

Draft Environmental Assessment
Long Point Bayou Marsh Creation Project
CWPPRA PROJECT CS-0085
Cameron Parish, Louisiana

Prepared by: U.S. Environmental Protection Agency, Region 6

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PART 1: PURPOSE AND NEED FOR PROPOSED ACTION

1.1 Introduction

Coastal land loss in Louisiana has proceeded at catastrophic rates for many decades and may represent 90 percent of the coastal wetland loss in the lower 48 states (Dahl 2000). Analyses show that coastal Louisiana has experienced a net change in land area of approximately -4,833 square kilometers (modeled estimate: -5,197 +/- 443 square kilometers) from 1932 to 2016. This net change in land area amounts to a decrease of approximately 25 percent of the 1932 land area. (Couvillion et al., 2017). The causes of wetland loss in Louisiana are varied and complex and include subsidence, erosion, sediment deprivation, saltwater intrusion, altered hydrology, and sea level rise (Turner and Cahoon 1987, Turner 1990). The effects of natural processes like subsidence and storms have combined with human actions at large and small scales to produce a system on the verge of collapse (LCWCRFT, 1998, Coast 2050).

Congress recognized the ongoing severe coastal wetland losses in Louisiana and the increasing impacts on resources when it passed the Coastal Wetlands Planning, Protection and Restoration Act (CWPPRA) in 1990 (Public Law 101-646, Title III). CWPPRA established a process to identify, assess, design, and fund the construction of coastal wetland restoration projects. CWPPRA seeks to provide long-term conservation of coastal wetlands through the restoration, creation, protection, and enhancement of wetlands. On a yearly cycle, projects are selected from a list of projects (“priority project lists” or PPLs) for funding engineering, and design (E&D).

CWPPRA identified five federal agencies as Task Force members to participate in the program. These include the U.S. Army Corps of Engineers (USACE), the U.S. Environmental Protection Agency (EPA), the U.S. Fish and Wildlife Service (USFWS), the National Marine Fisheries Service (NMFS) and the Natural Resource Conservation Service (NRCS). The other partner is the Coastal Protection and Restoration Authority of Louisiana (CPRA), which participates in CWPPRA project selection, planning, analysis, implementation, and funding.

The EPA is the federal sponsor for the Long Point Bayou Marsh Creation Project (CS-0085) and is responsible for oversight of the project in partnership with CPRA. The proposed CS-0085 project was approved for E&D on the 28 PPL. The Task Force approved Phase I (E&D) funding in February 2019 via Task Force fax vote (Task Force 2019).

This Environmental Assessment (EA) has been prepared to evaluate impacts attributed to the deposition of dredged material into new placement sites during routine maintenance dredging of the Calcasieu River and Pass (CRP), Louisiana, project. This material would be used beneficially for marsh restoration, which involves the placement of dredged material in predominately open water areas to restore previously existing marsh.

The CRP provides a navigable channel for commercial fisheries, the oil and gas industry, and other commercial shipping vessels between coastal and offshore areas and the Port of Lake Charles, the Gulf Intracoastal Waterway, and other small local ports along the CRP and adjacent bayous. The CS-0085 project is located approximately 4 miles south of Hackberry, north of and including portions of the Sabine National Wildlife Refuge, east of Highway LA 27, and west of the Calcasieu Ship Channel near Mile 11. The project is in the CWPPRA Planning Region 4, Calcasieu Basin, Cameron Parish (Figure 1).

The CWPPRA Standard Operating Procedure (SOP) requires compliance with the National Environmental Policy Act (NEPA). The draft Environmental Assessment for the project is submitted with the approval package to the CWPPRA Technical Committee with the request for Phase II construction funding.

This EA has been prepared in accordance with the National Environmental Policy Act of 1969 and the Council on Environmental Quality's Regulations (40 CFR 1500-1508). The following sections include a discussion of the purpose and need for the proposed action, the authority for the proposed action, alternatives to the proposed action, significant resources affected by the proposed action, and the impacts of the proposed action.

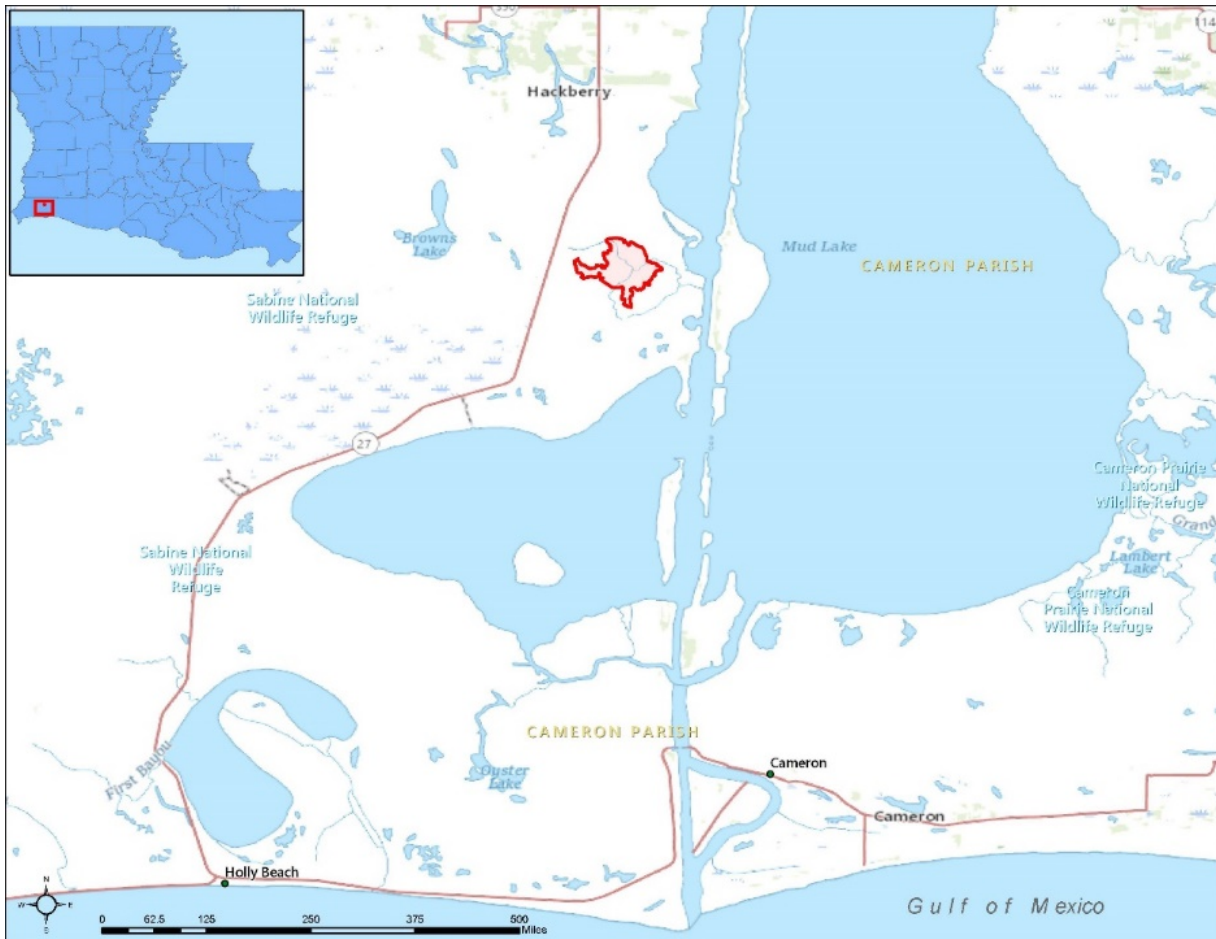


Figure 1. Project Location Phase 0 project footprint for CS-0085 indicated in red. (EPA 2018)

1.2 Purpose and Need for Proposed Action

The project goal is to create and/or nourish approximately 395 acres (create 311 acres and nourish 76 acres, with 8 acres of tidal creeks) of emergent marsh through beneficial use dredged material from the Calcasieu Ship Channel. Eight acres of tidal creeks and 198 acres of vegetative plantings will also be included. The Environmental Protection Agency's strategic plan goals include "Work with partners to protect and restore wetlands and coastal and ocean water

resources.” In addition, this project would restore habitat potentially used by the saltmarsh topminnow (petitioned/proposed for Federal listing) and black rail (listed as threatened). The project may also benefit neotropical migratory birds.

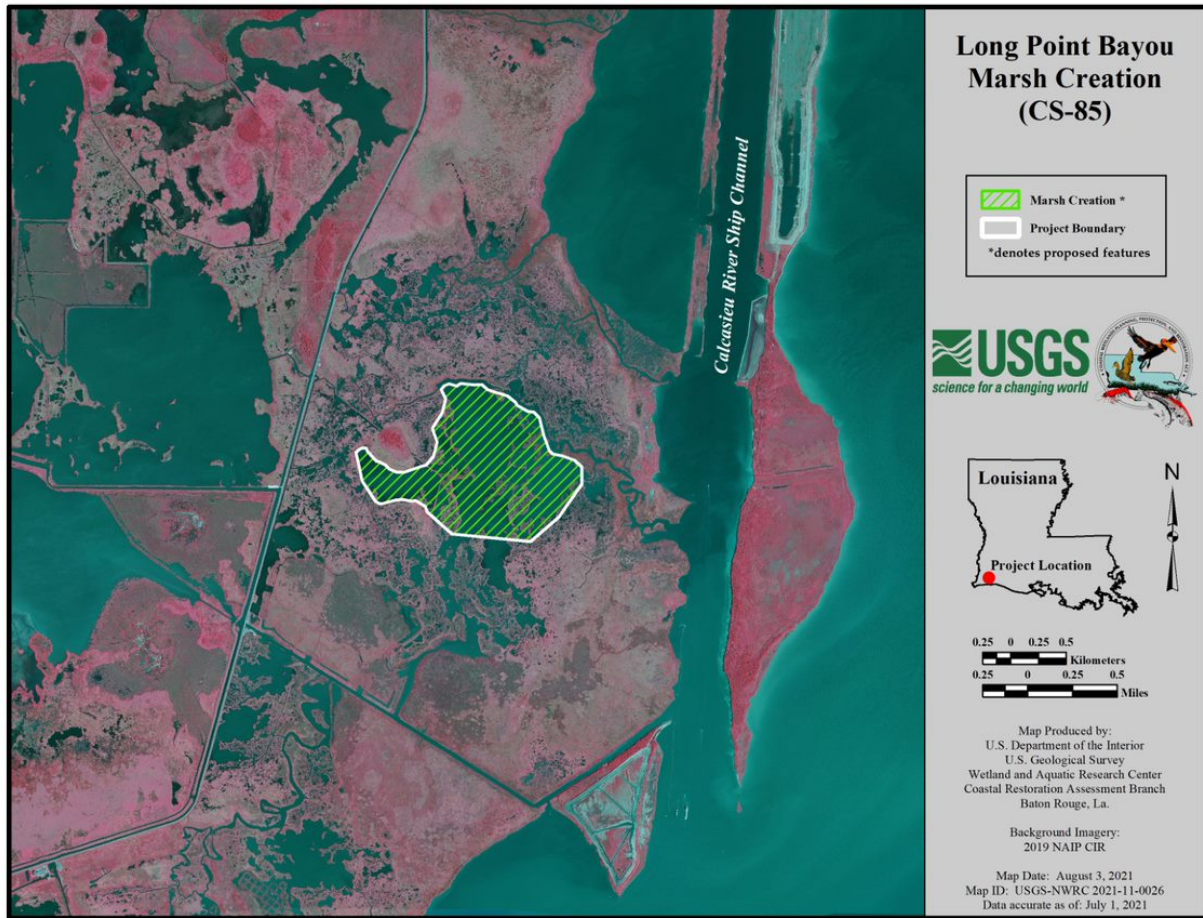


Figure 2. Project Location Phase 1 project footprint for CS-0085. (EPA 2021)

