West Fourchon Marsh Creation & Nourishment Project

SUPPLEMENTAL
ENVIRONMENTAL
ASSESSMENT

Fed No. TE-0134
Lafourche Parish, Louisiana

October 2023

UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL MARINE FISHERIES SERVICE

MEMORANDUM FOR: Carrie Selberg Robinson
Director, Office of Habitat Restoration

FROM: Christopher D. Doley
Division Chief, NOAA Restoration Center

SUBJECT: Release of Coastal Wetlands Planning, Protection, and Restoration Act West Fourchon Marsh Creation and Nourishment Project Supplemental Environmental Assessment and Finding of No Significant Impact – ACTION MEMORANDUM

This action memo requests your approval to release the Coastal Wetlands Planning, Protection, and Restoration Act West Fourchon Marsh Creation and Nourishment Project Supplemental Environmental Assessment (West Fourchon SEA). It also seeks to proceed with the associated Finding of No Significant Impact (FONSI). Your approval for this action is acknowledged by signature on the FONSI.

BACKGROUND

This proposed project is authorized under the Coastal Wetlands Planning, Protection, and Restoration Act (CWPPRA) of 1990 (16 United States Code [U.S.C.] §777c, 3951-3956). As a CWPPRA trustee, National Oceanic and Atmospheric Administration (NOAA), National Marine Fisheries Service (NMFS), Department of Commerce is the federal project sponsor responsible for project oversight, including National Environmental Policy Act (NEPA) compliance. NMFS is the federal lead agency. The Louisiana Coastal Protection and Restoration Authority is the non-federal local project sponsor and is performing the engineering and design of the project.

As evaluated in the West Fourchon SEA, this project supports the objectives of the Coastal Wetlands Planning, Protection, and Restoration Act through the implementation of the West Fourchon Marsh Creation and Nourishment Project in Lafourche Parish, Louisiana. The project will raise the elevation of 537 acres of saline tidal wetlands and black mangrove habitat by dredging offshore sediments in order to meet the project purpose of re-establishing and preventing loss of marsh in the project area. The project is needed to preserve a functional elevation during anticipated sea level rise. Altered hydrology, subsidence, and hurricanes have contributed to land loss at the location, which is at sea level and frequently inundated with several feet of gulf water during tropical storms. All methods have shown to improve fisheries habitat by recreating marsh habitat, and are similar to and synergistic with other actions in the area.

The West Fourchon Marsh Creation and Nourishment Project, Fed No. TE-0134: Final Supplemental Environmental Assessment (2023 SEA) is a supplemental environmental assessment prepared by the National Oceanic and Atmospheric Administration (NOAA) to modify the borrow

area component of the previously authorized project as described and evaluated in the 2020 West Fourchon Marsh Creation and Nourishment Project EA (2020 EA).

Completion of this Final West Fourchon SEA and reaching a FONSI satisfies the NMFS NEPA evaluation responsibilities. No further NEPA will be required to seek funding or construct the preferred alternative.

RECOMMENDATION

I recommend you approve the Final West Fourchon SEA as recorded by your signature on the FONSI.

Attachments: West Fourchon Marsh Creation and Nourishment Project Supplemental Environmental Assessment and associated Finding of No Significant Impact

Finding of No Significant Impact from Implementation of the West Fourchon Marsh Creation and Nourishment Project, Fed No. TE-0134: Final Supplemental Environmental Assessment

Overview and Background

The "West Fourchon Marsh Creation and Nourishment Project, Fed No. TE-0134: Final Supplemental Environmental Assessment" (2023 SEA) is a supplemental environmental assessment prepared by the National Oceanic and Atmospheric Administration (NOAA) to modify the borrow area component of the previously authorized project as described and evaluated in the 2020 West Fourchon Marsh Creation and Nourishment Project EA (2020 EA).

The original project, West Fourchon Marsh Creation and Nourishment Project, TE-0134, was authorized under the Coastal Wetlands Planning, Protection, and Restoration Act (CWPPRA) of 1990 (16 United States Code [U.S.C.] §777c, 3951-3956). The West Fourchon Marsh Creation and Nourishment Project supports the objectives of CWPPRA through the implementing marsh creation and nourishment in Lafourche Parish, Louisiana. The project will raise the elevation of 537 acres of saline tidal wetlands and black mangrove habitat by dredging offshore sediments in order to meet the project purpose of re-establishing and preventing loss of marsh in the project area. The project is needed to preserve a functional elevation during anticipated sea level rise. Altered hydrology, subsidence, and hurricanes have contributed to land loss at the location, which is at sea level and frequently inundated with several feet of gulf water during tropical storms. All methods have shown to improve fisheries habitat by recreating marsh habitat, and are similar to and synergistic with other actions in the area.

The originally authorized borrow area evaluated in the 2020 EA is located in the Gulf of Mexico approximately 5.3 miles southeast of Port Fourchon. Upon completion of the final 2020 EA, NOAA issued a Finding of No Significant Impact on June 29, 2020. The West Fourchon project was approved for construction funding in January 2020. The originally authorized borrow area included in the 2020 EA is located in the Gulf of Mexico approximately 5.3 miles southeast of Port Fourchon. However, after the project was authorized for construction funding by CWPPRA, the Greater Lafourche Port Commission (Commission) approached the project team to consider a modification to the Proposed Action. Specifically, the Commission proposed that material be dredged from inshore navigation channels (lower Bayou Lafourche, Flotation Canal, and four slips within the port) rather than the nearshore borrow area (Modified Proposed Action).

NOAA prepared a 2023 SEA that discloses information on and analyzes the direct, indirect, and cumulative impacts on the human environment likely to result from the Modified Proposed Action. The 2023 SEA also provides information for NOAA to determine whether this federal action requires the development of an Environmental Impact Statement (EIS). This 2023 SEA complies with the National Environmental Policy Act (NEPA) of 1969 and Council on Environmental Quality (CEQ) regulations for implementing NEPA (Title 40 Code of Federal Regulations [CFR] Parts 1500 through 1508 [CEQ 2020]).

Lead and Cooperating Agencies

As a CWPPRA trustee, NOAA, National Marine Fisheries Service, Department of Commerce is the federal project sponsor responsible for project oversight, including NEPA compliance. The Louisiana Coastal Protection and Restoration Authority is the non-federal local project sponsor and is performing the engineering and design of the project.

Purpose and Need

The purpose of the project is to support the coastal restoration objectives of CWPPRA by reestablishing and preventing loss of marsh in the project area using borrow area sediment. As much as 820 acres of saline marsh and mangrove habitat will be created and nourished. Up to 458 additional adjacent acres of saline marsh and mangrove habitat may be nourished in dewatering areas by discharge of water through weir boxes. Wetlands in the area are essential to sustain renewable fishery resources integral to the local, state, and national economy. A healthy coastal marsh provides nursery habitat for shellfish and finfish; provides habitat for waterfowl, wading birds, small mammals, and numerous amphibians and reptiles; reduces storm surge to interior land; and helps maintain water quality.

Summary of the Modified Proposed Action and No Action Alternative

Marsh creation in the West Fourchon project area was determined to meet the immediate coastal needs in the project area. The 2023 SEA describes the No Action Alternative and the Modified Proposed Action. The 508-acre SEA Alternative inshore borrow area consists of inshore navigation channels, including Belle Pass and Bayou Lafourche, the Flotation Canal, and Slips A, B, C, and D off the Flotation Canal. The borrow area contains ample sediment and is described in Table 1 of the 2023 SEA. The total construction duration is expected to last about 17 months, including approximately 4 months of hydraulic dredging. Under the No-Action Alternative, NOAA will not implement restoration activities at the West Fourchon Project area. The No-Action Alternative does not meet the project goals, and the marsh losses in the area will continue.

Based on the analysis in the SEA, NOAA determined that, compared to the no action alternative, implementation of the Modified Proposed Action and use of the revised dredging sites best meets the purpose and need.

Summary of the Supplemental Environmental Assessment

Section 4 of the 2023 SEA provides the analysis needed to assess the significance of the impacts of the alternatives. The NEPA analysis concluded that the project is anticipated to result in both beneficial and adverse effects. Potential adverse impacts do not rise above short-term, minor adverse impacts occurring only during minor construction activities for the 2023 SEA Alternative and modified proposed action. These adverse effects are determined not significant considering the context and intensity of the project's scopes and effects on the resources. The following significance factors are considered below.

• The Modified Proposed Action would not result in significant adverse effects on public health or safety. No additional or differing impacts to public health or safety would occur as a result of the change in borrow areas. Safety to public was considered in design of the modified proposed action. Any navigation dangers will be marked with appropriate signage as notice to mariners.

• The Modified Proposed Action would have no significant adverse impacts to unique characteristics of the geographic area, and would have no significant adverse effects on wetlands or floodplains, particularly on a regional basis. Impacts of the 2023 SEA Alternative and the modified proposed action to vegetative communities would be generally the same as the Proposed Action considered in the 2020 EA. Placement of dredged material for the 2023 SEA Alternative would result in adverse, direct short-term, minor impacts to wetlands. Succession to mangroves will likely be set back to smooth cordgrass for a few years until mangroves replace the cordgrass. Short-term adverse impacts due to coverage of shallow water habitat and existing marsh and mangrove habitat. Excavation for containment dike construction would impact vegetative communities. Differential settlement is expected to result in the creation of water features where interior borrow is used to create containment dikes. It is anticipated that the created marsh platform would initially be vegetated by smooth cordgrass, then black mangrove populations would increase. Sufficient seed stock is available adjacent to the proposed marsh creation areas. The Modified Proposed Action would exert positive, moderate long-term impacts on marsh vegetative communities in the marsh creation areas. The accumulation of organic material is a primary factor influencing the vertical accretion of marshes.

• The effects of the Modified Proposed Action on the quality of the human environment are not controversial. Over the last several years, the modified proposed action has been presented at public meetings frequented by

environmental groups and general public. The action includes common coastal restoration techniques routinely used throughout Louisiana. Use of the inshore navigation areas dredge borrow is not controversial.

• There are no highly uncertain, unique, or unknown risks associated with the Modified Proposed Action. The 2023 Modified Proposed Action will not result in highly uncertain effects or involve unique or unknown risks. The modified proposed action involves construction actions that are proven methods in coastal Louisiana. The risks are known and minimal and planned for by conducting surveys of pipelines, and other common safety practices.

• The Modified Proposed Action neither establishes a precedent for future CWPPRA actions with significant effects nor represents a decision in principle about a future consideration. Future CWPPRA actions will be determined through separate, independent planning processes.

• The Modified Proposed Action would not result in significant adverse cumulative impacts. The 2023 SEA Alternative and proposed project will not have any additional significant adverse impacts, nor will it cause cumulatively significant adverse impacts together with other related projects. The proposed project would have temporary adverse impacts to some environmental resources but cumulative benefits to the environmental resources. Cumulative impacts associated with the 2023 SEA Alternative are expected to be minimal because multiple projects in addition to the modified proposed action will be using the same borrow source.

• The Modified Proposed Action would not threaten a violation of Federal, state, or local laws, or requirements imposed for environmental protection. The 2023 SEA Alternative and modified proposed action will comply with all applicable federal laws and regulations.

• The Modified Proposed Action would not significantly adversely affect vulnerable marine or coastal ecosystems. The 2023 SEA Alternative and modified proposed action may result in localized short term, minor adverse impacts due to noise and disturbance of bottom substrate from use of equipment during field activities and placement; however, there is sufficient habitat beyond the affected area so there would be no expected interference to populations or ecosystems from disturbance to the habitat area.

