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Regional Planning and Environment
Division, South
Environmental Compliance Branch

**DRAFT - FINDING OF NO SIGNIFICANT IMPACT
(FONSI)**

**MISSISSIPPI RIVER, BATON ROUGE TO THE GULF OF MEXICO, LOUISIANA,
NEPTUNE PASS ROCK CLOSURE,
PLAQUEMINES PARISH, LOUISIANA**

EA #589

The U.S. Army Corps of Engineers (USACE), New Orleans District, has prepared draft environmental assessment #589 (EA #589) in accordance with the National Environmental Policy Act of 1969, as amended. The draft EA assess the impacts from proposed action of constructing flow control features in Neptune Pass, located on the left descending bank of the Mississippi River in Plaquemines Parish, Louisiana, approximately 11 miles northwest of Venice, Louisiana.

The proposed action includes construction of the flow control feature and would require installation of a stone closure structure within Neptune Pass, via placement of stones from a barge in the river. The structure would be built to an elevation of +5 feet North American Vertical Datum 1988 (NAVD88), with a 6-foot crown width and a 1 vertical on 2 horizontal slope, perpendicular to the center line. A 100-foot notch in the center of the structure would allow sediment, water, aquatic species, and small vessels to pass through the structure. A 1 to 3-foot bank paving at the inlet and outlet, and 1 to 3-foot channel paving at the structure outlet would be constructed as scour protection. Stone key-in of the closure structure would require excavations and extend approximately 250 feet from the top of bank. Approximately 140,000 tons of stone would be placed in an area approximately 4.8 acres in size for construction of the closure structure and bank protection within the pass. Installation of the key-in segment of the flow control feature would require excavation of approximately 2,000 cubic yards of material and placement of 2,500 tons of stone in approximately 0.4 acres of wetland areas adjacent to the pass.

In addition to the proposed action, a "No Action" alternative was also evaluated.

For the proposed action, the potential effects were evaluated. A summary of the potential effects is listed in Table 1.

Table 1: Relevant Resources and their impact status, both adverse and beneficial.

Relevant Resource	Impacted	Not Impacted
Navigation	X	
Aquatic Resources/Fisheries	X	
Wetlands	X	
Essential Fish Habitat	X	
Wildlife	X	
Threatened and Endangered Species		X
Cultural Resources		X
Tribal Resources		X
Air Quality	X	
Water/Sediment Quality	X	

All practicable and appropriate means to avoid or minimize adverse environmental effects were analyzed and incorporated into the proposed action.

The proposed action would result in unavoidable adverse direct impacts to wetland resources. Construction of the stone key-in feature of the flow control structure within the wetlands adjacent to Neptune Pass would result in approximately 0.4 acres of permanent wetland loss. The 2,000 cubic yards of excavated material from these wetlands would be used to restore and nourish marsh adjacent to the western key-in feature of the project as mitigation for permanent, direct wetland impacts associated with this aspect of the project. Additional wetland impacts would occur associated with machinery required for the dredging and excavation during the active construction phase of the proposed action. These impacts are expected to be minimal and temporary. Mitigation associated with indirect effects of project actions will be evaluated. Recommendations from the USFWS include additional marsh restoration or the construction of one or more crevasses facilitating connectivity between the Mississippi River and adjacent marsh. Coordination is currently ongoing to determine mitigation strategies and potential locations for mitigation. Coordination and creation of a mitigation plan will be finalized prior to signing of the FONSI.

In the absence of the proposed action, flow through Neptune Pass would remain unaltered, potentially resulting in the continuation of the land building and subsequent vegetative establishment occurring within the bays adjacent to Neptune Pass. However, much of the sedimentation occurring within these bays is the result of the deposition of scoured material from within Neptune Pass. This diversion is considered sand-lean, diverting a small concentration of sediment from the Mississippi River relative to the amount of water being diverted. While the scouring and deposition of sediments may be beneficial in land creation in the adjacent bays, the continued deterioration and expansion

of Neptune Pass will further increase the navigational hazard present within the Mississippi River.

Pursuant to section 7 of the Endangered Species Act of 1973, as amended, the USACE has determined that the proposed action would not likely adversely affect the endangered pallid sturgeon, West Indian Manatee, eastern black rail, or any critical habitat. The U.S. Fish and Wildlife Service (USFWS) concurred with the USACE's determination in a letter dated July 15, 2022. Additional coordination was initiated on September 9, 2022, following an amendment to the proposed mitigation site. Coordination is still ongoing and will be completed prior to the signing of the FONSI.

Pursuant to Section 106 of the National Historic Preservation Act of 1966, as amended, the USACE has determined that there are no historic properties, as defined in 36 CFR 800.16 (I) within the Neptune Pass area of potential effect (APE). Accordingly, a conclusion of "no historic properties affected" was sent to the Louisiana State Historic Preservation Office (SHPO) and interested federally-recognized Tribes on June 13, 2022. Concurrence from the SHPO was received on June 28, 2022. On July 7, 2022, the Muscogee Nation responded with their wish to defer to other Tribes. On July 11, 2022, the Choctaw of Oklahoma, and on July 13, 2022, the Chitimacha Tribe responded their concurrence with the conclusion of "no historic properties affected". No other tribal responses were received.

Pursuant to the Clean Water Act (CWA) of 1972, as amended, a CWA draft Section 404(b)(1) public notice was distributed to the public on July 29, 2022. No adverse comments were received. A 404(b)(1) public notice addendum containing an amended mitigation site was distributed to the public on September 1, 2022. Coordination is still ongoing and would be completed prior to the signing of the FONSI. A CWA Section 401 State Water Quality Certification (WQC 220830-02) was issued by the Louisiana Department of Environmental Quality on September 1, 2022.

A determination of consistency with the Louisiana Coastal Zone Management Program pursuant to the Coastal Zone Management Act of 1972 was submitted to the Louisiana Department of Natural Resources on July 21, 2022. A determination of consistency addendum containing an amended mitigation site was submitted to the Louisiana Department of Natural Resources on September 1, 2022. Coordination is still ongoing and would be completed prior to the signing of the FONSI.

The following environmental design commitments are an integral part of the proposed action:

1. If the proposed action is changed significantly or is not implemented within one year, the USACE would reinstate consultation with the USFWS to ensure that the proposed action would have no effect on any federally-listed threatened or endangered species, critical habitat or FWS trust resources.

2. **Inadvertent Discovery and Unexpected Effects:** If during the course of work, archaeological artifacts (prehistoric or historic) are discovered or unexpected effects to historic properties, including architecture, architectural elements, and/or archaeology, are identified, the contractor shall stop work in the general vicinity of the discovery or unexpected effect and take all reasonable measures to avoid or minimize harm to the finds or affected property. The contractor would ensure that the discovery or unexpected effects are secured and stabilized, as necessary, and access to the area is restricted. The contractor shall inform their Operations Division (OD) contacts at the USACE, who would in turn contact Planning Division (PD) staff. The contractor would not proceed with work until the USACE PD completes consultation with the Louisiana SHPO, and others, as appropriate.
3. **Louisiana Unmarked Human Burial Sites Preservation Act:** If human bone or unmarked grave(s) are present within the work area, compliance with the Louisiana Unmarked Human Burial Sites Preservation Act (R.S. 8:671 et seq.) is required. The contractor shall notify the law enforcement agency of the jurisdiction where the remains are located within twenty-four hours of the discovery. The contractor shall also notify the USACE and the Louisiana Division of Archaeology within seventy-two hours of the discovery. Discoveries of unmarked graves, burials, human remains, or items of cultural patrimony on federal or tribal lands shall be subject to the Native American Graves Protection and Repatriation Act (NAGPRA) (25 U.S.C. §3001-3013, 18 U.S.C. § 1170) and the Archaeological Resources Protection Act of 1979 (ARPA) (16 U.S.C. §470aa – 470mm).

The USACE has evaluated the potential environmental impacts of the proposed action in draft EA #589 (incorporated herein by reference). The proposed action would eliminate a navigational hazard present within the Mississippi River. Constructing a flow control feature within Neptune Pass would decrease riverbank scour within the pass and control the water flow that is being diverted from the river. Flow measurements indicate approximately 16% of the Mississippi River is being diverted through Neptune Pass. The current, uncontrolled diversion is resulting in shoaling, causing the immediate need for dredging to maintain authorized navigational depths. In the absence of the proposed action, continued scouring within Neptune Pass would occur, resulting in an increase of flow being diverted from the Mississippi River and subsequent, increased shoaling. Additionally, an increase in dredging operations within the Mississippi River would be required to compensate for the diversion effects if the proposed action is not completed. Without the proposed construction of the flow control feature, conditions would continue to deteriorate resulting in an increased threat to navigation. The lower Mississippi River is a primary access point for commercial shipping to ports of call along the river. There is a national interest in providing progressive channel stabilization to prevent any alteration of the river flow that could potentially pose a navigation threat for large vessels transiting these sections of the river.

Based on this assessment, a review of the comments made on draft EA #589, and the implementation of the environmental design commitments listed above, a determination has been made that the proposed action would have no significant impact on the environment. Therefore, an Environmental Impact Statement will not be prepared.

Draft

Date

Cullen A. Jones
Colonel, U.S. Army
Commanding

DRAFT ENVIRONMENTAL ASSESSMENT

MISSISSIPPI RIVER, BATON ROUGE TO THE GULF OF MEXICO, LOUISIANA

NEPTUNE PASS ROCK CLOSURE

PLAQUEMINES PARISH, LOUISIANA

EA #589



September 2022



**U.S. Army Corps of Engineers
Mississippi Valley Division
Regional Planning and Environment Division South
New Orleans District**

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APPENDIXES

- Appendix A: Coordination Letters**
- Appendix B: U.S. Fish and Wildlife Service (USFWS) Wetland Value Assessment (WVA) Report**
- Appendix C: Mitigation Monitoring Plan**

DRAFT ENVIRONMENTAL ASSESSMENT

Mississippi River, Baton Rouge to the Gulf of Mexico, Louisiana Neptune Pass Rock Closure Plaquemines Parish, Louisiana

Draft EA #589

1 INTRODUCTION

The U.S. Army Corps of Engineers (USACE), Mississippi River Valley Division, Regional Planning and Environment Division South, has prepared this draft Environmental Assessment (EA) #589 to evaluate the potential impacts associated with constructing a flow control feature in Neptune Pass, located on the left descending bank of the Mississippi River in Plaquemines Parish, Louisiana, approximately 11 miles northwest of Venice, Louisiana (Figures 1 – 3). This draft EA #589 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), as reflected in the USACE Engineering Regulation ER 200-2-2. This draft EA provides sufficient information on the potential adverse and beneficial environmental effects to allow the District Commander, USACE, New Orleans District (CEMVN), to make an informed decision on the appropriateness of an Environmental Impact Statement (EIS) or a Finding of No Significant Impact (FONSI).

1.1 Proposed Action

The construction of the flow control feature would require installation of a stone closure structure within Neptune Pass via placement of stones from a barge positioned within the Pass. The structure would be built to an elevation of +5 feet North American Vertical Datum 1988 (NAVD88) with a 6-foot crown width and a 1 vertical on 2 horizontal slope perpendicular to the center line. A 100-foot notch constructed at an elevation of -10 feet NAVD88 in the center of the structure would allow sediment, water, aquatic species, and small vessels to pass through the structure. A 2-foot bank paving at the inlet and outlet and 2-foot channel paving at the structure outlet would be constructed as scour protection. Stone key-in of the closure structure would require excavations and extend approximately 150 feet from the top of bank. Approximately 141,000 tons of stone would be placed in an area approximately 4.8 acres in size for construction of the closure structure and bank protection within the Pass. Installation of the key-in segment of the flow control feature would require excavation of approximately 1,500 cubic yards of material and placement of 1,750 tons of stone in approximately 0.4 acres of wetland areas adjacent to the Pass. The approximately 1,500 cubic yards of excavated material from these wetlands would be used to restore and nourish marsh adjacent to the western key-in feature of the project as mitigation for permanent, direct wetland impacts associated with this aspect of the project.

1.2 Authority for the Proposed Action

The Rivers and Harbors Acts of 1946 and 1962, the Supplemental Appropriations Act of 1985, and the Water Resources Development Act of 1986 (Public Law 99-662) provide for the construction of a 55-foot-deep channel in the Mississippi River from the Gulf of Mexico to Baton Rouge, Louisiana, a distance of 257 miles. Dredging of a 45-foot channel from the Gulf of Mexico to New Orleans was completed in December 1987; the 45-foot channel from New Orleans to Mile 181 was completed in December 1988; the 45-foot channel from Mile 181 to Mile 232.4 was completed in December 1994. At present, a 40-foot channel is maintained from Mile 240 to Mile 232.4, and a 45-foot channel is maintained from Mile 232.4 to the Gulf of Mexico.

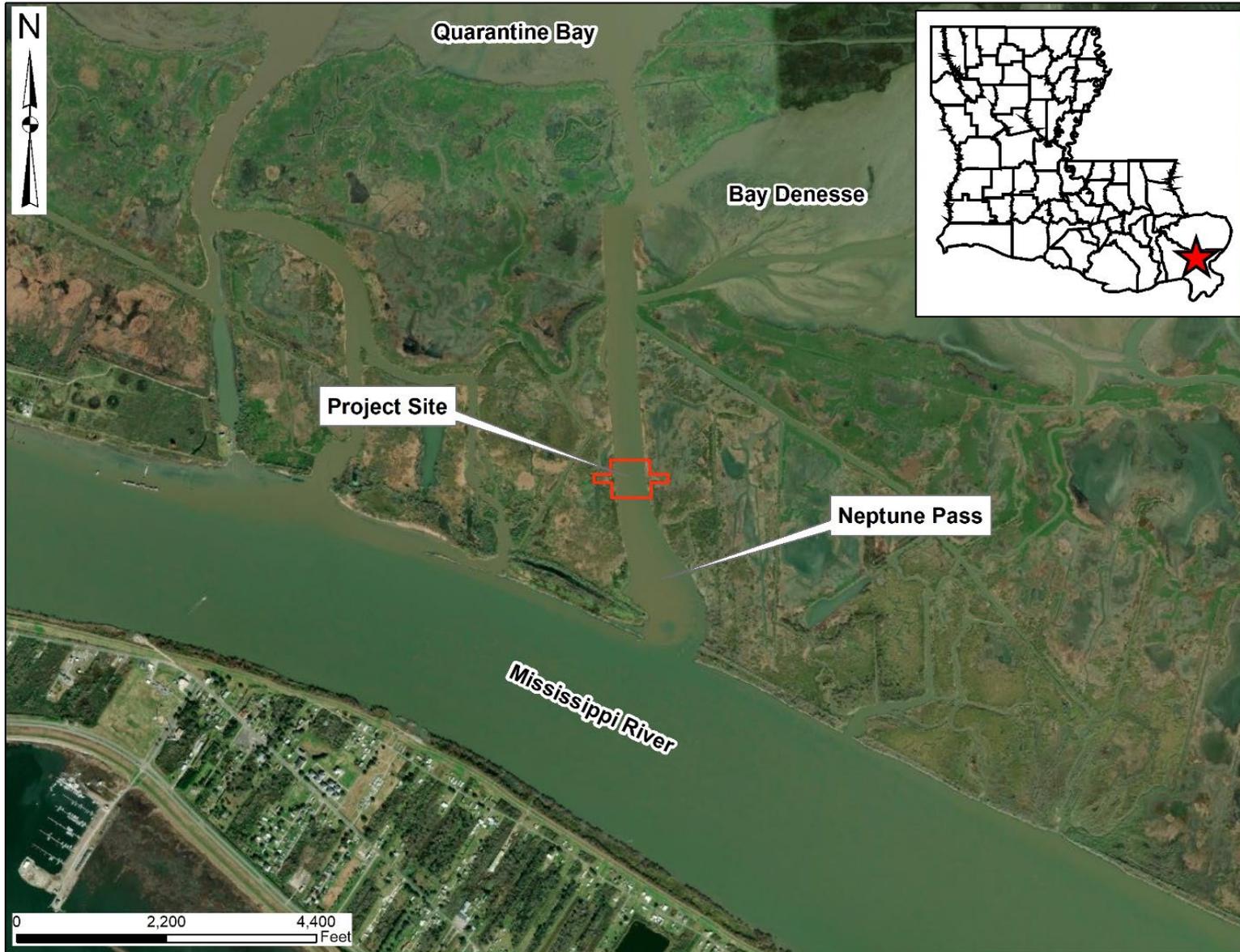


Figure 1: Project vicinity map

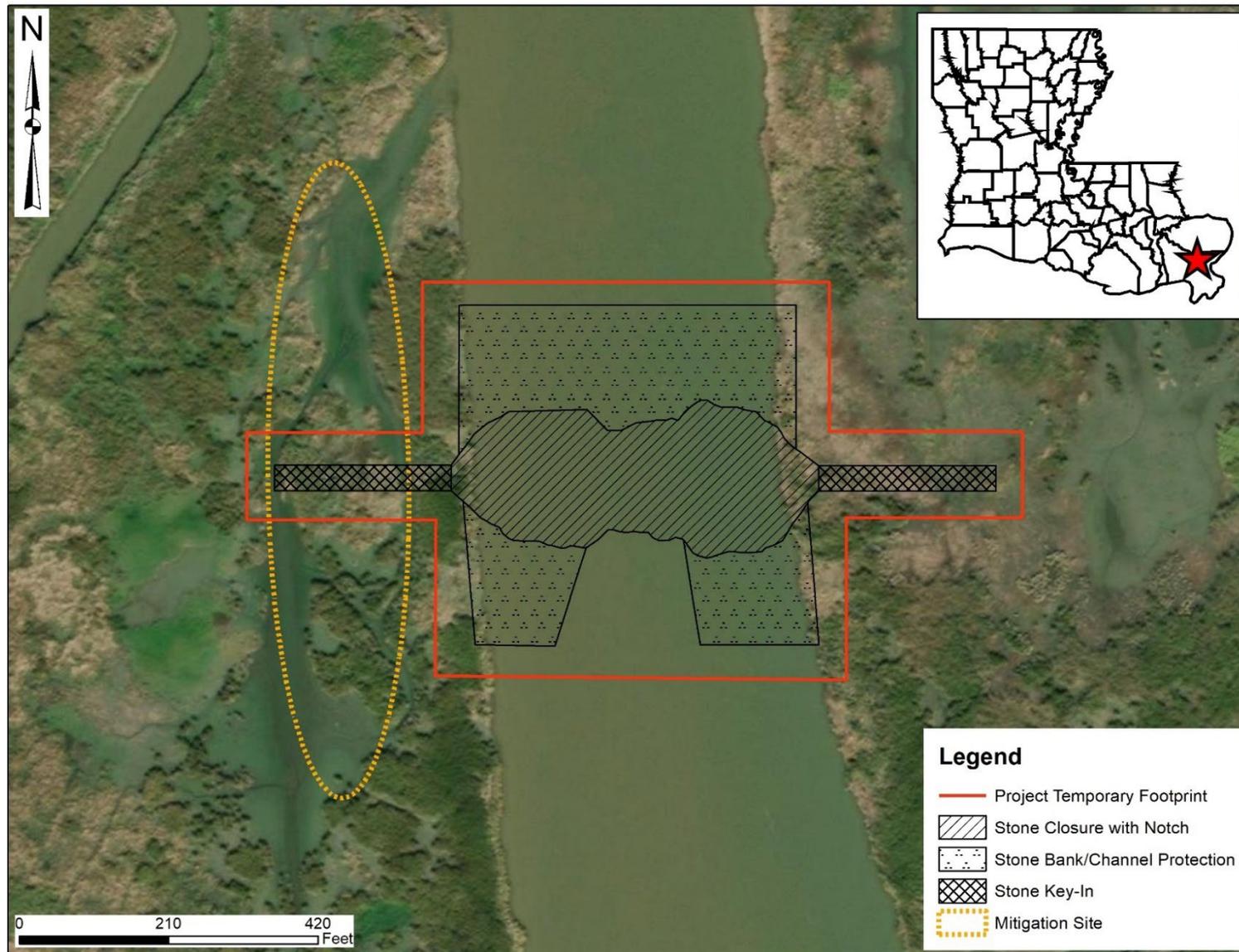


Figure 2: Proposed project plan



Figure 3: Scouring and land loss within Neptune Pass and adjacent bank of the Mississippi River (2012 - 2021)