1.3 Problem

Louisiana is experiencing a land loss crisis that has claimed over 1,800 square miles of land between 1932 and 2010. From 2004 through 2008 alone, more than 300 square miles of marshland were lost to Hurricanes Katrina, Rita, Gustav and Ike. The Master Plan estimates that expected annual damages from flooding within 50 years could range from \$5.3 billion to \$12 billion if no further action is taken to reduce the risk of flooding. Without action to mitigate the factors causing degradation and marsh collapse, coastal Louisiana will continue to experience land loss of up to 4,123 square miles of land, under a High Environmental Scenario, and increased flooding with resultant flood damage (Louisiana’s Comprehensive Master Plan for a Sustainable Coast, June 2, 2017).

Calcasieu-Sabine Basin experienced the highest rates of wetland loss prior to the 1970s, with rates slowly decreasing since that time, with the exception of hurricane-induced losses in 2005 and 2008. The Calcasieu-Sabine Basin had a land area of 2,136.71 square kilometers (824.77 square miles) in 1932. By 2016, the land area was 1,619.01 square kilometer (624.94 square

miles) a loss of 517.7 square kilometers (199.83 square miles), or 24.2 percent over 84 years (Couvillion et al, 2017).

The Long Point Bayou Marsh Creation (CS-0085) project is in an area that has been influenced by saltwater intrusion, increased water fluctuations and erosion. Human alterations have disrupted the hydrologic processes which contributed to wetland building and maintenance, while subsidence and sea level rise continues. Almost all fresh marsh was converted to intermediate and brackish by the late 1970s as a result of saltwater intrusion and increased tidal influence. Land loss rates within the project area now show a positive trend; the experimental land change analysis conducted by USGS for the extended project boundary shows a land gain of +0.46% per year (1985 to 2020) in the project area. Historical topographic maps show that the area was nearly all land in 1955. (EPA 2021).

For interior marsh loss, USGS evaluated land/water data within an extended boundary (Figure 3) surrounding the project area. Using a hyper-temporal analysis (1985-2020) for the extended boundary, USGS calculated historical rates of land change (Figure 4). Figure 10 shows the experimental land loss analysis using the project boundary to query cloud-free data for the project polygon only. (EPA 2021).



Figure 3. Extended boundary used for land loss calculation (USGS, EPA 2021.)

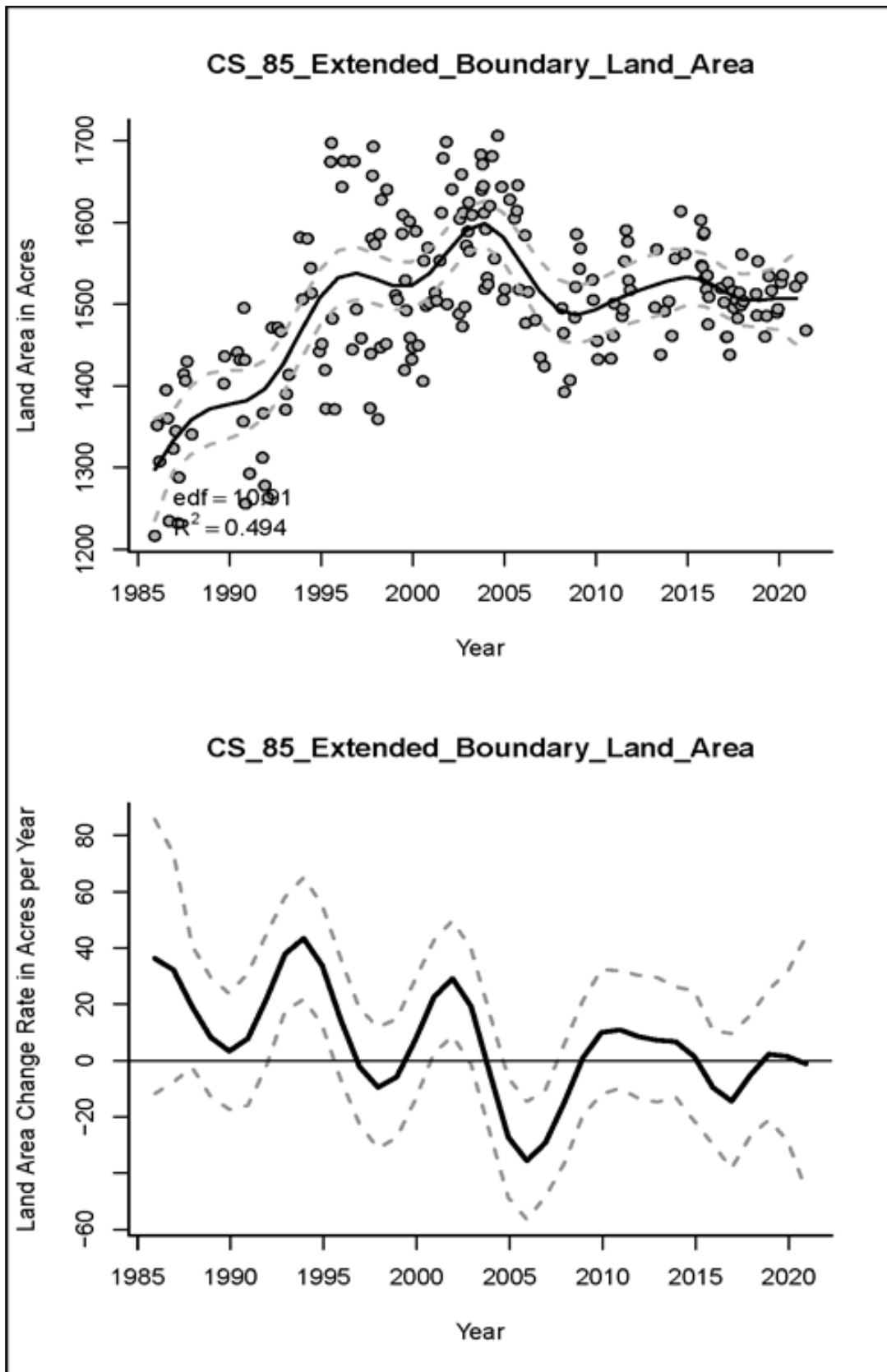


Figure 4. Land rate change

Historic Land Loss

In 1932, the Hog Island Gully unit, for which this project is a part, had 5,550 acres of marsh (Figure 5). This unit lost 2,090 acres of emergent marsh from 1932-1990. Most of this loss (1,890 acres) occurred from 1956-1974. As with other mapping units in this area, most of the historical loss occurred from the mid-1950's to the 1960's after Hurricane Audrey (1957) and Hurricane Carla (1961). Also, the proximity of this unit to the Calcasieu Ship Channel has allowed saltwater intrusion and increased tidal exchange, which have contributed to the conversion to more saline conditions and the loss of emergent wetlands. Subsidence in this area is estimated at 1.1-2.0 ft/century (LCWCRFT, 1998, Appendix F).

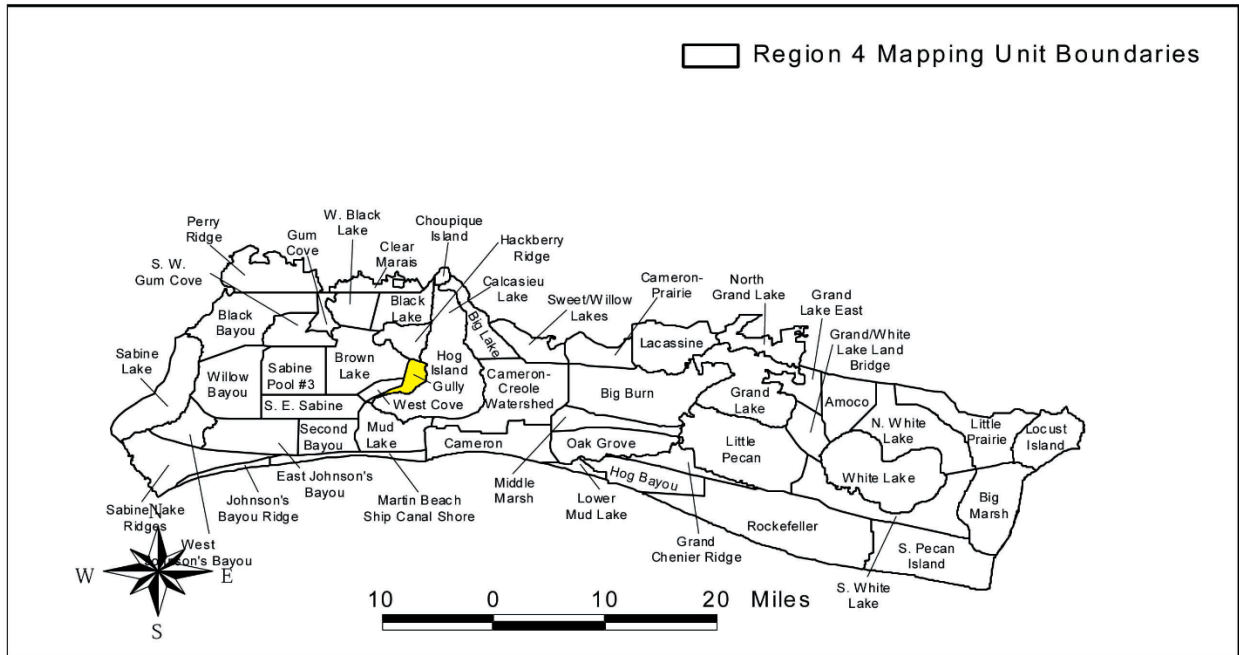


Figure 5. Mapping Units inside CWPPRA Region 4 (LCWCRFT 1998). The CS-0085 project is in the Hog Island Unit.

