DAMAGE ASSESSMENT AND RESTORATION PLAN AND ENVIRONMENTAL ASSESSMENT
for the 2004 Raphael Pass Oil Spill

and

ADDENDUM TO THE 2014 RESTORATION PLAN
for the 2005 Goodrich Barge Grounding

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United States Fish and Wildlife Service

In Conjunction with:
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Coastal Protection and Restoration Authority of Louisiana

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Executive Summary

On September 19, 2004, during a post-hurricane flyover, the Louisiana Department of Environmental Quality observed an oil spill coming from the Raphael Pass Field, managed by Gulf Production Company, Inc., in the Delta National Wildlife Refuge, Plaquemines Parish, Louisiana. A storage tank owned and operated by Gulf Production Company; Inc. discharged approximately 362 barrels of crude oil in the marsh within the Delta National Wildlife Refuge (hereafter the "Raphael Pass Oil Spill"). Subsequent observations and monitoring found approximately 200 acres of marsh as oiled or heavily oiled. Additionally, the Goodrich W-6 Facility Oil Storage Barge, owned by Goodrich Petroleum Company, LLC (hereafter, "Goodrich"), went aground in the Delta National Wildlife Refuge on August 29, 2005 (hereafter the "Goodrich Barge Grounding"). The Oil Pollution Act of 1990 and the Louisiana Oil Spill Prevention and Response Act of 1991 authorize natural resource damage assessment trustees (hereafter, "Natural Resource Trustees") to evaluate impacts to natural resources from a discharge or substantial threat of a discharge of oil, and to develop restoration plans to make the environment and public whole. This Damage Assessment and Restoration Plan describes the restoration activities selected by the Natural Resource Trustees to compensate the public for injuries to natural resources and natural resource services, including interim services, lost from the Raphael Pass Oil Spill by returning injured natural resources and natural resource services to a condition that would have existed if the oil spill had not occurred. A previous restoration plan, drafted by the United States Fish and Wildlife Service (USFWS) in 2014 (USFWS 2014), outlined USFWS assessment process and restoration projects to replace injured natural resources from the Goodrich Barge Grounding; however, since that time, USFWS determined that combining the Goodrich Barge Grounding settlement funds with the Raphael Pass Oil Spill settlement funds could lead to larger and more ecologically beneficial restoration. USFWS intends for this single restoration project to compensate for injuries to natural resources that resulted from both incidents. This document therefore also serves as an amendment, or addendum, to the 2014 restoration plan for the Goodrich Barge Grounding.

The preferred restoration alternative would provide restoration of deltaic marsh, marsh platforms via planting and terracing, submerged and emergent aquatic vegetation, and estuarine habitat for fish and crustaceans. Restoration objectives are to:

- Restore, rehabilitate, replace, or acquire equivalent natural resources to those that were injured or destroyed by each incident.
- Replace or acquire equivalent ecological services lost and to restore these services or compensate the public for this loss (Compensatory Restoration).

This document serves as both a Damage Assessment and Restoration Plan and an Environmental Assessment (DARP/EA), as well as a Addendum to the 2014 Restoration Plan (DARP/EA and Addendum). Chapters within this DARP/EA and Addendum describe the rationale and decision process for identifying the Delta Bend East Crevasse-Terrace Restoration Project as the preferred restoration alternative.

Chapter 1: Provides an overview of the purpose and need for restoration, involvement by Gulf Production Company, Inc. in the assessment process, and relevant authorities and processes followed.

Chapter 2: Describes steps taken by the Natural Resource Trustees for each incident to assess and quantify injury to natural resources.

Chapter 3: Identifies the process the Natural Resource Trustees for each incident undertook in developing a plan for restoring injured resources and services, describes restoration alternatives, and identifies the preferred restoration alternative.

Chapter 4: Describes compliance with NEPA to assess environmental consequences and effects from implementing the preferred restoration alternative.

Chapter 5: Lists citations used in restoration planning.

Glossary

Administrative Record
A publicly available record to document the basis for trustee decisions pertaining to restoration, opened concurrently with the publication of the Notice of Intent to Conduct Restoration Planning.

Baseline
The condition of natural resources and services that would have existed had the incident not occurred.

Categorical Exclusion
A category of actions that do not individually or cumulatively have a significant effect on the human environment and have been found to have no such effect in procedures adopted by a federal agency pursuant to NEPA (40 CFR § 1508.4).

Compensatory Restoration
Any action (or alternative), or combination of actions (or alternatives), to restore, rehabilitate, replace or acquire the equivalent taken to compensate for interim losses of natural resources and services that occur from the date of the incident until recovery.

Crevasse
Relatively small opening or breach in levee or embankment.

Damages
Damages means damages specified in section 1002 of OPA (33 USC 1002(b)), and includes the costs of assessing these damages, as defined in section 1001(5) of OPA (33 USC 2701(5)).

Incident
Any occurrence or series of occurrences having the same origin, involving one or more vessels, facilities, or any combination thereof, resulting in the discharge or substantial threat of discharge of oil into or upon navigable waters or adjoining shorelines or the Exclusive Economic Zone.

Injury
An observable or measurable adverse change in a natural resource or impairment of a natural resource service.

Natural Resource Damage Assessment
The process of collecting and analyzing information to evaluate the nature and extent of injuries resulting from an incident and determining the restoration actions needed to bring injured natural resources and services back to baseline and make the environment and public whole for interim losses.

Natural Resources
Land, fish, wildlife, biota, air, 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, Indian tribe, or any foreign government.

Natural Resource Services
Functions performed by a natural resource for the benefit of another resource and/or the public.

Natural Resource Trustees
Those officials of the federal and state governments, of Indian tribes, and of foreign governments, designated under 33 USC 2706(B) of the Oil Pollution Act of 1990.

Oil
One of a list of Petroleum and Non-petroleum Oils provided by the U.S. Coast Guard[1], including, but not limited to, petroleum, fuel oil, sludge, oil refuse, and oil mixed with wastes other than dredged spoil.

[1]See https://www.dco.uscg.mil/Portals/9/DCO%20Documents/5p/5ps/Design%20and%20Engineering%20Standards/Hazardous%20Materials%20Division/2013-03-18_OPA90_Oils_and_oil-likes.pdf?ver=2017-06-20-145401-660.

Primary Restoration
Any actions (or alternative), or combination of actions (or alternatives), including natural recovery, that restore injured natural resources and services to their baseline condition.
Recovery
The return of injured natural resources and services to baseline.
Response
Containment and removal of oil or a hazardous substance from water and shorelines or the taking of other actions as may be necessary to minimize or mitigate damage to the public health or welfare, including, but not limited to, fish, shellfish, wildlife, and public and private property, shorelines, and beaches.

Abbreviations and Acronyms

AR	Administrative Record
CEQ	Council on Environmental Quality
CFR	Code of Federal Regulations
CPRA	Coastal Protection and Restoration Authority of Louisiana
DARP	Damage Assessment and Restoration Plan
DOI	United States Department of the Interior
DSAY	Discounted Service Acre Year
EA	Environmental Assessment
EIS	Environmental Impact Statement
FPEIS	Final Environmental Impact Statement
HEA	Habitat Equivalency Analysis
LAC	Louisiana Administrative Code
LDEQ	Louisiana Department of Environmental Quality
LDENR	Louisiana Department of Energy and Natural Resources
LDWF	Louisiana Department of Wildlife and Fisheries
LOSCO	Louisiana Oil Spill Coordinator's Office
NEPA	National Environmental Policy Act
NOI	Notice of Intent
NRDA	Natural Resource Damage Assessment
NWR	National Wildlife Refuge
NWR CCP	National Wildlife Refuges Comprehensive Conservation Plan
OPA	Oil Pollution Act of 1990
OSPRA	Louisiana Oil Spill Prevention and Response Act of 1991
RP	Responsible Party
RRP	Regional Restoration Plan
SAV	Submerged Aquatic Vegetation
SHPO	State Historic Preservation Office
USC	United States Code
USCG	United States Coast Guard
USFWS	United States Fish and Wildlife Service

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1 INTRODUCTION

1.1 Purpose of and Need for a Restoration Plan

The United States Fish and Wildlife Service (USFWS); Louisiana Oil Spill Coordinator's Office (LOSCO); Louisiana Department of Energy and Natural Resources (LDENR); Louisiana Department of Environmental Quality (LDEQ); Louisiana Department of Wildlife and Fisheries (LDWF); and the Coastal Protection and Restoration Authority of Louisiana (CPRA), collectively known as the Natural Resource Trustees for the Raphael Pass Oil Spill (hereafter "Raphael Pass Oil Spill Trustees"), are undertaking a Natural Resource Damage Assessment (NRDA) pursuant to the Oil Pollution Act of 1990 (OPA), 33 USC 2701 *et seq*., and the Louisiana Oil Spill Prevention and Response Act of 1991 (OSPRA), La. Rev. Stat. 30:2451 *et seq*., with respect to a 2004 oil spill. USFWS is also undertaking a NRDA pursuant to OPA with respect to the 2005 barge grounding.[2] Each incident will be discussed in further detail. The NRDA process includes, among other things, publication of proposed restoration to compensate the public for injuries to natural resources and natural resource services, including interim services from a discharge or substantial threat of a discharge of oil.

This Damage Assessment and Restoration Plan and Environmental Assessment and Addendum to the 2014 Restoration Plan (DARP/EA and Addendum) is intended to:

1) inform the public concerning natural resource injuries caused by oil spilled from a storage tank managed by Gulf Production Company, Inc. on September 19, 2004, on Raphael Pass in the Delta National Wildlife Refuge (NWR), Plaquemines Parish, Louisiana (hereafter "Raphael Pass Oil Spill");
2) provide an update and addendum to a previously released Restoration Plan for the Goodrich W-6 Facility Oil Storage Barge[3], which went aground in the Delta NWR on August 29, 2005 (hereafter "Goodrich Barge Grounding"); and
3) describe the Natural Resource Trustees' preferred restoration alternative to compensate for resultant injuries to natural resources that occurred due to both incidents.

This document also serves as an Environmental Assessment (EA) under the National Environmental Policy Act (NEPA) and addresses the potential impact of the preferred restoration alternative regarding quality of the physical, biological, and cultural environment. As described in detail below, restoration would be undertaken in the Mississippi River Birdfoot Delta, Plaquemines Parish, Louisiana. Figure 1 depicts the location of the preferred restoration alternative in relation to the location of the Raphael Pass Oil Spill and Goodrich Barge Grounding. Figures 2 and 3 depict more specific impact areas of said spill and grounding.

[2] LOSCO, LDENR, LDEQ, LDWF, and CPRA had no involvement in the NRDA process for the Goodrich Barge Grounding. USFWS is the sole trustee for decisions related to that incident.
[3] Available at https://www.cerc.usgs.gov/orda_docs/CaseDetails?ID=1050.