1.3 Purpose and Need for the Proposed Action

The purpose of the proposed action is to eliminate a navigational hazard in the Mississippi River. Constructing a flow control feature within Neptune Pass would decrease riverbank scour and erosion within the Pass and control water flow being diverted from the Mississippi River. Flow measurements indicate approximately 16% of the Mississippi River flow at this location is being diverted through Neptune Pass. This newly enlarged pass is diverting approximately eight times more water than the other five adjacent outlets combined in this 3-mile reach of the Mississippi River. The current, uncontrolled diversion is resulting in significant shoaling and the immediate need for dredging to maintain authorized navigational depths (Figure 4). In the absence of the proposed action, continued scouring within Neptune Pass would occur, resulting in an increase of flow being diverted from the Mississippi River and subsequent, increased shoaling. Additionally, an increase in dredging operations within the Mississippi River would be required to compensate for the diversion effects if the proposed action is not completed. Without the proposed construction of the flow control feature, conditions would continue to deteriorate resulting in an increased threat to navigation. The lower Mississippi River is a primary access point for commercial shipping to ports of call along the river. There is a national interest in providing progressive channel stabilization to prevent any alteration of the river flow that could potentially pose a navigation threat for large vessels transiting these sections of the river.

1.4 Prior NEPA Documents

The environmental impacts associated with maintaining channels, outlets, and specified dimensions of the Mississippi River from Baton Rouge, Louisiana to deep water in the Gulf of Mexico were addressed in the Final Environmental Impact Statement (EIS), "Mississippi River, Baton Rouge to the Gulf of Mexico, Louisiana". A Statement of Findings (SOF) for this EIS was signed on February 15, 1974. The project commences at the Port of Baton Rouge, 128.6 miles above the Port of New Orleans, and continues through the Port of New Orleans to about 94.5 miles south to the Head of Passes. Below the Head of Passes, two channels, Southwest Pass and South Pass, connect to the Gulf of Mexico. Supplement I to the 1974 EIS addressed unintentional omissions in the original EIS and unanticipated changes in dredging requirements. A SOF for Supplement I was signed on March 8, 1976. Supplement II to the 1974 EIS addressed the addition of recommended features to the existing project to reduce the amount of maintenance dredging required to maintain navigation within the project area. A SOF was signed for Supplement II on May 15, 1985.

1.5 Public Concerns

Localized accretion has been observed within adjacent bays to Neptune Pass. Louisiana accounts for 80% of the continental United States' coastal wetland loss (Williams et al. 1997), and some public support exists for allowing Neptune Pass to remain open and unmodified to promote land gain and potential wetland establishment within these areas.

2 ALTERNATIVES TO THE PROPOSED ACTION

2.1 No-Action – Future without Project Condition

In the future without project condition (a.k.a. no-action), the proposed action would not be constructed. In the absence of the proposed action, uncontrolled flow would continue to be diverted from the Mississippi River resulting in continued shoaling in the adjacent segment of the river.

Continued scouring within Neptune Pass would occur, resulting in an increase of flow being diverted from the Mississippi River and subsequent increased shoaling. Additionally, an increase in dredging operations within the Mississippi River would be required to compensate for the diversion effects if the proposed action is not completed. Without the proposed construction of the flow control feature, conditions would continue to deteriorate resulting in an increased threat to navigation.

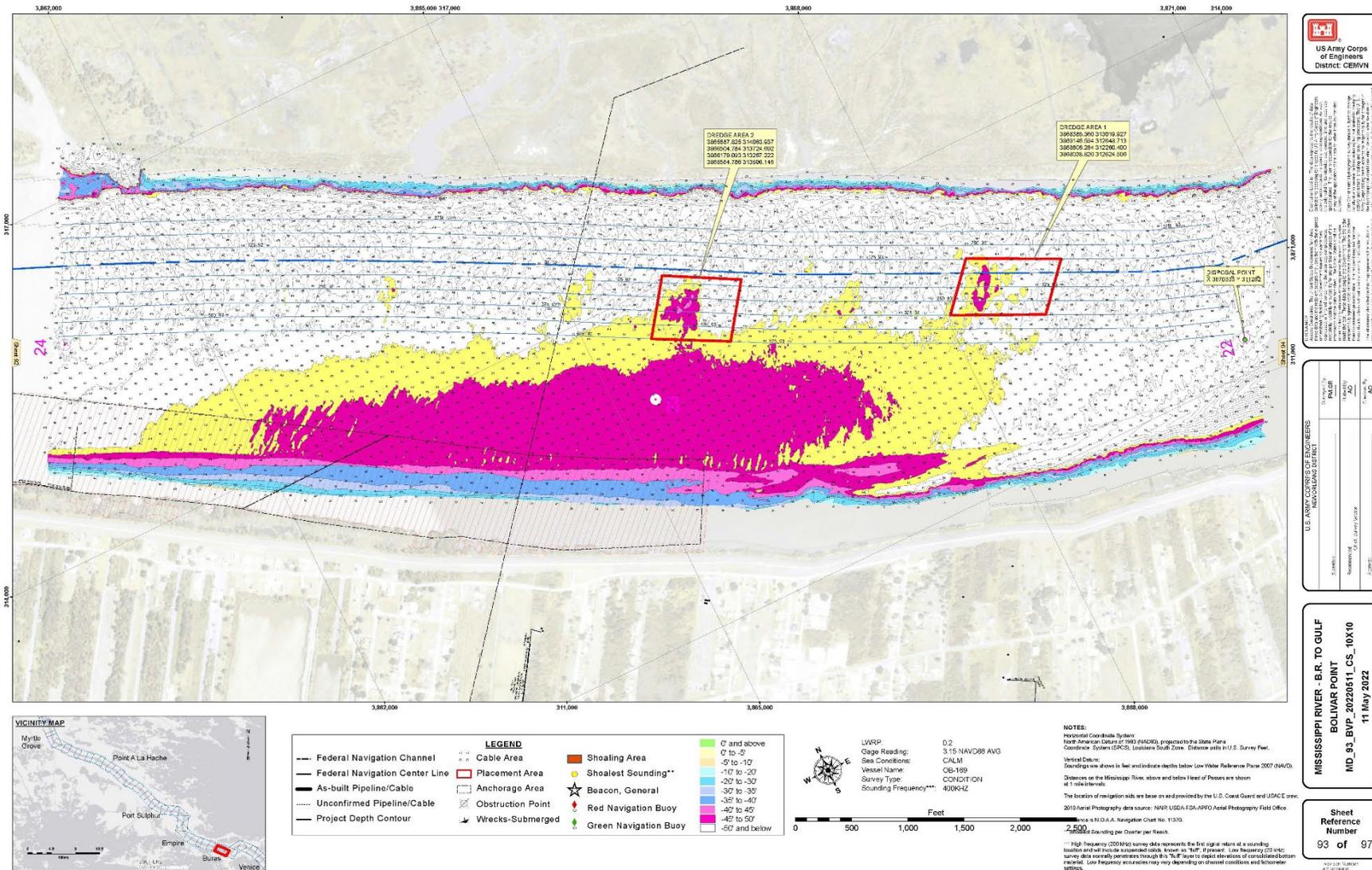


Figure 4: Shoaling occurring within the Mississippi River attributed to the expansion of Neptune Pass

2.2 Alternatives Considered but Eliminated from Further Consideration

Alternative 1

Alternative 1 considered the construction of the structure on the Mississippi Riverbank at the mouth of Neptune Pass. There is an existing stone dike and revetment up and down stream of the proposed location structure to tie into. Construction on the Mississippi Riverbank would be the way to return to the local geometry to pre-existing conditions. However, the large quantity of stone being placed on a relatively narrow sill with existing stability concerns put the structure at risk of failure. Failure could occur from scour continuing to develop behind the structure as the sediment starved water enters the pass. Flanking of the structure on the upstream or downstream limits at the locations where the pass is already expanding is also a possibility. Either of these failure modes would result in redevelopment of existing conditions. Additionally, preliminary estimates indicate that this alternative would require approximately 211,000 tons of stone to complete, an increase of 70,000 tons of stone from the proposed action. This alternative was not the most efficient and effective alternative; therefore, it was eliminated from further consideration.

Alternative 2

Alternative 2 considered the construction of a structure without the inclusion of a notch. A full closure would be the most effective means of reducing the shoaling attributed to the expansion of the pass. However, failure resulting from the flanking of the structure on the upstream or downstream limits at locations where the pass is already expanding is a high possibility. Additionally, the 100 feet notch at -10 feet NAVD88 of the proposed action was designed to approximately match this outlet before the bank failed and the pass was allowed to develop. There is the best chance of reducing sedimentation in the Mississippi River by matching the historic stream power at this location to the pre failure conditions. Public concern for maintaining some connectivity from the river to adjacent marsh areas in order to facilitate land gain was also considered in the elimination of a full closure structure design. This alternative was not the most efficient and effective alternative; therefore, it was eliminated from further consideration.

Alternative 3

Alternative 3 considered the closure of adjacent channels to Neptune Pass to alleviate the shoaling occurring within the Mississippi River. However, the current enlarged outlet through Neptune Pass is diverting approximately four to eight times more water than the five adjacent outlets combined in this three-mile reach of the Mississippi River. Closure of other outlets would not be as effective. Additionally, the shoaling within the Mississippi River adjacent and downstream of the pass was not observed until after the scouring and enlargement of Neptune Pass occurred. This alternative was not the most efficient and effective alternative; therefore, it was eliminated from further consideration.

3 AFFECTED ENVIRONMENT

3.1 Description of Project Area

The proposed project area is located in Plaquemines Parish in southeastern Louisiana. Parish lands occupy part of the active delta of the Mississippi River in a dynamic area dependent upon the disbursement and settlement of river sediments to maintain land elevations above water. The Mississippi River splits into three main channels within the delta region: Pass a Loutre; South Pass; and Southwest Pass. Land elevations range from sea level along the Gulf coast, to approximately +10 feet above sea level along the natural levee ridges. It is a sparsely populated region characterized by river channels with attendant channel banks, natural bayous, and man-made canals interspersed with intermediate and fresh marshes. Water levels fluctuate within the river, passes, estuarine bays, and marshes according to river flow from upstream, tidal, and wind influences.

3.2 Description of Watershed

The Mississippi River drains approximately 41 % of the 48 contiguous states of the United States. The Mississippi River basin covers more than 1,245,000 square miles, includes all or parts of 31 states and two Canadian provinces. The river roughly resembles a funnel that has its spout at the Gulf of Mexico. Waters from as far east as New York and as far west as Montana contribute to flows in the lower river. The lower alluvial valley of the Mississippi River is a relatively flat plain of about 35,000 square miles bordering on the river which would be overflowed during times of high water if it were not for man-made protective works. This valley begins just below Cape Girardeau, Missouri, is roughly 600 miles in length, varies in width from 25 to 125 miles, and includes parts of seven states—Missouri, Illinois, Tennessee, Kentucky, Arkansas, Mississippi, and Louisiana. The Mississippi River is the mainstem of the world's most highly developed waterway system, about 12,350 miles in length. Discharge at Baton Rouge ranges from 1,500,000 cubic feet per second (cfs) once every 16 years, on average, to a low of 75,000 cfs recorded once during the period 1930 to the present, and average annual discharge is 450,000 cfs. Southwest Pass of the Mississippi River discharges roughly one-third of the river's total flow, with an average rate of about 145,000 cfs. South Pass of the Mississippi River discharges roughly one-sixth of the river's total flow, averaging about 78,000 cfs. Pass a Loutre of the Mississippi River discharges almost one-third of the river's total flow or slightly less than the Southwest Pass flow. The average discharge rate through Pass a Loutre is just under 145,000 cfs. The combined discharge of Southwest Pass, South Pass, and Pass a Loutre is approximately 80% of the total river flow into the Gulf of Mexico. The remaining flow is distributed through minor passes upstream of Head of Passes.

3.3 Climate and Climate Change

The project area climate is humid, subtropical with a strong maritime character. Warm, moist southeasterly winds from the Gulf of Mexico prevail throughout most of the year, with occasional cool, dry fronts dominated by northeast high-pressure systems. The influx of cold air occurs less frequently in autumn and only rarely in summer. Tropical storms and hurricanes are likely to affect the area three out of every ten years, with severe storm damage approximately once every two or three decades. The majority of these occur between early June and November. Summer thunderstorms are common and tornadoes strike occasionally. Average annual temperature from the Boothville-Venice climate monitoring station (1981 to 2010 NOAA dataset) is around 70°F, with average temperatures ranging from 82.9°F in July and August to 54.3°F in January. Average annual precipitation is 59.4 inches, varying from a monthly average of 7.5 inches in August, to an average of 2.8 inches in May.

The 2014 USACE Climate and Resiliency Policy Statement states the “USACE shall continue to consider potential climate change impacts when undertaking long-term planning, setting priorities, and making decisions affecting its resources, programs, policies, and operations.” A healthy and resilient coastal complex is dynamic, not static, and is subject to the ebb and flow of the various effects, adverse or beneficial, that impact conditions at any given point in time. The most significant adverse potential impact on a coastal wetland as a product of climate change is sea-level change (rise).

3.4 Geology

The Mississippi River Delta complex was formed by river deposits between 700 and 7,400 years ago. The Natural Resources Conservation Service (NRCS) classifies soils within the proposed project area as mucks and clays mixed with organic matter, and silts derived from river deposits. The soil composition is subject to change as floodwaters and storm surges deposit sediment. Soil types in the project area are predominantly Gentilly, Clovelly, and Larose. These soils are classified as continuously flooded deep, poorly drained and permeable mineral clays and mucky clays. Marsh

and swamp deposits are found in the vicinity of the river from New Orleans to the Heads of Passes at the Gulf of Mexico. Marsh deposits are primarily organic, consisting of 60 % or more by volume of peat and other organic material with the remainder being a composition of various types of clays. Total organic thickness is normally 10 feet, with variances less than one-foot. Inland swamp deposits are composed of approximately 70 % clay and 30 % peat and organic materials. The percentage of sand and sandy silts increases with proximity to the open waters of the Gulf of Mexico (USACE 1974).

3.5 Relevant Resources

This section contains a description of relevant resources that could be impacted by the project. The important resources described are those recognized by laws, executive orders, regulations, and other standards of national, state, or regional agencies and organizations; technical or scientific agencies, groups, or individuals; and the general public. Table 1 provides summary information of the institutional, technical, and public importance of these resources.

A wide selection of resources was initially considered and determined not to be affected by the project—mainly due to the remote and uninhabited nature of the project area and general lack of significant populated areas in the vicinity. Recreational activities, aesthetic visuals, and socioeconomic resources, including land use, population, transportation, oil and gas, environmental justice, environmental health and safety, community cohesion, desirable community growth, tax revenues, property values, public facilities and services, business activity and employment, and displacement of people would not be affected by the proposed project. The objectives of Executive Order 11988 (Floodplain Management) were considered; however, CEMVN has determined that floodplain impacts, if any, from the proposed action would be negligible. Additionally, there is no practicable alternative for project construction outside the 100-year floodplain. No prime or unique farmlands, as defined and protected by the Farmland Protection Policy Act, would be affected by the proposed project. No portion of the project area has been designated a Louisiana Natural and Scenic River; therefore, a Scenic Rivers permit is not warranted.