Future Land Loss Projections

In 1990, the Hog Island Gully unit had 3,460 acres of marsh. Marsh loss in this unit has apparently stabilized and loss rates were relatively low (0.29% per year) from 1974-1990. Future loss will continue at 0.29% per year (550 acres from 1990-2050) provided no restoration projects are implemented. Shoreline erosion along West Cove in Calcasieu Lake continues to be the major cause of marsh loss. Uncontrolled saltwater intrusion and free tidal exchange through the Calcasieu Ship Channel also contribute to wetland loss.

In recent years, this unit has experienced a gain in emergent marsh as a result of USACE Section 204 marsh creation projects during 1993 and 1996. These projects restored marsh in several hundred acres of open water north and south of the Hog Island Gully Canal. Another USACE Section 204 marsh creation project [was] planned for 1999. Also, a series of earthen terraces, constructed in open water east of the Headquarters Canal, has proven successful in increasing emergent marsh, protecting marsh edges from wave erosion, and increasing submerged aquatics.

Future loss of existing marsh may continue at the present rate of 0.29% per year. However, marsh creation projects and earthen terraces will result in a gain of 1,040 acres of brackish to saline emergent marsh offsetting the projected loss (550 acres through 2050) with a net

gain of 450 acres of marsh by 2050 (LCWCRTF 1998, Appendix F of Coast 2050).

Beneficial Functions

The Hog Island Gully unit is particularly important to numerous estuarine-dependent fisheries species, which utilize it as nursery habitat during a portion of their life cycle. Estuarine dependent species access this unit through several small bayous and openings in the spoil banks along the Hog Island Gully Canal, Headquarters Canal, and West Cove Canal. Important species include white shrimp, brown shrimp, blue crab, Gulf menhaden, red drum, spotted seatrout, Atlantic croaker, and southern flounder. Several species (including brown shrimp and blue crab) are important recreationally, as well as commercially. Red drum, black drum, spotted seatrout, southern flounder, American oyster, white and brown shrimp, and blue crab populations are currently stable. Gulf menhaden populations are presently increasing. By 2050, the populations of red and black drum, spotted seatrout, southern flounder, brown shrimp, and blue crab will increase, while Gulf menhaden will stabilize, and American oysters and white shrimp will decrease.

The Hog Island Gully unit also provides feeding and resting habitat for migratory waterfowl and other animals. Wading birds utilize the shallow water areas to prey on small fish, and shorebirds forage for invertebrates on exposed mud flats. The muskrat is the most common furbearer in the area, particularly after marsh fires encourage growth of three-corner grass and tender shoots of marsh hay cordgrass. In the open water habitat, currently stable populations of seabirds, other resident and migrant birds, furbearers, and American alligators are projected to remain stable through 2050, whereas currently increasing populations of dabbling and diving ducks and geese are projected to decline. Stable populations of furbearers and American alligators are expected to remain stable in brackish and saline marsh habitats through 2050. Currently stable brackish and saline marsh populations of seabirds, shorebirds, rails, gallinules, coots, other resident and migrant open water/marsh birds, rabbits, and deer are expected to decline. Currently increasing marsh populations of wading birds are expected to stabilize by 2050, and currently increasing brackish marsh populations of dabbling and diving ducks and geese are expected to decline. Currently stable saline marsh populations of diving and dabbling ducks and geese are also projected to decline by 2050 (LCWCRTF 1998, Appendix F of Coast 2050).

1.4 Authority for the Proposed Action

Coastal Wetlands Planning, Protection and Restoration Act- Public Law 101-646, the Coastal Wetlands Planning, Protection, and Restoration Act (CWPPRA) was signed into law on November 29, 1990. The CWPPRA directed the formation of the Louisiana Coastal Wetlands Conservation and Restoration Task Force and charged the Task Force with developing a long-term Restoration Plan for Louisiana's coastal wetlands. The Act provides planning and project construction funding. The Act directs the Task Force to submit annual listings of priority projects, designated to create, restore, and preserve coastal vegetated wetlands, to the U.S. Congress as part of the President's budget.

Calcasieu River and Pass Authority- The River and Harbor Act of 24 July 1946 House Document 190, 79th Congress, 2nd Session and prior River and Harbor Acts, provided for a channel 35 feet deep and 250 feet wide from the wharves of the Lake Charles Harbor and Terminal District to the Gulf of Mexico. The River and Harbor Act of 14 July 1960 House Document 436, 86th Congress, 2nd session provides for a channel varying in depth from 40 to 42 feet over a bottom width of 400 feet. The Calcasieu River at Coon Island, Louisiana project was authorized under Section 107 of the River and Harbor Act of 1960, as amended by Section 310

and Section 112 of the River and Harbor Acts of 1965 and 1970, respectively, provided for a channel 40 feet deep and 200 feet wide and a turning basin 40 feet deep by 750 to 1000 feet wide (USACE 2015).

1.5 Prior Reports

The Final Environmental Statement, Calcasieu River and Pass (including Salt Water Barrier); Coon Island; Devil's Elbow; Calcasieu River Basin, Louisiana, Continued Operation and Maintenance. The purpose of this FEIS was to continue operation and maintenance of the Calcasieu River and Pass, Coon Island, and Devil's Elbow, Louisiana projects. This FEIS also proposed to widen portions of the channel around Clooney Island to facilitate ship movement. (CEMVN, 1976).

The Final EIS for Calcasieu River and Pass Ocean Dredged Material Disposal Site Designation dated Nov 13, 1987. In the FEIS, the USEPA's preferred alternative was the final designation of the interim designated Calcasieu ODMDS for disposal of dredged material. Because there have been no changes to the Bar Channel since the preparation of the 1987 FEIS, and because the capacity of the ODMDS is sufficient for disposal for well beyond the next 20 years, the 1987 FEIS was incorporated by reference. This location was the least costly, environmentally-sound alternative consistent with sound engineering practices and compliant with Federal environmental laws. (USEPA 1987)

EA #155 titled "Calcasieu River and Pass, Marsh Creation, Brown Lake and Sabine National Wildlife Refuge, Cameron and Calcasieu Parishes, Louisiana," dated 31 Jan 1992. EA #155 dealt with impacts attributed to the deposition of dredged material into new placement sites during routine maintenance dredging of the CRP, Louisiana, project. Continued placement plans for future maintenance events to include reaches to be dredged, specific placement areas to be used, dikes needed, etc., would be developed through coordination with all Federal and state resources agencies and concerned local interests prior to preparation of project plans and specifications (CEMVN 1992).

The Final Calcasieu River and Pass, Louisiana Dredged Material Management Plan and Supplemental Environmental Impact Statement issued November 22, 2010 provides a plan for the management and disposal of dredged material for the Calcasieu River and Pass, Louisiana project (Calcasieu Ship Channel). The actions and strategies set forth in the Dredged Material Management Program (DMMP) supplemental Environmental Impact Statement (SEIS) would provide for the management of materials dredged through operations and maintenance of the ship channel and berthing areas for a minimum period of 20 years while updating and redefining the base plan/Federal standard for the project. Preparation of the DMMP/SEIS would enable the CEMVN to comply with the requirement of ER 1105-2-100 to prepare a DMMP for each federally authorized navigation channel. (CEMVN, 2010)

1.6 Coordination and Consultation

Coordination has been maintained with all the CWPPRA Task Force agencies, the Louisiana Department of Natural Resources (LDNR), and the CPRA. Consultation is ongoing with the USFWS and Louisiana Department of Wildlife and Fisheries (LDWF), in accordance with the Endangered Species Act of 1973 and the Fish and Wildlife Coordination Act. Federal, state, Tribal, and local agencies, as well as other interested stakeholders, will receive a copy of this EA. Consultation has also been conducted with the State Historic Preservation Office (SHPO) in

accordance with the National Historic Preservation Act of 1966, and Archaeological and Historic Preservation Act of 1974.

The EA has been prepared in coordination with NMFS in determining categories of Essential Fish Habitat (EFH) and associated fisheries species within the project vicinity. Submittal of the EA is provided to initiate formal federal consultation requirements pertaining to EFH under the *Magnuson–Stevens Fishery Conservation and Management Act (MSFCMA)*. The EPA has determined the project would not result in a substantial adverse effect to EFH or federally managed fishery species. We request concurrence from the NMFS Habitat Conservation Division on this determination.

Under the development of CWPPRA PPL28, the public, parish representatives, and state and Federal agencies nominated projects across the nine identified hydrologic basins. Ten candidate projects were selected from the list of nominees proposed in the PPL 28th planning year. These PPL 28 candidate projects were evaluated to determine the long-term net wetlands benefits based on a 20-year project life. The candidate projects were also evaluated to determine conceptual project designs and cost estimates. Economic analyses were conducted to determine the total fully funded cost estimate for feasibility planning, construction, and 20 years of operations and maintenance. Cost-effectiveness was calculated for each project using the fully funded cost estimate and net wetland benefits over the 20-year project life.

At the end of the PPL 28 development process, on February 12, 2019, the CWPPRA Task Force accepted the Technical Committee’s recommendation and approved the proposed CS-0085 project for Phase I funding, E&D. The 30% E&D Review meeting was held virtually on March 31, 2021, hosted by EPA and CPRA via Microsoft Teams platform. A 95% E&D Review meeting was held virtually on September 28, 2021. The federal and state sponsors for the CS-0085 project intend to request approval for construction funding at the CWPPRA Technical Committee meeting on December 2, 2021. The CS-0085 team has coordinated and consulted with stakeholders - SHPO, tribes, USFWS, NMFS, LDWF, USACE, Cameron Parish, CPRA, and LDNR throughout the design process.

PART 2.0 PROPOSED ACTION AND ALTERNATIVES

The project area for CS-0085 restoration is a portion of the “Calcasieu Lake West Bank Marsh Creation” (004.MC.104) as identified in the Louisiana’s Comprehensive Master Plan (MP) for a Sustainable Coast. The no-action alternative (Alternative 1) and the proposed action (Alternative 2) are evaluated here. Construction alternatives are designed with a 20-year life span as per the requirements of CWPPRA. The proposed project features and benefits will likely remain after the 20-year life span but detailed analyses beyond the 20-year life span have not been completed as a part of this analysis.

2.1 Design Alternatives – Marsh Creation Area

No-Action Alternative 1. Under a No-Action alternative, the proposed project would not be constructed. While the land loss rates within the project area now show a positive trend, historical topographic maps show that the area was nearly all land in 1955. It is general assumed

that conditions and land loss will continue, with associated losses of marsh and headlands functions via relative sea level rise and marsh degradation. Further, material from the Calcasieu Ship Channel Maintenance dredging would likely be placed in upland disposal sites rather than being used beneficially to create new marsh habitat. Further losses will likely be exacerbated by future hurricanes and storm surge events. Fish and wildlife habitat would continue to be lost. This would result in negative impacts to fish and marsh-dependent wildlife populations in the area, which would decline due to higher water salinity levels and decreased quality of vegetation. Greater use of open water by some bird species with less use of marsh and edge species can be expected.