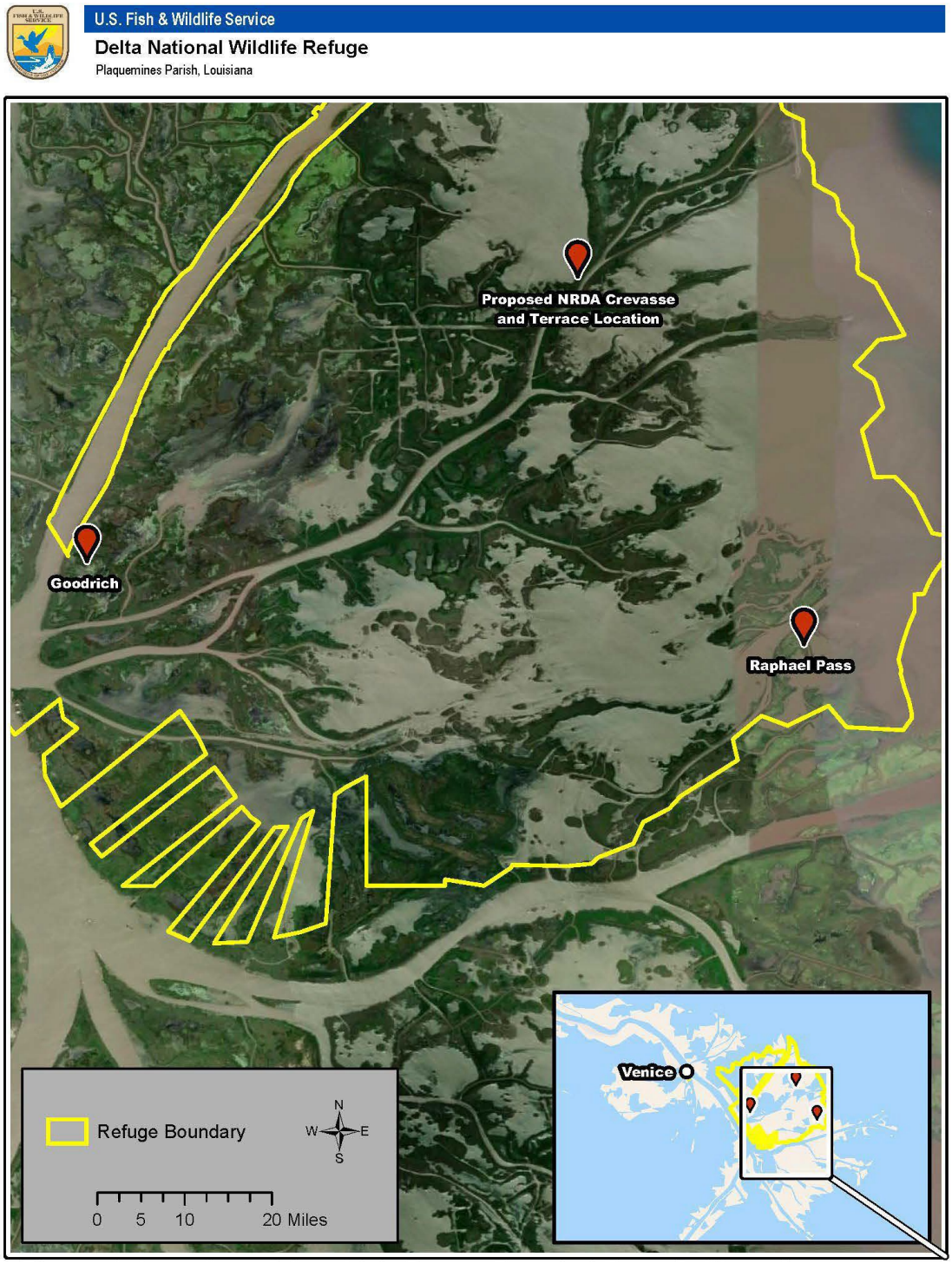

Figure 1. Location of Goodrich Barge Grounding, Raphael Pass Oil Spill, and preferred restoration alternative site in the Delta National Wildlife Refuge.

Figure 2. Raphael Pass Oil Spill Location and impacted area in the Delta National Wildlife Refuge, Plaquemines Parish, Louisiana.

Figure 3. Goodrich Barge Grounding location and impacted area in the Delta National Wildlife Refuge, Plaquemines Parish, Louisiana.

The purpose of this NRDA restoration is to compensate the public for injuries to natural resources and natural resource services lost from the Raphael Pass Oil Spill and the Goodrich Barge Grounding, respectively, by returning injured natural resources and natural resource services to their "baseline" condition (*i.e.*, a condition that would have existed if the oil spill, or threat of oil spill, had not occurred) and compensating for associated interim losses. The preferred restoration alternative, described in Chapter 3, would restore deltaic marsh habitat through active deposition of sediment via new crevasse construction and creation of earthen terraces and vegetation plantings to benefit resident and migratory birds, resident fur bearers, reptiles, amphibians, and fish.

1.2 Federal and State Trustees and Their Responsibilities

Each designated federal and state Natural Resource Trustee is authorized to act on behalf of the public to assess and recover natural resource damages, and to plan and implement actions to restore natural resources and resource services injured or lost as the result of a discharge or discharges of oil. The federal Natural Resource Trustee for the Raphael Pass Oil Spill NRDA and the Goodrich Barge Grounding NRDA is the United States Department of the Interior (DOI), represented by the USFWS. The state Natural Resource Trustees for Louisiana are designated by the Governor of Louisiana, and for the Raphael Pass Oil Spill, are represented by LOSCO, LDEQ, LDENR, LDWF, and CPRA. Each of these agencies is a designated natural resource trustee under § 1006 (b) of OPA, 42 USC § 2706(b), the National Contingency Plan, 40 CFR § 300.600, and 40 CFR § 300.605. These same state agencies serve as state trustees under OSPRA according to La. R.S. 30:2451, *et seq.* and La. Admin. Code tit. 43, part XXIX, *et seq.* As noted earlier, the state Natural Resource Trustees for Louisiana were not involved in the NRDA or decision-making process for the Goodrich Barge Grounding.

1.3 Incident Descriptions

1.3.1 Summary of the Raphael Pass Oil Spill and Injuries to Natural Resources

On September 16, 2004, Hurricane Ivan made initial landfall in Gulf Shores, Alabama. The Category 3 hurricane caused storm surge and high winds in Plaquemines Parish, Louisiana along with mandatory evacuations. LDEQ conducted post-hurricane overflights on September 19, 2004, which observed an oil spill at the Gulf Production Company, Inc. (hereafter, Gulf Production) Raphael Pass Field in the Delta NWR. No containment measures were in place at the time of observation, but Gulf Production personnel were observed applying Dawn dishwashing liquid to an oil slick on the water. Following further investigation, LDEQ determined that a Gulf Production-managed tank filled with crude oil shifted during the high-water event, flow lines connected to the tanks separated, and 362 barrels of crude oil was released into marsh within the Delta NWR.

USFWS initiated emergency response actions on September 22, 2004 to clean up the spilled oil. USFWS was assisted in the response by United States Coast Guard (USCG), LDEQ, and LOSCO. Five areas to the north and northeast of the facility had floating, black oil within roseau cane (*Phragmites australis*). A bathtub ring of oil was observed along the roseau cane and, in areas where black oil was present, the response team observed rainbow sheen exiting the cane and entering adjacent shallow water ponds within the marsh. An Oil Spill Response Organization, ES&H Consulting, was deployed to assist with assessment and to conduct clean-up operations. The main response actions at the site included:

- deployment of sorbent boom to control any further spread of oil;
- site visits and helicopter overflights to observe and document extent of oiled habitat;
- installation of bird hazing techniques, including airboat hazing, scare cannons, Mylar scare balloons, and flags to deter wildlife from landing in oiled areas;
- cutting and removing a majority of the heavily oiled roseau cane in the impacted area to reduce further injury to wildlife; and
- monitoring and management of lightly oiled cane to allow for natural recovery, while minimizing impacts to wildlife.

Emergency response lasted from September 22 to October 7, 2004, and passive maintenance continued from October 7 through October 26, 2004. Following a temporary shutdown of operations due to the second passage of Hurricane Ivan (downgraded to a tropical depression at this time) on September 23, the response team resumed activities on September 24 and, at the request of USFWS, ES&H Consulting mobilized personnel to set-up a command post in Belle Chase, Louisiana. Starting on September 25, 2004, Shoreline Cleanup and Assessment Technique teams consisting of LDEQ, USCG, and ES&H Consulting representatives were deployed via airboat. Additionally, personnel from Wildlife Rehab & Education Center were brought onsite to assist with potential wildlife recovery.

The Raphael Pass Oil Spill Trustees determined that approximately 117.31 acres of roseau cane marsh habitat were injured as a result of the discharge. Oiled vegetation consisted almost entirely of roseau cane, which is desired by wetland managers in Louisiana for its ability to bind newly deposited deltaic soils and to provide habitat cover for birds and wildlife.

1.3.2 Summary of the Goodrich Barge Grounding and Injury to Natural Resources

On August 29, 2005, an oil storage barge owned and operated by the Goodrich Petroleum Company, LLC (hereafter "Goodrich") ran aground in the Delta NWR. The Goodrich Barge Grounding presented a substantial threat of discharging crude oil into the NWR. In November 2005, USFWS issued a Special Use Permit, SLR-06-013, allowing Goodrich to remove the barge under the condition that vegetated areas destroyed by barge removal would be refilled to pre-removal elevations and that marsh vegetation would be restored. The grounding and response actions to remove the barge physically disturbed NWR habitat; USFWS estimated that the barge depressed at least an acre of wetland below its original elevation and left the impacted area denuded of vegetation. Vegetation losses were primarily comprised of roseau cane and *sagittaria* species.

1.4 NRDA Authority and Process

1.4.1 Overview of the Natural Resource Damage Assessment Process

NRDA is described under Section 1006(c) of OPA (33 USC § 2706(c)) and OSPRA (L.R.S. 30:2451 *et seq.*). Both federal and state NRDA regulations (15 CFR § 990 and La. Admin. Code tit. 43, part XXIX, *et seq.*, respectively) provide a step-by-step process for Natural Resource Trustees to determine injuries, assess damages, and develop and implement restoration projects that compensate the public for injuries to natural resources and services impacted by an incident. This process includes three phases:

- Preassessment,
- Restoration Planning, and

- Restoration Implementation.

1.4.2 Louisiana Regional Restoration Planning Program

The Louisiana Regional Restoration Planning Program (RRP Program) was established to address incidents under OPA and OSPRA and make the NRDA process more efficient in Louisiana. The RRP Program identifies the statewide Program structure, decision-making process, and criteria that are used to select the restoration project(s) that may be implemented to restore the trust resources and services injured by a given incident. The goals of this statewide 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. A complete description of the RRP Program is provided in the RRP Program Final Programmatic Environmental Impact Statement (FPEIS) (NOAA et al. 2007).

1.4.3 NRDA Process for the Raphael Pass Oil Spill

1.4.3.1 Coordination with the Responsible Party

The OPA and OSPRA regulations require trustees to invite the Responsible Party (RP) to participate in the damage assessment process. On December 15, 2004, the Raphael Pass Oil Spill Trustees sent Gulf Production notice that they would proceed with the Preassessment Phase of the NRDA process and invited Gulf Production, as the RP, to participate. On January 5, 2005, Gulf Production acknowledged receipt of the notice and confirmed that the company would participate in the process. Gulf Production and their consultant, ES&H Consulting, participated in the damage assessment and restoration planning process with the Raphael Pass Oil Spill Trustees. As required by the regulations at 15 CFR § 990.14 (c)(4), the Raphael Pass Oil Spill Trustees, however, retained final authority to make determinations regarding injury and restoration.