• The Modified Proposed Action would not significantly adversely affect biodiversity or ecosystem functioning (e.g., benthic productivity, predator-prey relationships, etc.). The 2023 SEA Alternative and modified proposed action may result in localized short term, minor adverse impacts due to noise and disturbance of bottom substrate from use of equipment during field activities and placement; however, there is sufficient habitat beyond the affected area so there would be no expected interference to populations or ecosystems from disturbance to the habitat area. In addition, the modified proposed action would create or preserve biodiversity and ecosystem functioning of up to 820 acres of saline marsh and mangrove habitats that would otherwise be shallow open water.

• The Modified Proposed Action is not expected to result in the introduction or spread of a non-indigenous species. Dredged material from the borrow areas would not introduce organisms not already in the environment.

• The Modified Proposed Action may have localized, minor, short-term adverse impacts to Essential Fish Habitat (EFH), managed fish species, or resources protected by the Magnuson-Stevens Fishery and Conservation Management Act (MSFCMA). Impacts of the 2023 SEA Alternative and modified proposed action to marine fisheries resources and EFH would be generally the same as for the 2020 EA Alternative, except borrow area impacts would be more similar to resources inshore and not offshore. The marine fishery resources and EFH impacted by dredging in the inshore borrow area (508 acres) would be larger than the area impacted by dredging in the offshore borrow area (281 acres). Portions of the inshore borrow area are dredged approximately every two years, depending on funding availability, creating similar noise levels; therefore, the marine fishery resources and EFH are impacted on a regular basis.

• The Modified Proposed Action may adversely affect districts, sites, highways, structures, or objects listed in or eligible for listing in the National Register of Historic Places or may cause loss or destruction of significant scientific, cultural, or historical resources. The 2023 SEA Alternative and modified proposed action will not be expected to adversely affect any of the aforementioned areas. Impacts of the 2023 SEA Alternative to cultural resources would be generally the same as for the 2020 EA Alternative, except borrow area impacts would be inshore and not offshore and

is not expected to cause adverse impacts to cultural resources. The project would postpone marsh loss and could delay erosion along the banks of Bayou Lafourche that could uncover cultural resources.

• The Modified Proposed Action would not adversely affect an endangered or threatened species or its habitat that has been determined to be critical under the Endangered Species Act of 1973 (ESA). Impacts of the 2023 SEA Alternative and the modified proposed action to birds, wildlife, and threatened and endangered species would be generally the same as for the 2020 EA Alternative, except borrow area impacts would be to similar resources inshore and not offshore. Material placement from implementation of the 2020 EA Alternative would result in adverse, direct, short-term minor impacts to birds, wildlife, and threatened and endangered species. Long-term benefit to birds, wildlife, and threatened and endangered species due to increasing longevity of marsh habitat. Provisions to avoid impacts to nesting birds and threatened and endangered species would be implemented.

• The Modified Proposed Action would have no short term or long-term impacts to marine mammal stocks or effects to dolphin species. Impacts from the 2023 SEA Alternative or modified proposed action on marine mammal resources would be generally the same as for the 2020 EA Alternative, except borrow area impacts would be inshore and not offshore. No direct impacts to marine mammal resources are expected. Marine mammals in the inshore borrow area would likely avoid the dredging area. The inshore borrow area is adjacent to a busy port and portions of the inshore borrow area are dredged approximately every two years, depending on funding availability, creating similar dredging noise levels. The Modified Proposed Action will comply with all applicable federal laws and regulations related to marine mammals.

Agency Coordination and Consultation

Under Section 7 of the ESA, NOAA after coordination with USFWS and NOAA, determined modified proposed action would have "no effect" on threatened, endangered, or candidate species and that no critical habitat would be adversely affected as a result of implementing the modified proposed action. NOAA has reviewed the modified proposed action for compliance with MSFCMA, and determined the project would have no effect on any species or critical habitats under NOAA's jurisdiction. Pursuant to the Coastal Zone Management Act (CZMA), NOAA determined that the project changes presented herein do not alter the original determinations under CZMA for the West Fourchon Marsh Creation and Nourishment Project. Table 6 of the 2023 SEA summarizes the status of all federal and state law and regulation compliance.

Determination

The Modified Proposed Action is not expected to have any cumulative effects beyond those disclosed and evaluated in the 2020 West Fourchon Environmental Assessment and this 2023 West Fourchon Marsh Creation and Nourishment Project Supplemental Environmental Assessment. Adverse impacts are generally short term, such as disturbances associated with construction activities. Long-term, minor adverse impacts include impacts on geology, substrates, and habitat resulting from conversion of habitat from one type to another that will occur as part of dredge material placement for marsh creation. The cumulative effects from the modified proposed action were evaluated and found to be within the scope of effects evaluated in the 2020 EA.

Based on the information presented in this document and the analysis contained in the supporting 2023 SEA, it is hereby determined that implementation of the Modified Proposed Action will not significantly impact the quality of the human environment. Therefore, an EIS for this action is not necessary.

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Carrie Selberg Robinson
Director, Office of Habitat Conservation, NOAA

Date

TABLE OF CONTENTS

ABBREVIATIONS	
Abbreviation	**Unit**
cm	Centimeter
cy	Cubic yard
ft	Feet
hr	Hour
mm	Millimeter

UNIT CONVERSIONS	
Unit	**Conversion**
1 acre	43,560 square feet
1 ft	1.609 kilometers
1 cm	0.003 feet

LIST OF FIGURES

LIST OF TABLES

ACRONYMS

Acronym	Meaning
BTNEP	Barataria Terrebonne National Ecosystem Program
CEQ	Council on Environmental Quality
CFR	Code of Federal Regulations
CPRA	Louisiana Coastal Protection and Restoration Authority
CWA	Clean Water Act
CWPPRA	Coastal Wetlands Planning, Protection, and Restoration Act
CZMA	Coastal Zone Management Act
EA	Environmental Assessment
EFH	Essential Fish Habitat
EIS	Environmental Impact Statement
EPA	U.S. Environmental Protection Agency
ESA	Endangered Species Act
GMFMC	Gulf of Mexico Fisheries Management Council
GLPC	Greater Lafourche Port Commission
HTRW	Hazardous, Toxic, and Radioactive Waste
LCWCRTF	Louisiana Coastal Wetlands Conservation and Restoration Task Force
LDEQ	Louisiana Department of Environmental Quality
LDWF	Louisiana Department of Wildlife and Fisheries
LOOP	Louisiana Offshore Oil Port
MBTA	Migratory Bird Treaty Act
MCA	Marsh Creation Area
NAAQS	National Ambient Air Quality Standards
NAVD 88	North American Vertical Datum 1988
NEPA	National Environmental Policy Act
NFWF	National Fish and Wildlife Foundation
NMFS	National Marine Fisheries Service
NRHP	National Register of Historic Places
PEIS	Programmatic EIS
PPL	Priority Project List
PRD	NMFS Protected Resources Division
SEA	Supplemental Environmental Assessment
SHPO	State Historic Preservation Office
USACE	U.S. Army Corps of Engineers
USFWS	United States Fish and Wildlife Service
U.S.C.	United States Code
WCRA	Wetlands Conservation and Restoration Authority

EXECUTIVE SUMMARY

Project: West Fourchon Marsh Creation and Marsh Nourishment (TE-134)

Sponsor: National Oceanic and Atmospheric Administration and Louisiana Coastal Protection and Restoration Authority

Contact: Cecelia Linder; 1315 East-West Hwy, Silver Spring MD 20910; ph 301-427-8675

Project Size: As much as 820 acres of shallow open water and marsh

Location: Northwest of Port Fourchon, west of Bayou Lafourche

Need: Significant marsh loss has resulted from subsidence, an adjacent navigation channel, and three pipeline canals that have increased water exchange.

Purpose: Support the objectives of the Coastal Wetlands Planning, Protection, and Restoration Act (CWPPRA) by creating marsh and nourishing existing marsh.

Proposal: Fund the restoration of coastal marsh habitat by hydraulically dredging sediments from an inshore borrow area to create and nourish as much as 820 acres.

Public Participation: State resource agencies, federal resource agencies, local government, tribes, and non-government organizations were coordinated with throughout project development as described in Section 1.1 of the Environmental Assessment (EA) and Supplemental EA.

Summary of statement and conclusions: Long-term benefit to birds, wildlife, and threatened and endangered species due to the increasing longevity of the marsh and mangrove habitat.

Potential adverse impacts: Dredging in the borrow area and marsh creation areas and placement of sediment in the marsh creation area will cause minor temporary adverse impacts to vegetation resources, aquatic, and benthic habitat in the borrow area and marsh creation areas, adverse direct, short-term minor impacts to birds, wildlife, and threatened and endangered species are expected with the proposed action. Provisions to avoid impacts to nesting birds and threatened and endangered species will be implemented.

Issues to be resolved: None.

1.0 INTRODUCTION

The 2020 Environmental Assessment (EA; NOAA 2020) evaluated the environmental impacts of the proposed action, as well as a no action alternative, and informed the decision maker(s) of the consequences of the West Fourchon Marsh Creation & Nourishment Project (West Fourchon Project [TE-0134]) in Lafourche Parish, Louisiana. This proposed project is authorized under the Coastal Wetlands Planning, Protection, and Restoration Act (CWPPRA) of 1990 (16 United States Code [U.S.C.] §777c, 3951-3956).

CWPPRA stipulates that five federal agencies and the State of Louisiana jointly develop and implement a plan to reduce the loss of coastal wetlands in Louisiana (16 U.S.C. §3952 (b) (2)). The National Oceanic and Atmospheric Administration (NOAA), National Marine Fisheries Service (NMFS), Department of Commerce is the federal project sponsor responsible for project oversight, including National Environmental Policy Act (NEPA) compliance. NOAA is the federal lead agency and the Louisiana Coastal Protection and Restoration Authority (CPRA) is the non-federal local project sponsor and is performing the engineering and design of the marsh creation areas. The Greater Lafourche Port Commission (GLPC) is performing the engineering and design of the inshore borrow area.

Upon completion of the final 2020 EA, NOAA issued a Finding of No Significant Impact (FONSI) on June 29, 2020. The West Fourchon project was approved for construction funding in January 2020. The originally authorized borrow area included in the 2020 EA is located in the Gulf of Mexico approximately 5.3 miles southeast of Port Fourchon. However, after the project was authorized for construction funding by CWPPRA, the GLPC approached the project team to consider using material dredged from inshore navigation channels (lower Bayou Lafourche, Flotation Canal, and four slips within the port) instead of the nearshore borrow area.

The scope of this Supplemental EA (SEA) is to identify resources that have changed since the publication of the 2020 EA and to analyze additional potential environmental effects that could result from implementation of the project using the inshore borrow area (Modified Proposed Action). Environmental effects analyzed in the 2020 EA that have not changed are incorporated by reference and will not be discussed further in this SEA.

The Modified Proposed Action includes the use of the inshore borrow area and slight changes to the constructed marsh elevation and containment dikes of the marsh creation areas due to differences in the dredged material; this will be discussed in greater detail in Section 2.

This SEA discloses information on and analyzes the direct, indirect, and cumulative impacts on the human environment likely to result from using the inshore borrow area (Modified Proposed Action) for the construction of the West Fourchon Project instead of the offshore borrow area. The SEA also determines if the federal action requires the development of an Environmental Impact Statement (EIS). This SEA complies with the NEPA of 1969 and Council on Environmental Quality (CEQ) regulations for implementing NEPA (Title 40 Code of Federal Regulations [CFR] Parts 1500 through 1508 [CEQ 2020]).