Preferred Action Alternative 2 - Creation of One Marsh Area (395 Acres) Beneficially Using Renewable Sediment Resources. The CS-0085 project will demonstrate the feasibility of beneficially using renewable sediment sources through the creation of one marsh area. A hydraulic cutter-head dredge will be used to excavate an estimated 1,456,079 yds³ of sediment from the CRP maintenance dredging activities (Figure 6). Sediment would be transported via pipeline to the project area using the alignment described in Section 2.2. The marsh creation area will be filled to an elevation of +2.75 feet North American Vertical Datum of 1988 (NAVD88), with a maximum vertical elevation tolerance of +0.5 feet. Approximately 23,541 linear feet of new containment dikes will be constructed around the perimeter of marsh creation area. Figure 7 illustrates the typical cross-sectional design of the containment dikes.

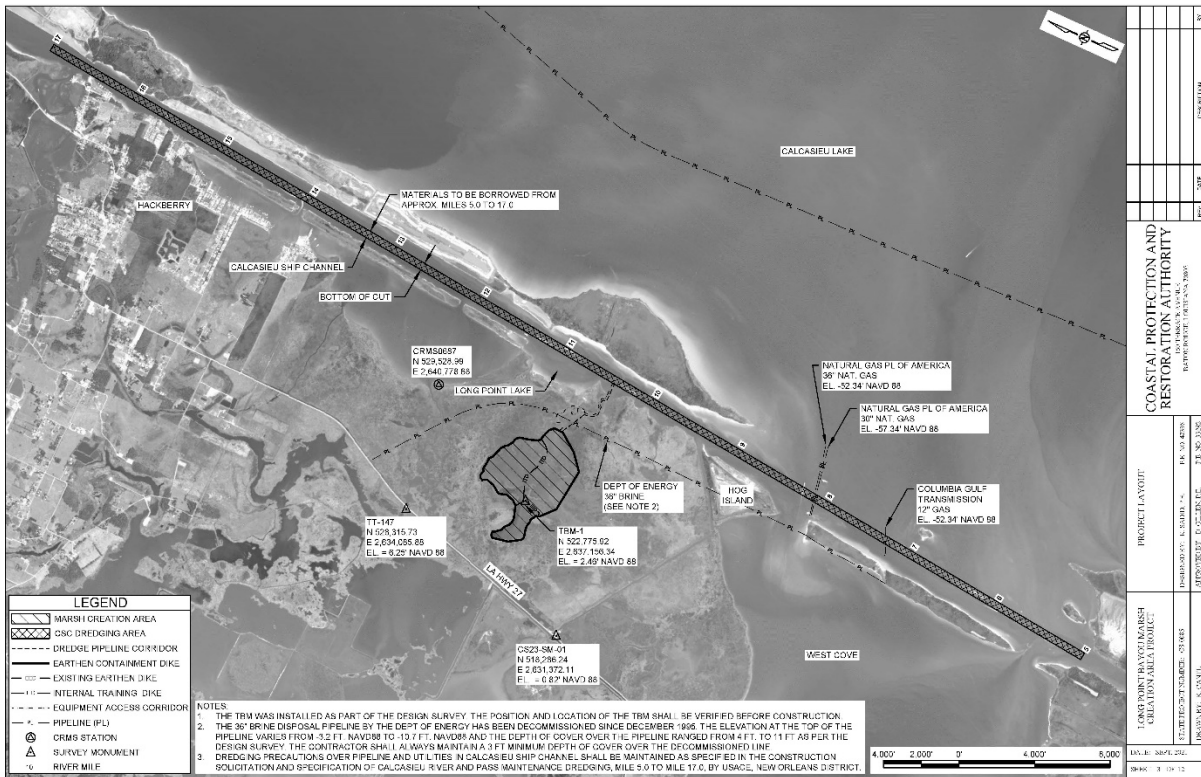


Figure 6 Project area detail showing borrow sites, pipelines, and marsh creation areas.

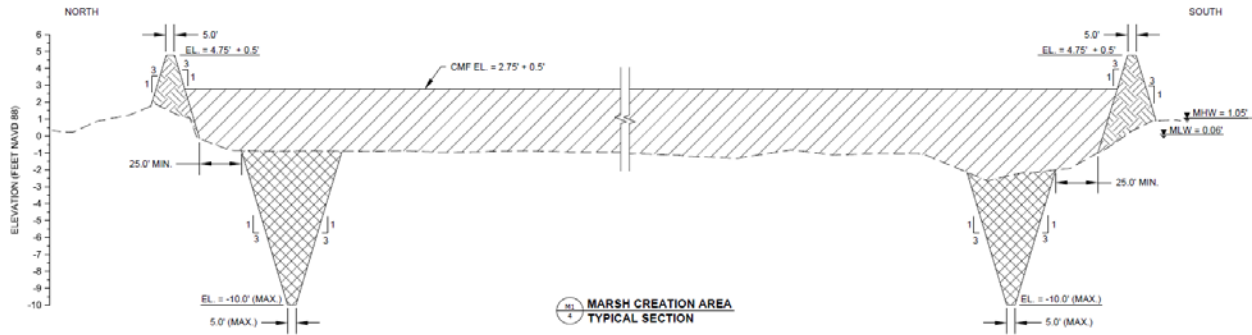


Figure 7 Containment Dike Typical Section

Ultimately, 395 acres of marsh and 23,541 linear feet of containment dikes will be created in areas that are mostly open water. The containment dikes will be degraded to marsh elevation upon construction completion. The newly constructed marsh platforms will be inspected one year after construction to determine if vegetative plantings are necessary.

2.2 Preferred Design Alternative - Pipeline Corridor

Two routes were explored as alternatives for the dredge pipeline corridor. The corridor will be used for the placement of the dredge pipe between the dredge and the fill area. One alternative utilized the winding route of Long Point Bayou while the other was a more direct route from Long Point Bayou into the marsh fill area. The chosen corridor is the southernmost route identified in pink in Figure 8. The corridor will extend to the marsh creation area across broken marsh just south of Long Point Bayou. The southern route was chosen rather than the northern corridor because it avoided degradation of healthy marsh between the Calcasieu Ship Channel and where it connected to Long Point Bayou. The pipeline corridor width is 250 ft.

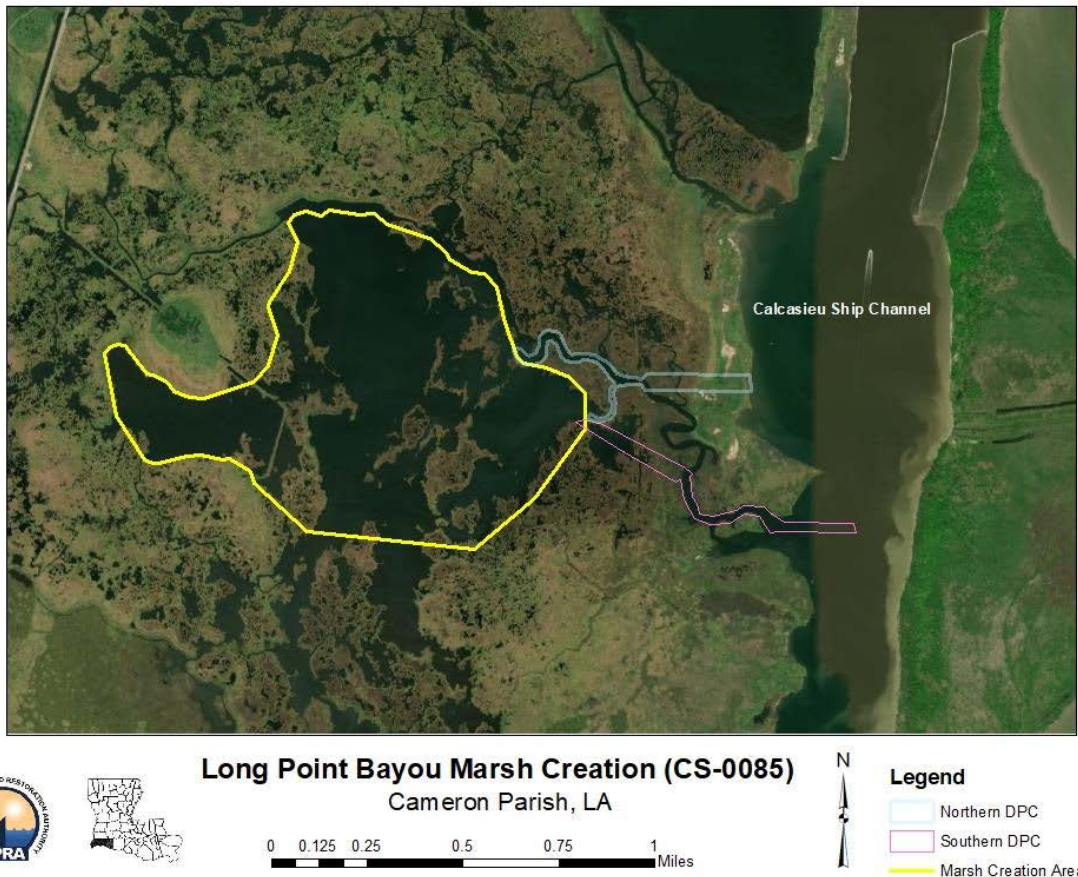


Figure 8 Dredge Pipeline Corridor

PART 3.0 AFFECTED ENVIRONMENT

3.1 Physical Environment

3.1.1 Hydrology. The Long Point Bayou Marsh Creation project is located in the lower Calcasieu-Sabine Basin, Region 4, Hog Island Gully mapping unit. In 1949, this unit was classified as a brackish, three-corner grass marsh. A gradual increase in saline marsh at the expense of brackish marsh was seen from 1968-1988. The 1988 classification shows the northern and southern portions of this unit as brackish. The central portion of the unit, adjacent to the Hog Island Gully Canal, was classified as saline marsh. According to 1990 GIS information, the habitat within this unit is 22% brackish marsh (1,330 acres) and 35% saline marsh (2,130 acres), for a total of 3,460 acres of marsh within this area. The remaining 2,588 acres consists of open water and upland habitats (LCWCRTF 1998, Appendix F of Coast 2050).