1.4.3.2 Preassessment Phase

The purpose of the Preassessment Phase is to determine whether trustees have jurisdiction to pursue restoration under OPA and OSPRA and, if so, whether it is appropriate to proceed with restoration planning. On November 8, 2004, the Raphael Pass Oil Spill Trustees conducted a NRDA Preassessment field inspection, including the collection of sediment samples by sample zone, habitat type, recovery status, and oil extent (saturation and penetration). In heavily oiled areas, evidence showed 30 feet of oil penetration into the marsh. Based on subsequent analysis of these data, the Raphael Pass Oil Spill Trustees determined that they had jurisdiction to pursue restoration under OPA and OSPRA based on requirements of 15 CFR § 990.41(a).[4] The Raphael Pass Oil Spill Trustees also determined, pursuant to 15 CFR § 990.42(a), that injuries to natural resources and natural resource services had resulted from the incident, that response actions did not, and would not, adequately address injuries resulting from the incident, and that feasible restoration alternatives existed to address injuries.

[4] To determine that legal jurisdiction exists to conduct a NRDA, 15 CFR § 990.41(a) requires the trustees to first determine if the oil spill constituted an "incident" as defined by 15 CFR § 990.30. Second, the trustees must decide if the incident was not an "excluded discharge" within the meaning of OPA Section 1002(c) (*i.e.,* the incident was not authorized by permits issued under federal, state, or local law, or did not originate from a public vessel or from an onshore facility subject to the Trans-Alaska Pipeline Authorization Act). And third, potential injury to trust resources and services under designated federal and state trusteeship of the trustees had occurred because of the incident.

1.4.3.3 Restoration Planning Phase

In the Restoration Planning Phase, the Raphael Pass Oil Spill Trustees utilized the RRP Program to evaluate and quantify the nature and extent of injuries to natural resources and services, and to determine the need for, type of, and scale of appropriate restoration actions. In August of 2005, the Raphael Pass Oil Spill Trustees issued the Notice of Intent (NOI) to Conduct Restoration Planning for the NRDA case associated with the Raphael Pass Oil Spill in Plaquemines Parish, Louisiana. Additional information regarding the injury and restoration approach of the Raphael Pass Oil Spill Trustees is provided in Chapters 2 and 3, respectively. In November 2020, the Raphael Pass Oil Spill Trustees completed a settlement agreement with the RP for reimbursement of $64,679 of past trustee assessment costs and $460,569.67 in restoration, which included the estimated cost to implement the preferred restoration alternative, with the agreement that partnering funds in the amount of $225,000 would be provided by USFWS.

1.4.4 NRDA Process for the Goodrich Barge Grounding

1.4.4.1 Coordination with the Responsible Party

Goodrich was identified as the RP for the Goodrich Barge Grounding incident. Goodrich choose to complete a cash out settlement with DOI rather than participate in the NRDA process. In 2009, DOI and Goodrich reached a settlement agreement for natural resource injuries, directing Goodrich to pay USFWS $225,000 for restoration (USDOI 2009).

1.4.4.2 Preassessment Phase

USFWS personnel evaluated injury to marsh habitat, birds, and wildlife caused by the Goodrich Barge Grounding as part of the NRDA. No bird or wildlife mortality was noted. USFWS concluded that no human intervention to speed recovery to baseline or to accomplish primary restoration following response actions was necessary in impacted marsh, vegetation, and coastal habitats. Furthermore, USFWS noted the possibility that actions to enhance recovery might result in additional injury.

1.4.4.3 Restoration Planning Phase

USFWS concluded that compensation for interim lost ecological services is required for injuries to marsh, vegetation, and habitats caused by the Goodrich Barge Grounding. After evaluating several potential restoration actions for achieving such compensation, USFWS selected a sediment diversion project funded by the 2009 settlement to satisfy both the short- and long-term compensatory restoration requirements for impacts to NWR resources (USFWS 2014). Creation of marsh resulting from sediment diversion was anticipated to replace ecological services lost as a result of the barge grounding and removal.

1.4.5 Draft DARP/EA and Addendum

OPA requires the Natural Resource Trustees to describe proposed restoration in a Draft Restoration Plan for public comment, and then a Final Restoration Plan. 15 CFR § 990.55. During the Restoration Planning Phase, the Natural Resource Trustees identify a reasonable range of restoration alternatives and evaluate those alternatives using criteria found at 15 CFR § 990.54. Considering the nature and extent of exposure and/or injuries to natural resources caused by both the Raphael Pass Oil Spill and the nearby Goodrich Barge Grounding, USFWS developed a Draft DARP/EA and Addendum, in conjunction with the other Raphael Pass Oil Spill Trustees, to

propose a single restoration activity to restore the injured resources and services caused by both incidents. The restoration objectives of this DARP/EA and Addendum are to:

- Restore and enhance deltaic marsh that was injured or destroyed by each incident, respectively.
- Replace ecological services lost, and to restore these services to compensate the public for loss of resources due to the Raphael Pass Oil Spill and Goodrich Barge Grounding, respectively (Compensatory Restoration).

As described in Chapter 3, the preferred restoration alternative is a cost effective, practicable alternative to provide the expected restoration benefits required. No comments were received on the draft plan. The Natural Resource Trustees for each incident developed this Final DARP/EA and Addendum to select the final preferred alternative for implementation. Restoration activities will be implemented in accordance with all federal, state, and local permitting requirements. Monitoring will be conducted during and following construction to ensure that project designs are followed, and any necessary corrective actions are implemented. Following completion of the project, success of the project will be assessed using both qualitative and quantitative monitoring protocols similar to those described in the Delta and Breton National Wildlife Refuges Comprehensive Conservation Plan (NWR CCP) (USFWS 2008).

1.5 National Environmental Policy Act Compliance

Restoration activities, such as those described herein, must comply with NEPA, as amended (42 USC 4321 *et seq.*), and its implementing regulations (40 CFR § 1500-1508) with respect to federal actions that may significantly impact the human environment. In general, federal agencies contemplating implementation of a major federal action must produce an Environmental Impact Statement (EIS) if the action is expected to have significant impacts on quality of the human environment. When it is uncertain whether a contemplated action is likely to have significant impacts, federal agencies prepare an EA to evaluate the need for an EIS. If the EA demonstrates that a proposed action will not significantly impact quality of the human environment, the agencies issue a Finding of No Significant Impact, which satisfies requirements of NEPA, and no EIS is required. If a Finding of No Significant Impact cannot be determined, then an EIS is required. The restoration plan and NEPA environmental analysis requirements were combined in development of the Draft DARP/EA and Addendum. Impacts identified in those NEPA analyses are summarized in Chapter 4.

1.6 Public Involvement

1.6.1 Public Involvement for the Raphael Pass Oil Spill

The Raphael Pass Oil Spill Trustees invited the public to participate in Restoration Planning for the incident. Public participation is consistent with all federal and state laws and regulations that apply to the NRDA, including Section 1006 of OPA, the OPA regulations at 15 CFR Part 990, Section 2480 of OSPRA, the OSPRA regulations at LAC 43:XXIX, as well as NEPA and the CEQ regulations at 40 CFR Part 1500-1508. On August 20, 2005, the Raphael Pass Oil Spill Trustees published a NOI to Conduct Restoration Planning for the Raphael Pass Oil Spill in the Louisiana Register (Vol. 31, No. 08, pgs. 2152-2154) and in two newspapers of general circulation in Louisiana, *The Advocate* (Baton Rouge and New Orleans, Louisiana) and *The Plaquemines Watchman and Gazette* (Belle Chase, Louisiana). The NOI informed the public that, based on

Preassessment findings, the Raphael Pass Oil Spill Trustees were proceeding with Restoration Planning under OPA and OSPRA and opening an Administrative Record to facilitate public involvement in the Restoration Planning process.

On May 20, 2020, the Raphael Pass Oil Spill Trustees published a Notice of Availability of a Settlement Agreement in the Louisiana Register (Vol. 46, No. 75 pgs. 762-763), as well as in *The Advocate* (Baton Rouge and New Orleans, LA) and *The Plaquemines Gazette* (Belle Chase, Louisiana), seeking 30-day public review and comment of the proposed Settlement Agreement. The Raphael Pass Oil Spill Trustees did not receive any comments.

1.6.2 Public Involvement for the Goodrich Barge Grounding

The draft Restoration Plan for the Goodrich Barge Grounding was made available to the public in August of 2013. A 30-day public comment period was held and no comments were received. The Restoration Plan was made final in January of 2014.

1.6.3 Public Involvement on the Draft DARP/EA and Addendum

The Draft DARP/EA and Addendum provided information about the nature and extent of natural resource injuries resulting from the Raphael Pass Oil Spill and Goodrich Barge Grounding, respectively, and identified a preferred restoration alternative proposed to address resources injured from each incident. Public review of the Draft DARP/EA and Addendum is an integral component of the Restoration Planning Phase. Public comment is consistent with all state and federal laws and regulations that apply to the NRDA process, including Section 1006 of OPA, the NRDA regulations at 15 CFR Part 990 and OSPRA at LAC 43:XXIX.101 *et seq.*, NEPA (42 USC §4371 *et seq.*), and the regulations implementing NEPA (40 CFR §1500 *et seq.*).

The Draft DARP/EA and Addendum was available to the public for a 30-day comment period, which began on October 20, 2024 with the notice announcing its availability and closing on November 19, 2024. No comments were received, so no significant changes were made to the draft plan in developing this Final DARP/ EA and Addendum. If there is a significant change to any of the restoration projects selected in this Final DARP/EA and Addendum, the Natural Resource Trustees for each incident would consider the need to develop a restoration plan amendment/addendum and/or additional environmental analyses in accordance with OPA and NEPA regulations, which typically require a supplemental NEPA analysis be prepared if new information arises that would substantively impact previous decision-making or if there is a substantial change to a selected restoration project (40 CFR §1502(9)(d)). Project changes not deemed significant could be outlined in a supplemental information report, or similar type document, for posting to the Administrative Record.

1.7 Administrative Record

The Natural Resource Trustees for each incident have maintained records to document information considered during the NRDA process. These records are compiled in Administrative Records (ARs), which are respectively available to the public online or at the address listed below. The AR facilitated public participation in the natural resource damage assessment process and will be available for use in future administrative or judicial review of actions to the extent provided by federal or state law. Additional information and documents and other related restoration planning and implementation documents, will be made a part of the AR.

The AR for the Raphael Pass Oil Spill can be viewed online by going to the following web address: https://data.loco.org/.

The AR for the Goodrich Barge Grounding will be housed at the following physical location:

U.S. Fish & Wildlife Service
National Wildlife Refuge System
Southeast Louisiana Refuges Complex
Lacombe, LA

Arrangements should be made in advance to review the Goodrich Barge Grounding AR or to obtain copies of documents in that AR by contacting Barret Fortier, Senior Wildlife Biologist, at (985) 882-2000 or barret_fortier@fws.gov.

2 INJURY ASSESSMENT AND QUANTIFICATION

This Chapter describes and quantifies the nature, degree, and extent of injuries to natural resources and services resulting from the Raphael Pass Oil Spill and Goodrich Barge Grounding. The Chapter begins with an overview of data collected during the NRDA process. The following section describes the Natural Resource Trustees' assessment strategy, including the approaches used to identify, determine, and quantify potential injuries. The remainder of the Chapter presents the results of these injury assessments for the specific resources affected by the Raphael Pass Oil Spill and Goodrich Barge Grounding.