The modified proposed action evaluated in the SEA is sediment placement. This action falls

within the programmatic evaluation of Wetland Restoration Alternative (Section 2.2.2.11) Sediment/ Materials Placement (Section 2.2.2.11.4) completed in the 2015 NOAA Restoration Center Programmatic Environmental Impact Statement (PEIS). This SEA incorporates by reference that programmatic information. Further, this EA tiers project-specific analysis for the proposed action as presented in this document from the Louisiana Coastal Area Ecosystem Restoration Study EIS (U.S. Army Corps of Engineers (USACE) 2004); Coast 2050 Plan (LCWCRTF and Wetlands Conservation and Restoration Authority [WCRA] 1998); CWPPRA program EIS (LCWCRTF 1993); Louisiana State Coastal Master Plan (CPRA 2017a); and the Barataria-Terrebonne National Ecosystem Program Comprehensive Conservation and Management Plan 2019 (BTNEP 2019).

1.1 PROJECT LOCATION

The West Fourchon Project is located approximately 1.7 miles north of the Gulf of Mexico and is central to a nationally significant estuary, the Barataria-Terrebonne National Estuary. The project area is located west of Port Fourchon, Louisiana between Timbalier Bay and Bayou Lafourche at the southeastern end of the Terrebonne Basin (Figure 1). The proposed marsh creation areas are bordered by Evans Canal to the south, Havoline Canal to the north. The West Belle Barrier Headland is located southwest of the proposed marsh creation areas.

The originally authorized borrow area is located in the Gulf of Mexico approximately 5.3 miles southeast of Port Fourchon. However, after the project was authorized for construction funding, the Greater Lafourche Port Commission (GLPC) approached the project team to consider using material dredged from inshore navigation channels (lower Bayou Lafourche, Flotation Canal, and four slips within the port instead of the nearshore borrow area. This SEA examines the use of the inshore borrow area (Modified Proposed Action) instead of the offshore borrow area evaluated in the 2020 EA.

1.2 PURPOSE

The purpose of the project is to support the coastal restoration objectives of CWPPRA by re-establishing and preventing loss of marsh in the project area using borrow area sediment. As much as 820 acres of saline marsh and mangrove habitat will be created and nourished. Up to 458 additional adjacent acres of saline marsh and mangrove habitat may be nourished in dewatering areas by discharge of water through weir boxes.

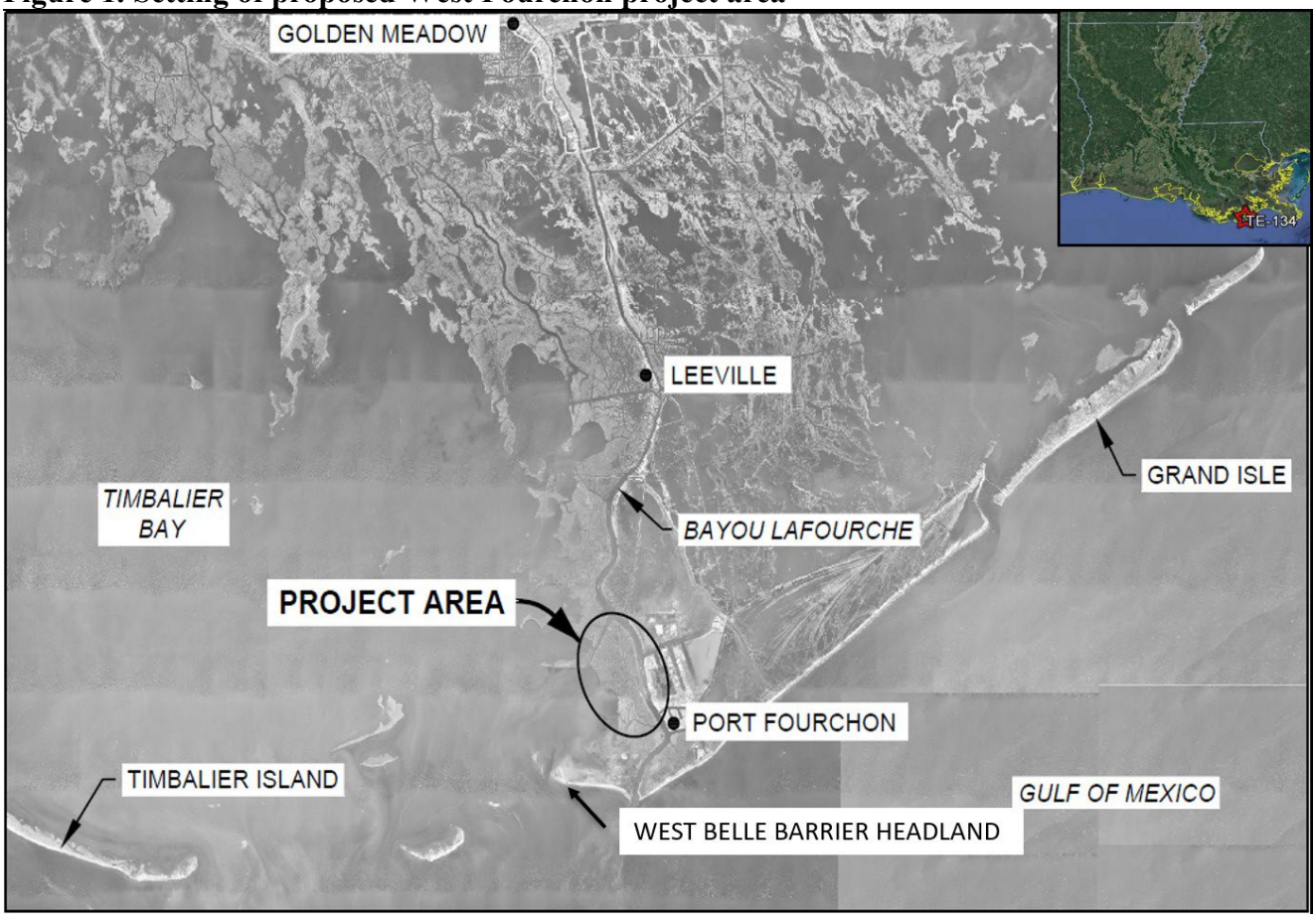
1.3 NEED

Wetlands in the area are essential to sustain renewable fishery resources integral to the local, state, and national economy. A healthy coastal marsh provides nursery habitat for shellfish and finfish; provides habitat for waterfowl, wading birds, small mammals, and numerous amphibians and reptiles; reduces storm surge to interior land; and helps maintain water quality.

2.0 PROPOSED ACTION AND ALTERNATIVES

Marsh creation in this area was determined to meet the immediate coastal needs in the project area. This chapter describes the No Action Alternative and the changes made to the Proposed Action since the 2020 EA. This chapter compares how the modifications to the Proposed Action continue to meet the Project purposes and summarizes the potential environmental effects of the changes.

Figure 1. Setting of proposed West Fourchon project area



2.1 NO-ACTION ALTERNATIVE

CEQ guidance on NEPA refers to the No-Action Alternative as the continuation of baseline conditions without implementation of the proposed action. Evaluation of the No-Action Alternative is required by CEQ regulations. Under the No-Action Alternative, NOAA will not implement restoration activities at the West Fourchon Project area. The No-Action Alternative does not meet the project goals, and the marsh losses in the area will continue. The navigation channels that comprise the inshore borrow area will continue to undergo maintenance dredging, as necessary and as funding is available. Bayou Lafourche and Belle Pass are dredged every one to three years. In addition, the GLPC and the U.S. Army Corps of Engineers (USACE) are planning to deepen the federal navigation channel in Bayou Lafourche and Belle Pass in the future. The existing conditions describe this alternative.

2.2 2020 EA PREFERRED ALTERNATIVE

The project would create and nourish as many as three areas of saline intertidal marsh (Figure 2) totaling as much as 820 acres using material dredged from the Gulf of Mexico. After settlement, even with subsidence and sea level rise, the created marsh is expected to remain in the optimal inundation range over the 20-year project life. The 2020 EA preferred alternative is summarized below and in Table 1.

Containment dikes would be constructed from material within the marsh creation areas to retain the sediment slurry until the dredged material dewaters and consolidates. Materials within 25 feet of the containment dikes would not be excavated in order to maintain the stability of the dikes. After the sediment consolidates, breaches would be placed in strategic places along the dikes to return tidal influence to the marsh and allow movement of water and aquatic organisms. Once gapped, the natural uneven settling of the soils should provide enough of an elevation gradient for tidal scouring to create tidal creeks.

Under the EA preferred alternative, sediment would be hydraulically dredged from an offshore borrow area to create marsh habitat. The EA offshore borrow area (Figure 2, Table 1) is located in the Gulf of Mexico approximately 3.5 miles southwest of the entrance to Belle Pass and 6 miles from the proposed marsh creation areas.

Native vegetation would be planted along the containment dike perimeter after construction to help stabilize the containment dike and protect the newly created marsh habitat. Vegetative plantings would stabilize soil, reduce resuspension of recently deposited sediment, and encourage sedimentation. Sufficient plant stock is present in the surrounding area to provide seed stock for revegetation.

2.3 MODIFIED PROPOSED ACTION

The marsh creation area design and containment dike design of the Modified Proposed Action are similar to those of the 2020 EA Preferred Alternative, except the target fill and containment dike elevations differ slightly (Table 1). As much as 458 additional adjacent acres may be nourished in the dewatering area where water from weir boxes would be discharged. The dewatering area was not specified in the analysis of the 2020 EA, although the same dewatering technique would be used with either borrow area.

The 508-acre Modified Proposed Action inshore borrow area (Figure 2) consists of inshore navigation channels, including Belle Pass and Bayou Lafourche, the Flotation Canal, and Slips A, B, C, and D off the Flotation Canal. The borrow area contains ample sediment. The inshore borrow area is described in Table 1 below. The total construction duration for both Alternatives is expected to last about 17 months, including approximately 4 months of hydraulic dredging.

A summary of the design alternatives for the 2020 EA and the Modified Proposed Action borrow areas considered is presented in Table 1.

Figure 2. Marsh creation areas (outlined in yellow), 2020 EA offshore borrow area (in purple), and Modified Proposed Action inshore borrow area (outlined in white).

West Fourchon Marsh Creation and Nourishment (TE-134) Project Area. The marsh creation areas are outlined in yellow, the potential expansion marsh creation area is the northern yellow outline, the offshore borrow area is in purple and the alternative inshore borrow area is outlined in white and consists of Belle Pass, Bayou Lafourche, Flotation Canal, and Slips A, B, C, and D.