Table 1: Relevant resources and their institutional, technical, and public importance

Resource	Institutionally Important	Technically Important	Publicly Important
Navigation	Rivers and Harbors Act of 1899 and River and Harbor Flood Control Act of 1970 (PL 91-611).	USACE provides safe, reliable, efficient, and environmentally sustainable waterborne transportation systems (channels, harbors, and waterways) for movement of commerce, national security needs, and recreation.	Navigation concerns affect the area's economy and are of significant interest to the community.
Aquatic Resources/Fisheries	Fish and Wildlife Coordination Act of 1958, as amended; Clean Water Act of 1977, as amended; Coastal Zone Management Act of 1972, as amended; and the Estuary Protection Act of 1968.	They are a critical element of many valuable freshwater and marine habitats; they are an indicator of the health of the various freshwater and marine habitats; and many species are important commercial resources.	The high priority that the public places on their esthetic, recreational, and commercial value.
Wetlands	Clean Water Act of 1977, as amended; Executive Order 11990 of 1977, Protection of Wetlands; Coastal Zone Management Act of 1972, as amended; and the Estuary Protection Act of 1968., EO 11988, and Fish and Wildlife Coordination Act.	They provide necessary habitat for various species of plants, fish, and wildlife; they serve as ground water recharge areas; they provide storage areas for storm and flood waters; they serve as natural water filtration areas; they provide protection from wave action, erosion, and storm damage; and they provide various consumptive and non-consumptive recreational opportunities.	The high value the public places on the functions and values that wetlands provide. Environmental organizations and the public support the preservation of marshes.
Essential Fish Habitat (EFH)	Magnuson-Stevens Fishery Conservation and Management Act of 1996, Public Law 104-297.	Federal and state agencies recognize the value of EFH. The act states, EFH is "those waters and substrate necessary to fish for spawning, breeding, feeding or growth to maturity."	The public places a high value on seafood and the recreational and commercial opportunities EFH provides.
Wildlife	Fish and Wildlife Coordination Act of 1958, as amended and the Migratory Bird Treaty Act of 1918.	They are a critical element of many valuable aquatic and terrestrial habitats; they are an indicator of the health of various aquatic and terrestrial habitats; and many species are important commercial resources.	The high priority that the public places on their esthetic, recreational, and commercial value.
Threatened or Endangered Species	The Endangered Species Act of 1973, as amended; the Marine Mammal Protection Act of 1972; and the Bald Eagle Protection Act of 1940.	USACE, USFWS, NMFS, NRCS, EPA, LDWF, and LDNR cooperate to protect these species. The status of such species provides an indication of the overall health of an ecosystem.	The public supports the preservation of rare or declining species and their habitats.
Cultural Resources	National Historic Preservation Act of 1966, as amended; the Native American Graves Protection and Repatriation Act of 1990; and the Archeological Resources Protection Act of 1979.	State and federal agencies document and protect sites. Their association or linkage to past events, to historically important persons, and to design and construction values; and for their ability to yield important information about prehistory and history.	Preservation groups and private individuals support protection and enhancement of historical resources.
Tribal Resources	The requirement to conduct coordination and consultation with federally recognized tribes finds its basis in the constitution; supreme court cases; EO 13175: consultation and coordination with Indian Tribal Governments; and USACE Tribal Consultation Policy, 2012.	USACE consults with federally recognized tribes to determine if tribal rights, tribal lands, or protected tribal resources, would be significantly adversely affected by a proposed action.	Tribal governments and the public-at-large support the recognition of tribal lands, resources, and protected tribal resources.
Air Quality	Clean Air Act of 1963, Louisiana Environmental Quality Act of 1983.	State and federal agencies recognize the status of ambient air quality in relation to the NAAQS.	Virtually all citizens express a desire for clean air.
Water and Sediment Quality	Clean Water Act of 1977, Fish and Wildlife Coordination Act, Coastal Zone Mgt Act of 1972, and Louisiana State & Local Coastal Resources Act of 1978.	USACE, USFWS, NMFS, NRCS, EPA, and State DNR and wildlife/fishery offices recognize the value of fisheries and good water quality and the national and state standards established to assess water quality.	Environmental organizations and the public support the preservation of water quality, fishery resources, and the desire for clean drinking water.

3.5.1 Navigation

Existing Conditions

The uncontrolled flow being diverted through Neptune Pass is resulting in shoaling within the adjacent, downstream segment of the Mississippi River. The Mississippi River provides deep-draft access to the New Orleans – Baton Rouge port corridor and its associated commerce and industries. Continued maintenance of the current dimensions of the Mississippi River and its passes are vital to the continued growth and health of the industries and commerce they serve.

3.5.2 Aquatic Resources / Fisheries

Existing Conditions

The estuarine nature of the area provides a dynamic aquatic environment where freshwater and saltwater meet, creating a transitional zone between the two aquatic ecosystems. The marshes and waterways provide important spawning and nursery habitat and a food source for a wide variety of fresh and saltwater fish species. Vegetation and marsh loss degrades the utility of the area as nursery habitat and a food source for fisheries.

The influx of freshwater from the Mississippi River, particularly during floods and other high water flow periods, potentially allows for riverine fisheries species to migrate downriver to the delta region. The USFWS published Habitat Suitability Index (HSI) Models in 1982 and 1983, which included salinity tolerances for a variety of freshwater fisheries. Potential species that could occur during high water/low salinity periods include channel catfish, blue catfish, flathead catfish, smallmouth bass, largemouth bass, black crappie, white crappie, sunfish, gizzard shad, and smallmouth buffalo among others.

During low water periods, storm surges, and seasonally strong tidal influences, the increased saltwater intrusion from the Gulf restricts the abundance and diversity of freshwater fisheries, as well as provides opportunities for estuarine (brackish) species. Many of these species are economically and recreationally important, including red drum, black drum, spotted sea trout, sand seatrout, striped mullet, Gulf menhaden, Atlantic croaker, sheepshead, southern flounder, Spanish mackerel, southern kingfish, and spot. Commercially important shellfish found include blue crab, brown shrimp, pink shrimp, white shrimp, and oysters. Other commercially less important species include grass shrimp, mysid shrimp, roughneck shrimp, and mud crab.

The area also supports populations of phytoplankton and zooplankton (e.g., copepods, rotifers, fish larvae, and molluscan and crustacean larvae). Benthic invertebrate populations are comprised of both epifaunal and infaunal species (e.g., polychaete and oligochaete worms, crustaceans, bivalves, and gastropod mollusks). These organisms constitute vital components of the aquatic food chain and may comprise the diets of numerous finfish and shellfish species.

3.5.3 Wetlands

Existing Conditions

Wetlands in the vicinity of the project area are classified as tidal, fresh to intermediate, emergent marsh. These wetlands are strongly influenced by freshwater discharges from the Mississippi River and associated distributary outlets. Mean annual salinity, acquired from environmental data collection stations of the Coastal Protection and Restoration Authority's (CPRA) Coastwide Reference Monitoring System (CRMS), within wetlands adjacent to the project range from 0.65 ppt at CRMS0118 and 0.56 ppt at CRMS0139 (CPRA 2022).



Figure 5: Vegetation within the area of the proposed eastern key-in feature of the project

Common reed (*Phragmites australis*), also known as Roseau cane, occurs in expansive monotypic clumps (monoculture) in shallow water areas near the project site and has displaced a variety of freshwater vascular plant species that have historically occupied the area. This could have been caused by periodic storms generating extremely high saltwater tides, killing off a majority of the sensitive freshwater vegetation (Hauber et al. 1991). Other common species found in the vicinity of the project include alligator weed (*Alternanthera philoxeroides*), cattail (*Typha spp.*), bulltongue (*Sagittaria lancifolia*), broadleaf arrowhead (*Sagittaria latifolia*), dotted smartweed (*Polygonum punctatum*), softstem bulrush (*Schoenoplectus tabernaemontani*), chairmaker's bulrush (*Schoenoplectus americanus*), giant cutgrass (*Zizaniopsis miliacea*) and elephant ear (*Colocasia esculenta*).

Various natural and anthropogenic factors have resulted in a wetland loss of 24 square miles per year on the Louisiana coast over the 10-year period from 1990 to 2000 (Barras et al., 2003). Wetlands within Plaquemines Parish have undergone substantial loss due to subsidence, sea-level rise, and salt-water intrusion. The current trend of wetlands loss was compounded by hurricanes in 2005. A U.S. Geological Survey (USGS) summary of wetland changes, released in February 2006, estimated that 98 square miles of wetlands were converted to open water in southeastern Louisiana (USGS 2006). Far greater loss resulted from Katrina than from Rita, and its impacts were concentrated

south and east of New Orleans, with almost half the total loss occurring in Plaquemines Parish (Zinn 2006). Overall marsh loss (i.e., conversion to open water) resulting from Katrina and Rita throughout the entire Mississippi Deltaic Plain of southeastern Louisiana was as follows: fresh marsh—22 square miles; intermediate marsh—49 square miles; brackish marsh—18 square miles; salt marsh—27 square miles (USGS 2006).

In response to wetland loss within Plaquemines Parish, projects involving multiple cooperating agencies and organizations, both public and private, have been proposed and constructed within the Parish. In the vicinity of the proposed Neptune Pass Rock Closure, the “Bay Densse Restoration Project”, a \$1.2-million project involving the partnerships of Ducks Unlimited, Coastal Protection and Restoration Authority, National Wildlife Federation, Cajun Fishing Adventures, Chevron, Phillips 66, North American Wetlands Conservation Council, and Gulf Coast Initiative sponsors, is attempting to restore and enhance 2,500 acres of severely deteriorated coastal marsh. To achieve these restoration goals, marsh terraces and crevasses were constructed to optimize sediment capture from the remaining connections to the Mississippi River. These terraces and crevasses would promote the conversion of the present open water habitats within Bay Densse into mud flats, ponds, submerged aquatic vegetation beds, and emergent marsh. In conjunction with this project and in partnership with the Water Institute of the Gulf, the “Bay Densse Living Lab Initiative” involves the construction of a landscape-scale laboratory within Bay Densse in order to perform and monitor controlled restoration technique experiments. The ability to conduct these landscape-scale experiments would allow for refinement of restoration techniques to determine the most effective means of restoring, enhancing, and conserving wetlands within coastal Louisiana. Additionally, the “Delta Management at Fort St. Philip Project (BS-11)”, a Coastal Wetlands Planning, Protection, and Restoration Act (CWPPRA) outfall management and sediment trapping project, was completed in 2006 in an area of approximately 1,305 acres of marsh and open water habitat east of Bay Densse. This project, sponsored by USFWS and CPRA, included the construction of terraces with plantings and six crevasses to enhance the natural marsh-building processes and increase the growth rate of emergent wetlands

3.5.4 Essential Fish Habitat

Existing Conditions

All of the marine and estuarine waters of the northern Gulf of Mexico have been designated as Essential Fish Habitat (EFH). In the northern Gulf of Mexico, EFH has generally been defined as areas where individual life-stages of specific federally managed species are common, abundant or highly abundant. In estuarine areas, EFH is defined as all estuarine waters and substrates (mud, sand, shell, rock, and associated biological communities, including the sub-tidal vegetation (seagrasses and algae), and adjacent inter-tidal vegetation (marshes and mangroves). The open waters, water-bottom substrates, and inter-tidal marshes of the Neptune Pass Rock Closure project area are considered EFH under the estuarine component. Specific categories of EFH include all estuarine waters and substrates (mud, sand, shell, rock, and associated biological communities), including subtidal vegetation (sea grasses and algae) and adjacent intertidal wetland vegetation (marshes and mangroves). In addition, estuarine aquatic habitats provide nursery and foraging areas that support economically important marine fishery species that may serve as prey for federally-managed fish species such as mackerels, snappers, groupers, billfishes, and sharks. The estuarine waters in the proposed project area include EFH for several federally-managed species (Table 2). These species use the area for foraging and nursery habitat, as well as a migration route to other areas considered to be EFH. Specific categories of EFH in the project area include estuarine emergent wetlands, mud/sand substrates, and estuarine water column.

Table 2: EFH species in the project area

Common Name	Life Stage	EFH
brown shrimp	postlarvae	water column associated
brown shrimp	juveniles	Submerged aquatic vegetation; emergent marsh; oyster reef; soft bottom; sand/shell
brown shrimp	subadults	soft bottom; sand/shell
pink shrimp	juveniles	submerged aquatic vegetation; soft bottom; sand/shell; mangroves; oyster reef
pink shrimp	subadults	submerged aquatic vegetation; soft bottom; sand/shell; mangroves
white shrimp	postlarvae	water column associated
white shrimp	juveniles	emergent marsh; submerged aquatic vegetation; oyster reef; soft bottom; mangroves
white shrimp	subadults	soft bottom; sand/shell
white shrimp	adults	soft bottom
white shrimp	spawning adults	soft bottom
red drum	eggs	water column associated
red drum	larvae	submerged aquatic vegetation; soft bottom; water column
red drum	postlarvae	submerged aquatic vegetation; emergent marsh; soft bottom
red drum	early juveniles	submerged aquatic vegetation; soft bottom; hard bottom; sand/shell
red drum	late juveniles	submerged aquatic vegetation; emergent marsh; soft bottom; sand/shell
red drum	adults	submerged aquatic vegetation; emergent marsh; soft bottom; hard bottom; sand/shell
Spanish mackerel	early juveniles	estuarine; water column associated
Spanish mackerel	late juveniles	estuarine; water column associated
Spanish mackerel	adults	estuarine; Mainly oceanic; water column associated
red grouper	early juveniles	submerged aquatic vegetation; hard bottom
gray snapper	adults	hard bottom; soft bottom; reef; sand/shell; banks/shoals; emergent marsh
cobia	eggs	water column associated
cobia	larvae	water column associated
lane snapper	larvae	water column associated
lane snapper	postlarvae	water column associated; submerged aquatic vegetation

3.5.5 Wildlife

Existing Conditions

Louisiana's coastal wetlands support numerous Neotropical and other migratory avian species, such as rails, gallinules, shorebirds, wading birds, and numerous songbirds. The rigors of long-distance flight require most Neotropical migratory birds to rest and refuel several times before they reach their final destination. Louisiana coastal wetlands provide Neotropical migratory birds with essential stopover habitat on their annual migration routes. Passerine birds common to the project areas include sparrows, vireos, warblers, northern mockingbirds (*Mimus polyglottos*), common grackles (*Quiscalus quiscula*), red-winged blackbirds (*Agelaius phoeniceus*), marsh wrens (*Cistothorus palustris*), blue jays (*Cyanocitta cristata*), northern cardinals (*Cardinalis cardinalis*), and American crows (*Corvus brachyrhynchos*). Coastal wetlands provide important fish and wildlife habitats, especially transitional habitat between estuarine and marine environments, used for shelter, nesting, feeding, roosting, cover, nursery, and other life requirements.

Emergent and submerged aquatic vegetation (SAV) and fresh, intermediate, brackish marsh and saline marsh wetlands are typically used by many different wildlife species, including: nutria (*Myocaster coypus*), muskrat (*Ondatra zibethicus*), mink (*Mustela vison*), river otter (*Lutra canadensis*), white-tailed deer (*Odocoileus virginianus*), Virginia opossum (*Didelphis virginiana*), striped skunk (*Mephitis mephitis*), swamp rabbit (*Sylvilagus aquaticus*), eastern cottontail (*Sylvilagus floridanus*), nine-banded armadillo (*Dasypus novemcinctus*), coyote (*Canis latrans*), and a variety of smaller mammals. The Basin also provides habitat for the American alligator (*Alligator*

mississippiensis), various species of salamanders, frogs, toads, turtles, as well as several species of venomous and non-venomous snakes.

Open water habitats provide wintering and multiple use functions for American white pelican (*Pelecanus erythrorhynchos*) and brown pelicans (*P. occidentalis*), seabirds, and other open water residents and migrants. Open water habitats provide wintering and multiple use functions for brown pelicans, seabirds, dabbling and diving ducks, coots, and gallinules, as well as other open water residents and migrants (LCWCRTF & WCRA, 1999). Various raptors such as great horned owl (*Bubo virginianus*), barred owl (*Strix varia*), red-shouldered hawk (*Buteo lineatus*), northern harrier (*Circus cyaneus*), American kestrel (*Falco sparverius*), red-tailed hawk (*Buteo jamaicensis*), and bald eagle (*Haliaeetus leucocephalus*) may be present.

3.5.5 Threatened And Endangered Species

Existing Conditions

Protected species that may occur in the project vicinity include the West Indian manatee (*Trichechus manatus*), the pallid sturgeon (*Scaphirhynchus albus*), and the eastern black rail (*Laterallus jamaicensis ssp. jamaicensis*). No critical habitat for any threatened or endangered species has been designated within the proposed project area, and none of these species are known to breed within the project vicinity.

West Indian manatees, also known as sea cows, are large aquatic mammals found in shallow, slow-moving rivers, estuaries, saltwater bays, canals, and coastal areas. Manatees forage on submerged, floating, and shoreline vegetation including seagrasses, algae, and invasive water hyacinth. There is a low chance that manatees would be found in the project area and surrounding shallow open waters; however, if manatees are observed within 100 yards of the “active work zone” during proposed construction and dredging activities, the appropriate special operating conditions would be implemented as provided by the USFWS.

The pallid sturgeon is an endangered fish found in Louisiana, in both the Mississippi and Atchafalaya Rivers (with known concentrations in the vicinity of the Old River Control Structure Complex); it is possibly found in the Red River as well. The pallid sturgeon is adapted to large, free-flowing, turbid rivers with a diverse assemblage of physical characteristics that are in a constant state of change. Pallid sturgeon occur in the Mississippi River downstream of its confluence with the Missouri River and Ohio River, and inhabit large, deep turbid river channels, usually in strong current over firm sand or gravel.

Eastern black rails are sensitive, sparrow-sized marsh birds found in a variety of wetland habitats along the Gulf Coast. Eastern black rails require dense vegetative cover, foraging on seeds, insects, and other invertebrates as they walk along the shallows. Pairing and nesting occur in spring and summer. The primary stressors to the eastern black rail include suitable habitat loss, degradation, and fragmentation.

3.5.6 Cultural Resources

Existing Conditions

The National Historic Preservation Act of 1966 (NHPA) (P.L. 89 80 655), NEPA, and other applicable laws and regulations require Federal agencies to consider the effects of their undertaking on the environment and any significant cultural resources within the project area of the proposed undertaking, as well as its area of potential effect (APE). Typically, these studies require archival searches and field surveys to identify any cultural resources. When significant sites are recorded, efforts are made to minimize adverse effects and preserve the site(s) in place. If any significant sites

cannot be avoided and would be adversely impacted, an appropriate mitigation plan would be implemented to recover data that would be otherwise lost due to the undertaking.