2.1 Raphael Pass Oil Spill

2.1.1 Assessment Activities and Findings

The Raphael Pass Oil Spill Trustees initiated Preassessment activities shortly after being notified of the incident. The Raphael Pass Oil Spill Trustees focused on collecting ephemeral and other data pursuant to the OPA regulations (15 CFR §§990.42-.43) that would assist in determining whether: 1) injuries have resulted, or are likely to result, from the incident; 2) response actions have not adequately addressed, or are not expected to address, the injuries resulting from the incident; and 3) feasible primary and/or compensatory restoration actions exist to address the potential injuries. The Raphael Pass Oil Spill Trustees used information collected during the response, such as photos, maps, response plans, to begin to evaluate injuries caused by the discharged oil and response actions. A Preassessment NRDA site visit was conducted on November 8, 2004 and further documented oiled and injured habitat.

Based on Preassessment findings, the Raphael Pass Oil Spill Trustees considered potential natural resource and service injuries to coastal herbaceous wetlands, specifically, deltaic marsh habitat.

2.1.2 Impacts to Deltaic Marsh Habitat

Field observations and photography taken in the vicinity of the impacted area indicated that crude oil was present in and around the roseau cane marsh. A preliminary analysis of aerial photography from 2004 revealed the heaviest concentration of oil accumulation in the marsh surrounding the source of the incident. Oil bands were observed along the marsh edge and staining of the vegetation was present several feet into the marsh.

An analysis of aerial photography and field observations was conducted to delineate injury zones for the impacted area into two oiling categories and associated acreages: 1) 1.91 acres of pooled oil/vegetation cut for oil removal, and 2) 115.40 acres of banding/stain. Preliminary shoreline mapping was conducted by the Raphael Pass Oil Spill Trustees and RP. The Raphael Pass Oil Spill Trustees and RP agreed to use their November 8, 2004 observations along with aerial and ground-based photographs taken throughout the response and Preassessment phases to determine that approximately 117.31 acres of roseau cane marsh habitat were injured as a result of the incident. Roseau cane mortality was assumed to be an indicator of stress in the habitat and a gauge for estimating service losses at the discharge site and in the surrounding areas. Roseau cane is important to coastal wetlands habitat in Louisiana because of its ability to bind newly deposited deltaic soils and provide habitat cover for birds and wildlife.

2.1.3 Injury Assessment Approach

The goal of injury assessment under OPA and OSPRA is to determine the nature, degree, and extent of injuries, if any, to natural resources and their services in the affected environment to provide a technical basis for evaluating and scaling restoration actions. After identifying the injured resources for the incident, the Raphael Pass Oil Spill Trustees developed appropriate injury assessment procedures primarily based on: 1) information gathered during the Response and Preassessment phases of the incident; 2) relevant peer-reviewed literature; and 3) best professional judgment of local experts and the Raphael Pass Oil Spill Trustees familiar with the effects of crude oil in similar environments.

2.1.4 Injury Assessment Methods and Quantification

Injury assessment studies were conducted by the Raphael Pass Oil Spill Trustees, RP, and consultants with damage assessment experience. Although water column organisms, benthic organisms in tidally exposed mudflats, recreational use, and other wildlife species had the potential to be injured during the incident, it is the opinion of the Raphael Pass Oil Spill Trustees that reasonable and protective assumptions for deltaic marsh would represent the overall injury to natural resources and services resulting from the incident.

For the quantification of injury to deltaic marsh, the Raphael Pass Oil Spill Trustees used Habitat Equivalency Analysis (HEA) to quantify interim service losses (*i.e.,* service losses incurred from the time of injury until recovery to baseline) (NOAA 2000). The Raphael Pass Oil Spill Trustees quantified interim service losses in terms of discounted service acre years (DSAYs), where one DSAY is equal to the flow of services provided by one acre of habitat over the course of one year and discounted over time. The input parameters required to calculate the debit-side of the HEA were: 1) total acres of injured habitat; 2) initial level of service losses; and 3) recovery curve of service flows over time. Using the injury parameters described in the following sections and applying a discount rate of three percent per year (NOAA 1999), the Raphael Pass Oil Spill Trustees quantified natural resource injuries for the incident.

As mentioned in section 2.1.1, the Raphael Pass Oil Spill Trustees and the RP used their November 8, 2004 observations along with pictures taken throughout the response phase to determine that approximately 117.31 acres of deltaic marsh habitat were injured as a result of the incident. Two oiling categories were assigned throughout the impacted habitat: 1) pooled oil/vegetation cut for oil removal, and 2) banding/stain. For the purposes of this incident, acreages associated with both categories were combined into a single acreage having “moderate” injury. However, it should be noted that this assumption does not reflect the actual degree of oiling observed, but instead it represents an average of the total area which received light, moderate, and heavy oiling.

To determine the level of initial service losses of habitats affected by the incident, the Raphael Pass Oil Spill Trustees assumed that, prior to the incident, the habitats in the vicinity of the discharge were healthy and providing 100% ecological service flows. The adopted assumptions for the 117.31-acre area of deltaic marsh include a 75% service loss over a 12-month linear recovery. This recovery time is meant to average the rapid recovery of the lightly oiled areas with those that were heavily exposed to oil. This one-year time frame for recovery of moderately oiled marsh is less than the typical two-years or greater for recovery used in past cases for moderately oiled brackish and saline marshes. The adjustment is considered appropriate considering the

following: 1) the small surface area of roseau cane oiled relative to the plant height and 2) the occurrence of tropical and winter storms that helped flush oil from the plants and promotes oil degradation. The Raphael Pass Oil Spill Trustees assumed linear recovery of the deltaic marsh habitat to 100% ecological service flows in 12 months resulting in a loss of 47.2 DSAYs.

2.2 Goodrich Barge Grounding

The Goodrich barge ran aground carrying a cargo of 2,500 barrels of crude oil, causing physical disturbance to habitat and posing a substantial threat of discharging the crude oil cargo into the NWR. Accessing and removing the grounded barge required the excavation of marsh habitat and the destruction of vegetation. Observations during and after retrieval operations indicated that ecological services provided by the injured marsh had been lost due to direct removal of marsh from the excavation necessary to reach and remove the grounded barge. USFWS concluded that compensation for interim lost ecological services is required for natural resource injuries (USFWS 2014).

2.2.1 Injury Assessment Approach

When the Goodrich barge went aground and was subsequently removed, it displaced a hole at least three times the length of the barge and twice its depth, and 1.5 times its width. USFWS estimated at least an acre of wetland was below its original elevations and was denuded of vegetation (USFWS 2014).

USFWS evaluated injury to marsh habitat, birds, and wildlife as part of the natural resource damage assessment. They found no bird or wildlife mortality during their assessment. USFWS concluded that no human intervention to speed recovery to baseline was necessary in impacted areas and that no intervention was necessary in these areas to accomplish primary restoration following completion of response actions. The possibility that actions to enhance recovery might result in additional injury was a factor considered in making this decision (USFWS 2014). USFWS determined that restoration efforts would be better served in adjacent, more vulnerable areas on the NWR to mitigate for injuries incurred from the grounding and extraction.

2.2.2 Injury Assessment Methods and Quantification

USFWS estimated the Goodrich Barge Grounding caused 1+ acre of wetlands to be depressed below its original elevations and denuded of vegetation. As a result of this incident, natural resources and services provided by those resources were injured. USFWS determined that restoration of resources is appropriate as a result of the incident. Creation of marsh would replace the ecological services lost as a result of the grounding and removal actions (USFWS 2014).

3 RESTORATION SELECTION

The goal of restoration under OPA and OSPRA is to compensate the public for injuries to natural resources and services from an oil spill. This goal is achieved by returning injured natural resources to their baseline condition, if possible, and by compensating for any interim losses of natural resources and services during the period of recovery to baseline.

The assessments completed by the respective Natural Resource Trustees described in Chapter 2 quantified the amount of restoration needed to compensate for the injury to resources (*e.g*., marsh acres injured and DSAY's) caused by the respective incident. The process of "scaling" restoration actions involves determining the size of the restoration action(s) needed to provide resource and service gains equal to the value of interim losses due to the release of hazardous substances (NOAA 1997, 1999). Because the duration of the injury differs from the lifespan of the restoration action(s), equivalency is calculated in terms of the present discounted value of services lost due to resource injuries and gained due to restoration. Restoration actions must restore the equivalent of the injured resources by providing resources and services of the same type and quality and of comparable value as those injured.

3.1 Restoration Strategy

Restoration actions under OPA regulations are considered either primary or compensatory. Primary restoration actions are intended to return injured natural resources and services to baseline on an accelerated time frame, whereas compensatory restoration actions compensate for interim losses of natural resources and/or services pending recovery. Regulations require that Natural Resource Trustees consider natural recovery (*i.e.,* "no-action alternative") as a primary restoration option (15 CFR § 990.53), which may be selected if: 1) technically feasible, 2) cost-effective active primary restoration options are not available, and 3) injured resources will recover quickly to baseline without human intervention. In contrast to the "no-action alternative", other primary restoration actions that are considered include actions that remove or prevent factors that could inhibit or interfere with natural recovery, or more intensive actions which are expected to return injured resources and services to baseline faster or with greater certainty.

Type and scale of compensatory restoration is often contingent on the nature of primary restoration actions. That is, rates and ultimate magnitudes of recovery for injured natural resources and/or services, given some primary restoration action(s), dictate the scale of interim losses which compensatory restoration actions are intended to address. When evaluating compensatory restoration components of restoration alternatives, Natural Resource Trustees must first consider "in-kind" compensatory restoration actions that provide services of the same type and quality, and of comparable value to those lost. If such in-kind compensatory restoration strategies do not yield a reasonable range of alternatives, Natural Resource Trustees may then consider "out-of-kind" compensatory actions that provide services comparable in type and quality to those lost, and any disparity in value will be addressed during scaling of restoration alternatives.

3.2 Developing Restoration Alternatives

Both OPA and NEPA require Natural Resource Trustees to develop a reasonable range of restoration alternatives before selecting their preferred alternative. Each alternative must be designed so that, as a package of one or more actions, the preferred alternative would make the environment and public whole. Federal and Louisiana Natural Resource Trustees established the

RRP Program to help address incidents and assist in carrying out their NRDA responsibilities. The RRP Program helps in evaluation and selection of a preferred restoration alternative by assisting the Natural Resource Trustees in identifying appropriate restoration types suitable to restore those trust resources and services injured, developing a list of potential restoration alternatives appropriate to restore injured trust resources and services, and selecting the preferred restoration alternative(s) to compensate the public for lost natural resources and services.

The development of restoration alternatives involves: 1) selecting restoration types that most appropriately address the injured natural resources and services caused by the incident; 2) developing a preliminary list of potential restoration actions appropriate for restoring for lost resources and services caused by the incident; 3) identifying a reasonable range of alternatives suitable for addressing injuries to natural resources and their services caused by the incident; and 4) selecting a preferred restoration alternative(s) available to be implemented.

3.3 Restoration Approach: Raphael Pass Oil Spill

3.3.1 Relationship of the Injured Resources and Services to Restoration Types and Restoration Actions

The injured resources and services are located in RRP Region 2 (Section 5.0 RRP Program FPEIS (NOAA et al. 2007)). As such, the Raphael Pass Oil Spill Trustees used coastal resource and service injury categories (Section 4.2.2 RRP Program FPEIS (NOAA et al. 2007)) when applying various tools and selection criteria provided in the RRP Program to ensure the most suitable potential restoration actions were identified. Marsh habitat was determined to be the injured natural resource, and as such, Coastal Herbaceous Wetlands is the appropriate RRP Program injured resource and service category.