3.1.2 Soils. NRCS Soil Type Maps for the project area indicate the soils are composed predominantly of Scatlake mucky clay with lesser amounts of Gentilly Muck, and Udifluvents. Scatlake mucky clay is very slowly permeable fluid mineral soil. Felicity loam fine sand is characterized as a somewhat poorly drained, rapidly permeable soil (USDA 2015). Organic

content of the soils in the area are illustrated in Figure 9 (Coastwide Reference Monitoring System – CRMS0687)

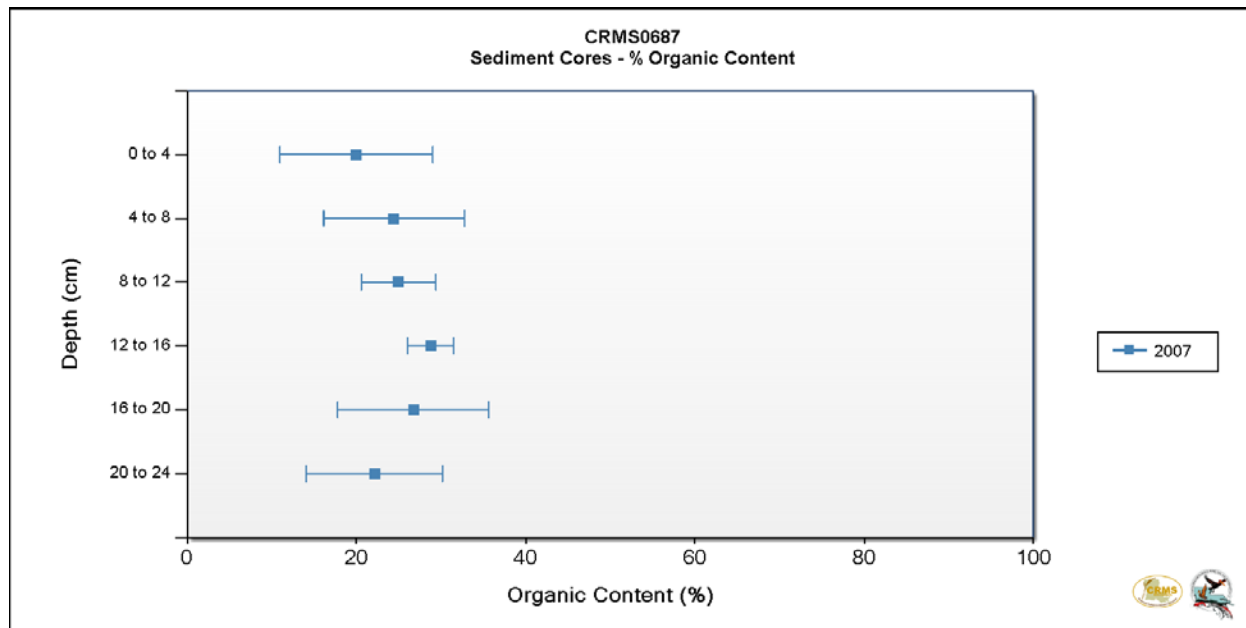


Figure 9 Organic Content of Soils from CRMS 0687.

3.1.3 Water Quality Under the Clean Water Act (CWA), the Louisiana Department of Environmental Quality (LDEQ) is responsible for developing water quality standards for surface waters of the State. The LDEQ is also responsible for identifying water bodies that fail to meet State water quality standards and measuring progress towards achieving water quality goals. The LDEQ has defined seven (7) designated uses for surface waters as: 1) primary contact recreation; 2) secondary contact recreation; 3) fish and wildlife propagation; 4) drinking water supply; 5) oyster propagation; 6) agriculture; and 7) outstanding natural resource waters. The fish and wildlife propagation designated use contains a subcategory, limited aquatic and wildlife use, that applies primarily to waters that have been designated as such by a use attainability analysis (UAA), which is required for modifying a designated use that is identified under CWA 101(a)(2).

The CS-0085 project is located in the Calcasieu River-From below Moss Lake to the Gulf of Mexico which includes Ship Channel and Monkey Island Loop (Estuarine) Assessment Unit ID: LA030401_00. The subsegment is designated for the following uses: primary contact recreation, secondary contact recreation, fish and wildlife propagation, and oyster propagation.

303(d) Listed Waters. Under Section 303(d) of the CWA, each state must prepare a list of waters that are not meeting their water quality standards. The EPA recommends these lists be submitted to EPA for review and approval by April 1st of even years (e.g., 2018, 2020). Total Maximum Daily Loads (TMDLs) are then established from the most recently approved list. The *2020 Louisiana Water Quality Inventory: Integrated Report (IR)* identified Calcasieu River-From below Moss Lake to the Gulf of Mexico; includes Ship Channel and Monkey Island Loop (ID LA030401_00) as impaired for Primary Contact Recreation, fish and wildlife propagation, oyster

propagation and fish and wildlife propagation (LDEQ, 2020). The parameters of concern for this listing cycle were dioxin, furan compounds, fecal coliform and enterococcus.

The 2020 Integrated Report identifies parts of subsegment 030401_00 as impaired to fish and wildlife propagation and oyster propagation due to commercial and recreational fishing closures relating to impacts from industrial point source discharges, industrial and commercial stormwater discharges, onsite treatment systems and natural sources. These impairments are in category IRC5 in the IR, indicating that a TMDL is expected to result in attainment of designated uses (LDEQ, 2020).

3.1.4 Climate and Weather. Most of Louisiana has a hot, humid, subtropical climate. It is one of the wettest states, with a yearly average of 57 inches of precipitation. Southern Louisiana has an average January temperature of 55 degrees F, and a July average of 82 degrees F. Hurricanes sometimes strike the coastal areas of Louisiana, causing loss of life and damage to property (Ning and Abdollahi, 2000). Prevalent winds from the south/southeast bring in warm, moist air from the Gulf, resulting in abundant rainfall. The statewide annual average precipitation varies from 48 inches in the northwestern part of the state near Shreveport to 64 inches in the southeastern coastal plains near Thibodaux.

Temperatures vary from season to season but are typically warm. January is the coldest month, with average lows in the 40s and highs in the 60s. The warmest months are July and August, with average lows in the 70s and highs in the 90s. In October through December, temperatures range from the 60s at night to 70s during the day. Cameron Parish can be very wet, with an average yearly rainfall of about 60 inches. During the summer months, afternoon thunderstorms are common. Hurricane season is from June 1 to November 30, and Cameron Parish does have threats from tropical systems, including hurricanes. The area experienced the effects of hurricanes Laura and Delta in 2020, which were determined to be minimal.

3.2 Biological Environment

3.2.1 Vegetation

CRMS vegetative survey data from CRMS 0687 indicates that these sites are dominated by black rush (*Juncus roemerianus*) and smooth cordgrass (*Spartina alterniflora*) (Figure 10).

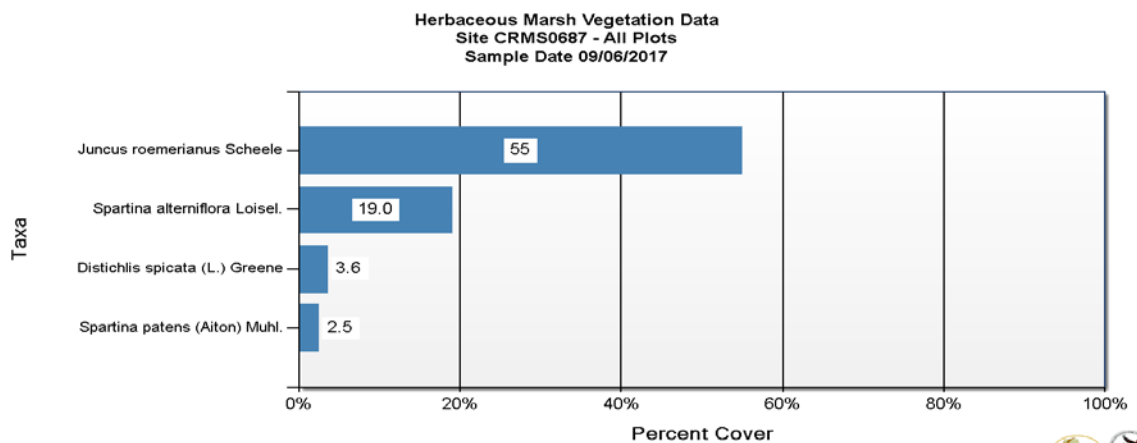


Figure 10. Vegetative Community, September 2017

3.2.2 Salinity

Salinity data from CRMS 0687 ranged between approximately 0.47-27.53 parts per thousand (ppt), with a mean salinity of 12.50 ppt (Figure 11). Salinity measurements taken on May 8, 2018 averaged 10.79 ppt from the CRMS station and 12.70 ppt at the project location. Salinity measurements taken on June 21, 2018 averaged 14.78 ppt from the CRMS station and 12.28 ppt at the project location.

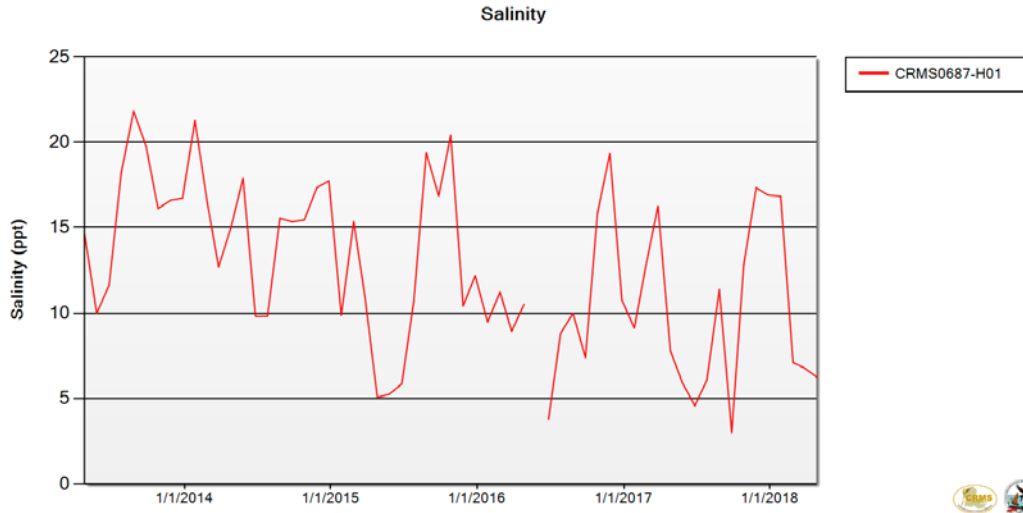


Figure 11. Salinity at CRMS 0687, May 2013 -May 2018.

Based on the latest salinity (Figure 11), marsh type classification (Figure 13), and vegetative community data for CRMS 0687 (Figures 9 and 10), as well as data taken on the field trip, the project was evaluated under the saline marsh model to accommodate for the latest conditions indicated by the data.