Source: Google Earth

Table 1. Summary of changes to the proposed action

Features	2020 EA Alternative (Offshore Borrow Area)	Modified Proposed Action (Inshore Borrow Area)
Borrow Area		
Created and Nourished acres	Up to 820 acres. Dewatering areas not specified.	Up to 820 acres. As much as 458 additional adjacent acres may be nourished in a dewatering area.
Borrow area dredged material required	2.5 million cubic yards (mcy)	2.7 mcy
Available borrow area material	7.5 mcy	5.4 mcy
Borrow area maximum acreage, maximum material available (percentage of available sediment would be	281 acres 7.5 mcy (33 percent)	508 acres 5.4 mcy (50 percent)

Features	2020 EA Alternative (Offshore Borrow Area)	Modified Proposed Action (Inshore Borrow Area)
used)		
Borrow area bottom elevation NAVD88	-54 feet	-33.61 feet
Borrow area maximum cut depth	-54 feet	-33.61 feet
Maximum sediment pumping distance (Likelihood of booster pump)	169,000 feet (More likely)	87,800 feet (Less likely)
Access dredging required	No	No
Marsh Creation Areas		
Marsh Creation Area Maximum Fill Design Elevations (construction tolerance)	MCA-1 +2 feet MCA-2 +2 feet MCA-3 +2 feet (+0.5 ft)	MCA-1 +1.75 feet MCA-2 +2.25 feet MCA-3 +1.6 feet (± 0.25 ft)
Containment dike length	53,740 linear feet (internal borrow)	53,740 linear feet (internal borrow)
Containment dike Maximum Crest Elevations (construction tolerance)	MCA-1 +3 feet MCA-2 +3 feet MCA-3 +3 feet (+0.5 ft)	MCA-1 +3 feet MCA-2 +3.5 feet MCA-3 +2.85 feet (+0.5 ft)
Containment dike crest width	5 feet	5 feet
Containment dike borrow area maximum elevation	-10 feet (internal borrow)	-10 feet (internal borrow)

Source: NOAA 2020; McClain et al. 2018, 2019; GISE 2023
Elevations in the table are in NAVD88 unless otherwise stated

3.0 AFFECTED ENVIRONMENT

The Affected Environment section describes the existing environmental resources of the project area that would be affected if any of the alternatives were implemented. This section describes only those environmental resources that are relevant to the decision-making process. This section, in conjunction with the description of the No-Action Alternative, forms the baseline conditions for determining the environmental impacts of the reasonable alternatives.

A resource is considered important if it is recognized by statutory authorities including laws, regulations, Executive Orders (EO), policies, rules, or guidance; if it is recognized as important by some segment of the public; or if it is determined to be important based on technical or scientific criteria.

3.1 RESOURCE AREAS SCREENED FOR CHANGES AND IMPACTS

The design changes made to the 2020 EA, were reviewed to determine impacts to environmental resources. This section provides a description of the affected environment and the cumulative impacts that could result from implementation of the Modified Proposed Action. The impact levels are characterized as major, moderate, and minor or no impact. The impact levels are based on the analysis provided, which analyzes the potentially affected environment and degree of the effects (40 Code of Federal Regulations [CFR] 1501.3(b)).

Resources initially considered for impact analysis are listed in Table 2. Not all of the resources present in the project area would be affected by the current changes to the project because there would either be no impacts or insignificant impacts on the resource from project activities. Because these resources are not impacted by the revisions to the proposed project, they have not been evaluated further**.**

Table 2. Summary of resources initially screened for impact analysis

Resource Area	Changes to the Affected Environment since the 2020 EA	Potential Impacts to Resource Areas from the Modified Proposed Action
PHYSICAL		
Soils and topography in marsh creation area	Hurricane impacts- Additional soil loss, additional accretion	Slight changes to design template of marsh creation area elevation and containment dike footprint could impact slightly more soil area in MCA-2 and less in MCA-3.
Soils in inshore borrow area and offshore borrow area	Hurricane impacts- Additional shoaling of inshore borrow area	Dredging in as much as 508 acres of inshore borrow area. No dredging in as much as 281 acres of offshore borrow area. The inshore borrow area has a mixture of sands, silts, and clays. The offshore borrow area has primarily silts and clays.
Geology, Water Quality, Climate, Weather, and Air Quality, Noise	No changes	Potential increased temporary turbidity in inshore borrow area. No increased temporary turbidity in offshore borrow area.
BIOLOGICAL		
Vegetation Resources	Hurricane impacts- Additional soil loss, additional accretion	Inshore borrow area includes as much as 458 additional vegetated adjacent acres that may be nourished in a dewatering

Resource Area	Changes to the Affected Environment since the 2020 EA	Potential Impacts to Resource Areas from the Modified Proposed Action
		area. This dewatering area would also have been used in the 2020 EA.
Aquatic and Benthic Habitats	No changes	Dredging in inshore borrow area impacts to as much as 508 acres of inshore aquatic and benthic habitats. No dredging in as much as 281 acres of offshore borrow area and no impacts to offshore aquatic and benthic habitats.
Marine Fishery Resources and Essential Fish Habitat (EFH)	No changes	Dredging in as much as 508 acres of inshore borrow area EFH. No dredging in as much as 281 acres of offshore borrow area EFH.
Marine Mammal Resources	No changes	No changes
Migratory Bird Resources	No changes	No changes
Wildlife Resources	No changes	No changes
Threatened and Endangered Species	No changes Gulf of Mexico Bryde's whale renamed Rice's whale	Inshore borrow area reduces likelihood of impacts to piping plover or red knot or critical habitat of red knot from the sediment pipeline placement on the beach from the offshore borrow area.
Invasive Species	No changes	No changes
CULTURAL		
Cultural Resources	No changes	Greater likelihood of cultural resources along the inshore borrow area than offshore. However, a rock dike protects the Bayou Lafourche bank from erosion, the inshore areas have been previously dredged, and no historic properties are expected to be affected with either borrow area.
Socioeconomic Resources (Income and Environmental Justice	No changes	No changes
Land Use and Infrastructure	No changes	No changes-Additional pipelines in the inshore borrow areas would be buffered
Non-resource	No changes	No changes

Resource Area	Changes to the Affected Environment since the 2020 EA	Potential Impacts to Resource Areas from the Modified Proposed Action
considerations-Hazardous, Toxic, and Radioactive Waste		

3.2 PHYSICAL ENVIRONMENT

3.2.1 Geology, Soils, Topography, and Water Quality

2020 EA

A summary of the 2020 EA affected environment which included the marsh creation areas and the offshore borrow area follows. The dewatering areas are adjacent to the marsh creation areas and have the same environmental resources.

Marsh Creation Areas

Subsurface conditions consist of 2 to 4 feet of very soft to soft clay with organic clay or peat, underlain by layers of sand, silty sand, clayey sand, or shell. The average elevation in the southern two marsh creation areas was approximately -0.21 and 0.63 feet with most survey points between -2.0 and +1.0 foot. The average salinity was between 2006 and 2014 was 25.1 ppt; salinities ranged from about 17 to 32 ppt. Tides are diurnal, with a mean tide range of approximately 1.1 feet.

Offshore Borrow Area

The offshore borrow area seabed is relatively uniform and primarily composed of clays of high plasticity interspersed with silt or silty sand seams, lenses and pockets. Elevations in the proposed offshore borrow area are -28 to -36 feet North American Vertical Datum (NAVD88).

Modified Proposed Action Inshore Borrow Area

The Modified Proposed Action inshore borrow area consists of the lower portion of Bayou Lafourche, Belle Pass, and Slips A through D in Port Fourchon. Portions of the Modified Proposed Action inshore borrow area are within the federal navigation channel and the remainder is within port navigation channels and slips.

Bayou Lafourche is maintained by the USACE at -24 feet MLLW. Belle Pass is dredged to -26 feet MLLW from Pass Fourchon to the -26-foot contour. Port channels (Flotation Canal and Slips A, B, C, and D) are maintained by the GLPC to a depth of -24 feet MLLW. On average, the Federal channels are dredged by the USACE every two (2) years; however, dredging depends on available funding. The USACE employs advanced maintenance of up to 3 feet in the Federal channels. A pair of rock jetties extend into the Gulf at the entrance channel.

The subsurface soil in Bayou Lafourche consists of recent marsh deposits of flat clays with lenses and layers of peat, silt, and sand. Bayou Lafourche sediments have higher sand content than silt and clay. The Belle Pass Entrance channel sediments have higher clay and silt.

3.2.2 Climate, Weather, and Air Quality

Coastal Louisiana is subtropical with long, hot summers and, mild winters with high humidity year-round. Air temperatures range from 14 to 102 °F and average winter and summer temperatures are 55.3 and 82.4 °F, respectively. Over 60 inches of rain falls annually, primarily in the spring and summer. Winds tend to be from the north-northeast in the fall and winter and from the south-southeast in the spring and summer. On average, one hurricane and two tropical storms make landfall in Louisiana every three years. Since the 2020 EA was published, the project area has been impacted by multiple hurricanes and tropical storms, with impacts ranging from minor coastal flooding to moderate flooding, to a direct hit from a strong Category 4 hurricane (Ida). Lafourche Parish is in attainment with National Ambient Air Quality Standards.

3.2.3 Noise

The marsh creation and borrow area is adjacent to a busy navigation channel and port. Conditions are generally quiet outside the main navigation areas, except for occasional boat traffic.

3.3 BIOLOGICAL ENVIRONMENT

3.3.1 Vegetation Resources

2020 EA

Marsh Creation Areas

The marsh creation areas are vegetated by smooth cordgrass and black mangrove. Over half the project area is open water. No seagrass or other submerged aquatic vegetation has been observed.

Offshore Borrow Area and Sediment Pipeline Corridor

The offshore borrow area and sediment pipeline corridor are unvegetated.

Modified Proposed Action

Inshore Borrow Area and Sediment Pipeline Corridor

The inshore borrow area is also unvegetated.

3.3.2 Aquatic and Benthic Habitats

2020 EA

Marsh Creation Areas

The marsh creation areas contain approximately 293 acres of shallow open-water and soft mud benthic habitat. Oysters are present in Timbalier Bay and surrounding areas (Figure 3).

EA Offshore Borrow Area

The offshore borrow area benthic habitat is primarily clay sands and silt under the open marine water column of the Gulf of Mexico. The offshore borrow area is featureless nearshore bottom area with silty or clay soft bottom sediment.

Modified Proposed Action

Inshore Borrow Area

The inshore borrow area consists of unvegetated featureless inshore navigation channels with silty or clay soft bottom sediment mixed with sands.

3.3.3. Marine Fishery Resources and Essential Fish Habitat (EFH)

2020 EA

Marsh Creation Areas and EA Offshore Borrow Area

Many estuarine-dependent fishery species occur in the project area. These species spawn offshore in the open Gulf of Mexico, enter area wetlands as young, and return to the gulf as adults. Red drum, black drum, spotted seatrout, Gulf menhaden, southern flounder, white shrimp, brown shrimp, blue crab are abundant. Most species vary in abundance seasonally due to their migratory life cycle, habitat preferences according to life stage, and the variation in salinity

The EFH by life stage for federally managed and highly migratory species at the proposed marsh creation and offshore borrow area are presented in Table 3. Habitats include smooth cordgrass emergent marsh, black mangrove habitat, and shallow waterbottom with silty or clay soft bottom sediment.

Modified Proposed Action

Inshore Borrow Area

The inshore borrow area has similar EFH habitats and species to the marsh creation areas and offshore borrow area.

3.3.4 Marine Mammal Resources

2020 EA

Marsh Creation Areas

Marine mammals (also federally protected under the Marine Mammals Protection Act) that occur in Louisiana waters include whales, plus several species of dolphin, and the endangered West Indian manatee. See Section 3.3.7 for additional discussion on the threatened and endangered marine mammals.

Bottlenose dolphins live in coastal waters throughout the Southeast U.S., including bays, sounds, and estuaries. Bottlenose dolphins have been observed in Bayou Lafourche, Evans Canal, and the Gulf of Mexico near the offshore borrow area. Dolphin follow schooling fishes that are prey, and seek food and refuge in interior bay waters.

Figure 3. Oyster Leases in the Immediate Project Area

Source: CPRA

3.3.5 Migratory Bird Resources

2020 EA

Marsh Creation Areas

Birds are the most common vertebrates in the salt marsh. Only a few species of birds live exclusively in the salt marsh, such as the clapper rail, the seaside sparrow, and the long-billed marsh wren. However, many other birds feed in the marsh, including herons, egrets,

wood storks, spoonbills, and ducks. Colonial-nesting waterbirds have been observed in the proposed marsh creation areas. Heron, egret, night heron, ibis, roseate spoonbill, anhinga, and/or cormorant could occur in the project area. Shallow water areas are used as forage habitat.