The project area is located among small natural distributaries of the Mississippi River and among marsh lands between the river and Bays or the Gulf of Mexico itself. The long natural history of the delta region has given much opportunity for land to be created and destroyed by the movement of water. Prior to modern historic development and settlement in Plaquemines Parish and the subsequent attempts at flood control and navigation improvement, this area was undoubtedly used by Native American populations, and prehistoric sites have been recorded in the general area but not within the currently proposed project area. In Historic times, the channels and Head of Passes passed through Spanish, French, Spanish again, and then American exploration and rule. Various existing passes were predominant over that time, with various small attempts at fortifications and dredging and deepening of channels for use. All the while, increasing settlement and trade within Plaquemines Parish was increasing ship traffic down the river, and events such as the Civil War led to increased shipwrecks and attempts to fortify or block the river. In the more recent era, several cultural resources surveys have been conducted both for terrestrial resources and for underwater resources such as shipwrecks. There have been no Phase I cultural resources surveys within the proposed footprint of the flow control feature or closure structure, and no cultural resources have been recorded.

3.5.6 Tribal Resources

Existing Conditions

Nine federally recognized tribes have an aboriginal/historic interest in this portion of Plaquemines Parish, Louisiana. The tribes are: 1) the Alabama Coushatta Tribe of Texas, 2) the Chitimacha Tribe of Louisiana, 3) the Choctaw Nation of Oklahoma, 4) the Coushatta Tribe of Louisiana, 5) the Jena Band of Choctaw Indians, 6) the Mississippi Band of Choctaw Indians, 7) the Muscogee Nation, 8) the Seminole Nation of Oklahoma, and 9) the Tunica-Biloxi Tribe of Louisiana.

There are no tribal lands, nor are there specific tribal treaty rights related to access or traditional use of the natural resources in Plaquemines Parish. There are many protected tribal resources within the parish. However, there is no evidence of them being in the project area.

3.5.7 Air Quality

Existing Conditions

National ambient air quality standards (NAAQS) have been set by the Environmental Protection Agency (EPA) for six common pollutants (also referred to as criteria pollutants) including: ozone, particulate matter, carbon monoxide (CO), nitrogen dioxide, sulfur dioxide, and lead. States are required by the Code of Federal Regulations to report to the EPA annual emissions estimates for point sources (major industrial facilities) emitting greater than, or equal to, 100 tons per year of volatile organic compounds, nitrogen dioxide, sulfur dioxide, particulate matter less than 10 microns in size; 1,000 tons per year of CO; or 5 tons per year of lead. Since ozone is not an emission, but the result of a photochemical reaction, states are required to report emissions of volatile organic compounds, which are compounds that lead to the formation of ozone. Plaquemines Parish is currently classified as in attainment of all NAAQS. This classification is the result of area-wide air quality modeling studies. Therefore, further analysis required by the general conformity rule of Section 176(c) of the Clean Air Act would not apply for the proposed action.

3.5.8 Water and Sediment Quality

Existing Conditions

As part of its surface water quality monitoring program, the Louisiana Department of Environmental Quality (LDEQ) routinely monitors 25 parameters on a monthly or bimonthly basis using a fixed station, long-term network (Monitored Assessments) (LDEQ 1996). Based upon those data and the use of less-continuous information (Evaluated Assessments), such as fish tissue contaminants data, complaint investigations, and spill reports, the LDEQ has assessed water quality fitness for the following uses: primary contact recreation (swimming), secondary contact recreation (boating, fishing), fish and wildlife propagation, drinking water supply, and shellfish propagation (LDEQ 1996). Based upon existing data and more subjective information, water quality is determined to either fully, partially, or not support those uses. A designation of “threatened” is used for waters that fully support their designated uses but that may not fully support certain uses in the future because of anticipated sources or adverse trends in pollution.

According to the LDEQ “2020 Louisiana Water Quality Inventory: Integrated Report,” the Mississippi River – from Monte Sano Bayou to Head of Passes (segment no. LA070301_00), “fully supports” designated uses for primary contact recreation, secondary contact recreation, fish and wildlife propagation, and drinking water supply based on Evaluated Assessment data (LDEQ 2020). No sources of impairment were identified within this segment.

4 ENVIRONMENTAL CONSEQUENCES

This section describes the direct, indirect, and cumulative effects of the No Action Alternative and the proposed action. Table 3 provides a list of resources in the project area and the anticipated impact(s) from implementation of the proposed action.

Table 3: Relevant Resources and their impact status, both adverse and beneficial

Relevant Resource	Impacted	Not Impacted
Navigation	X	
Aquatic Resources/Fisheries	X	
Wetlands	X	
Essential Fish Habitat	X	
Wildlife	X	
Threatened and Endangered Species		X
Cultural Resources		X
Tribal Resources		X
Air Quality	X	
Water/Sediment Quality	X	

4.1 Navigation

Future Conditions with No-Action

Without implementation of the proposed action, shoaling would continue to occur in the segments of the Mississippi River adjacent to and downstream from Neptune Pass. Without increased maintenance dredging, further accumulations of shoal material would result in potentially restricted access to upstream ports and other facilities, with adverse impacts to the shipping industry and to

area port economy. Additionally, as scouring continues within Neptune Pass, the associated shoaling effects are likely to increase without implementation of the proposed action.

Future Conditions with the Proposed Action

Construction of a flow control structure within Neptune Pass would have positive direct impacts to navigation. Regulating the diverted flow from the Mississippi River through Neptune Pass would reduce current shoaling and scouring impacts occurring within the vicinity of the project, resulting in stability of the dimensions of the navigation channel and reduction in the required amount of maintenance dredging.

4.1 Aquatic Resources / Fisheries

Future Conditions with No-Action

Without implementation of the proposed action, the uncontrolled flow from the Mississippi River through Neptune Pass would continue to promote scouring within the pass. The scoured area creates limited habitat for most fisheries species due to the resulting deep-water channel and reduction in shallow water habitat within the vicinity of the project area. However, the deposition of scoured material from Neptune Pass and subsequent vegetative establishment occurring in the bays and waterways adjacent to the project area would result in newly created shallow water bottoms and marsh, providing habitat for numerous aquatic species.

Future Conditions with the Proposed Action

With implementation of the proposed action, water bottom habitat loss and displacement of benthic organisms and fishes within the project area would occur. However, these effects are expected to be temporary. Connectivity of the Mississippi River, Neptune Pass, and the adjacent bays and waterways would be maintained by constructing a “notch” within the flow control feature. This notch would allow for some water and sediment flow and allow for passage of aquatic species through Neptune Pass. Displaced fisheries species are expected to return to the project area once project activities are complete. Additionally, the flow control feature is also expected to slow the incoming flow from the Mississippi River into Neptune Pass, allowing for some suspended sediments to settle in the area surrounding the project. Over time, as the deep-water depths within the scoured area are reduced, benthic organisms and other fisheries species would be expected to colonize the new shallow, mud-bottom habitat. Furthermore, the stone substrate used for constructing the flow control feature can be considered suitable habitat for some fisheries and aquatic species (Pennington et al. 1983).

Implementation of the proposed action would result in indirect impacts to aquatic resources within the bays and waterways in the vicinity of the project as the flow through Neptune Pass and associated scouring would be reduced following project completion. Apparent land building and vegetative establishment is occurring within the bays adjacent to Neptune Pass. However, this diversion is considered sand-lean, diverting a small concentration of sediment from the Mississippi River relative to the amount of water being diverted. It is a perched diversion over a deep part of the river where little sand is being transported. Land gain and habitat creation occurring within the adjacent bays is attributed to the deposition of sediment from the scouring of Neptune Pass. While the scouring and deposition of sediments may be beneficial habitat creation in the adjacent bays, the continued deterioration and expansion of Neptune Pass would further increase the navigational hazard present within the Mississippi River.

4.2 Wetlands

Future Conditions with No-Action

Without implementation of the proposed action, continued scouring and widening of Neptune Pass would result in additional wetland loss and conversion of wetlands into open water habitat within Neptune Pass. However, deposition of this scoured material from Neptune Pass is resulting in marsh creation in the bays and waterways adjacent to the project area.

Future Conditions with the Proposed Action

Implementation of the proposed action would result in direct impacts to wetland resources. Construction of the stone key-in feature of the flow control structure within the wetlands adjacent to Neptune Pass would result in approximately 0.4 acres of permanent wetland loss. The 1,500 cubic yards of excavated material from these wetlands would be used to restore and nourish marsh adjacent to the western key-in feature of the project as mitigation for the permanent, direct wetland impacts associated with this aspect of the project. Additional wetland impacts would occur associated with machinery required for the dredging and excavation during the active construction phase of the proposed action. These impacts are expected to be minimal and temporary. Wetland vegetative reestablishment and stabilization is expected to occur following project completion.

Implementation of the proposed action would result in indirect impacts to wetland resources within the bays and waterways in the vicinity of the project as the flow through Neptune Pass and associated scouring would be reduced following project completion. The continued scouring of Neptune Pass and deposition of these sediments would be beneficial to wetland creation in the adjacent bays; however, further deterioration and expansion of Neptune Pass would increase the navigational hazard present within the Mississippi River.

4.3 Essential Fish Habitat

Future Conditions with No-Action

Without implementation of the proposed action, no direct impacts to EFH within the immediate project area would occur. However, indirect impacts to EFH would likely occur as existing emergent marsh within Neptune Pass continues to be converted to open water habitat due to scouring and erosion caused by the uncontrolled flow being diverted through the pass. However, essential fish habitat may be positively impacted by the deposition of the scoured material from Neptune Pass and subsequent vegetative establishment in bays and waterways adjacent to the project area. These newly created shallow water bottoms and marsh provide essential habitat for numerous fish species.

Future Conditions with the Proposed Action

With implementation of the proposed action, short-term EFH impacts would include temporary and localized increases in water column turbidity during the excavation and construction of the flow control feature. However, the project area is a naturally turbid environment and increased turbidity is not expected to significantly affect EFH needs within the project area. Additionally, the stone substrate used for constructing the flow control feature can be considered suitable habitat for some fisheries and aquatic species (Pennington et al. 1983).

Implementation of the proposed action would result in indirect impacts to EFH within the bays and waterways in vicinity of the project as the flow through Neptune Pass and associated scouring would be reduced following project completion. The continued scouring of Neptune Pass and deposition of these sediments would be beneficial as newly created EFH in the adjacent bays; however, further deterioration and expansion of Neptune Pass would increase the navigational hazard present within the Mississippi River.

4.4 Wildlife

Future Conditions with No-Action

Without implementation of the proposed action, wildlife within the immediate project may be indirectly impacted. Scour and erosion of the existing marsh along the banks of Neptune Pass and the Mississippi River would continue to occur, resulting in a reduction of habitat diversity and availability for resident terrestrial wildlife, migratory fowl, and other avian species. However, wildlife may be positively impacted by the deposition of scoured material from Neptune and subsequent vegetative establishment in bays and waterways adjacent to the project area. These newly created shallow water bottoms and marsh provide habitat for numerous wildlife species.

Future Conditions with the Proposed Action

With implementation of the proposed action, minimal adverse direct and indirect impacts to wildlife are anticipated. There is potential for noise or wave action generated by construction activities to displace terrestrial wildlife in the area; however, this would be a temporary disturbance, with wildlife likely to return following the completion of disposal activities. Migratory waterfowl and other avian species, if present, would likely be only temporarily displaced from the project area. Overall populations would not likely be adversely affected because these species would move to existing adjacent habitat areas during construction activities.

Implementation of the proposed action would result in indirect impacts to wildlife within the bays and waterways in the vicinity of the project as the flow through Neptune Pass and associated scouring would be reduced following project completion. The continued scouring of Neptune Pass and deposition of these sediments would be beneficial as newly created wildlife habitat in the adjacent bays; however, further deterioration and expansion of Neptune Pass would increase the navigational hazard present within the Mississippi River.

4.5 Threatened and Endangered Species

Future Conditions with No-Action

Without implementation of the proposed action, no direct or indirect impacts to threatened or endangered species or their critical habitat would occur.

Future Conditions with the Proposed Action

Although threatened or endangered species may occur within the general project vicinity, their presence within the project area is highly unlikely. Furthermore, the proposed project area does not contain critical habitat for Federally-listed species, and the open water areas surrounding the project area would allow them to easily avoid the project activities. The USFWS concurred with CEMVN's determination of "not likely to adversely affect" in a letter dated July 15, 2022. Additional coordination was initiated following an amendment to the proposed mitigation site associated with direct impacts. Coordination is still ongoing and will be completed prior to the signing of the FONSI.

Additionally, CEMVN has determined that no critical habitat for any threatened, endangered, or candidate species under the purview of the National Marine Fisheries Service (NMFS) has been designated within the project area, and that there would be no effect to any of the NMFS Federally-listed species that could potentially occur within the project area.

4.6 Cultural Resources

Future Conditions with No-Action

Without implementation of the proposed action, the flow of water may increase or the existing banklines of the river may shift. Although no cultural resources have been reported within the direct APE, such shifts may eventually affect more distant or unrecorded resources.

Future Conditions with the Proposed Action

With implementation of the proposed action, no direct or indirect impacts to cultural resources would occur. To comply with Section 106 of the National Historic Preservation Act (NHPA), a conclusion of no historic properties affected was sent to the Louisiana State Historic Preservation Office (SHPO) and interested federally-recognized tribes on June 13, 2022. Concurrence from the SHPO was received on June 28, 2022. On July 7, 2022, the Muscogee Nation responded their wish to defer to other tribes. On July 11, 2022, the Choctaw of Oklahoma, and on July 13, 2022, the Chitimacha Tribe, responded their concurrence with the conclusion of no historic properties affected. No other tribal responses were received.

Since time of the June 13, 2022, CEMVN coordination letter concluding no historic properties affected, an additional area for wetlands mitigation has been added to the coordinated APE. This is shown in Figure 2 of this document as the yellow-boundary “mitigation site,” and is an addition of approximately 2.7 acres to the previously coordinated APE. CEMVN has reviewed the data sources cited in its original letter in light of this new information, and again concludes that no historic properties are affected by this additional project area.

4.7 Tribal Resources

Future Conditions with No-Actions

Without implementation of the proposed action, the flow of water may increase or the existing banklines of the river may shift. Although no tribal resources have been reported within the direct APE, such shifts may eventually affect more distant resources.

Future Conditions with the Proposed Action

While Plaquemines Parish has a long history of occupation by Native American communities, prior to its establishment and throughout its history, there are currently no protected tribal resources, tribal rights, or Indian lands that have the potential to be significantly affected by the proposed actions within the project area. Therefore, CEMVN has determined that no tribal resources, rights, or lands would be significantly affected by implementing this action. The results of the NHPA Section 106 process have confirmed this determination.

4.8 Air Quality

Future Conditions with No-Action

Without implementation of the proposed action, no direct or indirect impacts to ambient air quality would occur.

Future Conditions with the Proposed Action

With implementation of the proposed action, direct and indirect impacts to ambient air quality within the project area—and possibly farther afield—are expected to be temporary and primarily due to the emissions of construction equipment. Due to the short duration of the proposed project, any increases or impacts to ambient air quality are expected to be short-term and minor and are not

expected to cause or contribute to a violation of federal or state ambient air quality standards. Once all construction activities associated with the proposed action cease, air quality within the vicinity is expected to return to pre-construction conditions.

4.9 Water and Sediment Quality

Future Conditions with No-Action

Without implementation of the proposed action, no direct or indirect impacts to water quality or sediment quality would occur.

Future Conditions with the Proposed Action

With implementation of the proposed action, there would be some disturbances to ambient water quality in the project area; however, direct, and indirect impacts would be short-lived and highly localized. Water bottom disturbances associated with construction activities may cause temporary increases in turbidity and suspended solid concentrations, and a reduction in light penetration in the immediate vicinity. However, since the project is a naturally turbid environment and resident biota are generally adapted to, and very tolerant of, high suspended sediment concentrations, the effects would be negligible. Water quality is expected to return to pre-construction conditions soon after the completion of the construction of the proposed project.

5 CUMULATIVE IMPACTS

The Council on Environmental Quality (CEQ) Regulations define cumulative impacts (CI) as “the impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions, regardless of what agency (Federal or non-Federal) or person undertakes such other actions. CI can result from individually minor but collectively significant actions taking place over a period of time.”

A Wetland Value Assessment (WVA) conducted by the USFWS (Appendix B) determined a total project marsh impact of 48.09 Average Annual Habitat Units (AAHUs). These impacts are primarily associated with the indirect effects of the reduction in sediment deposition following project completion. In the absence of the proposed action, flow through Neptune Pass would remain unaltered, potentially resulting in the continuation of the land building and subsequent vegetative establishment occurring within the bays adjacent to Neptune Pass. However, much of the sedimentation occurring within these bays is the result of the deposition of scoured material from within Neptune Pass. This diversion is considered sand-lean, diverting a small concentration of sediment from the Mississippi River relative to the amount of water being diverted. It is a perched diversion over a deep part of the river where little sand is being transported. While the scouring and deposition of sediments may be beneficial in land creation in the adjacent bays, the continued deterioration and expansion of Neptune Pass will further increase the navigational hazard present within the Mississippi River. Additionally, construction of a notch in the center of the closure structure would allow a portion of the currently diverted flow from the Mississippi River to continue through Neptune Pass and into adjacent bays and waterways. While the diverted flow would be reduced following project completion, these areas are expected to benefit from the continued flow of fresh water and sediment from Neptune Pass, including the areas encompassing the “Bay Denesse Restoration Project”, “Bay Denesse Living Lab Initiative”, and the “Delta Management at Fort St. Philip Project (BS-11).”

The continued, uncontrolled flow into Neptune Pass presents a threat to navigation and commercial trade due to the resulting shoaling within the Mississippi River. While minimal, unavoidable impacts would occur due to project actions within Neptune Pass, the proposed action would result in the

elimination of the present navigational threat within the river. In the absence of the proposed action, uncontrolled water and sediment flow would continue to be diverted from the Mississippi River, resulting in continued shoaling in the adjacent segment of the river. Continued scouring within Neptune Pass would occur, resulting in an increase of flow being diverted from the Mississippi River and subsequent, increased shoaling. Additionally, an increase in dredging operations within the Mississippi River would be required to compensate for the diversion effects if the proposed action is not completed. Without the proposed construction of the flow control feature, conditions would continue to deteriorate resulting in an increased threat to navigation.