3.3.2 Restoration Type Selection

To streamline the process of developing reasonable restoration alternatives and selecting a preferred alternative for implementation for the injury categories described in Chapter 2, the Raphael Pass Oil Spill Trustees looked first to the restoration types identified in the RRP Program FPEIS. The restoration types in Louisiana's RRP Program include the following seven broad categories:

1. creation/enhancement of habitat;
2. physical protection of habitat;
3. acquisition/legal protection of resources and services;
4. stocking of fauna;
5. physical protection of fauna;
6. restoration of recreational resource services; and
7. restoration of cultural resource services.

Next, the Raphael Pass Oil Spill Trustees selected a subset of appropriate restoration types by identifying those that had a strong nexus to the injured natural resources and their services. This would ensure that the restoration alternatives considered would provide services of the same type, quantity, and of comparable values as those lost. Through this process, the Raphael Pass Oil Spill Trustees identified eight restoration types with a strong nexus to the injured resource as their preferred restoration types for this case (Table 3.1).

The Raphael Pass Oil Spill Trustees then applied the restoration type selection criteria described in the RRP Program FPEIS (NOAA et al. 2007) to help determine which of the eight restoration types identified were most appropriate for restoring trust resources and services injured as a result of the incident. The restoration type selection criteria assisted the Raphael Pass Oil Spill Trustees in determining which of the various restoration types with a strong nexus to the injured trust resources and services is most appropriate to restore injured trust resources and services. These 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. degree to which the restoration type addresses multiple injuries;
3. scalability; and
4. availability of projects for this restoration type in the RRP Program.

As seen in Table 3.2, based on the application of these criteria, three out of eight potential restoration types were determined most appropriate to address injuries caused by the incident. Identification of these three preferred restoration types ensures that restoration actions considered will provide services of the same type, quantity, and of comparable values as those lost. The three preferred restoration types are:

1. Acquisition/Legal Protection Coastal Herbaceous Wetland
2. Creation/Enhancement Coastal Herbaceous Wetlands
3. Physical Protection of Coastal Herbaceous Wetlands

Table 3.1. Coastal restoration types. Shaded cells note the eight coastal restoration types appropriate for compensating for injuries to natural resources and services caused by the Raphael Pass Oil Spill.

COASTAL RESTORATION TYPES			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 (C/E)	Coastal Herbaceous Wetlands	✓	✓		✓	✓	✓	✓	✓	
		Coastal Forested Wetlands	✓	✓			✓	✓	✓	✓	
		Coastal Beaches/Shorelines/Streambeds			✓		✓	✓	✓	✓	
		Coastal Oyster Reefs (and Other Reefs)				✓	✓	✓	✓	✓	
		Coastal SAV	✓			✓	✓	✓	✓	✓	
	Physical Protection of Habitat (PP)	Coastal Herbaceous Wetlands	✓	✓		✓	✓	✓	✓	✓	
		Coastal Forested Wetlands	✓	✓			✓	✓	✓	✓	
		Coastal Beaches/Shorelines/Streambeds			✓		✓	✓	✓	✓	
	Acquisition/ Legal Protection of Habitat (Ac/LP)	Coastal Herbaceous Wetlands	✓	✓		✓	✓	✓	✓	✓	
		Coastal Forested Wetlands	✓	✓			✓	✓	✓	✓	
		Coastal Beaches/Shorelines/Streambeds			✓		✓	✓	✓	✓	
		Coastal Oyster Reefs (and Other Reefs)				✓	✓	✓	✓	✓	
		Coastal SAV	✓				✓	✓	✓	✓	
	Stocking of Fauna (S)	Coastal Water Column Org.					✓			✓	
		Coastal Oyster Reefs and Other Reef Organisms				✓	✓			✓	
		Birds						✓		✓	
		Wildlife							✓	✓	
	Physical Protection of Fauna (PF)	Birds						✓		✓	
		Wildlife							✓	✓	
	Recreational									✓	✓
	Cultural										✓

Table 3.2 Results of the application of restoration type selection criteria for the eight restoration types. Checks (✓) represent a restoration type met the criterion and blanks represent a restoration type did not meet the criterion, for one or more of the resources and services injured by the incident.

Coastal Restoration Type	Strength of Nexus	Addresses Multiple Injuries	Scalability	Projects Available in RRP
Acquisition/Legal Protection Coastal Forested Wetland			✓	✓
Acquisition/Legal Protection Coastal Herbaceous Wetland	✓		✓	✓
Acquisition/Legal Protection Coastal SAV			✓	
Creation/Enhancement Coastal Forested Wetlands			✓	✓
Creation/Enhancement Coastal Herbaceous Wetlands	✓		✓	✓
Creation/Enhancement Coastal SAV			✓	✓
Physical Protection of Coastal Forested Wetlands			✓	
Physical Protection of Coastal Herbaceous Wetlands	✓		✓	✓

3.3.3 Identification of Potential Restoration Actions based on Restoration Type

Following the identification of the preferred restoration types, the Raphael Pass Oil Spill Trustees conducted an initial screening of potential restoration actions available to address the injured resources. Nineteen preliminary restoration actions matched one or more of the preferred restoration types for the injured resources in RRP 2 (Appendix A). All of the actions were submitted by or obtained from the public and government agencies. The Raphael Pass Oil Spill Trustees screened these restoration actions to identify the most appropriate options for this case.

Among the Raphael Pass Oil Spill Trustees' goals was to identify restoration actions that could compensate for injured natural resources and resource services. In reviewing the potential restoration actions, the Trustees considered whether the type and scale of restoration would compensate for injuries to coastal herbaceous wetlands, specifically deltaic marsh.

3.4 Restoration Approach: Goodrich Barge Grounding

As mentioned in Chapter 1, a Final Restoration Plan for the Goodrich Barge Grounding was published in 2014 (USFWS 2014). Scarring and destruction of vegetation occurred due to the removal of the Goodrich barge at the grounding site. USFWS determined impacts from restoration at the Goodrich Barge Grounding site would potentially be more harmful than beneficial due to activities that would be required at that location. USFWS determined that restoration at an alternate, adjacent, location would be the most environmentally beneficial approach to compensate the public. In the 2014 plan, and considering the Goodrich Barge Grounding settlement funds only, USFWS proposed and selected Main Pass & Octave Pass Small-scale Sediment Diversion Project, as its preferred alternative (USFWS 2014).

During the Raphael Pass Oil Spill NRDA settlement in 2020, USFWS and the Louisiana Natural Resource Trustees agreed that it could be beneficial to add other available USFWS partnering funds to the Raphael Pass Oil Spill settlement funds to create a larger and more ecologically beneficial restoration project than the Raphael Pass Oil Spill settlement funds could accomplish

alone. USFWS determined that adding the Goodrich Barge Grounding settlement funds to the Raphael Pass Oil Spill settlement funds to create a larger project would be preferred over Main Pass & Octave Pass Small-scale Sediment Diversion Project for the Goodrich Barge Grounding.

As described in Chapter 5 of the Breton and Delta NWR CCP (USFWS 2008), several teams and groups were involved in planning NWR activities, including representatives from USFWS, United States Geological Survey, LDWF, LDENR, Louisiana State University, University of New Orleans, Buras High School, 4-H Program, and members of the public. USFWS considered those planning efforts in identifying potential restoration alternatives.

3.5 Selecting a Preferred Restoration Alternative

Following the identification of suitable restoration actions that had a strong nexus to the injured resources, the Raphael Pass Oil Spill Trustees and separately, USFWS for the Goodrich Barge Grounding, used the OPA criteria found in 15 CFR § 990.54 and RRP Program-specific criteria below to select a preferred restoration alternative for their respective incident. Only those actions considered to be technically feasible and in accordance with applicable laws, regulations, and/or permits were moved forward for further consideration.

OPA criteria:

1. Cost to carry out alternative;
2. Extent to which alternative is expected to meet the trustees' goals and objectives;
3. The alternative's likelihood of success;
4. Extent to which alternative prevents future injury resulting from the incident, and avoids collateral injury from implementation;
5. Extent to which alternative benefits more than one natural resource and/or service; and
6. Effect(s) of alternative on public health and safety.

RRP Program-specific criteria:

1. Ability to implement with minimal delay;
2. Degree to which the project supports existing strategies/plans;
3. Project urgency.

Table 3.3 shows two restoration actions that met most, or all, of the criteria listed above and would meet the Raphael Pass Oil Spill Trustees' and USFWS' respective goals to create and enhance deltaic marsh to compensate for lost natural resources and services. These projects were considered for further evaluation in the process of selecting a preferred alternative best suited for restoring the injured resources and making the environment and public whole.

Table 3.3 Restoration actions considered for further evaluation.

Project Name	RRP #	Restoration Type
Delta Bend East Crevasse-Terrace Restoration Project	2024-1081	CE CWH
Main Pass & Octave Pass Small-scale Sediment Diversion Project	2024-1082	CE CWH
MR-0173 Bird's Foot Delta Hydrologic Restoration	2021-1035	C/E CHW, C/E CBSS, Recreational

3.5.1 Evaluation of Potential Restoration Alternatives

3.5.1.1 No Action/Natural Recovery Alternative

The No Action Alternative is required for consideration under OPA and NEPA (15 CFR § 990.53); the No Action Alternative serves to contrast the impacts of other alternatives against the status quo. The No Action/Natural Recovery Alternative fulfills this requirement and considers taking no action to restore marsh habitat. This alternative would effectively allow for the continuation of current conditions in the Lower Mississippi River Birdfoot Delta with no intervention. Under this alternative, no steps would be taken to stabilize, create, or enhance marsh habitat as a result of the Goodrich Barge Grounding or the Raphael Pass Oil Spill, and therefore, this alternative would not sufficiently compensate the public for injuries to natural resources.

The No Action/Natural Recovery alternative is rejected for compensatory restoration for both the Raphael Pass Oil Spill and the Goodrich Barge Grounding. As evidenced by the restoration alternatives identified in developing this DARP/EA and Addendum, there are feasible and appropriate opportunities within RRP Program Region 2 to restore, replace, or provide services equivalent to those lost due to these incidents. Under the no-action alternative, restoration actions needed to make the environment and public whole for its losses would not occur. The Natural Resource Trustees for both the Raphael Pass Oil Spill and the Goodrich Barge Grounding determined that the No Action/Natural Recovery alternative (*i.e.,* no compensatory restoration) should be rejected on that basis. The No Action/Natural Recovery alternative is retained in this DARP/EA and Addendum for comparative purposes only.

3.5.1.2 Delta Bend East Crevasse-Terrace Restoration Project (Preferred Alternative)

The Raphael Pass Oil Spill Trustees and USFWS for the Goodrich Barge Grounding selected the creation of deltaic marsh via the Delta Bend East Crevasse-Terrace Restoration Project in the Lower Mississippi River Birdfoot Delta in the Delta Bend area of Delta NWR (Figure 4) as their preferred restoration alternative. The primary goal of this project would be to provide marsh habitat sufficient to compensate for lost habitat injuries resulting from each respective incident. The Delta NWR provides both biological and geographic nexus to the injured resources, as well as favorable geomorphic conditions for wetland formation via a crevasse splay to restore injured resources and the opportunity for multiple resource and service benefits. 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 by reintroducing riverine sediments during higher river stages. As sediments settle out in the receiving basin, splays are formed. Emergent vegetation forms on the splays and accelerates the land accretion and marsh expansion (Boyer et al. 1997). The terraces will help to trap sediments from the crevasse, decrease erosion by reducing wave energy, reduce turbidity which increases sediment deposition, and create conditions that promote the growth of submerged aquatic vegetation (SAV). This project would help facilitate this natural marsh building process.