Table 3. Essential Fish Habitat in the project area (including the borrow areas) for fishery species managed by the Gulf of Mexico Fishery Management Council and Highly Migratory Species managed by the National Marine Fisheries Service.

Species	Life Stage	Habitat
White shrimp	Postlarvae and juvenile	Emergent marsh and soft bottom
Brown shrimp	Larvae, postlarvae, and juvenile	Emergent marsh, estuarine and nearshore softbottom, and borrow area water column
Red drum	Eggs, larvae, postlarvae, juvenile, and adult	Emergent marsh, marine and estuarine water column, and soft bottom
Gray snapper	Adult	Emergent marsh and estuarine softbottom waters
Lane snapper	Eggs, larvae, juvenile, and adult	Nearshore and estuarine softbottom, estuarine and marine water column, emergent marsh, and mangrove
Gray triggerfish	Juvenile and adult	Possibly nearshore, mangrove
Greater amberjack	Juvenile and adult	Borrow area water column
Cobia	Larvae, post-larvae, juvenile, and adult	Borrow area water column 11+meters deep
Scalloped hammerhead	Neonate	Nearshore waters to 180 feet
Blacktip shark	Neonate, juvenile, and adult	Nearshore waters and estuarine waters of Timbalier Bay
Bull shark	Neonate	Estuaries and nearshore waters
Atlantic sharpnose shark	Neonate, juvenile, and adult	Nearshore waters, lower, and Timbalier Bay
Finetooth shark	Neonate, juvenile, and adult	Estuarine waters, nearshore waters, and Timbalier Bay

3.3.5 Wildlife Resources

2020 EA

Marsh Creation Areas

There are few vertebrate animals in the salt marsh. A few mammals, like muskrat and nutria, can survive in the salt marsh, in addition to nine species of reptiles and amphibians. However, due to the lack of freshwater input to the project area, there are likely fewer species. Diamondback terrapins can be found in Louisiana salt marshes. Approximately 735 species of birds, finfish, shellfish, reptiles, amphibians, and mammals spend all or part of their life cycle in the estuaries of coastal Louisiana. Wildlife species populations surrounding the project area have been stable.

3.3.6 Threatened and Endangered Species

2020 EA

Threatened and Endangered species or critical habitats that could be present in the proposed project area are listed in Table 4 and described below.

Table 4. Threatened and endangered species considered

Common name by group		Species	ESA* Status	Critical Habitat
Fish	Atlantic (Gulf subspecies) sturgeon	*Acipenser oxyrinchus desotoi*	Threatened	Designated
	Oceanic whitetip shark	*Carcharhinus longimanus*	Threatened	None designated
	Giant manta ray	*Manta birostris*	Threatened	None designated
Birds	Piping plover	*Charadrius melodus*	Threatened	Designated
	Red knot	*Calidris canutus*	Threatened	None designated
Mammals	West Indian manatee	*Trichechus manatus*	Endangered	Designated
	Sei whale	*Balaenoptera borealis*	Endangered	None designated
	Fin whale	*Balaenoptera physalus*	Endangered	None designated
	Sperm whale	*Physeter macrocephalus*	Endangered	None designated
	Rice’s whale	*Balaenoptera ricei*	Endangered	None designated
Reptiles	Kemp's ridley turtle	*Lepidochelys kempii*	Endangered	None designated
	Hawksbill turtle	*Eretmochelys imbricata*	Endangered	Designated
	Leatherback turtle	*Dermochelys coriacea*	Endangered	None designated

	Green turtle	*Chelonia mydas*	Threatened	Designated
	Loggerhead turtle	*Caretta caretta*	Threatened	Designated

*ESA=Endangered Species Act

3.3.7 Threatened and Endangered Sea Turtles and Marine Mammals

2020 EA

Five species of sea turtles are found in Louisiana; no designated critical habitat occurs in the project area. No sea turtle nesting occurs in the vicinity of the project. Of the five sea turtle species, only the Kemp's ridley, loggerhead, and green sea turtles are likely to occur in the project area. Immature Kemp's ridley sea turtles are mostly bottom feeders and are believed to stay in shallow, warm, nearshore waters in the northern Gulf of Mexico. Loggerhead sea turtles regularly enter marshes, estuaries, and coastal rivers and are primarily found in eastern Louisiana. Green sea turtles are relatively rare in Louisiana, with most sightings from the eastern coast. Green sea turtles are often found on seagrass beds and may occur in Louisiana bays while migrating between nesting and foraging sites in Florida and Texas. Hawksbill and leatherback sea turtles are unlikely to occur in the project area due to their habitat preferences.

Marine mammals (also federally protected under the MMPA) that occur in Louisiana waters include the fin, sei, sperm, and the rice's whales, plus several species of dolphin, and the endangered West Indian manatee (under USFWS jurisdiction). Whales are uncommon in inshore waters. Manatees are occasional visitors to Louisiana waters and are unlikely to occur in the project area.

3.3.8 Invasive Species

2020 EA

Although many invasive species are found in the Barataria-Terrebonne National Estuary (BTNEP), most are not found in saline marshes.

3.4 CULTURAL RESOURCES

3.4.1 Historic, Prehistoric and Native American

2020 EA

Marsh Creation Areas

There are no known terrestrial or submerged cultural resources within the marsh creation areas. Previous surveys along the banks of Bayou Lafourche east and south of the project area found Native American ceramics, shell, and unmodified bone. A determination of "No historic properties affected" (36 CFR 800.4) was obtained from the Louisiana Division of Archaeology for the entire final project footprint, including the additional marsh creation area on April 3, 2019.

Offshore Borrow Area

Approximately 821 acres of the offshore borrow area and gulf sediment pipeline corridor were surveyed. No wrecks or obstructions were recorded within or immediately adjacent to

the borrow area. No targets indicative of submerged cultural resource resources were noted within the borrow area or gulf sediment pipeline corridor. No relict geomorphic features deemed potentially archaeologically significant were identified within the project's area of potential effects. A determination of "No historic properties affected" (36 CFR 800.4) was obtained from the Louisiana Division of Archaeology for the borrow area and Gulf sediment pipeline corridor.

Modified Proposed Action

Inshore Borrow Area

Earth Search, Inc. conducted a cultural resources desktop study and initial remote sensing marine survey (Godzinski et al. 2018) of the inshore borrow area for the port deepening project (22-6170). Previously recorded archaeological sites 16LF7, 16LF82, 16LF83, and 16LF84 have been determined ineligible for the National Register of Historic Places. Archaeological sites 16LF85, 16LF86, 16LF249, and remote sensing "Target 1" are (or were) located on the edge of the channel and are not expected to be impacted by the dredging. "Target 2" is located outside the footprint of the dredging for the project. A determination of "No historic properties affected" (36 CFR 800.4) was obtained from the Louisiana Division of Archaeology for the inshore borrow area.

3.4.2 Socioeconomics (Income and Environmental Justice)

2020 EA

Louisiana is home to the busiest port system in the nation as measured by tonnage. The marsh creation areas are across Bayou Lafourche from Port Fourchon, which is the base of operations for 250 companies. Port Fourchon (Figure 2), operated by the GLPC, is the land base for the LOOP (Louisiana Offshore Oil Port), which handles 10 to 15 percent of the nation's domestic oil, 10 to 15 percent of the nation's foreign oil, and is connected to 50 percent of the U.S. refining capacity (GLPC 2018). LOOP is the only U.S. deepwater port capable of offloading Very Large and Ultra Large Crude Carriers. Port Fourchon currently services over 90 percent of the Gulf of Mexico deepwater (over 1,000 feet) oil production. Commercial and recreation fishing are important to the Louisiana economy. Lafourche Parish has a higher median household income and a slightly lower poverty rate than the state average.

3.4.3 Land Use and Infrastructure

2020 EA

Twin gas pipelines cross between marsh creation area; water control structures (rock weirs) were added to reduce tidal flow through the pipeline canals. Other pipelines are north and south of the marsh creation areas (Figure 4). The offshore borrow area was sited to avoid impacts to pipelines.

The proposed marsh creation area is privately owned by Louisiana Land & Exploration (LL&E) and will not be acquired for the project. The marshes and bayous of the area are used for hunting, fishing, and birding. A few camps are located along Evans Canal south of the proposed marsh creation areas.

Modified Proposed Action
The inshore borrow area is crossed by five pipelines. Pipelines, approximate depths, and no-dredging buffer zones are presented in Figure 4.

3.4.4. Non-resource considerations

2020 EA
No evidence of any hazardous, toxic, and radioactive waste (HTRW) was found at the marsh creation location. Borrow area material adjacent to the offshore borrow area was tested and concentrations for nickel and vanadium were found to be below the established "sediment [acute and chronic] benchmarks for aquatic life" established on the Environmental Protection Agency (EPA) website. In addition, low concentrations of poly aromatic hydrocarbons were reported above the method detection and practical quantitation limits.

Modified Proposed Action
The status of the contaminants of concern (COC) such as total petroleum hydrocarbons (TPH), metals, and volatiles in the inshore borrow area was assessed by GISE (2018). Most samples showed concentrations below detection or much below Risk Evaluation/Corrective Action Program (RECAP) screening levels for industrial areas and concentrations compared to ERM and ERL values. Methylene chloride was detected in very small amounts in all the Volatile Organic Chemicals (VOC) soil samples; and quantities present were well below the RECAP screening values and are believed to be insignificant. This indicates that there is no contamination potential with regard to the sediments associated with Port Fourchon navigation channels (GISE 2018).

4.0 ENVIRONMENTAL CONSEQUENCES

This section of the SEA evaluates the anticipated environmental impacts to the human environment that would result from implementation of the proposed project. It includes an analysis of the direct, indirect, and cumulative impacts of project alternatives, including the 2020 EA offshore borrow area, Modified Proposed Action inshore borrow area, and the No-Action Alternative. The design alternatives are planned to meet the purpose and need for action. The design alternatives have been guided by regionally accepted criteria because the CWPPRA process screens out extreme designs early in the process. Environmental consequences of alternatives are summarized in Table 5.