6 HAZARDOUS, TOXIC AND RADIOACTIVE WASTE (HTRW)

The USACE is obligated under Engineer Regulation (ER) 1165-2-132 to assume responsibility for the reasonable identification and evaluation of all Hazardous, Toxic, and Radioactive Waste (HTRW) contamination within the vicinity of proposed actions. ER 1165-2-132 identifies that HTRW policy is to avoid the use of project funds for HTRW removal and remediation activities. An abridged ASTM E 1527-13 Phase 1 Environmental Site Assessment (ESA), HTRW 22-01, has been prepared for the Neptune Pass Channel Closure project area. The project area is not within the boundaries of any site designated by the EPA or State of Louisiana for a response action (either a removal action or a remedial action), under the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA), or part of a National Priority List site under CERCLA. Aerial photographs were also reviewed and a database search was conducted to identify possible Recognized Environmental Conditions (REC). No RECs were located within the footprints of the proposed project sites, and no evidence of HTRW was found.

7 COORDINATION

Preparation of this draft EA and a draft Finding of No Significant Impact (FONSI) have been coordinated with appropriate congressional, federal, tribal, state, and local interests, as well as environmental groups and other interested parties. The following agencies, as well as other interested parties, have received copies of the draft EA and draft FONSI:

- U.S. Department of the Interior, Fish and Wildlife Service
- U.S. Environmental Protection Agency, Region VI
- U.S. Department of Commerce, National Marine Fisheries Service
- U.S. Natural Resources Conservation Service, State Conservationist
- Advisory Council on Historic Preservation
- Governor's Executive Assistant for Coastal Activities
- Louisiana Department of Wildlife and Fisheries
- Louisiana Department of Natural Resources, Coastal Management Division
- Louisiana Department of Natural Resources, Coastal Restoration Division
- Louisiana Department of Environmental Quality
- Louisiana State Historic Preservation Officer
- Plaquemines Parish Government
- Alabama-Coushatta Tribe of Texas
- Chitimacha Tribe of Louisiana
- Choctaw Nation of Oklahoma
- Coushatta Tribe of Louisiana
- Mississippi Band of Choctaw Indians
- Muscogee Nation
- Jena Band of Choctaw Indians
- Seminole Nation of Oklahoma
- Tunica-Biloxi Tribe of Louisiana

8 MITIGATION

Direct impacts associated with the construction of the stone key-in feature of the flow control structure within the wetlands adjacent to Neptune Pass would result in approximately 0.4 acres of permanent wetland loss. The approximately 2,000 cubic yards of excavated material from these wetlands would be used to restore and nourish marsh adjacent to the western key-in feature of the project as mitigation for permanent, direct wetland impacts associated with this aspect of the project. Additional mitigation associated with indirect effects of project actions will be evaluated. Recommendations from the USFWS include additional marsh restoration or the construction of one or more crevasses facilitating connectivity between the Mississippi River and adjacent marsh. Coordination is currently ongoing to determine mitigation strategies and potential locations for mitigation. Coordination and creation of a mitigation plan will be finalized prior to signing of the FONSI.

9 COMPLIANCE WITH ENVIRONMENTAL LAWS AND REGULATIONS

There are many federal and state laws pertaining to the enhancement, management and protection of the environment. Federal projects must comply with environmental laws, regulations, policies, rules and guidance. Compliance with laws will be accomplished upon the 30-day public and agency review of this draft EA #589 and associated draft Finding of No Significant Impact (FONSI).

9.1 Clean Air Act of 1972

The Clean Air Act (CAA) sets goals and standards for the quality and purity of air. It requires the EPA to set National Ambient Air Quality Standards (NAAQS) for pollutants considered harmful to public health and the environment. The project area is in Plaquemines Parish, which is currently in attainment of NAAQS. The Louisiana Department of Environmental Quality is not required by the CAA and Louisiana Administrative Code, Title 33 to grant a general conformity determination.

9.2 Clean Water Act of 1972 – Section 404 and Section 401

The Clean Water Act (CWA) sets and maintains goals and standards for water quality and purity. A CWA draft Section 404(b)(1) public notice was distributed to the public on July 29, 2022. No adverse comments were received. A CWA draft Section 404(b)(1) public notice addendum containing an amended mitigation site was distributed to the public on September 1, 2022. Coordination is still ongoing and would be completed prior to the signing of the FONSI. CWA Section 401 requires a Water Quality Certification from the Louisiana Department of Environmental Quality (LDEQ) that a proposed project does not violate established effluent limitations and water quality standards. Surface water quality standards are established in the Louisiana Administrative Code (LAC) Title 33, Part IX (2020). A CWA Section 401 State Water Quality Certification (WQC 220830-02) was issued by the Louisiana Department of Environmental Quality on September 1, 2022.

9.3 Coastal Zone Management Act of 1972

The Coastal Zone Management Act requires that “each federal agency conducting or supporting activities directly affecting the coastal zone shall conduct or support those activities in a manner which is, to the maximum extent practicable, consistent with approved state management programs.” A determination of consistency with the Louisiana Coastal Zone Management Program pursuant to the Coastal Zone Management Act of 1972 was submitted to the Louisiana Department of Natural Resources on July 21, 2022. A determination of consistency addendum containing an amended mitigation site was submitted on September 1, 2022. Coordination is still ongoing and would be completed prior to the signing of the FONSI.

9.4 Endangered Species Act of 1973

The Endangered Species Act (“ESA”) is designed to protect and recover threatened and endangered (“T&E”) species of fish, wildlife and plants. Pursuant to section 7 of the Endangered Species Act of 1973, as amended, the USACE has determined that the Proposed Action would not likely adversely affect the endangered pallid sturgeon, West Indian Manatee, eastern black rail, or any critical habitat. The USFWS concurred with the USACE’s determination in a letter dated July 15, 2022. Additional coordination was initiated following an amendment to the proposed mitigation site. Coordination is still ongoing and would be completed prior to the signing of the FONSI.

9.5 Magnuson-Stevens Fisheries Conservation and Management Act

The Magnuson-Stevens Fishery Conservation and Management Act (MSFCMA), as amended, Public Law (P.L.) 104-208, addresses the authorized responsibilities for the protection of EFH by NMFS in association with regional fishery management councils. The NMFS has a “findings” with the CEMVN on the fulfillment of coordination requirements under provisions of the MSFCMA. In those findings, the CEMVN and NMFS have agreed to complete EFH coordination requirements for federal civil works projects through the review and comment on National Environmental Policy Act documents prepared for those projects. Coordination is ongoing and would be completed prior to signing of the FONSI.

9.6 Fish and Wildlife Coordination Act of 1934

The Fish and Wildlife Coordination Act (FWCA) provides authority for the USFWS involvement in evaluating impacts to fish and wildlife from proposed water resource development projects. It requires that fish and wildlife resources receive equal consideration to other project features. It requires Federal agencies that construct, license or permit water resource development project to first consult with USFWS, NMFS and state resource agencies regarding the impacts on fish and wildlife resources and measures to mitigate these impacts. The USFWS reviewed the proposed project and provided project specific recommendations in a Planning Aid Letter (PAL) received on August 15, 2022. The USFWS recommendations for the EA proposed action are listed below:

1. To minimize project impacts, the notch or opening within the Neptune Pass Closure structure should be made as large and as deep as possible to discharge as much suspended sediment as possible.

Response 1 – Acknowledged. While maintaining some connectivity between the Mississippi River and adjacent marsh will be achieved through the construction of the notch, the purpose of the proposed closure structure is the elimination of the navigational hazard attributed to the expansion of Neptune Pass. The 100’ notch at -10 feet NAVD88 of the proposed action was designed to approximately match this outlet before the bank failed and the pass was allowed to develop.

2. When the Mississippi River shoal downstream of Neptune Pass is dredged, that material should be used beneficially to the greatest extent practical.

Response 2 – Concur. When possible, the USACE would perform actions incorporating the beneficial use of dredged material towards marsh creation and restoration efforts.

3. To compensate for project related marsh impacts, the existing rock dike along the river’s east bank should be gapped and/or lowered to improve discharge of Mississippi River water and sediment into adjoining marshes. Ideally, the rock dike gapping/lowering should be located where river water would flow into protected lakes and bays where the wave energy environment

would be more conducive to marsh building than large open water bays having a high wave energy environment.

Response 3 – Do not concur. Annual site-specific water bottom surveys are conducted along 362 miles of the Mississippi River banks after each spring high-water season. These surveys are used to identify potential problem areas and determine the potential severity of any new or ongoing erosion. Geotechnical stability analyses are conducted to determine if erosion and scour, or sediment loading, are causing stability issues that could threaten the integrity of the riverbanks. As such, the locations and appropriate dimensions of revetment placement are determined by these bank stability analyses. Additional mitigation strategies for indirect impacts associated with the proposed project will be examined and coordinated with USFWS.

9.7 Migratory Bird Treaty Act

The bald eagle was removed from the list of Endangered and Threatened Species in August 2007 but continues to be protect under the BGEPA and the MBTA. During nesting season, construction must take place outside of the USFWS/LDWF buffer zones.

9.8 National Historic Preservation Act of 1966

Section 106 of the National Historic Preservation Act of 1966 (NHPA), as amended, requires federal agencies to take into account the effects of their undertakings on historic properties and afford the Advisory Council on Historic Preservation a reasonable opportunity to comment on such undertakings. The procedures in 36 CFR Part 800 define how federal agencies meet these statutory responsibilities. The Section 106 process seeks to accommodate historic preservation concerns with the needs of federal undertakings through consultation on historic properties, including the State Historic Preservation Officer (SHPO) or Tribal Historic Preservation Officer (THPO) and any Tribe that attaches religious or cultural significance to historic properties that may be affected by an undertaking. The goal of consultation is to identify historic properties potentially affected by the undertaking, assess its effects and seek ways to avoid, minimize or mitigate any adverse effects on historic properties. Pursuant to Section 106 of the National Historic Preservation Act of 1966, as amended, the USACE has determined that there are no historic properties, as defined in 36 CFR 800.16 (l) within the Neptune Pass area of potential effect (APE). Accordingly, a conclusion of “no historic properties affected” was sent to the Louisiana State Historic Preservation Office (SHPO) and interested federally-recognized Tribes on June 13, 2022. Concurrence from the SHPO was received on June 28, 2022. On July 7, 2022, the Muscogee Nation responded with their wish to defer to other Tribes. On July 11, 2022, the Choctaw of Oklahoma, and on July 13, 2022, the Chitimacha Tribe responded their concurrence with the conclusion of “no historic properties affected”. No other tribal responses were received.

Since time of the June 13, 2022, CEMVN coordination letter concluding no historic properties affected, an additional area for wetlands mitigation has been added to the coordinated APE. This is shown in Figure 2 of this document as the yellow-boundary “mitigation site,” and is an addition of approximately 2.7 acres to the previously coordinated APE. CEMVN has reviewed the data sources cited in its original letter in light of this new information, and again concludes that no historic properties are affected by this additional project area.

10 CONCLUSION

The continued, uncontrolled flow into Neptune Pass presents a threat to navigation and commercial trade due to the resulting shoaling within the Mississippi River. While minimal, unavoidable impacts would occur due to project actions within Neptune Pass, the proposed action would result in the elimination of the present navigational threat within the river. In the absence of the proposed action,

uncontrolled water and sediment flow would continue to be diverted from the Mississippi River resulting in continued shoaling in the adjacent segment of the river. Continued scouring within Neptune Pass would occur, resulting in an increase of flow being diverted from the Mississippi River and subsequently, increased shoaling. Additionally, an increase in dredging operations within the Mississippi River would be required to compensate for the diversion effects if the proposed action is not completed. Without the proposed construction of the flow control feature, conditions would continue to deteriorate resulting in an increased threat to navigation.

11 PREPARED BY

Draft EA #589 and the associated draft FONSI were prepared by Tyler Stevens, biologist, with relevant sections prepared by: Joe Musso – HTRW and Paul Hughbanks – Cultural Resources. The address of the preparers is: U.S. Army Corps of Engineers, New Orleans District; Regional Planning and Environment Division South, CEMVN-PDC-C; 7400 Leake Avenue; New Orleans, Louisiana 70118.

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Appendix A

Coordination Letters



United States Department of the Interior



FISH AND WILDLIFE SERVICE
Louisiana Ecological Services Field Office
200 Dulles Drive
Lafayette, LA 70506
Phone: (337) 291-3100 Fax: (337) 291-3139

In Reply Refer To:
Project Code: 2022-0056146
Project Name: Neptune Pass Rock Closure

June 21, 2022

Subject: List of threatened and endangered species that may occur in your proposed project location or may be affected by your proposed project

To Whom It May Concern:

The enclosed species list identifies threatened, endangered, and candidate species, as well as designated and proposed critical habitat that may occur within the boundary of your proposed project and may be affected by your proposed project. The Fish and Wildlife Service (Service) is providing this list under section 7 (c) of the Endangered Species Act (Act) of 1973, as amended (16 U.S.C. 1531 et seq.). Changes in this species list may occur due to new information from updated surveys, changes in species habitat, new listed species and other factors. Because of these possible changes, feel free to contact our office (337-291-3109) for more information or assistance regarding impacts to federally listed species. The Service recommends visiting the ECOS-IPaC site or the Louisiana Ecological Services Field Office website (<https://www.fws.gov/southeast/lafayette>) at regular intervals during project planning and implementation for updated species lists and information. An updated list may be requested through the ECOS-IPaC system by completing the same process used to receive the enclosed list.

The purpose of the Act is to provide a means whereby threatened and endangered species and the habitats upon which they depend may be conserved. Under sections 7(a)(1) and 7(a)(2) of the Act and its implementing regulations (50 CFR 402 et seq.), Federal agencies are required to utilize their authorities to carry out programs for the conservation of Federal trust resources and to determine whether projects may affect Federally listed species and/or designated critical habitat.

A Biological Assessment is required for construction projects (or other undertakings having similar physical impacts) that are major Federal actions significantly affecting the quality of the human environment as defined in the National Environmental Policy Act (42 U.S.C. 4332(2) (c)).

Bald eagles have recovered and were removed from the List of Endangered and Threatened Species as of August 8, 2007. Although no longer listed, please be aware that bald eagles are protected under the Bald and Golden Eagle Protection Act (BGEPA) (16 U.S.C. 668 et seq.).

The Service developed the National Bald Eagle Management (NBEM) Guidelines to provide landowners, land managers, and others with information and recommendations to minimize potential project impacts to bald eagles, particularly where such impacts may constitute “disturbance”, which is prohibited by the BGEPA. A copy of the NBEM Guidelines is available at: <https://www.fws.gov/migratorybirds/pdf/management/nationalbaldeaglenagementguidelines.pdf>

Those guidelines recommend: (1) maintaining a specified distance between the activity and the nest (buffer area); (2) maintaining natural areas (preferably forested) between the activity and nest trees (landscape buffers); and (3) avoiding certain activities during the breeding season. Onsite personnel should be informed of the possible presence of nesting bald eagles within the project boundary, and should identify, avoid, and immediately report any such nests to this office. If a bald eagle nest occurs or is discovered within or adjacent to the proposed project area, then an evaluation must be performed to determine whether the project is likely to disturb nesting bald eagles. That evaluation may be conducted on-line at: <https://www.fws.gov/southeast/our-services/eagle-technical-assistance/>. Following completion of the evaluation, that website will provide a determination of whether additional consultation is necessary. The Division of Migratory Birds for the Southeast Region of the Service (phone: 404/679-7051, e-mail: SEmigratorybirds@fws.gov) has the lead role in conducting any necessary consultation.

Activities that involve State-designated scenic streams and/or wetlands are regulated by the Louisiana Department of Wildlife and Fisheries and the U.S. Army Corps of Engineers, respectively. We, therefore, recommend that you contact those agencies to determine their interest in proposed projects in these areas.

Activities that would be located within a National Wildlife Refuge are regulated by the refuge staff. We, therefore, recommend that you contact them to determine their interest in proposed projects in these areas.

Additional information on Federal trust species in Louisiana can be obtained from the Louisiana Ecological Services website at: <https://www.fws.gov/southeast/lafayette>

We appreciate your concern for threatened and endangered species. The Service encourages Federal agencies to include conservation of threatened and endangered species into their project planning to further the purposes of the Act. Please include the Consultation Tracking Number in the header of this letter with any request for consultation or correspondence about your project that you submit to our office.

Attachment(s):

- Official Species List
 - USFWS National Wildlife Refuges and Fish Hatcheries
 - Marine Mammals
-

Official Species List

This list is provided pursuant to Section 7 of the Endangered Species Act, and fulfills the requirement for Federal agencies to "request of the Secretary of the Interior information whether any species which is listed or proposed to be listed may be present in the area of a proposed action".

This species list is provided by:

Louisiana Ecological Services Field Office

200 Dulles Drive
Lafayette, LA 70506
(337) 291-3100

Project Summary

Project Code: 2022-0056146

Event Code: None

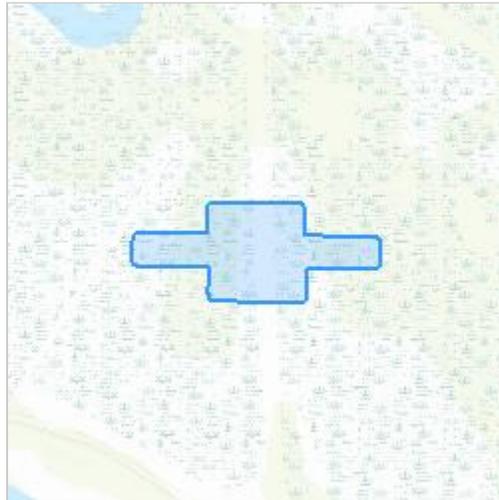
Project Name: Neptune Pass Rock Closure

Project Type: Levee / Dike - New Construction

Project Description: The construction of the flow control feature would require installation of a stone closure structure within the pass via placement of stones from a barge in the river. The structure will be built to an elevation of +5 feet (NAVD88) with a 6-foot crown width and a 1v:2H slope perpendicular to the center line. A 100-foot notch in the center of the structure would allow sediment, water, and small vessels to pass through the structure. Installation of 1 to 3-foot bank paving at the inlet and outlet, and 1 to 3-foot channel paving at the structure outlet would be installed for scour protection. Stone key-in of the closure structure would require excavations and extend approximately 150 to 400 feet from the TOB.