The project would enhance approximately 350 acres of deltaic marsh. The project includes creation of a 100’ wide x ~350’ long x 10’ deep crevasse in the pass bank of Octave Pass and nearby terraces to mimic natural deltaic processes by converting less productive open water habitat

into highly productive emergent marsh. The crevasse would mimic the natural processes that created the Mississippi River delta by allowing sediment rich water to flow out into shallow subtidal ponds, gradually filling them and creating mudflats and finally emergent marsh. The terracing would aid in slowing the flow and allowing sediments to drop out into the receiving pond. Terraces would be planted to provide stabilization and to jumpstart emergent vegetation in the area. The resulting vegetated flats would continue to spread as more marsh is naturally created. This process would also create large expanses of shallow subtidal and intertidal flats with associated submerged aquatic vegetation, which would serve as rich foraging areas for fish, crabs, wading birds, shorebirds, waterfowl, and other wildlife. Project features would improve habitat diversity, reduce erosion, protect surrounding natural marshes, increase submerged aquatic vegetation productivity, improve water quality via nutrient uptake by wetland plants, counteract impacts of relative sea level rise, and provide habitat for fish and wildlife. The project is deemed suitable for creating the type and quantity of marsh required to satisfy compensatory restoration requirements for both the Raphael Pass Oil Spill and the Goodrich Barge Grounding.

Additionally, the Delta Bend East Crevasse-Terrace Restoration project has added advantages over the other alternatives in those combining settlements from the Raphael Pass Oil Spill and the Goodrich Barge Grounding enabled leveraging of funds to conduct a larger project with construction of a crevasse and terrace features increasing ecological benefits associated with the project. Through partnering, final design and construction in 2025 can occur with realized cost efficiencies and will be in accordance with the Natural Resource Trustees' goals under OPA.

A thorough review of this project, including review under applicable environmental laws and regulations, is described in the Delta and Breton NWRs CCP (USFWS 2008) and the original Restoration Plan for the Goodrich Oil Barge Grounding, Delta NWR (USFWS 2014). These reviews indicate that adverse effects from the project would largely be minor to moderate, localized, and temporary. See Chapter 4 herein for a summary of the existing NEPA analyses. In addition, best management practices and measures to avoid or minimize adverse effects would be implemented, where applicable. As a result, collateral injury would be avoided and minimized during project implementation (construction) (15 CFR § 990.54(a)(4)). It is further anticipated that potential impacts would be mitigated by creation of longer-term emergent marsh habitats.

For service losses related to the deltaic marsh injury, it was determined that the equivalent of 47.2 DSAYs of deltaic marsh injury occurred as a result of the Raphael Pass Oil Spill (Section 2.1.4). For the purposes of restoration scaling, the Raphael Pass Oil Spill Trustees developed input parameters based on a crevasse-splay restoration project that would create deltaic marsh in the delta along the Mississippi River modern Balize delta (Bird's-Foot Delta). Project lifespan was estimated at 30 years with services reaching full function at 15 years and then decreasing overthe subsequent 15 years. Project benefits may have a longer duration but to be more protective of the resource, the Raphael Pass Oil Spill Trustees used 30 years for the duration of project benefits. Applying a discount rate of 3.0% per year (NOAA, 1999) and assuming project implementation in 2025, it was determined that 9.35 acres of deltaic marsh habitat creation would compensate for the injuries caused by the Raphael Pass Oil Spill.

For the Raphael Pass Oil Spill, performance monitoring will 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 will 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 preferred alternative will use these standards to determine whether the project goals and objectives have been achieved or whether corrective actions are necessary. If the performance criteria are satisfied at the 5-year monitoring event, and the Raphael Pass Oil Spill Trustees are otherwise confident, based on previous experience, that the project will be successful, then no further monitoring will be required.

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.

The Delta Bend East Crevasse-Terrace Restoration Project has a high likelihood of success, would benefit multiple resources and resource services, is cost effective, and has a strong nexus to the deltaic marsh habitat injuries. The project could be expected to be implemented with minimal delay given the previous planning already completed (USFWS 2008; USFWS 2014) (15 CFR § 990.54 (a)(1)). The project is technically feasible and utilizes proven techniques with established methods and documented results. USFWS has successfully used sediment diversions (crevasse) as a cost-effective method of restoration in this area for several decades (USFWS 2014). For these reasons, the Raphael Pass Oil Spill Trustees and USFWS for the Goodrich Barge Grounding identified deltaic marsh creation, via the construction of the Delta Bend East Crevasse-Terrace Restoration project in the Delta NWR in the Lower Mississippi River, as the preferred restoration for the Raphael Pass Oil Spill and the Goodrich Barge Grounding, respectively.

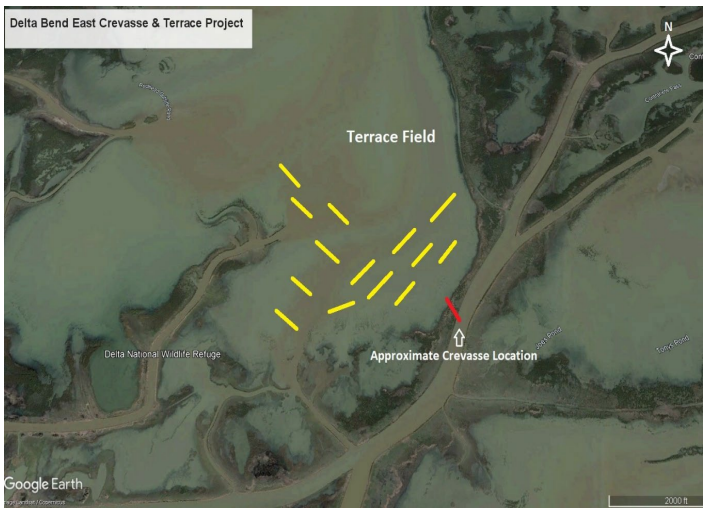

Figure 4. Project Area for Restoration Alternative 2: Delta Bend East Crevasse-Terrace Restoration Project (see Figure 1 for project area location).

3.5.1.3 Alternatives Considered but Eliminated from Further Evaluation

As discussed above, a number of potential restoration actions were considered to help compensate

the public for injuries to resources caused by the Raphael Pass Oil Spill and the Goodrich Barge Grounding, respectively. Of those, two specific alternatives emerged in addition to the preferred alternative. Both alternatives met the restoration goals and criteria; however, due to the reasons discussed below, these alternatives were eliminated from further evaluation and analysis.

3.5.1.3.1 Main Pass and Octave Pass Small-Scale Sediment Diversion Project

The Main Pass and Octave Pass Small-Scale Sediment Diversion Project considers the restoration of deltaic marsh habitat on the Delta NWR by constructing two small-scale sediment diversions near the Goodrich Barge Grounding incident location. The project would enhance approximately 72 acres of deltaic marsh. Construction of these diversions involves the excavation of a maximum 100' wide x 1,800' long x 8' deep crevasses off Octave Pass and Main Pass within the Delta NWR. The diversions would mimic the natural processes responsible for building the Mississippi River Delta by allowing sediment rich water to flow out into shallow subtidal ponds, gradually filling them and creating mudflats and finally emergent marsh. Although the project is technically feasible and utilizes proven techniques with established methods and documented results and would provide similar and complimentary services as those injured, the project has a smaller scale resource benefit and lacks the construction of terrace features. The project was therefore eliminated from further consideration due to its decreased strength of nexus and likelihood of success when compared to the preferred alternative.

3.5.1.3.2 MR-0173 Bird's Foot Delta Hydrologic Restoration

This project would restore the hydrology of the Mississippi River Bird's Foot Delta by dredging Pass a Loutre, South Pass, and Southeast Pass to reconnect the Mississippi River with the marshes of the eastern central Bird's Food Delta. The project seeks to restore riverine processes to enhance natural marsh accretion via existing small sediment diversions (crevasses) and creating approximately 750 acres of tidal wetlands, to create and enhance over 1,500 acres of subtidal mudflats and submerged aquatic vegetation, to use dredged sediment beneficially to create over 1,000 acres of fresh and brackish marsh and to use dredge sediment to create approximately 20 acres of beach habitat for colonial nesting waterbirds. In October 2020, the Deepwater Horizon Oil Spill NRDA Louisiana Trustee Implementation Group selected the project to receive engineering and design funds as part of the Final Restoration Plan and Environmental Assessment #7: Wetlands, Coastal, and Nearshore Habitats, and Birds. Although the project is technically feasible and utilizes proven techniques with established methods and documented results, the project, which is much larger in scope than the preferred alternative, would cost significantly more to construct and provide an over crediting of trust resource and services as compared to the preferred alternative. The preferred alternative will be more cost-effective due to the minimum amount of construction required to dredge the crevasse channel and construct terraces. Additionally, this project is in the early stages of development and engineering and design, whereas the preferred alternative could be expected to be implemented with minimal delay given the previous planning already completed (USFWS 2008; USFWS 2014).

4 NEPA COMPLIANCE

Federal agencies are encouraged to coordinate and take appropriate advantage of existing NEPA documents and studies, including adoption, tiering from, and incorporation by reference. Under Council on Environmental Quality (CEQ) NEPA regulations (40 CFR § 1506.3), DOI NEPA regulations (43 CFR § 46.120), and individual DOI bureau NEPA procedures, DOI may tier from (40 CFR §1508.28) and incorporate by reference (40 CFR §1502.21) analyses from other documents to streamline the NEPA compliance process. The supporting record must include an evaluation of whether new circumstances, new information, or changes in the action or its impacts not previously analyzed may result in significantly different environmental effects (43 CFR 46.120(c)).

The preferred alternative herein, the Delta Bend East Crevasse-Terrace Restoration Project, falls within the scope of a project that was analyzed under NEPA in two separate, but related, contexts: 1) the Restoration Plan for the Goodrich Oil Barge Grounding, Delta NWR (USFWS 2014; hereafter Goodrich Restoration Plan) and 2) the Delta and Breton NWR CCP (USFWS 2008). Accordingly, DOI has independently evaluated the existing NEPA analyses from the Goodrich Restoration Plan and the Delta and Breton NWR CCP pertinent to the anticipated and unavoidable impacts associated with the Delta Bend East Crevasse-Terrace Restoration Project. The Goodrich Restoration Plan applied a Categorical Exclusion for sediment diversion actions that are similar in nature to what would be undertaken with the preferred restoration alternative. The Delta and Breton NWR CCP also evaluated habitat management actions consistent with implementation plans of the preferred restoration alternative. Those analyses meet standards for NEPA analyses under the CEQ NEPA regulations, DOI NEPA regulations, and individual DOI bureau NEPA procedures, and DOI's public involvement requirements have also been met. Relative to the actions, impacts, and environmental consequences considered in those two documents, the restoration alternatives considered within this DARP-EA and Addendum present no new circumstances, information, or changes in actions or impacts that would elicit significantly different environmental impacts. Therefore, DOI is adopting, tiering from (40 CFR §1508.28), and incorporating by reference (40 CFR §1502.21), NEPA analyses from the Goodrich Restoration Plan and the Delta and Breton NWR CCP to fulfill NEPA requirements for the Delta Bend East Crevasse-Terrace Restoration Project. Below is a summary of the impacts analyzed, compliance with other environmental laws, and mitigation commitments contained in those documents.