Figure 4. Oil and gas pipelines (black lines) and no-dredging pipeline buffers (green cross-hatching in the marsh creation areas and inshore borrow area

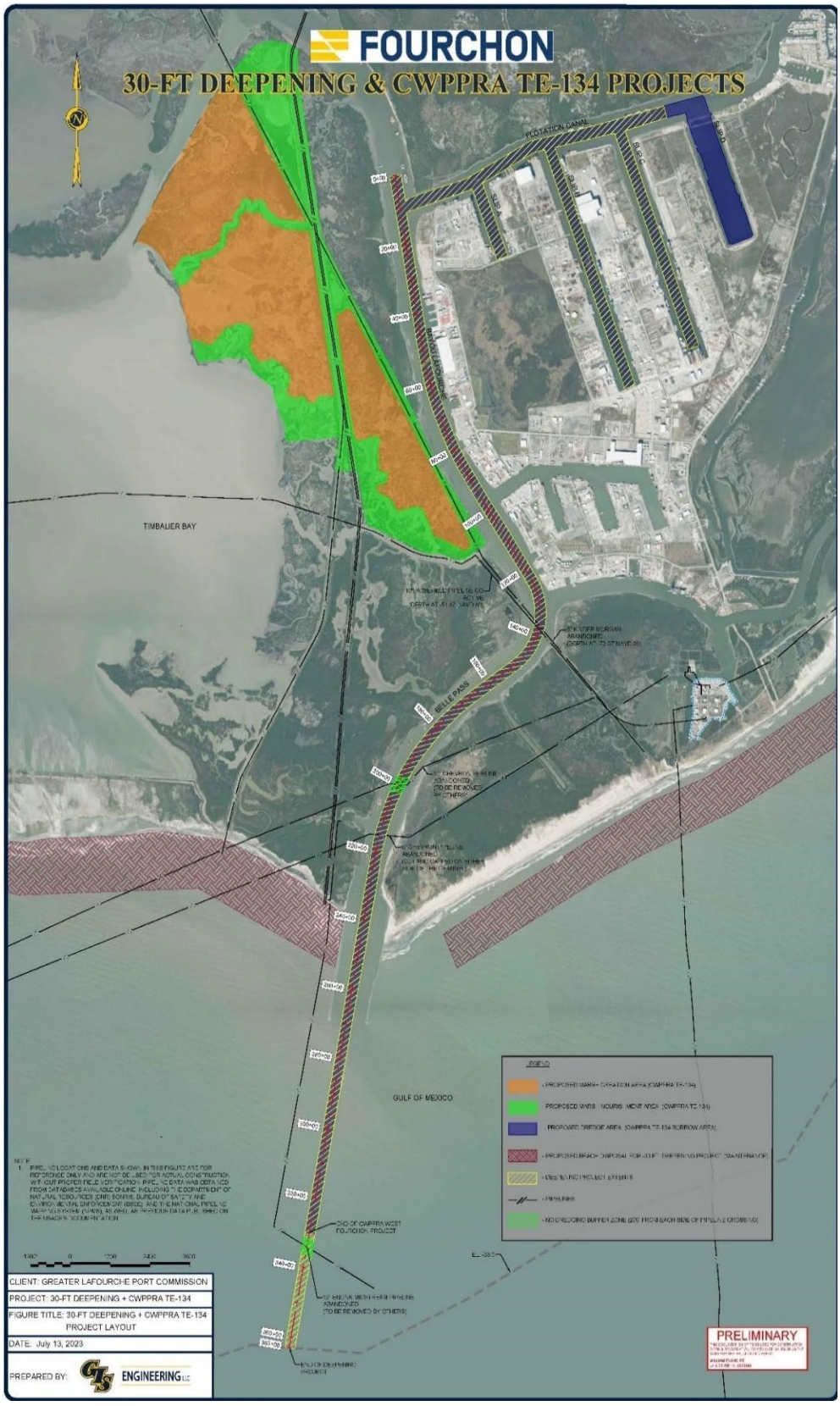


Table 5. Environmental consequences of the alternatives

Resource	2020 EA No Action	2020 EA (with Offshore Borrow)	Modified Proposed Action (with Inshore Borrow)
PHYSICAL			
Geology, Soils, and Topography	Without action, the remaining marsh would continue to erode and subside. Material from the offshore borrow area may be used for other restoration projects in the area. Portions of the inshore borrow area are dredged for navigation maintenance every one to three years, depending on available funding. This material is placed on the Gulf of Mexico shoreline east and west of the Belle Pass jetties.	Long-term, direct, beneficial impacts in the proposed marsh creation areas due to placement of material. Sand and silty clay would be deposited in shallow open water, saline marsh and mangrove habitat. Short-term, direct, moderate adverse impacts to area soils would result from mechanically dredging to construct containment dikes necessary to contain the sediment slurry. Containment dike breaches would return tidal influence to the marsh and allow water and aquatic organisms. After settlement, even with subsidence and sea level rise, the created marsh is expected to remain in the optimal inundation range over the 20-year project site. Short-term, direct, moderate, adverse effects would occur in the proposed offshore borrow area associated with suspension of sediments. Water depths would increase in the borrow area as sediments were removed. Over the long term, sediment will infill the borrow area by natural processes. No impact is expected to the Gulf shoreline from offshore borrow area dredging.	Impacts of the Modified Proposed Action to marsh creation areas would be similar to effects of the 2020 EA Alternative. Slight changes to design template of marsh creation area elevation and containment dike footprint could impact slightly more soil area in MCA-2 and less in MCA-3. Settlement curves indicate suitable performance over time, with slight variations to target fill due to differences in the fill material. Long-term, indirect, beneficial impacts in the dewatering areas due to dewatering through weir boxes. Short-term, direct, moderate, adverse effects would occur in the proposed inshore borrow area associated with suspension of sediments. Over the long term, sediment will infill the inshore borrow area by natural processes, although maintenance dredging and the proposed deepening project would remove sediment. The area impacted by dredging in the inshore borrow area (508 acres) would be larger than the area impacted by dredging in the offshore borrow area (281 acres). No impact is expected to the navigation channel, canal, or slip shorelines from inshore borrow area dredging.
Oceanographic Processes, Coastal Processes, and Water Resources	No direct impact. Marsh loss and conversion of vegetated marsh and mangrove habitat to open water will continue. The cumulative impact of loss of the marsh would allow increased exchange of saline waters, leading to	Dredging and material placement for the EA Alternative would result in adverse, direct, short-term, minor impacts to surface water quality associated with: increased turbidity and decreased dissolved oxygen in the water column at the marsh creation areas; exhumation of buried trash and debris; and discharges from the dredge vessel.	Impacts of the Modified Proposed Action to water quality would be generally the same as for the 2020 EA Alternative, except borrow area impacts would be inshore and not offshore.

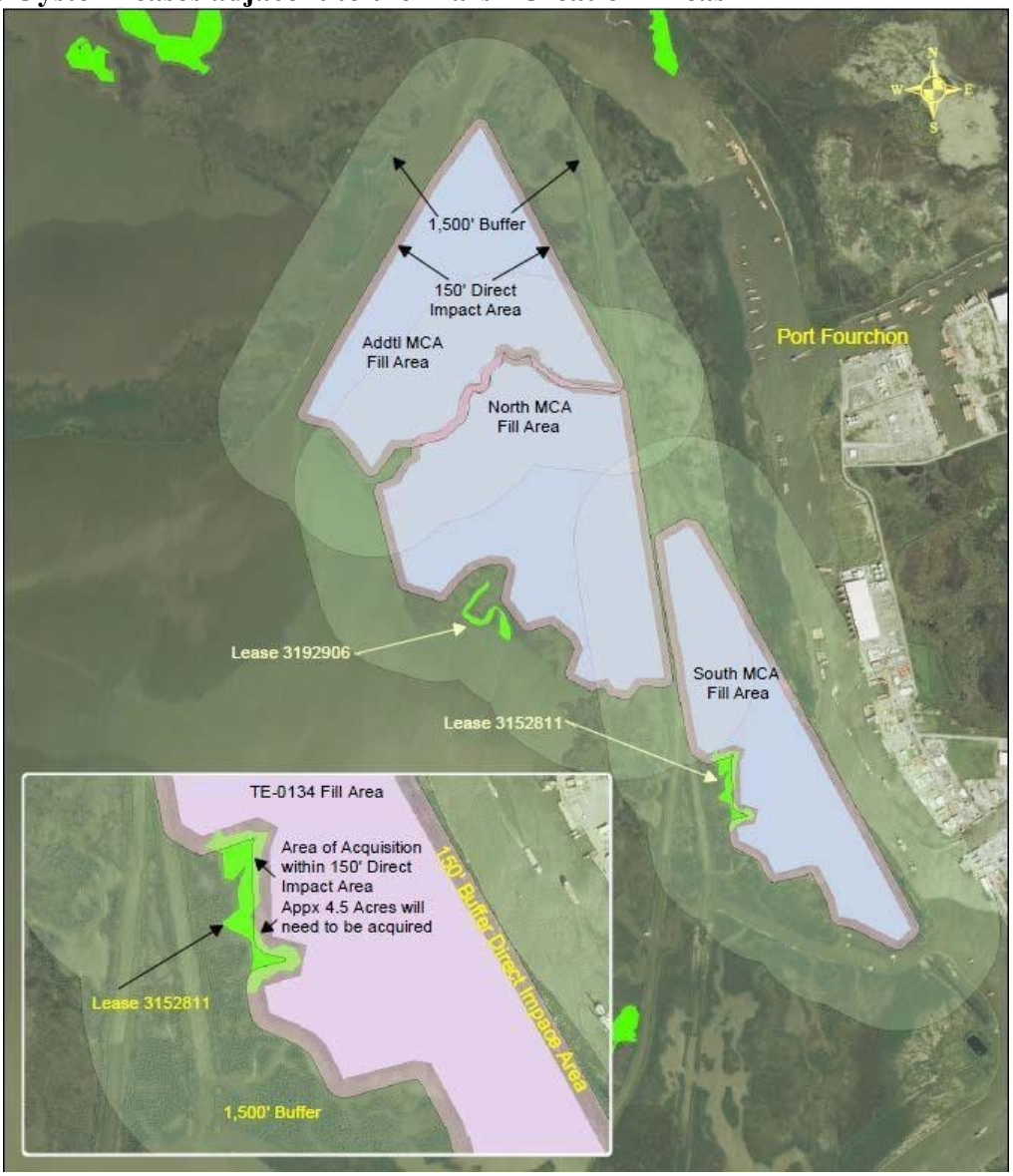
Resource	2020 EA No Action	2020 EA (with Offshore Borrow)	Modified Proposed Action (with Inshore Borrow)
	loss of marsh vegetation, and increased vulnerability to storm surge. With no action, the borrow area location would continue to be exposed to seasonal recurrent hypoxic conditions.	Silt or clay may become suspended in the water column near the offshore borrow area. The suspended sediment would settle in a matter of hours to days (depending on currents). The increased turbidity is expected to affect water quality only in the immediate area of dredging. Anoxic conditions due to borrow area dredging at offshore sites close to the Gulf hypoxic zone are generally short in duration and recover to the level of oxygen levels at control sites relatively quickly Long-term beneficial impact to surface water quality would result from increased wetland acreage.	
Climate, Weather, and Air Quality, Noise	The No-Action Alternative would not result in any changes to existing air quality in the area. Emissions due to the busy navigation channel and port would continue to have minimal localized effects on air quality and would dissipate with offshore breezes. The project area is adjacent to a busy navigation channel and port and the ambient noise levels near the area can be high at times. Outside of the navigation areas, the area is generally quiet, except for occasional boat sounds.	The EA Alternative would have no substantial effect on existing air quality in the area. Emissions from construction equipment would dissipate with offshore breezes along this industrial area, and follow best management practices, so impacts to air quality would be insignificant. Construction and dredging would result in adverse, direct, short-term, minor impacts from exhaust diesel fumes and fugitive dust generated by dredging and earthmoving equipment. Under the EA Alternative, noise of construction equipment in the marsh creation areas, offshore borrow area, and along the sediment pipeline corridor would occur over a large area during construction. However, ambient noise levels adjacent to the project area are already higher from the adjacent busy navigation channel and port.	Impacts of the Modified Proposed Action to air quality and noise would be generally the same as for the 2020 EA Alternative, except borrow area impacts would be inshore and not offshore. The inshore borrow area is adjacent to a busy port with higher ambient noise levels. Portions of the inshore borrow area are dredged approximately every two years, depending on funding availability, creating similar noise levels. These impacts have been analyzed in the 2014 permit review by USACE (USACE 2014).
BIOLOGICAL			
Vegetation Resources	With no action, continued marsh loss is expected to occur, resulting in losses to vegetative resources. Material dredged from navigation channel for maintenance would be placed adjacent to the gulf shoreline to protect and nourish the retreating shoreline.	Placement of dredged material for the EA Alternative would result in adverse, direct short-term, minor impacts to wetlands. Succession to mangroves will likely be set back to smooth cordgrass for a few years until mangroves replace the cordgrass. Short-term adverse impacts due to coverage of shallow water habitat and existing marsh and mangrove habitat. Excavation for containment dike construction would	Impacts of the Modified Proposed Action to vegetative communities would be generally the same as for the 2020 EA Alternative.