Project Location:

Approximate location of the project can be viewed in Google Maps: <https://www.google.com/maps/@29.36613205,-89.51140512715648,14z>



Counties: Plaquemines County, Louisiana

Endangered Species Act Species

There is a total of 3 threatened, endangered, or candidate species on this species list.

Species on this list should be considered in an effects analysis for your project and could include species that exist in another geographic area. For example, certain fish may appear on the species list because a project could affect downstream species.

IPaC does not display listed species or critical habitats under the sole jurisdiction of NOAA Fisheries¹, as USFWS does not have the authority to speak on behalf of NOAA and the Department of Commerce.

See the "Critical habitats" section below for those critical habitats that lie wholly or partially within your project area under this office's jurisdiction. Please contact the designated FWS office if you have questions.

-
1. [NOAA Fisheries](#), also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

Mammals

NAME	STATUS
West Indian Manatee <i>Trichechus manatus</i> There is final critical habitat for this species. The location of the critical habitat is not available. <i>This species is also protected by the Marine Mammal Protection Act, and may have additional consultation requirements.</i> Species profile: https://ecos.fws.gov/ecp/species/4469	Threatened

Birds

NAME	STATUS
Eastern Black Rail <i>Laterallus jamaicensis ssp. jamaicensis</i> No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/10477	Threatened

Insects

NAME	STATUS
Monarch Butterfly <i>Danaus plexippus</i> No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/9743	Candidate

Critical habitats

THERE ARE NO CRITICAL HABITATS WITHIN YOUR PROJECT AREA UNDER THIS OFFICE'S JURISDICTION.

USFWS National Wildlife Refuge Lands And Fish Hatcheries

Any activity proposed on lands managed by the [National Wildlife Refuge](#) system must undergo a 'Compatibility Determination' conducted by the Refuge. Please contact the individual Refuges to discuss any questions or concerns.

THERE ARE NO REFUGE LANDS OR FISH HATCHERIES WITHIN YOUR PROJECT AREA.

Marine Mammals

Marine mammals are protected under the [Marine Mammal Protection Act](#). Some are also protected under the Endangered Species Act¹ and the Convention on International Trade in Endangered Species of Wild Fauna and Flora².

The responsibilities for the protection, conservation, and management of marine mammals are shared by the U.S. Fish and Wildlife Service [responsible for otters, walruses, polar bears, manatees, and dugongs] and NOAA Fisheries³ [responsible for seals, sea lions, whales, dolphins, and porpoises]. Marine mammals under the responsibility of NOAA Fisheries are **not** shown on this list; for additional information on those species please visit the [Marine Mammals](#) page of the NOAA Fisheries website.

The Marine Mammal Protection Act prohibits the take of marine mammals and further coordination may be necessary for project evaluation. Please contact the U.S. Fish and Wildlife Service Field Office shown.

-
1. The [Endangered Species Act](#) (ESA) of 1973.
 2. The [Convention on International Trade in Endangered Species of Wild Fauna and Flora](#) (CITES) is a treaty to ensure that international trade in plants and animals does not threaten their survival in the wild.
 3. [NOAA Fisheries](#), also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

NAME

West Indian Manatee *Trichechus manatus*

Species profile: <https://ecos.fws.gov/ecp/species/4469>

IPaC User Contact Information

Agency: Army Corps of Engineers

Name: Tyler Stevens

Address: 7400 Leake Ave

City: New Orleans

State: LA

Zip: 70118

Email: tyler.stevens@usace.army.mil

Phone: 5048621290



United States Department of the Interior



FISH AND WILDLIFE SERVICE
Louisiana Ecological Services Field Office
200 Dulles Drive
Lafayette, LA 70506
Phone: (337) 291-3100 Fax: (337) 291-3139

In Reply Refer To:
Project code: 2022-0056146
Project Name: Neptune Pass Rock Closure

June 23, 2022

Subject: Consistency letter for the project named 'Neptune Pass Rock Closure' for specified threatened and endangered species that may occur in your proposed project location pursuant to the Louisiana Endangered Species Act project review and guidance for other federal trust resources determination key (Louisiana DKey).

Dear Tyler Stevens:

The U.S. Fish and Wildlife Service (Service) received on June 23, 2022 your effects determination(s) for the 'Neptune Pass Rock Closure' (the Action) using the Louisiana DKey within the Information for Planning and Consultation (IPaC) system. The Service developed this system in accordance with the Endangered Species Act of 1973 (ESA) (87 Stat.884, as amended; 16 U.S.C. 1531 et seq.).

Based on your answers, and the assistance in the Service's Louisiana DKey, you made the following effect determination(s) for the proposed Action:

Species	Listing Status	Determination
Eastern Black Rail (<i>Laterallus jamaicensis ssp. jamaicensis</i>)	Threatened	May affect
West Indian Manatee (<i>Trichechus manatus</i>)	Threatened	NLAA

Consultation with the Service is not complete. Further consultation or coordination with the Louisiana Ecological Services Office is necessary for those species with a determination of "may affect" listed above. Please contact our office at 337-291-3100 or lafayette@fws.gov to discuss methods to avoid or minimize potential adverse effects to those species.

Please Note: If the Federal Action may impact bald or golden eagles, additional coordination with the Service under the Bald and Golden Eagle Protection Act (BGEPA) (54 Stat. 250, as amended, 16 U.S.C. 668a-d) may be required. Please contact Ulgonda Kirkpatrick (phone: 321/972-9089, e-mail: ulgonda_kirkpatrick@fws.gov) with any questions regarding potential impacts to bald or golden eagles.

Action Description

You provided to IPaC the following name and description for the subject Action.

1. Name

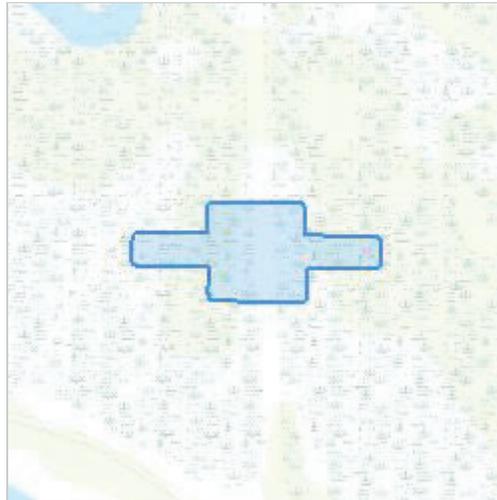
Neptune Pass Rock Closure

2. Description

The following description was provided for the project 'Neptune Pass Rock Closure':

The construction of the flow control feature would require installation of a stone closure structure within the pass via placement of stones from a barge in the river. The structure will be built to an elevation of +5 feet (NAVD88) with a 6-foot crown width and a 1v:2H slope perpendicular to the center line. A 100-foot notch in the center of the structure would allow sediment, water, and small vessels to pass through the structure. Installation of 1 to 3-foot bank paving at the inlet and outlet, and 1 to 3-foot channel paving at the structure outlet would be installed for scour protection. Stone key-in of the closure structure would require excavations and extend approximately 150 to 400 feet from the TOB.

Approximate location of the project can be viewed in Google Maps: <https://www.google.com/maps/@29.36613205,-89.51140512715648,14z>



This project has been reviewed for effects to Federal trust resources under our jurisdiction and currently protected by the Endangered Species Act of 1973 (Act.) The project, as proposed,

Is not Likely to adversely effect those resources

BRIGETTE FIRMIN

Digitally signed by BRIGETTE
FIRMIN

Date: 2022.07.15 16:30:55 -05'00'

Supervisor

Date

**Louisiana Ecological Services Office
U.S. Fish and Wildlife Service**

Qualification Interview

1. Is the action authorized, funded, or being carried out by a Federal agency?
Yes
 2. Is the action authorized, funded, or being carried out by the:
a. U.S Army Corps of Engineers
 3. Please identify your agency or organization type:
a. Federal agency
 4. Have you determined that the project will have "no effect" on federally listed species? (If unsure select "No")
No
 5. Are you with the U.S. Army Corps of Engineers Regulatory Division?
No
 6. Are you with the U.S. Army Corps of Engineers Planning Division?
Yes
 7. Is the action part of a Civil Works project?
Yes
 8. Does the action result in the discharge of fill into wetlands that meets the *de minimis* standard?
No
 9. Is the action covered by a categorical exclusion?
No
 10. Will the action require the preparation of a National Environmental Policy Act of 1969 (NEPA; 83 Stat. 852, as amended; 42 U.S.C. 4321-4347): Environmental Assessment, an Environmental Impact Statement of similar document?
Yes
 11. Was a NEPA required Environmental Assessment, Environmental Impact Statement, or similar document prepared within the last 5 years for the action?
No
 12. Will the action impact fish and wildlife habitat?
No
 13. [Hidden Semantic] Does the project intersect the eastern black rail AOI?
Automatically answered
Yes
 14. Will the proposed project involve human disturbance or ground disturbance (such as foot traffic, vehicles, tracked equipment, excavating, grading, placing fill material, etc.)?
Yes
-

15. Does the action consist of either fire management, grazing, haying, mowing and/or other mechanical treatment activities?
No
16. Will the project result in changes to wetland hydrology (i.e. via new construction or change in existing operation of water control structures, waterbody diversion, major water withdrawals, levee construction, etc.)?
Yes
17. [Hidden Semantic] Does the project intersect the west indian manatee AOI?
Automatically answered
Yes
18. (Semantic) Is the project located within the manatee consultation zone, excluding the Mississippi River?
Automatically answered
Yes
19. Is the project footprint entirely on land?
No
20. Is the water depth within the project greater than 2 feet (at mean high tide)?
Yes
21. Will the project occur during the months of June through November?
No
22. [Hidden Semantic] Does the project intersect the pink mucket mussel AOI ?
Automatically answered
No
23. [Semantic] Does the project intersect the Northern Long-eared bat AOI?
Automatically answered
No
24. (Semantic) Does the project intersect the Louisiana black bear Range?
Automatically answered
No
-

IPaC User Contact Information

Agency: Army Corps of Engineers
Name: Tyler Stevens
Address: 7400 Leake Ave
City: New Orleans
State: LA
Zip: 70118
Email: tyler.stevens@usace.army.mil
Phone: 5048621290



United States Department of the Interior

FISH AND WILDLIFE SERVICE
200 Dulles Drive
Lafayette, Louisiana 70506



August 15, 2022

Colonel Murphy
District Commander
U.S. Army Corps of Engineers
New Orleans District
7400 Leake Avenue
New Orleans, LA 70118-3651

Dear Colonel Murphy:

The U.S. Army Corps of Engineers, New Orleans District (USACE) has proposed the installation of a closure structure in Neptune Pass located in Plaquemines Parish, Louisiana. The proposed closure structure would be located on the river's east bank near Buras, Louisiana. The U.S. Fish and Wildlife Service (Service) offers the following comments on a planning aid basis to assist the USACE in the planning and evaluation of the proposed project. The Service submits these comments in accordance with provisions of the Fish and Wildlife Coordination Act (FWCA; 48 Stat. 401, as amended; 16 U.S.C. 661 et seq.). These comments and recommendations do not constitute the final report of the Secretary of Interior as required by Section 2(b) of the FWCA.

According to information provided by the USACE, Neptune Pass has rapidly enlarged and is currently discharging roughly 16 percent of the Mississippi River's flow. That water is being discharged into Quarantine Bay, an arm of Breton Sound. As a result of the loss of flow in the river, rapid shoaling has occurred in the Mississippi River below Neptune Pass which is jeopardizing navigation in the river, especially if no action is taken to arrest the continued enlargement of Neptune Pass.

Accreting deltaic wetlands, such as those found downstream of Neptune Pass in Bay Dennesse and adjoining marshes, provide valuable high-quality habitat for a variety of fish and wildlife including migratory waterfowl, and commercially and recreationally important fish and shellfish. Because of the high rates of subsidence in these lower Mississippi River marshes, a continuous supply of suspended sediment is required to maintain marsh elevations and preclude marsh loss.

Although the ongoing Neptune Pass enlargement is a problem for Mississippi River navigation, it represents a natural and beneficial deltaic land building process that is responsible for creating marshes within the coastal Deltaic Plain. The critically important sediment load carried by the Mississippi River may be more effectively used to build and nourish wetlands if Neptune Pass were allowed to build a delta lobe in the shallow waters of Bay Dennesse and Quarantine Bay, compared to continuing down the river's deep-draft navigation channel and being discharged into the deep waters of the Gulf of Mexico. Because the proposed closure structure would greatly reduce the discharge of Neptune Pass, we anticipate that the proposed closure may reduce net

land building in Bay Dénesse and possibly in Quarantine Bay. Imagery shows that land-building is ongoing in these areas as well as in Quarantine Bayou at the terminus of Tortillon Bayou (Ostrica Lock outlet), just upriver of Neptune Pass. Additionally, the recently constructed Bay Dénesse Restoration Project relies in part on trapping sediment flowing down Neptune Pass. Consequently, the proposed Neptune Pass Closure may adversely impact the success of this local restoration project.

Given the rapid enlargement of Neptune Pass and its resulting Mississippi River shoaling problem, time has not allowed for the preparation of a land change analysis to determine without project conditions versus with-project conditions. We believe that such an analysis is needed to understand and quantify the fish and wildlife impacts of the proposed project. Ideally, that analysis should include effects within the downstream bird-foot delta, since it too is dependent on continual inputs of riverine sediment and could be adversely impacted by the continued loss of sediment to Quarantine Bay via the enlarging Neptune Pass.

Once that analysis has been completed, an assessment of impacts, if any, can be quantified and any need to mitigate for indirect wetland impacts can be determined. If the proposed Neptune Pass Closure structure would result in a net indirect impact to marsh, the Service recommends the following measures to minimize those impacts and to compensate for those losses:

1. To minimize project impacts, the notch or opening within the Neptune Pass Closure structure should be made as large and as deep as possible to discharge as much suspended sediment as allowable.
2. When the Mississippi River shoal downstream of Neptune Pass is dredged, that material should be used beneficially to the greatest extent practical.
3. To compensate for project related marsh impacts, the existing rock dike along the river's east bank should be gapped and/or lowered to improve discharge of Mississippi River water and sediment into adjoining marshes. Ideally, the rock dike gapping/lowering should be located where river water would flow into protected lakes and bays where the wave energy environment would be more conducive to marsh building than large open water bays having a high wave energy environment.

We look forward to continued coordination with the USACE regarding the Neptune Pass Closure Project and associated impact assessment. Should you have any questions regarding our comments, please contact Ronny Paille (337-291-3117) of this office.

Sincerely



Brigette D. Firmin

Acting Field Supervisor

Louisiana Ecological Services Office

BRIGETTE
FIRMIN

Digitally signed by BRIGETTE
FIRMIN
Date: 2022.08.15 09:35:43
-05'00'

cc: Environmental Protection Agency, Dallas, TX
National Marine Fisheries Service, Baton Rouge, LA
Natural Resources Conservation Service, Alexandria, LA
LA Dept of Wildlife and Fisheries, Baton Rouge, LA
LA Dept. of Natural Resources (CMD), Baton Rouge, LA
Coastal Protection and Restoration Authority (CPRA), Baton Rouge, LA

JOHN BEL EDWARDS
GOVERNOR



CHUCK CARR BROWN, Ph.D.
SECRETARY

State of Louisiana
DEPARTMENT OF ENVIRONMENTAL QUALITY
ENVIRONMENTAL SERVICES

SEP 01 2022

Mr. Tyler Stevens
US Army Corps of Engineers, New Orleans District
7400 Leake Avenue
New Orleans, Louisiana 70118

AI No.: 235366
Activity No.: CER20220001

RE: Mississippi River, Baton Rouge to the Gulf of Mexico, Neptune Pass Rock Closure
Water Quality Certification WQC 220830-02
New Orleans District

Dear Mr. Stevens:

The Louisiana Department of Environmental Quality, Water Permits Division (LDEQ), has reviewed the application for the Neptune Pass rock closure within the New Orleans District.

The information provided in the application has been reviewed in terms of compliance with State Water Quality Standards, the approved Water Quality Management Plan and applicable state water laws, rules and regulations. LDEQ determined that the requirements for a Water Quality Certification have been met. LDEQ concludes that the discharge of fill will not violate water quality standards as provided for in LAC 33:IX.Chapter 11. Therefore, LDEQ hereby issues US Army Corps of Engineers, New Orleans District – Mississippi River, Baton Rouge to the Gulf of Mexico, Neptune Pass Rock Closure Water Quality Certification, WQC 220830-02.

Should you have any questions concerning any part of this certification, please contact Elizabeth Hill at (225) 219-3225 or by email at elizabeth.hill@la.gov. Please reference Agency Interest (AI) number 235366 and Water Quality Certification 220830-02 on all future correspondence to this Department to ensure all correspondence regarding this project is properly filed into the Department's Electronic Document Management System.

Sincerely,

Scott Guilliams
Administrator
Water Permits Division

c: IO-W

ec: tyler.stevens@usace.army.mil



LOUISIANA DEPARTMENT OF AGRICULTURE & FORESTRY
MIKE STRAIN DVM
COMMISSIONER



August 18, 2022

**Agricultural &
Environmental
Sciences**
Suite 3000
(225) 925-3770
Fax: 925-3760

**Agro-Consumer
Services**
Suite 5000
(225) 922-1341
Fax: 923-4877

**Animal Health
& Food Safety**
Suite 4000
(225) 925-3962
Fax: 925-4103

Forestry
Suite 6000
(225) 925-4500
Fax: 922-1356

**Management
& Finance**
Suite 1000
(225) 922-1255
Fax: 925-6012

**Soil & Water
Conservation**
Suite 7000
(225) 922-1269

USACE - ATTN: Mr. Tyler Stevens
New Orleans District
7400 Leake Avenue
New Orleans, LA 70118-3651

Ref: Clean Water Act, Sec 404 Public Notice
Neptune Pass Rock Closure

Dear Mr. Stevens,

The LA Department of Agriculture & Forestry/Office of Soil & Water Conservation has reviewed the attached project and has no objection or further comment.