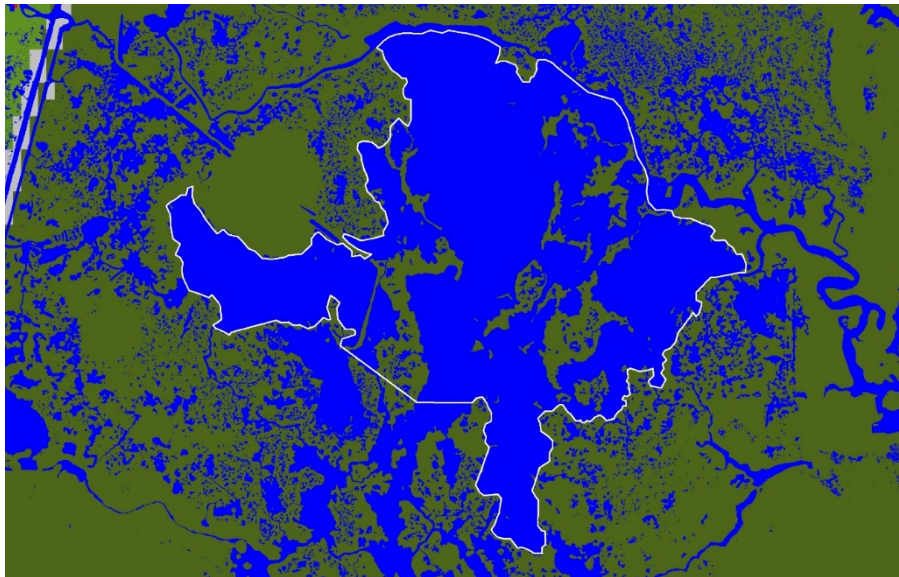


Figure 12. 2013 Marsh Type Survey (from Sasser et. al. 2014). The Project is 1% Intermediate Marsh, 13% Saline Marsh, and 87% Water.

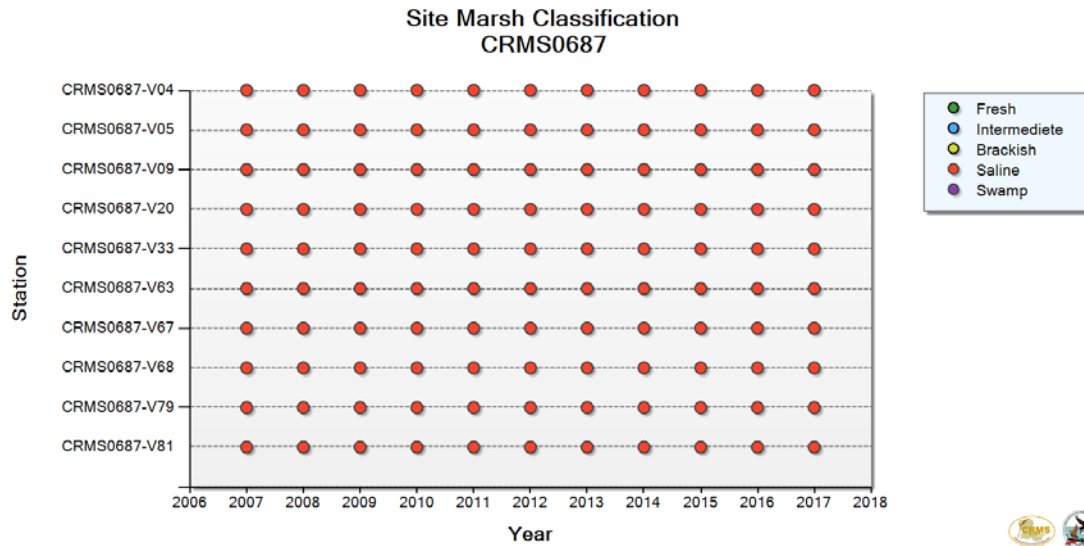


Figure 13. CRMS 0687 Marsh Classification, 2006-2018.

3.2.3 Fisheries. As reported in the Cameron-Creole Watershed Grand Bayou Marsh Creation Project (CS-0054) EA (FWS 2015), the project-area marshes and associated open-water habitats provide important habitat (i.e., nursery, escape cover, feeding grounds) for a variety of freshwater and estuarine-dependent fishes and shellfishes. Most of the economically important saltwater fishes and crustaceans harvested in Louisiana spawn offshore and use estuarine areas for nursery habitat (Herke 1995). Nekton use of estuaries is largely governed by the seasons (Day et al. 1989). Different species use the same locations in different seasons, and different life stages of the same species use different locations. Aquatic species diversity peaks in the spring and summer and is typically low in the winter. Some marine species, which use estuaries as nursery habitat also have estuarine dependent life stages, typically as larvae and juveniles. Larvae or juveniles immigrate into the project area during incoming tides and take advantage of the high productivity of the estuary (USFWS 2015).

3.2.4 Essential Fish Habitat. The 1996 amendments to the Magnuson-Stevens Fishery Conservation and Management Act (Magnuson-Stevens Act; P.L. 104-297) set forth a new mandate for NOAA’s NMFS, regional fishery management councils (FMC), and other federal agencies to identify and protect important marine and anadromous fish habitat. The EFH provisions of the Magnuson-Stevens Act support one of the nation’s overall marine resource management goals of maintaining sustainable fisheries. Essential to achieving this goal is the maintenance of suitable marine fishery habitat quality and quantity. Detailed information on Federally-managed fisheries and their EFH is provided in the 1999 generic amendment of the Fishery Management Plans (FMP) for the Gulf of Mexico prepared by the Gulf of Mexico FMC (GMFMC). The generic FMP subsequently was updated and revised in 2005 and became effective in January 2006 (70 FR 76216). NMFS administers EFH regulations.

Estuarine emergent wetlands, submerged aquatic vegetation (SAV), estuarine water column, and mud substrates within the project area have been identified as EFH for both post-larval and juvenile stages of brown shrimp and white shrimp. These habitats are also EFH for post-larval, juvenile, subadult, and adult red drum. Coastal wetlands provide nursery and foraging habitat that supports economically important marine fishery species such as spotted seatrout, sand

seatrout, southern flounder, Atlantic croaker, spot, gulf menhaden, striped mullet, white mullet, killifish, kingfish, pompano, anchovies, and blue crab. Some of these species serve as prey for other fish species managed under the Magnuson-Stevens Act by the GMFMC (e.g., mackerels, snappers, and groupers) and highly migratory species managed by NMFS (e.g., billfishes and sharks) (USACE 2006).

3.2.5 Wildlife. Numerous reports (as cited in Service 2007) document the wildlife known to occur within the refuge, which is directly south of the project area. Those reports were used to identify species in our project area. Sabine National Wildlife Refuge boasts more than 250 bird species, 132 fish species, 36 reptile and amphibian species, and 28 mammal species. This diversity exists in spite of ongoing habitat changes on the refuge. Migratory waterfowl use the refuge and are economically important in the area. Mottled ducks, wood ducks, and fulvous whistling-ducks are known to nest and raise young on the refuge. The refuge provides excellent wintering habitat for many other waterfowl species including white-fronted geese, lesser snow geese, and Canada geese. At least 20 duck species, including gadwall, green-winged teal, blue-winged teal, American widgeon, mallards, and ring-necked ducks winter on Sabine (USFWS 1996). Aerial waterfowl surveys have recorded over 100,000 ducks on the refuge three out of five winters between the winter of 1994–95 and the winter of 1998–99, and one of those years over 200,000 ducks were counted. Gadwall, green-winged teal, and lesser snow geese frequent the refuge in higher numbers than other waterfowl species. Winter population surveys over the last ten years averaged almost 25,000 gadwall and 10,000 green-winged teal and snow geese, respectively (USFWS 2002c) (Service 2007).

Many wading bird species are present on the refuge year-round. Winter surveys have revealed that great egrets, white and white-faced ibis, and roseate spoonbills are the most abundant wading birds on the refuge and feed throughout the marshes during the winter months. Species such as white pelicans, tricolored herons, black-crowned night herons, green herons, great blue herons, and snowy egrets are also present in great numbers. Hundreds of cormorants utilize the refuge as well (Service 2007).

At least 28 species of mammals can be found on the refuge. The most common rodents include muskrat, nutria, marsh rice rat, and hispid cotton rat. The swamp rabbit and eastern cottontail are the only two lagomorphs found on the refuge. Many carnivorous furbearers live on the refuge, including river otter, mink, coyote and bobcat. Armadillo can frequently be seen on the levees. The only ungulate present is the white-tailed deer. Among the bats that have been documented to occur on the refuge are the red bat, Eastern pipistrelle, and Brazilian free-tailed bat (USFWS 1996) (Service 2007).

Sabine National Wildlife Refuge harbors at least 35 species of amphibians and reptiles. Species most commonly encountered include: the American alligator, snapping turtle, alligator snapping turtle, red-eared slider, Mississippi green water snake, broad-banded water snake, western ribbon snake, speckled kingsnake, western cottonmouth, green anole, ground skink, Gulf coast toad, green treefrog, and southern leopard frog (USFWS 1996). Another species of note is the diamondback terrapin, a medium-size turtle that prefers open water in coastal salt marshes and estuaries (USFWS 2002) (Service 2007).

3.2.6 Threatened and Endangered Species. Section 7 of the Endangered Species Act (ESA) requires that activities authorized by federal agencies consider potential impacts to threatened or endangered species and their critical habitat. To comply with the ESA, consultation with the USFWS is required. EPA used the FWS Information for Planning and Consultation (IPaC) Tool (<https://ecos.fws.gov/ipac/>) to provide information about the project. The USFWS has indicated that the West Indian manatee (*Trichechus manatus*) and the Eastern Black rail (*Laterallus jamaicensis* ssp. *jamaicensis*) may occur in the proposed project vicinity. According to USFWS based on the answers provided in the iPaC tool, the proposed action is consistent with a determination of “no effect” or “may affect, but not likely to adversely affect (NLAA)” either species. (USFWS 2021)

3.2.6.1 West Indian manatee (*Trichechus manatus*).

The West Indian manatee was originally listed as an endangered species in 1967, and listed again in December 1970 by the amended Appendix A of 50 CFR 17, which added names to the list of foreign endangered species. West Indian manatees in the United States are also protected under federal law by the Marine Mammal Protection Act of 1972.