4.1 Summary of Impacts and Compliance with Other Environmental Laws and Mitigation

The Delta Bend East Crevasse-Terrace Restoration Project would involve the construction of one sediment diversion, with an associated terrace field, creating shallow subtidal and intertidal flats that would transition over time into deltaic marsh habitat. Previous NEPA analysis of this restoration technique anticipates short-term and minor adverse impacts to potentially affected resources. These impacts include short term impacts to water quality, in the form of suspended sediment in the water column, in addition to short-term disturbances to the ecosystem and wildlife during construction. No moderate to major adverse impacts are anticipated.

Overall, the impact of past, present, and reasonably foreseeable future actions related to the Delta Bend East Crevasse-Terrace Restoration Project would result in long-term beneficial impacts, as restoration and environmental stewardship activities and other restoration projects would all contribute to improving the natural environment. In addition to providing long-term beneficial

impacts to marsh habitats, the Delta Bend East Crevasse-Terrace Restoration Project would beneficially contribute to habitat restoration in an area of great need on Delta NWR.

4.1.1 Summary of the NEPA Analysis from the Goodrich Restoration Plan

The Goodrich Restoration Plan evaluated restoration techniques to compensate for natural resource injuries sustained to marsh habitat during the excavation of the Goodrich Barge Grounding. The Goodrich Restoration Plan selected a small-scale sediment diversion as the preferred restoration technique and applied a categorical exclusion to the action. According to the Code of Federal Regulations 46.210, Listing of Departmental categorical exclusions, such exclusions are classes of actions which do not individually or cumulatively have a significant effect on the human environment. In the Departmental Manual 516 DM 8.5, the following USFWS actions (USFWS 2004) are designated categorical exclusions unless the action is an exception to the categorical exclusion:

> A. General.
> (11) Natural resource damage assessment restoration plans, prepared under Sections 107, 111, and 122(j) of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA); section 3111 (f)(4) of the Clean Water Act; and the Oil Pollution Act; when only minor or negligible change in the use of the affected areas is planned.

The Goodrich Restoration Plan considered the restoration technique (small-scale sediment diversion) in the context of the categorical exclusion cited above and found this technique met the criteria of "minor and negligible change in the use of affected areas" in the context of a NRDA restoration plan. In accepting the application of this categorical exclusion, the Goodrich Restoration Plan cited the following conclusions and resources:

- Sediment diversions are a commonly used restoration practice implemented along the southeastern coast of the United States. This wetland restoration practice is clearly identified in several accepted wildlife management planning reports, patently supporting the use of a categorical exclusion for this project.
- The North American Waterfowl Management Plan, Gulf Coast Joint Venture: Mississippi River Coastal Wetlands Initiative (Wilson et al. 2002; page 13) specifically mentions the implementation of crevasses to capture sediment from sediment-laden water to restore mudflats, and ultimately emergent vegetation, on degraded areas.
- The U.S. Shorebird Conservation Plan, Lower Mississippi/Western Gulf Coast Shorebird Planning Region (Gulf Coast Prairie Working Group 2000; page 17) also mentions the long-term use of sediment diversion crevasses to facilitate sediment accretion and marsh restoration in the deltaic plain.
- Lastly, sediment diversions or crevasses are a means to restore form and function to wetland habitat and are a common coastal shoreline restoration practice and have been implemented for the past several decades on the Delta NWR (USFWS 2008: pages 32 and 45).

The restoration technique categorically excluded from NEPA in the Goodrich Restoration Plan is relevant to the actions described in this DARP-EA and Addendum, and the Goodrich Restoration Plan is incorporated by reference.

4.1.2 Summary of the NEPA Analysis from the Delta and Breton NWR CCP

The Delta and Breton NWR CCP evaluated three alternatives for the Delta NWR:

- Alternative A: No Action Alternative,
- Alternative B: User-focused Management, and
- Alternative C: Improved Habitat Restoration and Public Outreach Management.

Each alternative in the Delta and Breton NWRs CCP represented a different combination of management objective and strategies for the Delta and Breton NWRs. Alternative C, Improved Habitat Restoration and Public Outreach Management, was selected as the preferred alternative and aligns with the actions considered in this DARP/EA and Addendum. Alternative C proposed a NWR management regime that emphasized partnering with conservation agencies and large corporations to carry out restoration projects based on dedicated dredging, vegetation restoration, and barrier island restoration. Alternative C includes the implementation of large-scale restoration efforts, including the crevasse program and Gulf shoreline restoration efforts, that apply to projects considered in this DARP/EA and Addendum.

The Delta and Breton NWR CCP evaluated how different combinations of management activities would affect the NWR's natural resources. All alternatives specify that resources will be managed to comply with all laws and regulations; including but not limited to subsurface mineral reservations; utility lines and easements; soils; water and air; and historical and archaeological resources. Any existing and future wildlife regulations, oil and gas exploration, extraction, and transport operations on the NWRs would be managed identically under each of the alternatives. No known cultural and historic resources exist on Delta or Breton NWRs, but prior to any construction the USFWS Region 4 Archaeologist and the Louisiana State Historic Preservation Office (SHPO) will be consulted. All alternatives protect any cultural resources discovered in the future, and none of the alternatives include developments that would adversely affect any resources. A Joint Permit request will be submitted to the Louisiana Department of Energy and Natural Resources and the U.S. Army Corps of Engineers (New Orleans District) prior to any construction. This permit will cover all Coastal Use and 404 Wetlands permitting requirements.

Table 6 of the Delta and Breton NWR CCP (starting on Page 91 therein) provides a summary of environmental effects for each alternative considered. This discussion was broken out by issues of importance for each NWR. For the habitat restoration option (Alternative C), the Delta and Breton NWR CCP lists the following conclusions for each management issue identified for the Delta NWR:

- Wetland Habitat: Increasing quality,
- Waterfowl: Increasing biological and habitat quality,
- Neo-tropical Migrants and Breeding Birds: Increasing biological quality,
- Threatened and Endangered Species: Stable,
- Resident Mammals, Amphibians, and Reptiles: Increasing biological quality,
- Fisheries: Slightly increasing biological quality,
- Exotic Species Management: Increasing quality,
- Public Uses: Stable,
- Environmental Education, Outreach, and Interpretation: Increasing quality,

- Law Enforcement: Increasingquality, and
  Oil and Gas Activities: Increasing quality.

The restoration alternatives described in this DARP/EA and Addendum, particularly creation and maintenance of wetlands and barrier islands using heavy equipment, may result in minor and short-term impacts to water quality similar to those described for Alternatives B and C within the Delta and Breton NWR CCP (pp. 87-97). For expediency and efficiency, this DARP/EA and Addendum tiers from (40 CFR §1508.28) and incorporates by reference (40 CFR §1502.21) relevant portions of the Delta and Breton NWR CCP and the NEPA analysis therein. The activities associated with this DARP/EA and Addendum are in alignment with the goals of the Delta and Breton NWR CCP, and compliant with the preferred alternative selected in that document.

4.1.3 Direct and Indirect Effects or Impacts

Direct effects are caused by an action and occur at the same time as the action. Indirect effects are caused by an action but are manifested later in time or further removed in distance, but still reasonably foreseeable. The primary action for implementation under the preferred alternative is marsh restoration through the construction of a small sediment diversion. The action would result in both direct and indirect effects. A direct action would be creation of emergent marsh habitat by cutting a crevasse and/or dredging material from one area to move to another. An indirect effect would be minor water quality impacts from siltation due to the disturbance of soils while restoring habitat.

4.1.4 Short-term Uses Versus Long-Term Productivity

The habitat protection and management actions under the preferred restoration alternative are dedicated to maintaining the long-term productivity of NWR habitats. The benefits of these actions for long-term productivity far outweigh any impacts from short-term actions. While marsh restoration activities would cause short-term negative impacts, the protection of backshore habitats, educational values, and associated public support gained from the improved visitor experience would produce long-term benefits for the entire ecosystem.

The key to protecting and ensuring the NWR's long-term productivity is to find the threshold where public uses do not degrade or interfere with the NWR's natural resources. Activities anticipated under the preferred alternative have been carefully conceived to achieve that threshold. Therefore, implementing the preferred alternative would lead to long-term benefits for wildlife protection and land conservation that far outweigh any short-term impacts.

4.1.5 Cumulative Impacts

A cumulative impact is defined as an impact on the natural or human environment, which results from the incremental impact of the proposed action when added to other past, present, and reasonably foreseeable future actions regardless of which agency (federal or nonfederal) or person undertakes such other actions (40 CFR § 1508.7). Cumulative impacts are the overall, net effects on a resource that arise from multiple actions. Impacts can "accumulate" spatially when different actions affect different areas of the same resource. They can also accumulate over the course of time, from actions in the past, the present, and the future. Occasionally, different actions

counterbalance one another, partially canceling out each other's effect on a resource. But more typically, multiple effects add up, with each additional action contributing an incremental impact on the resource. In addition, sometimes the overall effect is greater than merely the sum of the individual effects, such as when one more reduction in a population crosses a threshold of reproductive sustainability and threatens to extinguish the population.

A thorough analysis of impacts always considers their cumulative aspects because actions do not take place in a vacuum; other actions have affected that resource in some way in the past, or are affecting it in the present, or will affect it in the reasonably foreseeable future. So, any assessment of a specific action's effects must in fact be made with consideration of what else has happened to that resource, what else is happening, or what else will likely happen to it. Additional restoration projects often occur in the Delta NWR that improve habitat quality and quantity. For example, a similar project to Alternative 2 herein was recently completed along the western side of Delta Bend within the NWR. That project included creation of two crevasses with associated terracing coupled with one of the two crevasses. The preferred alternative will result in short-term impacts to marsh habitat during the construction phase. These negative impacts will be offset by the long-term beneficial effects to the Delta NWR marsh habitat.

4.1.6 Compliance with Relevant Federal Environmental Laws

Consultations will occur with the Louisiana Department of Energy and Natural Resources and the U.S. Army Corps of Engineers to fulfill requirements of the Coastal Zone Management Act of 1971, Rivers and Harbors Act of 1899, and Clean Water Act 404 Wetland permitting, as applicable, for any restoration implemented under this plan. Consultation under the National Historic Preservation Act will also occur with the USFWS Region 4 Archaeologist and the Louisiana SHPO.

Executive Order 14154, *Unleashing American Energy* (Jan. 20, 2025), and a Presidential Memorandum, *Ending Illegal Discrimination and Restoring Merit-Based Opportunity* (Jan. 21, 2025), require the Department of the Interior to strictly adhere to the NEPA, 42 U.S.C. §§ 4321 *et seq.* Further, such Order and Memorandum repeal Executive Orders 12898 (Feb. 11, 1994) and 14096 (Apr. 21, 2023). Because Executive Orders 12898 and 14096 have been repealed, complying with such Orders is a legal impossibility. The USFWS verifies that it has complied with the requirements of NEPA, including the Department of the Interior regulations and procedures implementing NEPA at 43 C.F.R. Part 46 and Part 516 of the Departmental Manual, consistent with the President's January 2025 Order and Memorandum.