If this office may be of any further assistance, please do not hesitate to contact us.

Sincerely,

Joey Breaux
Assistant Commissioner,
LDAF/Office of Soil & Water Conservation
Director, LA Soil & Water Conservation Commission
225-922-1269



To: Mr. Tyler Stevens
U.S. Army Corps of Engineers
New Orleans District

Re: Clean Water Act, Sec. 404, Neptune Pass Rock Closure

I am writing on behalf of CRCL, the first statewide nonprofit organization dedicated to confronting coastal land loss in Louisiana. CRCL is the most widely recognized and effective coastal advocacy entity in the state. We represent a unique mix of businesses, local governments, industries, scientific communities, national and local conservation groups, hunters, anglers and a broad spectrum of concerned residents. Our mission is to unite people in action to achieve a thriving, sustainable Louisiana coast for all.

CRCL has been tracking the current and potential land building from Neptune Pass as the newest distributary of the Mississippi River. The land building occurring from Neptune Pass demonstrates the power of the river to build new wetlands. Even as state, federal, and other entities are planning action to build sediment diversion projects to restore coastal wetlands, nature is acting. This is not simply concern related to navigation on the river; rather, it is also an opportunity for coastal restoration through the creation of new land as a result of sediment flowing through the channel.

We urge the United States Army Corps of Engineers (USACE) to manage Neptune Pass in a manner that accounts for both navigation and safety and potential coastal land building. We recognize that USACE has a dual mandate to maintain safety and navigation on the Mississippi River as well as engaging in massive civil works projects with the State of Louisiana in our efforts to combat coastal land loss and to provide storm risk reduction for our citizens. That is why we urge you to conduct your operations in a manner that achieves the stated goal of eliminating a navigational hazard while also maintaining sufficient flow to maintain observed land building in Breton Sound.

Further, we understand that an increase in dredging operations on the river may be required to compensate for the diversion effects of the pass if the proposed action is not completed; however, we urge you to consider partnering with relevant state agencies to cover the cost of any such additional dredging needs in order to manage the pass but to keep it open and flowing to maximize land building to the greatest extent possible for as long as possible.

In summary, CRCL acknowledges the USACE's need to manage Neptune Pass as a navigational hazard, and we support the USACE's efforts to manage the pass by constructing a flow control feature to decrease riverbank scour; however, we do not support any effort to fully close the pass at this time.

Sincerely,

Tyler M. Bosworth
Advocacy Director
Coalition to Restore Coastal Louisiana
3801 Canal Street, Suite 400
New Orleans, LA 70119

Cc: Bren Haase, Coastal Protection and Restoration Authority
Keith Lovell, Louisiana Department of Natural Resources



DEPARTMENT OF THE
CORPS OF ENGINEERS, NEW ORLEANS
7400 LEAKE AVE
NEW ORLEANS LA 70118

June 13, 2022

Regional Planning and
Environment Division, South
Environmental Planning Branch
Attn: CEMVN-PDS-N

Kristin Sanders, SHPO
LA State Historic Preservation Officer
P.O. Box 44247
Baton Rouge, LA 70804-4241

RE: Section 106 Review Consultation

Undertaking: Closure of a Mississippi River breach at Neptune Pass, Mile
24-L, Plaquemines Parish, Louisiana (Latitude 29.365;
Longitude -89.510)

Determination: **No Historic Properties Affected**

Dear Ms. Sanders:

The U.S. Army Corps of Engineers (USACE), New Orleans District, proposes to repair a breach of the east bank of the Mississippi River upriver of Fort St. Philip and Plaquemine Bend. This breach has been known and monitored for recent years. The Neptune Pass channel was a consistent width and depth during recent historic times, but between 2019 and now it has widened substantially and has created a deep scour. Together, these factors act to increase the capture of flow from the Mississippi River. If this capture continues, Navigation in the lower portion from the Mississippi River into the Gulf of Mexico is severely threatened by the loss of velocity that would drop sediment load and require frequent dredging. Riverbank and channel scour will continue unless the flow through this channel is reduced.

As part of CEMVN's evaluation and in partial fulfillment of responsibilities under the National Environmental Policy Act and Section 106 of the National Historic Preservation Act, CEMVN offers you the opportunity to review and comment on the potential of the proposed action described in this letter to affect historic properties. Additionally, in accordance with the responsibilities of Executive Order 13175, CEMVN offers Federally-recognized Tribes the opportunity to review and comment on the potential of the proposed undertaking described in this letter to significantly affect protected tribal resources, tribal rights, or tribal lands.

No known historic properties will be affected by this undertaking. Therefore, our office has no objection to the implementation of this project. This effect determination could change should new information come to our attention.

Kristin P. Sanders

State Historic Preservation Officer

Date

Description of the Undertaking

Three distinct but related measures are proposed. A Stone Closure Structure would be constructed by barging stone into Neptune Pass. The Closure would have a width of 6 foot on the crown at an elevation of +5 feet NAVD88. A bank paving would also be placed on the south side of the closure structure, and both bank paving and channel paving would be placed on the north side of the closure. Lastly, the closure structure would need to be keyed-in to the natural and remaining sides of the crevasse. The second and third measures proposed are to prevent flanking or further scour underneath of the closure structure by crevasse waters (Enclosures 1-4).

Area of Potential Effects (APE)

The APE is defined to be the area represented by the 3D Visualization of the closure structure and by the Draft Plan of construction. As currently designed, this may include approximately 1600 feet length across the crevasse including the key-in to existing bank, and as much as 600 feet breadth within the crevasse itself. The key-in to remaining land, is currently proposed to measure approximately 500 feet long and 120 feet wide, on both sides of the crevasse. There will also be access area necessary around the periphery of the closure, while construction is ongoing. The total APE for direct and indirect effects is 10.28 acres in size (Enclosure 4_Proposed Entry Limits).

Known resources and past investigations within each of the identified APE's are described below in the "Identification and Evaluation" portion of this letter.

Identification and Evaluation

Background and literature review has been conducted by USACE staff. Historic properties in the project vicinity were identified based on a review of the NRHP database, the Louisiana Cultural Resources Map, historic map research, and a review of cultural resources survey reports. Additionally, available Multibeam Sonar data, that creates a picture of the bankline under water, has been reviewed (images from the sonar data are in Enclosure 2).

There have been no Phase I cultural resources surveys within the proposed footprint of the closure structure, and no cultural resources have been recorded. However, Phase I survey conducted by Lackowicz et al. (2012) and especially the discussion of paleogeography, enlighten understanding of the APE. These lands are part of the Balize Delta Complex and estimated to be no older than 600 years B.P. The route of the river has continued to evolve even since that time, with the Plaquemine Bend undergoing documented movement since the Civil War (Lackowicz et al. 2012:6). Man-made levees that have existed in this portion of the east bank Mississippi River are not maintained, and, as such, the natural river actions have been largely unbroken. A natural cycle of flooding, deposition, erosion, and channel movement has continuously occurred. Likewise, maps show numerous straight artificial canals slicing through the available land, due either to early irrigation efforts or oil exploration or some similar efforts. Soils surrounding the proposed closure structure are classified as Gentilly muck and frequently flooded.

Review of historic maps and aerial photography, is not in itself conclusive. There is variability in the depiction of the riverbank across the years, but digital overlay of visible landmarks such as the bend in the Crevassli Canal (Mississippi River Commission 1871, sheet 82), and various other canals, historic levees, and eventually even the location of roads, provides great certainty that any historic activity has been on the firmer ground much closer to the river than the current APE, and that the growth of the crevasse itself has probably destroyed any of these historic remains. These maps strongly suggest that the current APE was historically swamp grass and marsh. Likewise, the geologically-young age of the land, the crevasse, the canals, and the previous natural flooding and deposition of the river, makes the preservation of intact prehistoric remains a very low probability. Given these data, it is unlikely that any historic properties are within the APE.

Assessment of Effects

Based on the information presented in this letter, CEMVN has determined that there are no historic properties, as defined in 36 CFR 800.16 (l) in the APE. As such, the USACE has made a determination of **no historic properties affected** as a result of this undertaking. This project will be subject to the standard change in scope of work, unexpected discovery, and unmarked human burial sites act provisions. USACE requests your comments within 30 days.

Moreover, the crevasse will continue to grow until action is taken, and three years of satellite imagery show it growing at a rapid rate. Although no Phase I survey has been conducted, the review of historic evidence and imagery suggest the APE as a low probability area for intact resources. The available evidence suggests that greater harm comes to any potential historic property by failing to take actions to prevent growth of the crevasse.

We look forward to your concurrence with this determination. Should you have any questions or need additional information with this undertaking, please contact Dr. Paul Highbanks, Archaeologist; U.S. Army Corps of Engineers, New Orleans District at paul.j.highbanks@usace.army.mil; or Jason Emery, Archaeologist and Tribal Liaison at (504) 862-2364 jason.e.emery@usace.army.mil.

Sincerely,

ERIC M. WILLIAMS
Chief, Environmental Planning Branch

CC:File

An electronic copy of this letter with enclosures will be provided to the Section 106 Inbox, section106@crt.la.gov.

Sources Cited

Lackowicz, Robert, J.B. Pelletier, Katy Coyle, and Meredith Marten
2012 *Phase I Terrestrial Cultural Resources Survey and Marine Archeological Remote Sensing of the Proposed Delta Building Diversion Project, Fort St. Philip, Plaquemines Parish, Louisiana.* (State Report 22-3550)

Mississippi River Commission

2012 *Survey of the Mississippi River, Chart No. 82.*

Stevens, Tyler MVN

From: Turner Hunt <thunt@muscogeenation.com>
Sent: Thursday, July 7, 2022 9:50 AM
To: Hughbanks, Paul J CIV USARMY CEMVN (USA); Section106
Cc: Emery, Jason A CIV USARMY CEMVN (USA)
Subject: [Non-DoD Source] RE: USACE Section 106: Finding of No Historic Properties Affected for Breach Closure of Neptune Pass, Plaquemines Parish

Mr. Hughbanks,

Thank you for your recent correspondence regarding the Breach Closure of Neptune Pass. This project is occurring outside of the Muscogee (Creek) Nation's historic area of interest and we will respectfully defer to other federally recognized Tribes you may have contacted. Please let me know if you have any questions. Thank you for your time. Mvto!

Turner W. Hunt

Tribal Historic Preservation Officer
Historic and Cultural Preservation Department
The Muscogee Nation
P.O.Box 580 | Okmulgee, OK 74447
T 918.732.7759 | F 918.758.0649
thunt@MuscogeeNation.com
MuscogeeNation.com
Meyuksvseko Mvskokvlke...



From: Hughbanks, Paul J CIV USARMY CEMVN (USA) <Paul.J.Hughbanks@usace.army.mil>
Sent: Friday, June 10, 2022 3:18 PM
To: Section106 <section106@muscogeenation.com>; Turner Hunt <thunt@muscogeenation.com>
Cc: Emery, Jason A CIV USARMY CEMVN (USA) <Jason.A.Emery@usace.army.mil>
Subject: [WARNING: UNSCANNABLE EXTRACTION FAILED]USACE Section 106: Finding of No Historic Properties Affected for Breach Closure of Neptune Pass, Plaquemines Parish

CAUTION: This email originated from outside of the organization. Do not click links or open attachments unless you recognize the sender and know the content is safe.

Hello:

Attached, please find a signed Finding of No Historic Properties Affected for the emergency closure of a breach at Neptune Pass, Mississippi River, Plaquemines Parish, Louisiana.

Please notify the Archaeologist or District Tribal Liaison with questions or comments. Their contact information follows:
Dr. Paul Hughbanks, (504) 862-1100 or Paul.J.Hughbanks@usace.army.mil; Jason A. Emery, MVN Archaeologist and District Tribal Liaison at (504) 862-2364 or jason.a.emery@usace.army.mil.

Sincerely,

Paul Hughbanks

Archaeologist, Natural/Cultural Resources Analysis RPEDS, New Orleans District

Office: 504-862-1100

Stevens, Tyler MVN

From: Lindsey Bilyeu <lbilyeu@choctawnation.com>
Sent: Monday, July 11, 2022 4:45 PM
To: Hughbanks, Paul J CIV USARMY CEMVN (USA)
Subject: [Non-DoD Source] RE: USACE Section 106: Finding of No Historic Properties Affected for Breach Closure of Neptune Pass, Plaquemines Parish

Paul,

The Choctaw Nation of Oklahoma thanks the USACE, New Orleans District, for the correspondence regarding the above referenced project. Plaquemines Parish lies in our area of historic interest. The Choctaw Nation Historic Preservation Department has reviewed the documents provided and we concur with the finding of “no historic properties affected”. However, we ask that work be stopped, and our office contacted immediately, in the event that Native American artifacts or human remains are encountered.

If you have any questions, please contact me.

Thank you,

Lindsey D. Bilyeu, M.S.
Program Coordinator 2
Choctaw Nation of Oklahoma
Historic Preservation Department
Office: (580) 642-8377
Cell: (580) 740-9624

From: Hughbanks, Paul J CIV USARMY CEMVN (USA) <Paul.J.Hughbanks@usace.army.mil>
Sent: Friday, June 10, 2022 3:20 PM
To: Ian Thompson <ithompson@choctawnation.com>; Lindsey Bilyeu <lbilyeu@choctawnation.com>
Cc: Emery, Jason A CIV USARMY CEMVN (USA) <Jason.A.Emery@usace.army.mil>
Subject: [WARNING: UNSCANNABLE EXTRACTION FAILED]USACE Section 106: Finding of No Historic Properties Affected for Breach Closure of Neptune Pass, Plaquemines Parish

Halito: This email originated from outside of the organization. Do not click links or open attachments unless you recognize the sender and know the content is safe.

Hello:

Attached, please find a signed Finding of No Historic Properties Affected for the emergency closure of a breach at Neptune Pass, Mississippi River, Plaquemines Parish, Louisiana.

Please notify the Archaeologist or District Tribal Liaison with questions or comments. Their contact information follows: Dr. Paul Hughbanks, (504) 862-1100 or Paul.J.Hughbanks@usace.army.mil; Jason A. Emery, MVN Archaeologist and District Tribal Liaison at (504) 862-2364 or jason.a.emery@usace.army.mil.

Sincerely,
Paul Hughbanks
Archaeologist, Natural/Cultural Resources Analysis RPEDS, New Orleans District

Office: 504-862-1100

This message is intended only for the use of the individual or entity to which it is addressed and may contain information that is privileged, confidential and exempt from disclosure. If you have received this message in error, you are hereby notified that we do not consent to any reading, dissemination, distribution or copying of this message. If you have received this communication in error, please notify the sender immediately and destroy the transmitted information. Please note that any view or opinions presented in this email are solely those of the author and do not necessarily represent those of the Choctaw Nation.

Appendix B

USFWS WVA Report

Neptune Pass Closure

WVA Project Information Sheet

26-August-2022

To assess potential marsh impacts of the proposed U.S. Army Corps of Engineers (USACE) Neptune Pass Closure structure, 3 separate WVA runs are required:

1. Direct construction impacts to marsh
2. Reduced FWP deltaic land-building (marsh)
3. Reduced FWOP pass bank erosion of marsh

It is assumed that the baseline condition (Target Year 0) is 2022 and the structure would be constructed in 2023 (TY1).

Part I – Direct Construction Impacts

Based on a kmz file obtained from the Corps (Figure 1), the proposed closure structure includes 248-foot-long by 37-foot-wide wing walls (0.21 acres each). Some marsh appears to exist between the pass edge and the wing walls. However, that marsh is assumed to be lost due to pass widening such that at TY0 (2022) the edge of the pass would be located at the edge of each rectangular wing wall.

Figure 1. Sept 2021 image with the kmz of the proposed Neptune Pass Closure structure.



V1 – Percent Marsh

The project area for the wing wall impact analysis includes just the marsh footprint, and does not include that portion of the pass between the two wing walls (0.21 ac/wall x 2 walls = 0.42 ac total). Within the upriver wing wall, there was 0.03 acres of shallow open water. The remainder of the footprint area is solid marsh. Using the 2004 to 2021 FWOP pass widening rate of 10.56 ft/yr/bank (at the structure site), each 248-foot-long wing wall footprint will be entirely lost due to pass widening by TY24. Therefore year 24 is used at a target year (TY). Marsh and water acreage are provided in Table 1.

Table 1. FWOP percent marsh and marsh/water acres for the Direct Impact analysis.

	TY 0	TY 1	TY 24	TY 50
Total acres	0.42	0.42	0.42	0.42
FWOP water ac	0.03	0.05	0.42	0.42
FWOP marsh ac	0.39	0.37	0	0
FWOP marsh (%)	93%	89%	0%	0%

Assuming the closure structure is installed in TY1, then under FWP no marsh exists after the structure is constructed. FWP acreage is changed to zero as marsh will no longer exist – and variable values under FWP are not calculated.

V2 – Percent Submerged Aquatic Vegetation

No SAV exist in the interior shallow water. In this analysis, marsh is converted to deep waters of Neptune Pass. No SAVs occur in the pass. Hence V2 would be zero under all TYs and for FWOP.

V3 – Marsh Interspersion

FWOP interspersion values are provided in Table 2.

Table 2. Interspersion values for the Direct Impact analysis.

	TY 0	TY 1	TY 24	TY 50
FWOP V3	Class 1 – 100%	Class 1 – 86% Class 2 -14%	Class 5 – 100%	Class 5 – 100%

V4 – Percent Shallow Open Water

Because the project area consists of the 2 wing wall footprints and does not include the footprint within the pass, all 0.03 acres of water are shallow water areas within the marsh. Erosion/widening of the pass is assumed to convert marsh and shallow open water to deep water. FWOP V4 values are shown in Table 3.

Table 3. FWOP Percent Shallow Open Water (V4) values.