3.2.6.2 Eastern Black rail (*Laterallus jamaicensis* ssp. *jamaicensis*) The eastern black rail is a wetland dependent bird requiring dense overhead cover and soils that are moist to saturated (occasionally dry) and interspersed with or adjacent to very shallow water (typically ≤ 3 cm) to support its resource needs. Eastern black rails occur across an elevational gradient that lies between lower and wetter portions of the marsh and their contiguous uplands. Their location across this gradient may vary depending on hydrologic conditions. These habitat gradients have gentle slopes so that wetlands are capable of having large areas of shallow inundation (sheet water). These wetlands are able to shrink and expand based on hydrologic conditions and thus provide dependable foraging habitat across the wetted areas and wetland upland transition zone for the subspecies. Eastern black rails also require adjacent higher elevation areas (i.e., the wetland-upland transition zone) with dense cover to survive high water events due to the propensity of juvenile and adult black rails to walk and run rather than fly and chicks’ inability to fly. The subspecies requires dense vegetative cover that allows movement underneath the canopy, and because birds are found in a variety of salt, brackish, and freshwater wetland habitats that can be tidally or non-tidally influenced, plant structure is considered more important than plant species composition in predicting habitat suitability. In terms of nest success, nests must be well hidden in a dense clump of vegetation over moist soil or shallow water to provide shelter from the elements and protection from predators. Flooding is a frequent cause of nest failure for eastern black rails; therefore, water levels must be lower than nests during egg-laying and incubation in order for nests to be successful. In addition, shallow pools that are 1-3 cm deep may be the most optimal for foraging and for chick-rearing. (FWS 2019)

3.2.6.3 Monarch Butterfly (*Danaus plexippus*): Adult monarch butterflies are large and conspicuous, with bright orange wings surrounded by a black border and covered with black veins. The black border has a double row of white spots, present on the upper side of the wings. Adult monarchs are sexually dimorphic, with males having narrower wing venation and scent patches. The bright coloring of a monarch serves as a warning to predators that eating them can be toxic.

During the breeding season, monarchs lay their eggs on their obligate milkweed host plant (primarily *Asclepias* spp.), and larvae emerge after two to five days. Larvae develop through five larval instars (intervals between molts) over a period of 9 to 18 days, feeding on milkweed and sequestering toxic chemicals (cardenolides) as a defense against predators. The larva then pupates into a chrysalis before emerging 6 to 14 days later as an adult butterfly. There are multiple generations of monarchs produced during the breeding season, with most adult butterflies living approximately two to five weeks; overwintering adults enter into reproductive diapause (suspended reproduction) and live six to nine months.

In many regions where monarchs are present, monarchs breed year-round. Individual monarchs in temperate climates, such as eastern and western North America, undergo long-distance migration, and live for an extended period of time. In the fall, in both eastern and western North America, monarchs begin migrating to their respective overwintering sites. This migration can take monarchs distances of over 3,000 km and last for over two months. In early spring (February-March), surviving monarchs break diapause and mate at the overwintering sites before dispersing. The same individuals that undertook the initial southward migration begin flying back through the breeding grounds and their offspring start the cycle of generational migration over again. (<https://ecos.fws.gov/ecp/species/9743>)

3.2.7 Recreation. Recreation in the area is generally oriented towards hunting and fishing. The natural and recreational resources of the project area provide wide and varied opportunities for outdoor enjoyment. Recreational activities taking place in Long Point Bayou and adjacent marshes may include boating, hunting, fishing, and cultural study. The project area is an area of vital importance as a fishery nursery ground, waterfowl wintering and hunting area. Recreational fishing is by far the most popular activity in the project area because of the access to water bodies, bayous, and the marsh, although, the segment is currently listed as impaired for fish and wildlife propagation. Small game hunting is also popular due to abundance of habitat and the wide range of species available to the hunter.

PART 4.0 ENVIRONMENTAL CONSEQUENCES

In general, emergent marsh will provide the organic matter that is the basis for the coastal food web and will provide high primary production and essential fish habitat for many fish and shellfish species of the area. The emergent marsh system, together with similar projects in the area, will provide additional storm buffering capacity.

4.1 Physical Environment

4.1.1 Hydrology

No-Action Alternative. Under a No-Action Alternative, hydrologic conditions in the project area would continue to degrade and land loss would continue. Marshes would continue to subside and convert to open water. Materials from maintenance dredging of the CRP would likely continue to be placed in upland disposal sites adjacent to the Calcasieu River Ship Channel.

Alternative 2 - Preferred Alternative. Under the Preferred Alternative, hydrologic conditions within the project area would be impacted by the creation of marsh and tidal creeks. The open

water areas through which water exchange now occurs would be filled with dredged material. Marsh creation would not prevent tidal exchange in the surrounding marshes. It would be enhanced by the creation of tidal creeks.

Containment dikes will be built to surround the marsh creation area and contain the dredged material slurry. The containment dikes will have a temporary effect on water exchange. The dikes will be gapped or degraded at the end of project construction to allow tidal exchanges to re-establish between the newly-created marsh and adjacent waters. As the marsh platform subsides, more tidal connections would form in the project area.

4.1.2 Soils

No-Action Alternative. Under a No-Action Alternative, the existing soils in the marsh creation sites would remain under open water and the sediment resources of the Calcasieu Ship Channel may not be utilized for restoration resulting in additional upland disposal sites.

Alternative 2 - Preferred Alternative. Under the Preferred Alternative, sediment from the Calcasieu Ship Channel, “most likely to be free of contaminants”, would be used in the marsh fill area. The borrow material for this project site is from the Calcasieu Ship Channel area between Miles 5 and 17 to about an elevation of -45 (ft., NAVD88 GEOID18), the maximum dredge depth allowed. Based on the soil data obtained from borings in the Ship Channel, the borrow material mainly consists of clays with average moisture of about 110 percent and specific gravity of about 2.7, this corresponds to a void ratio of about 3.1 for in situ soils (PSI 2021). Consideration was also given to determine the need for testing of the borrow area sediment.

Consideration was also given to determine the need for testing of the borrow area sediment. In accordance with procedures described in the “Evaluation of Dredged Material Proposed for Discharge in Waters of the U.S. – Inland Testing Manual” (ITM; 1998), extensive chemical, physical, and biological effects-based testing was performed by the CEMVN during preparation of the 2010 Dredged Material Management Plan and Supplemental Impact Statement. Based on the results of these tests and specific to the beneficial use of dredged material, the CEMVN concluded that:

The discharge of dredged material from the Calcasieu River and Pass, LA, navigation channel into the shallow open water disposal areas for wetlands development is not likely to have an unacceptable adverse effect on survival, growth or reproduction of aquatic organisms or pose a human health risk due to bioaccumulation. Neither the magnitude of bioaccumulation of metals nor the total PAH tissue residues in tissues of organisms exposed to sediment from the navigation channel indicate a cause for concern for aquatic organisms living at the proposed placement sites or for humans who may consume those organisms.

Additionally, prior to CRP maintenance dredging events the CEMVN performs Tier I evaluations as per guidelines outlined in ITM. Since completion of testing in 2010, these Tier I evaluations have revealed only minor spills of crude oil and fuel in the CRP vicinity of this proposed dredging area.

Based on testing performed as part of the 2010 Supplemental Environmental Impact Statement and routine review of contaminant spill reports in the project's vicinity, there is no reason to consider material removed from the CRP Mile 5 to Mile 14 dredging reach to be unsuitable for discharge into waters of the U.S and at the proposed beneficial use placement area.

4.1.3 Water Quality

No-Action Alternative. The No-Action Alternative would continue to allow the conversion of brackish marsh habitats into more saline estuarine conditions. As a result, a higher salinity tidal exchange would encroach further into the Calcasieu-Sabine River Basin causing additional losses of emergent vegetation, land erosion, and potential storm buffering capabilities. The continued deterioration of the existing marshes could also potentially contribute to an increase in turbidity.

Alternative 2 - Preferred Alternative. The preferred alternative would have no long-term adverse impact on present conditions. However, short-term adverse temporary impacts due to increased turbidity from placement of material could occur during project construction. The slurry discharge can contain suspended silt, clay, and organic matter, which could temporarily degrade the water quality in a dredge plume. These impacts are minor and would be limited to the construction phase of the project only. Turbidity levels would be expected to return to pre-construction conditions shortly after construction ended. The proposed construction of this project would not affect fecal coliform levels and would not threaten oyster propagation.

4.2 Biological Environment

4.2.1 Vegetation

No-Action Alternative. No loss rate was applied to the land acreage from the 2019 NAIP photo imagery data land/water analysis to calculate the TY0 project acreage for 2021 because the location is an area of land gain. Land loss rates within the project area have slowed and now show a positive trend; the hyper-temporal analysis conducted by USGS for the extended project boundary shows a land gain of +0.46% per year (1985 to 2020) in the project area according to the experimental land loss analysis.

Alternative 2 - Preferred Alternative. By re-establishing the marsh platform at an elevation conducive to the establishment of marsh vegetation, the life of the wetlands should be increased by providing an additional 395 acres of emergent wetlands post construction and a net of 311 acres over the 20-year life of the project.

4.2.2 Fisheries

No-Action Alternative. Under the No-Action Alternative, the area would continue to provide nursery habitat and associated food resource for small resident fishes. However, continued land loss will lead to increasing water depth and the value of the area as a food source and nursery will decline. As a marsh complex exceeds 70 percent unvegetated open water, shrimp and blue crab populations may decline (Minello and Rozas 2002).

Alternative 2 - Preferred Alternative. The creation of healthy marsh habitat would provide a greater diversity of foraging, breeding, spawning, and cover habitat for a greater variety of adult and juvenile fish and shellfish species. The marsh would contribute nutrients and detritus would add to the existing food web, providing a positive benefit to local area fisheries.

4.2.3 Essential Fish Habitat

No-Action Alternative. The project area contains approximately 318-ac of open water and 77-ac of estuarine marsh. Under the No-Action Alternative, the estuarine marsh areas would continue to convert to shallow open water. Although an increase in some types of EFH (i.e. mud bottom and estuarine water column) could occur, adverse impacts would occur to more productive types of EFH (i.e., estuarine emergent wetlands). The loss of estuarine emergent wetlands would result in negative impacts to post-larval/juvenile and sub-adult brown shrimp; post-larval/juvenile and sub-adult white shrimp; and post-larval/juvenile, sub-adult, and adult red drum.

Alternative 2 - Preferred Alternative. With the preferred alternative, the creation of estuarine emergent wetlands would result in the loss of 278 acres of mud bottom, 32 acres of SAV, and 278 acres of estuarine water column. However, 310 acres of emergent marsh would replace those habitat types. Loss of these categories of EFH could result in negative impacts to federally managed fishery species; however, a more productive type of EFH (i.e., estuarine emergent wetlands) would be created under the preferred alternative. Therefore, the preferred alternative would result in a net positive benefit to all managed species that occur in the project area.

4.2.4 Wildlife

No-Action Alternative. Under the No-Action Alternative, there is a continual prolonged risk to wildlife as the marsh and wetland habitat continues to degrade. As the limited amount of existing marsh habitat decreases to open water over time, habitat value for all wildlife species continues to degrade and diminish.