Resource	2020 EA No Action	2020 EA (with Offshore Borrow)	Modified Proposed Action (with Inshore Borrow)
		impact vegetative communities. Differential settlement is expected to result in the creation of water features where interior borrow is used to create containment dikes. It is anticipated that the created marsh platform would initially be vegetated by smooth cordgrass, then black mangrove populations would increase. Sufficient seed stock is available adjacent to the proposed marsh creation areas. The EA Alternative would exert positive, moderate long-term impacts on marsh vegetative communities in the marsh creation areas. The accumulation of organic material is a primary factor influencing the vertical accretion of marshes.	

Resource	2020 EA No Action	2020 EA (with Offshore Borrow)	Modified Proposed Action (with Inshore Borrow)
Aquatic and Benthic Habitats	Under no action, continued erosion and subsidence will result in marsh and mangrove benthic habitat loss and conversion to bay benthic habitat. The project area has been converting from saline marsh to mangrove habitat. Material from the offshore borrow area may be used for other restoration projects in the area. Material from portions of the inshore borrow area is dredged for navigation maintenance every one to three years, depending on available funding.	The EA Alternative would cause short-term, local, adverse impacts to aquatic and benthic resources during the construction phase in the marsh creation and offshore borrow area. The immediate effect of dredging is the removal of sediment along with the organisms living in the sediment. In addition to direct removal of organisms, impacts could include entrapment and death of slow-moving organisms. Neither the total volume of sediment to be dredged in the proposed offshore borrow area, nor the estimated area of sea bottom disturbed is significant. The aquatic and benthic communities will be repopulated by organisms adjacent to the marsh creation areas and the offshore borrow area. Natural recurrent disturbances in the area result in a benthic community characterized by early successional stages; a return to the typical community structure is expected to occur rapidly. Due to its proximity to the project area, one existing oyster lease would be acquired and extinguished following a third-party assessment (Figure 5). The assessment and acquisition processes would be performed upon approval of construction funding.	Impacts of the Modified Proposed Action to aquatic and benthic communities would be generally the same as for the 2020 EA Alternative, except borrow area impacts would be to similar resources inshore and not offshore. Slight changes to design template of marsh creation area elevation and containment dike footprint could impact slightly more soil area in MCA-2 and less in MCA-3. The aquatic and benthic area impacted by dredging in the inshore borrow area (508 acres) would be larger than the area impacted by dredging in the offshore borrow area (281 acres). Portions of the inshore borrow area are dredged approximately every two years, depending on funding availability, creating similar noise levels; therefore, the aquatic and benthic communities are impacted on a regular basis.
Marine Fishery Resources and Essential Fish Habitat	Open-water EFH that is already plentiful in the area would likely increase with area subsidence and sea level rise. Marine fishery resources and EFH in the inshore borrow area are periodically affected by dredging for navigation.	The EA Alternative would cause short-term, local, adverse impacts to marine fishery resources and EFH in the marsh creation and offshore borrow area. Invertebrates and fish that do not move out of the area could be injured as suspended particulates clog gills. Short-term severe effects on pelagic fish eggs and larvae in the immediate area may occur. Dredging would change substrate topography, causing a temporary redistribution of organisms in the immediate vicinity. Shrimp and demersal species that are supported from the shallow water habitats would benefit from the proposed project. The conversion of shallow vegetated habitat to open-	Impacts of the Modified Proposed Action to marine fisheries resources and EFH would be generally the same as for the 2020 EA Alternative, except borrow area impacts would be to similar resources inshore and not offshore. The marine fishery resources and EFH impacted by dredging in the inshore borrow area (508 acres) would be larger than the area impacted by dredging in the offshore borrow area (281 acres). Portions of the inshore borrow area are dredged approximately every two years, depending on funding availability, creating similar noise levels; therefore, the marine fishery resources and EFH are impacted on a

Resource	2020 EA No Action	2020 EA (with Offshore Borrow)	Modified Proposed Action (with Inshore Borrow)
		water EFH would be postponed due to the marsh creation.	regular basis.
Marine Mammal Resources	No direct impacts, indirect impacts to marine mammal prey species due to marsh erosion and conversion of marsh habitat to open water habitat.	No direct impacts to marine mammal resources are expected. Indirect benefits by improving habitat for marine mammal prey species. Provisions to avoid impacts to marine mammals would be implemented.	Impacts of the Modified Proposed Action to marine mammal resources would be generally the same as for the 2020 EA Alternative, except borrow area impacts would be inshore and not offshore. Marine mammals in the inshore borrow area would likely avoid the dredging area. The inshore borrow area is adjacent to a busy port. Portions of the inshore borrow area are dredged approximately every two years, depending on funding availability, creating similar dredging noise levels.
Migratory Bird, Wildlife, and Threatened and Endangered Species Resources	Continued erosion will result in marsh and mangrove habitat loss and conversion to bay habitat.	Material placement from implementation of the 2020 EA Alternative would result in adverse, direct, short-term minor impacts to birds, wildlife, and threatened and endangered species. Long-term benefit to birds, wildlife, and threatened and endangered species due to increasing longevity of marsh habitat. Provisions to avoid impacts to nesting birds and threatened and endangered species would be implemented.	Impacts of the Modified Proposed Action to birds, wildlife, and threatened and endangered species would be generally the same as for the 2020 EA Alternative, except borrow area impacts would be to similar resources inshore and not offshore.
CULTURAL			
Cultural Resources	No direct impact. With no action, continued marsh loss is expected to continue and erosion along the bayou banks could uncover cultural resources.	Implementation of the 2020 EA Alternative is not expected to cause adverse impacts to cultural resources. The project would postpone marsh loss and could delay erosion along the banks of Bayou Lafourche that could uncover cultural resources.	Impacts of the Modified Proposed Action to cultural resources would be generally the same as for the 2020 EA Alternative, except borrow area impacts would be inshore and not offshore.

Figure 5. Oyster Leases adjacent to the Marsh Creation Areas



4.1 CUMULATIVE IMPACTS

Direct and indirect impacts of past, present, and reasonably foreseeable future events were considered in the analysis of the proposed project consequences. These impacts include historical and predicted future land loss rates for the area and other restoration projects in the vicinity. The Modified Proposed Action would have temporary adverse impacts to some environmental resources but cumulative benefits to the environmental resources.

Although CWPPRA projects are typically implemented one at a time and must have individual merit, the cumulative value of all wetland restoration and protection projects in an area (including restoration projects implemented by other programs) can far exceed the summed values of the individual projects. As discussed in Section 2.1, the West Belle Pass Headland Restoration (TE-0023) was constructed to combat shoreline erosion and restore

hydrology. The West Belle Pass Barrier Headland Restoration (TE- 0052), Caminada Headland Beach and Dune Restoration (BA-0045), Caminada Headland Beach and Dune Restoration Increment II (BA-0143) Caminada Headlands Back Barrier Marsh Creation (BA-0171), and Terrebonne Basin Barrier Island and Beach Nourishment NFWF restoration project were constructed to restore barrier headland habitat.

Cumulative impacts associated with the Modified Proposed Action inshore dredging are expected to be minimal because multiple projects will be using the same borrow source. Future and potential future restoration projects in the project area include maintenance dredging for navigation every one to three years, depending on available funding. This material is typically placed on the Gulf of Mexico shoreline east and west of the Belle Pass jetties. In addition, the proposed Bayou Lafourche deepening project would deepen the federal navigation channel. The Port Fourchon Marsh Creation (TE-171) CWPPRA Project is currently in design. In addition, future expansion of Port Fourchon could affect the project area.

Cumulatively, these projects would operate synergistically with the Modified Proposed Action to provide moderate beneficial effects by increasing marsh and mangrove habitat and reducing regional erosion rates, thereby improving overall environmental resources in the vicinity. The cumulative impacts of other restoration projects in the area and beneficial use of dredge materials from port and channel dredging would have similar cumulative impacts.

The cumulative impact of the projects on air quality and water quality would not differ substantially from the effects of the Modified Proposed Action alone. Air quality would be temporarily and locally affected during construction of each of the projects. Short-term, localized increases in turbidity would result from all of the projects, but these impacts are considered transient because projects would not likely co-occur in space or time. The cumulative beneficial impact to water quality would be a long-term reduction in saltwater intrusion in the saline marshes behind the barrier islands and headlands.

Biological cumulative impacts of the CWPPRA and other restoration projects would be similar to the direct and indirect impacts of the Modified Proposed Action. The Modified Proposed Action would work with existing projects to enhance habitat for fish, wildlife, vegetation, and EFH.

Cumulatively, the Modified Proposed Action would increase benefits to the area by decreasing land loss rates. No cumulative adverse impacts are anticipated. Cumulative impacts to cultural resources would result from synergy of the preferred action with nearby restoration projects on the West Belle Barrier Headland and Caminada Barrier Headland. These projects would cumulatively decrease losses of habitat, thereby maintaining more of the economy and storm protection than with no action. The Modified Proposed Action is similar to previous actions in the area that have had no adverse cultural impacts. No adverse cumulative impacts would be expected.

5.0 COMPLIANCE WITH LAWS AND REGULATIONS

This section presents a review of the potentially applicable laws and regulations that govern this restoration project. Many federal, state, and local laws and regulations are considered during development of the restoration project, as well as several regulatory requirements that are typically evaluated during the permitting process. A brief review of potentially applicable laws and regulations that may pertain to this proposed project is presented below and compliance is summarized in Table 6. The project manager will ensure that there is coordination among these programs where possible and that project implementation and monitoring are in compliance with all applicable laws and regulations.

Archeological and Historic Preservation Act of 1974: This act states that, if an activity may cause irreparable loss or destruction of significant scientific, prehistoric, historic, or archeological data, the responsible agency is authorized to undertake data recovery and preservation activities, in accordance with implementing procedures promulgated by the Secretary of the Interior.

Clean Air Act of 1970: Under this act, Congress established procedures for developing National Ambient Air Quality Standards (NAAQS) for the protection of human health and public welfare. EPA published the NAAQS in 1971, and they became effective at that time. Standards are provided for the following criteria pollutants: carbon monoxide, sulfur dioxide, nitric oxide, ozone, lead, and fine particulate matter.

Clean Water Act (CWA): The CWA is the principal law governing pollution control and water quality of the nation's waterways. It requires the establishment of guidelines and standards to control the direct or indirect discharge of pollutants to waters of the United States. Discharges of material into navigable waters are regulated under Sections 401 and 404 of the CWA. The USACE has the primary responsibility for administering the Section 404 permit program. Under Section 401 of the CWA, projects that involve discharge or fill to wetlands or navigable waters must obtain certification of compliance with state water quality standards.

Coastal Zone Management Act (CZMA): This act provides for protection of resources found in the coastal zone, proactive land management practices, and preservation of unique coastal resources. Included in the CZMA is the requirement that all federal actions within the coastal zone of Louisiana must be consistent with the federally approved State of Louisiana Coastal Resource Management Plan.

Endangered Species Act of 1973 (ESA): This act directs all federal agencies to conserve endangered and threatened species and their habitats and encourages such agencies to utilize their authorities to further these purposes. Under the act, NOAA and USFWS publish lists of endangered and threatened species. Section 7 of the act requires that federal agencies consult with these agencies to minimize the effects of federal actions on endangered and threatened species.