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6 APPENDIX A

Project ID	Project Name	Parish	RRP Region	Restoration Type
2019-900	TNC Grand Isle Land Acquisition #3, (12-15 acre tract)	Jefferson	2	Ac/LP CHW[5], C/E CHW
2017-828	BS-0024 Terracing and Marsh Creation South of Big Mar	Plaquemines	2	C/E CHW, C/E CSAV[6]
2021-1031	BS-0044 Phoenix Marsh Creation - West Increment	Plaquemines	2	C/E CHW
2021-1035	MR-0173 Bird's Foot Delta Hydrologic Restoration	Plaquemines	2	C/E CHW, C/E CBSS[7], Recreational
2022-1048	BS-0042 Phoenix Marsh Creation-East Increment	Plaquemines	2	C/E CHW
2022-1049	BS-0041 North Delacroix Marsh Creation and Terracing	St. Bernard	2	C/E CHW
2023-1060	BA-0268 Northwest Little Lake Marsh Creation	Lafourche	2	C/E CHW, PP CBSS, C/E CBSS
2023-1063	PPL 33 Northwest Little Lake Marsh Creation Extension	Lafourche	2	C/E CHW
2023-1065	PPL 33 South Delacroix Marsh Creation and Terracing	Plaquemines	2	C/E CHW
2024-1077	BA-0260 Northwest Little Lake Marsh Creation Increment 2	Lafourche	2	C/E CHW
2024-1076	BA-0256 Grand Bayou Ridge Restoration	Plaquemines	2	PP CHW
2023-1053	BA-0257 Grand Bayou Ridge and Marsh Restoration - Increment 2	Plaquemines	2	C/E CHW, C/E CFW[8]
2023-1051	BA-0258 Northeast Turtle Bay Marsh Creation Extension	Jefferson	2	C/E CHW
2023-1055	PPL 33 West Dupre Cut Marsh Creation	Jefferson	2	C/E CHW

[5] CHW Coastal Herbaceous Wetlands
[6] CSAV Coastal Submerged Aquatic Vegetation
[7] CBSS Coastal Beach, Shorelines, Streambeds
[8] CFW Coastal Forested Wetland

Project ID	Project Name	Parish	RRP Region	Restoration Type
2023-1057	PPL 33 Southeast Golden Meadow Marsh Creation	Lafourche	2	C/E CHW
2023-1056	BS-0046 Yscloskey Marsh Creation	St. Bernard	2	C/E CHW
2023-1059	PPL 33 Bayou Terre aux Boeufs Ridge Restoration and Marsh Creation	Plaquemines	2	C/E CHW, C/E CFW
2024-1081	Delta National Wildlife Refuge (NWR) Crevasse and Terrace Project	Plaquemines	2	C/E CHW, C/E CSAV
2024-1082	Main Pass & Octave Pass Small-Scale Sediment Diversion Project	Plaquemines	2	C/E CHW

FINDING OF NO SIGNIFICANT IMPACT

DAMAGE ASSESSMENT AND RESTORATION PLAN AND ENVIRONMENTAL ASSESSMENT for the 2004 Raphael Pass Oil Spill and ADDENDUM TO THE 2014 RESTORATION PLAN for the 2005 Goodrich Barge Grounding

OVERVIEW AND BACKGROUND

The United States Fish and Wildlife Service (USFWS) acting on behalf of the U.S. Department of the Interior (DOI); Louisiana Oil Spill Coordinator's Office (LOSCO); Louisiana Department of Energy and Natural Resources (LDENR); Louisiana Department of Environmental Quality (LDEQ); Louisiana Department of Wildlife and Fisheries (LDWF); and the Coastal Protection and Restoration Authority of Louisiana (CPRA), collectively known as the Natural Resource Trustees for the 2004 Raphael Pass Oil Spill; and the USFWS, the Natural Resource Trustee for the 2005 grounding of an oil storage barge owned and operated by the Goodrich Petroleum Company, LLC in the Delta National Wildlife Refuge, [collectively the Trustees]) completed a Final Damage Assessment and Restoration Plan and Environmental Assessment and Addendum to the 2014 Restoration Plan for the 2005 Goodrich Barge Grounding (DARP/EA and Addendum) that explains the decisions of the Trustees to provide approximately $685,569 to support restoration of deltaic marsh in the Lower Mississippi River delta. The Final DARP/EA and Addendum was prepared in accordance with the National Environmental Policy Act (NEPA), Council on Environmental Quality (CEQ) NEPA regulations, and all applicable agency NEPA regulations and guidance.

The CEQ Regulations direct agencies to prepare a Finding of No Significant Impact (FONSI) when an action not otherwise excluded will not have a significant impact on the human environment. 40 C.F.R. §§ 1500.4(b) & 1500.5(b). The CEQ regulations direct agencies to analyze the potentially affected environment and the degree of the effects of the proposed action to evaluate whether a significant impact on the environment is likely 40 C.F.R. § 1501.3(b). In doing so, agencies should consider the geographic extent of the affected area (i.e., national, regional or local), the resources located in the affected area (40 C.F.R. § 1501.3(b)(1)), and whether the project is considered minor or small-scale (NAO 216-6A CM, Appendix A-2). In considering the degree of effect on these resources, agencies should examine both short- and long-term effects (40 C.F.R. § 1501.3(b)(2)(i); NAO 216-6A CM Appendix A-2 - A-3), and the magnitude of the effect (e.g., negligible, minor, moderate, major). CEQ identifies specific criteria for consideration. 40 C.F.R. § 1501.3(b)(ii)-(iv). Each criterion is discussed below with respect to the proposed action and considered individually as well as in combination with the others.

In preparing this FONSI, we reviewed the Final DARP/EA and Addendum, which evaluates the affected area, the scale and geographic extent of the proposed action, and the degree of effects on those resources (including the duration of impact, and whether the impacts were adverse and/or beneficial and their magnitude). The Final DARP/EA and Addendum was prepared by the Trustees with DOI as the lead federal agency and is hereby incorporated by

reference. 40 C.F.R. § 1501.6(b).

LEAD AND COOPERATING AGENCIES

DOI, represented by USFWS, served as the lead agency responsible for NEPA compliance. As a federal agency, USFWS must make its own independent evaluation of the NEPA analysis integrated in the Final DARP/EA in support of its decision-making responsibilities (40 C.F.R. § 1506.3(a)).

SUMMARY OF PROPOSED ACTIONS AND ALTERNATIVES

The Final DARP/EA and Addendum discusses a reasonable range of alternatives and a natural recovery/no action alternative. The Preferred Alternative includes restoration activities the Trustees identify as their proposed action. The proposed action consists of enhancing approximately 350 acres of deltaic marsh by creating a 100' wide x ~350' long x 10' deep crevasse in the pass bank of Octave Pass and nearby terraces to mimic natural deltaic processes. The crevasse would mimic the natural processes that created the Mississippi River delta by allowing sediment rich water to flow out into shallow subtidal ponds, gradually filling them and creating mudflats and finally emergent marsh. The terracing would aid in slowing the flow and allowing sediments to drop out into the receiving pond. Terraces would be planted to provide stabilization and to jumpstart emergent vegetation in the area. The resulting vegetated flats would continue to spread as more marsh is naturally created. This process would also create large expanses of shallow subtidal and intertidal flats with associated submerged aquatic vegetation, which would serve as rich foraging areas for fish, crabs, wading birds, shorebirds, waterfowl, and other wildlife. Project features would improve habitat diversity, reduce erosion, protect surrounding natural marshes, increase submerged aquatic vegetation productivity, improve water quality via nutrient uptake by wetland plants, counteract impacts of relative sea level rise, and provide habitat for fish and wildlife. The Trustees determined that the Preferred Alternative would provide more efficient recovery of habitats and associated organisms compared to the other alternatives.

ANALYSIS SUMMARY

The Final DARP/EA analyzes potential environmental impacts associated with the projects that constitute the proposed action for restoration in the Mississippi River delta. The analysis is outlined in Section 4 of the DARP/EA and Addendum. The No- Action Alternative would not have direct beneficial effects or adverse impacts but would allow the degraded conditions of habitats in the Mississippi River delta to continue. The proposed action consists of habitat restoration projects that would provide benefits to natural resources injured by the release or threatened release of related hazardous substances and provide natural resource services similar to what would have been provided had those releases not occurred. The proposed action is expected to increase habitat quality and quantity and benefit natural resources within the Mississippi River delta. The proposed action is unlikely to have significant adverse impacts on the environment. Short-term, direct, minor, adverse impacts to identified natural resources may occur in the immediate vicinity of the project sites during implementation due to potential for construction noise and ground or sediment disturbance. No long-term, direct or indirect, adverse impacts are anticipated. The proposed action will not adversely affect any known historic or cultural resources listed in or eligible for listing in the National Register of Historic Places and will not cause loss or destruction of significant scientific, cultural, or historical

resources. The proposed action will not have a disproportionately high and adverse effect on the health or the environment of minority or low-income communities, compared to the impacts on other communities (EO 12898). The proposed action may also provide future environmental justice benefits, including protection of coastal marsh within the Delta National Wildlife Refuge for enhanced natural resources, enhanced recreational and subsistence fisheries resources, and improved water quality. Moreover, any enhanced resilience to climate change created by the projects would extend to the broader community, including populations with environmental justice concerns.

The proposed action is not known to be related to other actions within the Mississippi River delta that, when considered together, could result in synergistically significant impacts. Any future federal actions in these areas may have to undergo a similar NEPA evaluation and review process and consider the Trustees' project activities when addressing cumulative effects.

AGENCY COORDINATION

Additional federal laws may apply to the proposed action considered in the DARP/EA and Addendum. All federal, state and local laws will be complied with prior to project implementation. Select agency coordination includes:

- Endangered Species Act. The selected projects are not expected to adversely affect endangered or threatened species, their critical habitat, marine mammals, or other non-target species. Overall, the selected projects are expected to benefit fisheries and their habitats. ESA compliance requirements resulting from consultations with USFWS and NOAA, if any, will be completed for the projects prior to construction. Any resulting conservation recommendations and best management practices (BMPs) will be included in any applicable permit conditions. Potential impacts to soil, water, and biological resources will be minimized or mitigated through BMPs, permit conditions, and consultation requirements if required by other statutes.
- National Historic Preservation Act. Consultations will be completed with the Louisiana Office of Cultural Development, Division of Historic Preservation as directed by Section 106 of the National Historic Preservation Act as needed. If potential adverse impacts become known during project implementation, the Trustees will either conduct, or require the project implementer to conduct, appropriate compliance under the National Historic Preservation Act.
- Magnusson Stevens Act. The Trustees do not expect the proposed action to cause substantial damage to the ocean and coastal habitats and/or Essential Fish Habitat as defined under the Magnuson-Stevens Act. Any short-term and temporary localized impacts can be minimized by the use of BMPs during project implementation. The Trustees expect the proposed action will substantially benefit the habitats targeted for restoration and the species associated with those habitats.

If any further need arises to coordinate and consult with other regulatory authorities, additional coordination or consultation requirements would be addressed prior to project implementation. This Finding of No Significant Impact for the proposed action is issued subject to the completion of all outstanding compliance reviews under other federal laws. If the proposed action changes or information is brought to light as a result of completing such

reviews that is potentially relevant to the environmental evaluation relied on herein, that evaluation would be updated or supplemented as required by NEPA and a new determination made as to whether the proposed actions are likely to significantly affect the quality of the human environment.

DETERMINATION

Based on review and evaluation of the information contained in the Final DARP/EA and Amendment, I have determined that the proposed actions do not constitute a major Federal action which would significantly affect the quality of the human environment within the meaning of Section 102 (2)(c) of the National Environmental Policy Act of 1969. Accordingly, the preparation of an environmental impact statement on the proposed actions is not required at this time.

Acting THOMAS AUGSPURGER Digitally signed by THOMAS AUGSPURGER Date: 2024.12.31 11:25:12 -05'00'

Assistant Regional Director
Gulf Restoration Office and Office of Southeast NRDAR
USFWS Southeast Region