Louisiana Revised Statute
LWMIWCB	Lake Washington, Mendicant Island and West Champagne Bay oil spills
MR-172	East Bay Bird Nesting Island Creation and Crevasse Cleanout Project
NAVD88	North American Vertical Datum of 1988
NCP	National Contingency Plan
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

PALWMA	Pass-A-Loutre Wildlife Management Area
RP	Responsible Party
RRP Program	Regional Restoration Planning Program
RS	Revised Statute
SAV	Submerged Aquatic Vegetation
SWG	State and Tribal Wildlife Grants Program
USACE	United States Army Corps of Engineers
U.S.C.	United States Code
USFWS	United States Fish and Wildlife Service