Executive Order 11990, Protection of Wetlands: The intent of this EO is to avoid, to the

extent possible, the long- and short-term adverse impacts associated with the destruction or modification of wetlands and to avoid direct or indirect support for new construction in wetlands whenever there is a practicable alternative.
Executive Order 11988, Floodplain Management, as amended by Executive Order 13690, Establishing a Federal Flood Risk Management Standard and a Process for Further Soliciting and Considering Stakeholder Input: EO 11988 requires federal agencies to avoid to the extent possible the long and short-term adverse impacts associated with the occupancy and modification of flood plains and to avoid direct and indirect support of floodplain development wherever there is a practicable alternative. EO 13690 to include that the agency regulations and procedures must also be consistent with the Federal Flood Risk Management Standard (FFRMS). The project will not construct structures and will not increase flooding of nearby inhabited areas. The project will provide a buffer to storm surges.

Executive Order 12898, Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Population: This EO directs that the programs of federal agencies identify and address disproportionately high and adverse effects on human health and the environment of minority or low-income populations.

Executive Order 13112, Invasive Species: This EO requires agencies to use authorities to prevent introduction of invasive species, respond to and control invasions in a cost effective and environmentally sound manner, and to provide for restoration of native species and habitat conditions in ecosystems that have been invaded.

Fish and Wildlife Coordination Act: The Fish and Wildlife Coordination Act requires agencies to consult with the USFWS, NOAA, and appropriate state agencies, prior to modification of any stream or other body of water, to ensure conservation of wildlife resources. Compliance with the FWCA is integrated into the USACE interagency review process under Section 404 of the CWA as well as through the NEPA review process.

Magnuson-Stevens Fishery Conservation and Management Act (Magnuson-Stevens Act): In 1996, the act was reauthorized and changed by amendments to require that fisheries be managed at maximum sustainable levels and that new approaches be taken in habitat conservation. EFH is defined broadly to include those waters and substrate necessary to fish for spawning, breeding, feeding or growth to maturity (62 Fed. Reg. 66551, § 600.10 Definitions). The act requires consultation for all federal agency actions that may adversely affect EFH. Under Section 305(b)(4) of the act, NOAA is required to provide advisory EFH conservation and enhancement recommendations to federal and state agencies for actions that adversely affect EFH.

Marine Mammal Protection Act of 1972 (MMPA): All marine mammals are protected under the MMPA. With its amendments, it prohibits, with certain exceptions, the take of marine mammals in U.S. waters.

Migratory Bird Treaty Act of 1918 (MBTA): This act requires the protection of all migratory bird species and protection of ecosystems of special importance to migratory

birds against detrimental alteration, pollution, and other environmental degradation.

National Environmental Policy Act of 1969 (NEPA): This act was enacted in 1969 to establish a national policy for the protection of the environment. The CEQ was established to advise the President and to carry out certain other responsibilities relating to implementation of NEPA by federal agencies. Pursuant to Presidential Executive Order, federal agencies are obligated to comply with NEPA regulations adopted by the CEQ (40 CFR Parts 1500-1508). These regulations outline the responsibilities of federal agencies under NEPA and provide specific procedures for preparing environmental documentation to comply with NEPA.

National Historic Preservation Act of 1966: The National Historic Preservation Act of 1966, as amended in 1992, requires that responsible agencies taking action that affects any property with historic, architectural, archeological, or cultural value that is listed on or eligible for listing on the NRHP comply with the procedures for consultation and comment issued by the Advisory Council on Historic Preservation. The responsible agency also must identify properties affected by the action that are potentially eligible for listing on the NRHP, usually through consultation with the state historic preservation officer.

Rivers and Harbors Act of 1899: This act regulates development and use of the nation's navigable waterways. Section 10 of the act prohibits unauthorized obstruction or alteration of navigable waters and vests USACE with authority to regulate discharges of fill and other materials into such waters. Actions that require Section 404 CWA permits also likely require
permits under Section 10 of this act. A single permit usually serves for both purposes so this proposed project can potentially ensure compliance through this mechanism.

Table 6. Status of law and regulation compliance

Law or Regulation	Status
Archeological & Historic Preservation Act of 1974	In compliance, no known historic properties will be affected. SHPO stamped letters dated 08-29-23 (Modified Proposed Action), 07-17-20, 5-3-19, 2-15-16, and 12-10-15, cultural report no. 22-5937 (2020 EA); and SHPO stamped letter dated 12-7-22, and cultural report no. 22-6170.
Clean Air Act of 1970	In compliance, LDEQ letter dated 12-15-15
Clean Water Act	Department of the Army Section 10/404 Permit MVN 2021-00475-CF on 4-5-23.
Coastal Barrier Resources Act (CBRA)	The project is located in Lafourche Parish, Louisiana within (or partially within) Unit S04 of the CBRA. No CBRA consultation is needed for projects that prevent erosion on CRS units S01-S08 and LA-07 (16 U.S.C. 3504(a)(3)).

Law or Regulation	Status
Coastal Zone Management Act of Louisiana, Executive Order 11998 and 13690, Floodplain Management	Coastal Zone Consistency C20210008 on 5-4-21 (2020 EA); Mod 01 on 4-11-22; Mod 02 on 3-31-23 (SEA).
Endangered Species Act of 1973	In compliance, coordination with USFWS for ESA signed 05-06-19, NMFS for ESA signed 5-28-19 (EA); coordination with USFWS for ESA signed 07-15-22. No additional ESA species for SEA.
Executive Order 11990, Protection of Wetlands	In compliance, assessed with the 2020 EA and this SEA
Executive Order 12114, Environmental Effects Abroad of Major Federal Actions	In compliance
Executive Order 12898, Federal Actions to Address Environmental Justice in Minority Populations & Low-Income Populations	In compliance, assessed with the 2020 EA and this SEA
Fish & Wildlife Coordination Act	Coordination with USFWS for ESA signed 05-06-19 and 07-15-22, NMFS for EFH signed 4-27-20 and ESA signed 5-28-19, and as a CWPPRA participating agencies (for 2020 EA). No additional EFH species or habitat for the SEA.
Magnuson-Stevens Fishery Conservation & Management Act	Coordination with NMFS Habitat Conservation Division for EFH complete on 4-27-20 (2020 EA). No additional EFH species or habitat for the SEA.
Marine Mammal Protection Act of 1972 (MMPA)	Project was coordinated with USFWS and NMFS and will implement measures to minimize impacts on marine mammals.
Migratory Bird Treaty Act of 1918	Coordination under MBTA is generally incorporated into Section 404 of the CWA, NEPA, or other federal permit, license or review requirements.
National Environmental Policy Act of 1969	In process with the 2020 EA and this SEA
National Historic Preservation Act of 1966	In compliance, no known historic properties will be affected, SHPO stamped letters dated 08-29-23, 07-17-20 (SEA), 5-3-19, 2-15-16, and 12-10-15, cultural report no. 22-5937 (2020 EA); and SHPO stamped letter dated 12-7-22, and cultural report no. 22-6170.

6.0 CONCLUSIONS

The natural processes of subsidence and erosion of wetlands have been exacerbated by human alterations of the Louisiana coastal area. Without intervention, subsidence of area soils would continue and sea level rise would overcome the productive habitat. Avoidance and minimization measures of the Modified Proposed Action are presented in Table 7.

Table 7. Avoidance and minimization measures of the Modified Proposed Action

Resource	Potential Avoidance and Minimization Measures
Geology, Soil, Topography, and Physical	• Vegetative plantings and containment dikes around disturbed areas would stabilize soil and reduce resuspension of recently deposited sediment. • Inshore borrow area has been dredged previously and is planned to be maintained and deepened in the future. No impacts to shorelines are anticipated.
Climate, Oceanic Processes & Air Quality	• Best management practices would minimize exhaust fumes and fugitive dust. • Primary production through increased marsh productivity would benefit air quality in long-term.
Oceanographic Processes, Water Resources	• Best management practices and containment dikes would prevent or minimize turbidity. • Compliance with the Clean Water Act and other regulations would protect water resources.
Vegetation Resources	• Project-specific evaluations and coordination with appropriate federal, state, and local agencies focused on effective vegetation management. • Best management practices would reduce scour, erosion, and sedimentation • Native species would be used for vegetative plantings.
Aquatic & Benthic Habitats, and Essential Fish Habitat & Fisheries	• Undredged areas adjacent to the inshore borrow area would provide source organisms for recolonization. • Inshore borrow area has been dredged previously and is planned to be maintained and deepened in the future. • Best management practices would reduce turbidity in the borrow area • Project-specific evaluations and coordination with appropriate federal, state, and local agencies focused on protecting sensitive species. • Containment dikes would be gapped after construction to provide tidal connection.
Marine Mammals	• Project-specific evaluations and coordination with USFWS and NMFS focused on protecting this resource. • Standard Manatee Conditions for In-Water Activities and measures for Reducing Entrapment Risk to Protected Species would be implemented.

Resource	Potential Avoidance and Minimization Measures
Migratory Birds, Wildlife, and Threatened & Endangered Species	• Project-specific evaluations and coordination with USFWS and NMFS focused on protecting wildlife and sensitive resources. • Nesting colonial waterbirds and manatees would be avoided by following USFWS, LDWF, and NMFS Protected Resources provisions. • Bird abatement would be implemented, if necessary. • Use of a cutterhead dredge would likely not impact sea turtles. • Sea Turtle and Smalltooth Sawfish Construction Conditions would be implemented. • Implementation of minimization measures, i.e., slow vessel speeds, use of observers on vessels, and cessation of work if protected species are observed.
Historic, Prehistoric & Native American	• Magnetic and acoustic anomalies identified during the cultural resource surveys would be protected by buffers. • If artifacts of potential cultural or historical significance are unearthed, construction or excavation activities would be immediately halted and the Louisiana State Historic Preservation Office (SHPO) consulted. • Section 106 Consultation with the Louisiana State Historic Preservation Office and appropriate tribes has been conducted.
Socioeconomics	• Coordination with appropriate federal, state, and local agencies would ensure that public concerns are addressed. • Compensation of oyster leases at current market value.
Land Use & Infrastructure, Hazardous, Toxic & Radioactive Waste, and Noise	• Coordination with appropriate federal, state, and local agencies would focus on maintaining the quality of public recreation in the area. • Staging areas used for construction materials or debris would be returned to pre-construction, or better, conditions. • Construction would avoid pipelines and other oil and gas equipment, which have already been identified by magnetometer surveys and ongoing coordination with the pipeline owners.

This SEA provides additional information on the direct, indirect, and cumulative impacts on the human environment likely to result from using the inshore borrow area to construct the West Fourchon project. The analysis in this SEA provides evidence that the long-term beneficial impacts on the coastal resources of south Louisiana would not result in any substantial long-term adverse environmental impacts. The EA provided information on the direct, indirect, and cumulative impacts on the human environment likely to result from funding the West Fourchon project using the offshore borrow area.

Construction-related adverse impacts would be temporary or reversible, and therefore qualified as minor in the SEA. The analysis of this SEA further provides evidence that beneficial impacts would be minor to moderate. This effects analysis is based on a review of relevant literature, site- specific data, and project-specific engineering reports related to biological, physical, and cultural resources, as well as on the cumulative experience gained through many similar coastal restoration projects in other areas of south Louisiana in past decades. The action is anticipated to have long-term beneficial impacts on the local

economy and culture as it relates to recreational and commercial fishing. NMFS will review, evaluate, and consider the evidence in this SEA to determine whether it supports a finding that the proposed action using the inshore borrow area would have no significant impact on the quality of the human environment.

7.0 PREPARER

This SEA was prepared by biologist Donna Rogers of NMFS.

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