Alternative 2 - Preferred Alternative. The newly created marsh would provide improved habitat conditions for several species of wildlife such as migratory and resident waterfowl, shorebirds, wading birds, and furbearers. Intertidal marsh and marsh edge will also provide increased foraging opportunities for shorebirds and wading birds. Small fishes and crustaceans are often found in greater densities along vegetated marsh edge (Castellanos and Rozas 2001, Rozas and Minello 2001). The preferred alternative would protect existing marsh, create vegetated wetlands, reduce future land loss, and increase the diversity of habitat for a greater variety of wildlife species.

4.2.5 Threatened and Endangered Species

4.2.5.1: Impact Analysis on West Indian Manatee. Although unlikely, the West Indian Manatee may be found in the estuarine waters in or near the project area. With implementation of the USFWS recommendations, the project would not likely adversely affect the manatee. Construction equipment (e.g., boats, barges, dredges, etc.) may encounter manatees in the waterbodies within and around the project area. Specific language will be included in the project's plans and specifications to avoid/minimize impacts to the West Indian manatee. The

following precautions will be implemented from May to October, when manatees have the greatest potential for entering the project area:

- All construction personnel will be instructed about the possible presence of manatees and the need to avoid collisions with and injury to manatees.
- All on-site project personnel are responsible for observing water-related activities for the presence of manatee(s).
- Temporary signs will be posted prior to and during all construction and dredging activities to remind personnel to be observant for manatees during operations or within vessel movement zones (i.e., work areas).
- At least one sign will be placed where it is visible to the vessel operator.
- Siltation barriers, if used, will be made of material in which manatees could not become entangled, and will be properly secured and monitored.

The following special operating conditions shall be implemented upon the sighting of a manatee within 100 yards of the active work zone:

- No operation of moving equipment within 50 feet of a manatee.
- All vessels will operate at no wake/idle speeds within 100 yards of the work area.
- Siltation barriers, if used, will be re-secured and monitored.
- Any sighting of, collision with, or injury to a manatee must be reported immediately to the USFWS, Lafayette, Louisiana Field Office (337.291.3100), and the Louisiana Department of Wildlife and Fisheries, Natural Heritage Program (225.765.2821).

4.2.5.2 Eastern Black Rail: The Eastern Black Rail was added listed as threatened on November 9, 2020, after the initial iPAC consultation. In a letter from the FWS dated October 27, 2021 and signed on November dated November 3, 2021, it was determined that the proposed action is consistent with a determination of “no effect” or “may affect, but not likely to adversely affect (NLAA)” either species. (USFWS 2021)

4.2.5.3 Monarch Butterfly: Note - the monarch is a candidate species and not yet listed or proposed for listing. There are generally no section 7 requirements for candidate species (see Section 7 Questions and Answers on the monarch here - <https://www.fws.gov/savethemonarch/FAQ-Section7.html>), but we encourage all agencies to take advantage of any opportunity they may have to conserve the species.

For information on monarch conservation, visit <https://www.fws.gov/savethemonarch/>, http://www.mafwa.org/?page_id=2347, and, for the West, <https://wafwa.org/committees-working-groups/monarch-working-group/>. (<https://ecos.fws.gov/ecp/species/9743>)

4.2.6 Recreation

No-Action Alternative. Recreational use within the project area would continue at its present level. The marshes surrounding the project area provide numerous areas for hunting and fishing opportunities. However, over time these marshes would erode and subside, converting to open

water areas. Continued marsh loss translates into less edge and estuarine marsh habitat available to fish. Lost nursery and breeding grounds would result in less productive fishing in the future.

Alternative 2 - Preferred Alternative. The recreational environment in and around the project area would experience limited short-term disruption imposed by the physical size and working activities of the construction phase of the project. Dredging activities would temporarily increase the turbidity in the area of work and in the vicinity of the discharge pipes. This turbidity may disrupt water-oriented recreational activity occurring within the vicinity; however, these adverse impacts would be temporary. Positive long-term benefits would be the creation of the marsh and the added benefits of providing shelter and habitat for wildlife.

PART 5.0 OTHER ENVIRONMENTAL CONSIDERATIONS

5.1 Cultural Resources. The State Historic Preservation Officer of Louisiana has concurred with the determination that there are no known cultural or historic sites in the CS-85 project area (SHPO 2020).

5.2 Socio-Economic and Environmental Justice (EJ). According to a basic EJ analysis performed for the Long Point Bayou area, there are no significant EJ issues for a five-mile radius that would be adversely affected by the project (www.EPA.gov/ejscreen).

5.3 Coastal Zone Management, Floodplains, and Prime Farmlands

5.3.1 Coastal Zone Management (CZM). In compliance with CZM requirements, the project will need a Coastal Use Permit (CUP) prior to construction. Applications for the CUP and USACE 404 permits will be submitted late 2021. The USACE will issue a Joint Public Notice.

5.3.2 Floodplains: The Federal Emergency Management Agency (FEMA) Flood Insurance Rate Maps delineate Special Flood Hazard Areas are areas that have a one (1) percent chance of experiencing a 100-year level flood in any given year. Area of Special Flood Hazard include Zones A, AE, AH, AO, AR, A99, V, and VE. The Base Flood Elevation is the water-surface elevation of the 1% annual change flood. The proposed project area is designated an “AE” and “VE” zone areas. Floodway Zone AE is the channel of a stream plus any adjacent floodplain areas that must be kept free of encroachment so that the 1% annual change flood can be carried without substantial increases in flood heights. The proposed project would not have a negative effect on the floodplain.

5.3.3 Prime Farmland/Overgrazing. According to NRCS, there are no livestock currently grazing in the area, nor is there a potential for grazing once the project is constructed (NRCS, 2021).

5.4 Hazardous, Toxic and Radioactive Waste (HTRW). Federal databases at the EPA (www.epa.gov/NEPA/NEPAssist) were reviewed to determine the location of any hazardous material sites and to identify any potential hazardous materials sites within the project area. None of the federal databases searched located any potential hazardous materials sites in the project area, including the borrow area. See additional information in Section 4.1.2 above.

5.5 Cumulative Impacts. Potential cumulative impacts would be the aggregate impacts to the environment resulting from the proposed action in combination with other ongoing actions, and actions being considered within the reasonably foreseeable future. No significant adverse cumulative impacts are expected. The proposed action is part of an effort under CWPPRA to create, protect, restore and enhance wetlands in coastal Louisiana. CWPPRA provides federal funds for planning and implementation of such projects. Other restoration projects located in the area of the proposed project are shown in Figure 14.

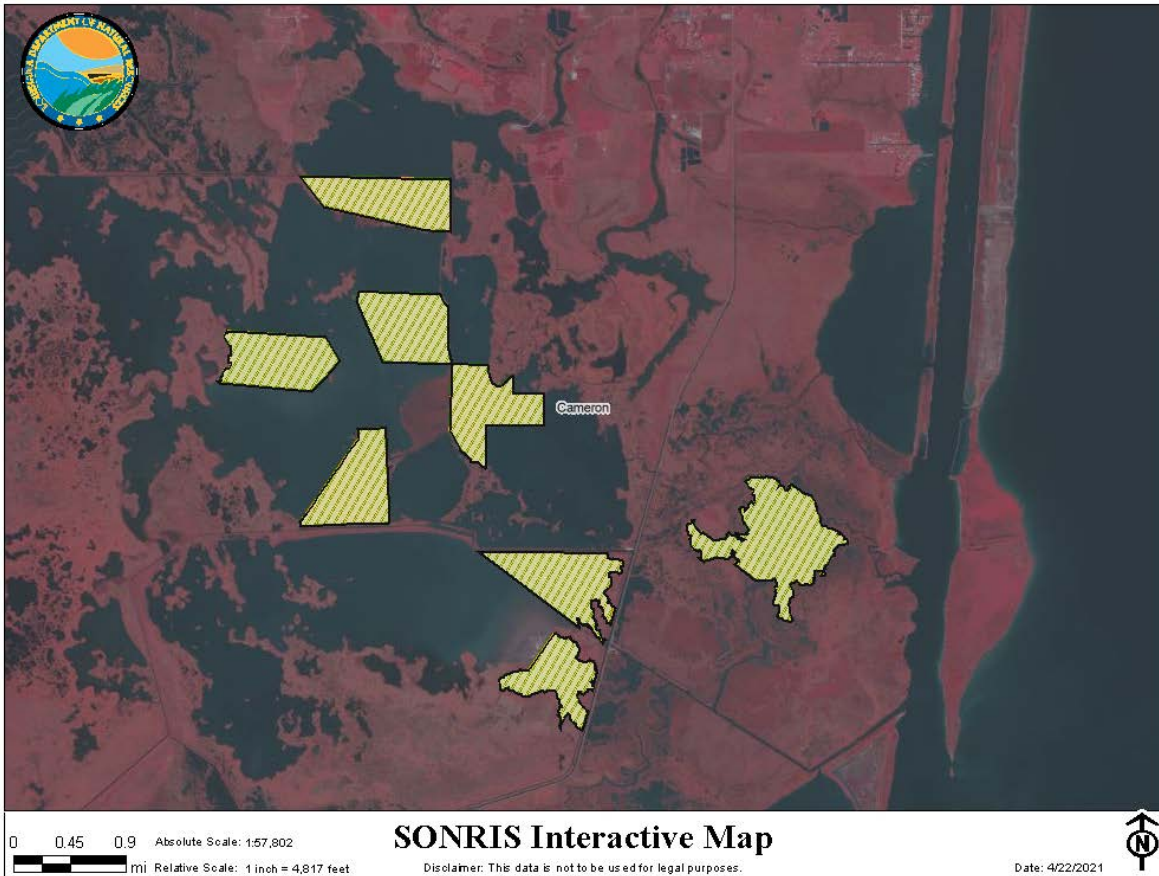


Figure 14 Other restoration projects in the area.

5.6 Unavoidable Adverse Effects. The primary unavoidable adverse effects are the immediate impacts from construction related sediment excavation and deposition on the non-mobile benthic organisms in areas adjacent to specific project features, minor and temporary disturbance to adjacent wetlands, water and air quality. Any effects on air quality and the noise generated by the proposed project will be of a temporary nature.

5.7 Relationship between Local, Short-term Use of the Environment and the Maintenance/Enhancement of Long-Term Beneficial Uses. All structural and non-structural alternatives have short-term localized impacts during construction but offer significant long-term environmental benefits. No long-term adverse impacts to wetlands water quality, threatened or endangered species, species managed by the Gulf of Mexico Fishery Management Council or

their essential habitat, other fish and wildlife resources, recreational or socio-economic resources, or cultural resources are expected.

PART 6.0 CONSULTATION AND COORDINATION LETTERS – See Appendix A.

PART 7.0 PREPARERS

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