	TY 0	TY 1	TY 24	TY 50
FWOP V4	100%	100%	0%	0%

V5 – Salinity

Given that the open water is adjacent to Neptune Pass, which contains Mississippi River most of the year, it is assumed that the average growing season salinity will be similar to that of CRMS 139 (0.55 ppt), but even fresher given its connection to the river. Consequently, it is assumed the average growing season salinity is 0.50 ppt (optimal) under all TYs.

V6 – Fish Access

There are no obstructions to fish access in project area marshes under FWOP conditions. Under FWP no marsh is present (project area acreage = 0). Therefore no V6 value is needed.

WVA Results – Pass Widening Impacts

Construction of the Neptune Pass Closure structure would directly impact marshes on the banks of Neptune Pass resulting in an estimated initial loss of 0.39 acres, but by TY50 there would no difference in FWOP vs FWP marsh acreage as both would be zero. The direct impacts would be -0.07 AAHUs.

Part II – Deltaic Land Building Impacts

Using September-October 2021 imagery (USDA NAIP), polygons were drawn around the emergent delta splays located in Quarantine Bay and Bay Denesse, and acreages obtained (Figure 1). These splays did not exist in 2004 imagery and hence they are assumed to represent land-building from 2004 to 2021 (17 yr period). Given that land-building likely has been greater in later years when Neptune Pass was larger, this 17-yr average is likely a conservative estimate of current and future land-building. Additionally, the Ducks Unlimited Bay Denesse Delta Management Project (completed in January 2021), constructed two crevasse channels (Figure 2) in areas to be impacted by the proposed Neptune Pass closure. This DU project further increases the likelihood that future land-building would exceed the 17-yr average.

Figure 1. USDA NAIP 2021 image showing delta splays in Bay Dennesse and Quarantine Bay.

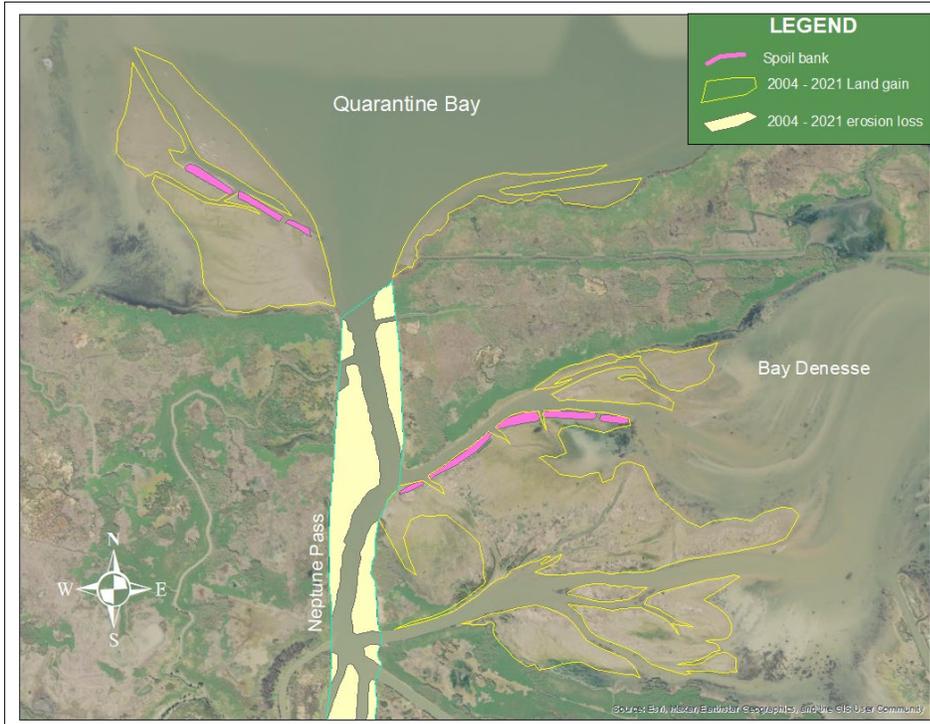


Figure 2. Map showing features of the Ducks Unlimited Bay Dennesse Project.



V1 – Percent Marsh

Using the 2021 image (Figure 1), the average rate of deltaic land building 2004 to 2021 is estimated as follows:

Quarantine Bay	88.03 acres (5.18 acres/year)
Bay Denesse	<u>157.72 acres (9.28 acres/year)</u>
TOTAL =	245.75 acres (14.46 acres/year)

Under FWOP, it is assumed that the land building will continue at the above calculated average rate until the remaining 250 acres of western Bay Denesse are filled (at TY27). After western Bay Denesse is filled, it is assumed sediment previously building land in Bay Denesse will be diverted to Quarantine Bay. But since the open water bay environment is less conducive to land building than the protected waters of Bay Denesse, it is assumed that the Quarantine Bay land building rate will increase by 20% (from 5.18 ac/yr to 6.21 acres/yr).

Under FWP, the closure structure will reduce the cross-sectional area of Neptune Pass (at the structure site) from 9,850 sqft, to 1,200 sqft (data from USACE X-sec plot at structure location, and USACE drawing of proposed closure structure, respectively) reducing the cross sectional area of the pass by 88%. However, it is expected that river water will continue flowing through the structure and around the structure, as water can circumvent the structure from two existing channels which discharge river water into Neptune Pass downstream of the proposed closure structure. Consequently, it is assumed that under FWP, the delta splays built before construction of the Neptune Pass structure will be sustained (no growth and no loss). This assumption may be conservative given that filling of the pass downstream of the closure structure may be required before sufficient sediment can be delivered to the existing splays to sustain them. Using TYs of 0, 1, 27, and 50, the FWOP land acreage is as follows (Table 1). Assuming that associated open water acreage is 15% of the marsh/land acreage (5% deep water and 10% shallow water), the total project area equals 115% of the TY50 land area (project area = 613.21 acres). FWP land/marsh acres would remain zero throughout the entire project life as no additional delta growth would occur.

Table 1. FWOP Marsh/land acres and V1 values.

	TY0	TY1	TY27	TY50
Total acres =	613.21	613.21	613.21	613.21
water acres =	613.21	598.76	222.90	79.98
marsh acres =	0	14.46	390.31	533.228118
V1 (%) =	0	2.4%	63.6%	87.0%

V2 – Percent Submerged Aquatic Vegetation

Imagery shows that submerged aquatic vegetation (SAV) exists but is not abundant. It is assumed that SAV acres equals 10% of the shallow open water acres. FWOP TY50 shallow open water acres were calculated as 10% of the newly formed deltaic land acres such that 53 acres (67%) of shallow water exist at TY50. At TY0, given the proximity of the existing delta splays, it is assumed that 30% of the open water is shallow. Percent of shallow water between TY0 and TY50 were determined by extrapolation (Table 2). It then was assumed that SAV acres equals 10% of the shallow water acres (Table 2). FWOP

percent SAV were calculated by dividing the SAV acres by the water acres. For FWP, the percent SAV would remain at the baseline value (3%) throughout the project life.

Table 2. FWOP SAV acres and % SAV (% SAV rounded to nearest whole number).

	TY 0	TY 1	TY 27	TY 50
FWOP water acres	613.21	598.76	222.90	79.98
FWOP shallow water ac	184	184	111.0	53.3
FWOP V2 acres	18.40	18.40	11.10	5.33
FWOP V2 %	3	3	5	7

V3 – Marsh Interspersion

Under FWOP at TY0, the evaluation area was drawn as all open water. This is a V3 Class 5 = 100%. As marsh acreage increases, the interspersion changes (Table 3). Under FWP, V3 baseline condition is assumed to remain unchanged throughout the project life.

Table 3. FWOP and FWP marsh interspersion values.

	TY 0	TY 1	TY 27	TY 50
FWOP V3	Class5 = 100%	Class5 = 100%	Class 3 – 40% Class – 60%	Class 1 = 84% Class2 = 16%
FWP V3	Class5 = 100%	Class5 = 100%	Class5 = 100%	Class5 = 100%

V4 - Percent Shallow Open Water (SOW)

Methods for calculating FWOP acres of shallow open water (SOW) were discussed above for V2. Percent SOW values are shown in Table 4. Under FWP, it is assumed that SOW will remain at the baseline value.

Table 4. Percent SOW values.

	TY 0	TY 1	TY 27	TY 50
FWOP V4	30	31	50	67
FWP V4	30	30	30	30

V5 - Salinity

The project area is fresh marsh, and thus average growing season salinities are used for V5. CRMS 118 is located upriver of Neptune Pass close to the river (ave. sal = 0.64). CRMS 139 is located downriver of Neptune Pass near the east end of Bay Denesse in an area through which river water is flowing (ave. sal = 0.55 ppt). Given the volume of river water flowing through Neptune Pass and adjoining area, it is assumed that the lower salinity of CRMS 139 is more representative of the Neptune Pass site. As FWOP delta building continues, it is assumed that the river water influence becomes more dominant, and hence it is assumed that average sal drops to 0.50 ppt (TY27 and TY50) which is optimal for fresh marsh. Under FWP, it is assumed that baseline salinity increases 5% at TY27, and 10% at TY50 (Table 5).

Table 5. V5 values.

	TY 0	TY 1	TY 27	TY 50
FWOP V5	0.55	0.55	0.50	0.50
FWP V5	0.55	0.55	0.58	0.61

V6 – Fish Access

There are no obstructions to fish access in project area marshes under FWOP or FWP conditions. Therefore, FWOP and FWP V6 values are 1.0 for all TYs.

WVA Results – Deltaic Land Building Impacts

Construction of the Neptune Pass Closure structure would indirectly impact deltaic land building resulting in an estimated loss of 533 acres by TY50 (-153.97 AAHUs).

Part III – Neptune Pass widening/erosion WVA

Between 2004 and 2021, Neptune Pass has widened substantially (Figure 1). The widening of Neptune Pass is assumed to continue at the 2004 to 2021 rate (see Appendix A for some justification for using longer term average rate vs recent 2019 to 2021 rate). It is assumed that construction of the proposed closure structure would stop the FWOP pass widening and associated marsh loss. Under FWP, it is assumed that the pass would begin infilling. Because of the deep water within the pass, it is assumed that no marsh will form within the pass during the 50-year project life, but that no additional shoreline marsh loss will occur. TYs of 0, 1, 25, and 50 are used.

Figure 1. Map illustrating marsh lost to pass widening from 2004 to 2021.



V1 – Percent Marsh

The 2004 to 2021 marsh loss associated with pass widening was calculated as 6.05 acres/year. At that rate, over the 51 years till the end of the project life, 308.70 acres of marsh would be lost. In 2021, 160.23 acres of pass water existed. The 2004-2021 pass widening rate at the structure is 10.6ft/yr or roughly 530' over 50 yrs. Using a 530' buffer, it was determined that the future pass widening zone also includes 16.31 ac of water in addition to the marsh. Therefore, the 2021 water acreage is calculated as $160.23 + 16.31 = 176.54$ ac. Project area acreages and percent marsh are shown in Table 1. For FWP conditions, the TY0 condition is assumed to remain constant throughout the project life.

Table 1. Marsh and water acreages associated with the Pass widening analysis.

Year	2021	2022	2023	2047	2072
TY	-1	0	1	25	50
Total Ac =	485.24	485.24	485.24	485.24	485.24
Water Ac =	176.54	182.59	188.65	333.92	485.24
Marsh Ac =	308.70	302.65	296.59	151.32	0
% marsh	64%	62%	61%	31%	0%

V2 – Percent Submerged Aquatic Vegetation (SAV)

In this analysis, no SAVs are assumed to occur in the pass or other portions of the project area (based on imagery). Hence V2 would be zero under all TYs and for both FWOP and FWP.

V3 – Marsh Interspersion

FWOP and FWP interspersion values are provided in Table 2.

Table 2. Interspersion values for the Pass widening analysis.

	TY 0	TY 1	TY 25	TY 50
FWOP V3	Class 2 – 55% Class 3 – 45%	Class 2 – 54% Class 3 – 46%	Class 3 – 25% Class 4 – 75%	Class 5 – 100%
FWP V3	Class 2 – 55% Class 3 – 45%	Class 2 – 54% Class 3 – 46%	Class 2 – 54% Class 3 – 46%	Class 2 – 54% Class 3 – 46%

V4 – Percent Shallow Open Water (SOW)

Using 2021 imagery, 6.63 acres within the future pass widening zone water area of 16.31 ac, was interior marsh SOW ponds (4% of the total water area). See Table 3. Assuming that those SOW acres erode into deep water of Neptune Pass at a constant rate, then the average loss of SOW is 6.63ac/51 years = 0.13 ac/yr. This rate enables the calculation of post 2021 SOW percentages (Table 3).

Table 3. FWOP Percent shallow open water.

Year	2021	2022	2023	2047	2072
TY	-1	0	1	25	50
Water Ac =	176.54	182.59	188.65	333.92	485.24
SOW ac =	6.63	6.50	6.37	3.25	0.00
% SOW =	4%	4%	3%	1%	0%

Under FWP, it is assumed that the baseline conditions remains unchanged throughout the project life.

V5 – Salinity

Given that the open water consists of Neptune Pass, which contains Mississippi River water most of the year, it is assumed that the average growing season salinity will be similar to that of CRMS 139 (0.55 ppt), but even fresher given its connection to the river. Consequently, it is assumed the average growing season salinity is 0.50 ppt (optimal) under all TYs for both FWOP and FWP.

V6 – Fish Access

Under FWOP, V6 is unimpeded and = 1.0. Under FWP, the proposed Neptune Pass Closure structure is a barge bay type structure with a V6 structure rating of 0.6 (structure type C on V6 calculator worksheet). Water within the pass upstream of the structure is 40% of pass water area. Two small bayous circumvent the proposed structure and enter the pass on the east bank upstream of the structure to provide unobstructed access to a portion of the pass upstream of the structure. Those bayous provide 7% of the width provided by Neptune Pass at the proposed structure location. Therefore, it is assumed that upstream of the structure, $40\% \times 7\% = 3\%$ of the entire project area is influenced by those bayous under FWP (structure rating = 1.0). The remaining 37% of the area upstream of the structure would be influenced solely by the structure (structure rate = 0.6). The 60% of the pass below the structure would have unimpeded fish access. A weighted average of these percent areas and their respective structure ratings yields a FWP rating of 0.85 which remains constants throughout the FWP period.

WVA Results – Pass Widening Impacts

Construction of the Neptune Pass Closure structure would prevent the widening and associated loss of 290 acres of marsh by TY50 resulting in a positive net benefit of 105.95 AAHUs.

Summary of Neptune Pass Closure Marsh Impacts

When direct construction impacts, deltaic land-building impacts, and pass widening impacts are summed, a total net impact of -48.09 AAHUs is expected (Table S-1).

Table S-1. Summary of Neptune Pass Closure marsh impacts.

	Net TY50 acres	AAHUs
Direct Construction Impacts	0	-0.07
Indirect Delta Land-Building Impacts	-533.31	-153.97
Indirect Pass Widening Impacts	289.91	105.95
Total	-243.40	-48.09

Appendix A – Engineer’s Email regarding pass widening rate

From: Robinson, Bradley W CIV USARMY CEMVN (USA) <Bradley.Robinson@usace.army.mil> **Sent:** Tuesday, August 23, 2022 4:30 PM **To:** Brown, Michael T CIV USARMY CEMVN (USA) <Michael.T.Brown@usace.army.mil>; Crawford, Mathew J CIV USARMYCEMVN (USA) <Mathew.J.Crawford@usace.army.mil> **Cc:** Stevens, Tyler A CIV USARMY CEMVN (USA) <Tyler.Stevens@usace.army.mil>; Lahare, Mark H CIV USARMY CEMVN (USA) <Mark.H.Lahare@usace.army.mil> **Subject:** RE: [Non-DoD Source] Re: [EXTERNAL] FW: Neptune

Pass - will it continue to widen?

Mike,

There was previously foreshore dike stone almost the entire length of the pass opening on the MS River bank. There used to be a gap that was less than 100 feet wide leading into the now expanded pass. The widening (of the pass inlet at the river) is being slowed by stone and the underwater articulated concrete mattress revetment. **It is not expected to grow as it has over the previous few years.** There is no protection for the erodible soils inside of the pass. The erosion inside the pass will continue until the flow through the pass is reduced. If the flow through the pass inlet remains constant, the pass widening will continue but might not continue quite as quickly as it has over the past few years since the velocities would reduce as the cross sectional area of the pass increases.

-Brad Robinson, P.E.
504-862-1194
USACE New Orleans
Channel Improvement

Appendix C

Mitigation Monitoring Plan

MITIGATION MONITORING PLAN

MISSISSIPPI RIVER, BATON ROUGE TO THE GULF OF MEXICO, LOUISIANA

NEPTUNE PASS ROCK CLOSURE

PLAQUEMINES PARISH, LOUISIANA



**U.S. Army Corps of Engineers
Mississippi Valley Division
Regional Planning and Environment Division South
New Orleans District**

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1. INTRODUCTION

The U.S. Army Corps of Engineers (USACE), Mississippi River Valley Division, Regional Planning and Environment Division South, has prepared this mitigation monitoring plan for the assessment of mitigation efforts associated with constructing a flow control feature in Neptune Pass located on the left descending bank of the Mississippi River in Plaquemines Parish, Louisiana, approximately 11 miles northwest of Venice, Louisiana.

1.1 Proposed Action

The construction of the flow control feature would require installation of a stone closure structure within Neptune Pass via placement of stones from a barge positioned within the Pass. The structure would be built to an elevation of +5 feet North American Vertical Datum 1988 (NAVD88) with a 6-foot crown width and a 1 vertical on 2 horizontal slope perpendicular to the center line. A 100-foot notch constructed at an elevation of -10 feet NAVD88 in the center of the structure would allow sediment, water, aquatic species, and small vessels to pass through the structure. A 2-foot bank paving at the inlet and outlet and 2-foot channel paving at the structure outlet would be constructed as scour protection. Stone key-in of the closure structure would require excavations and extend approximately 150 feet from the top of bank. Approximately 141,000 tons of stone would be placed in an area approximately 4.8 acres in size for construction of the closure structure and bank protection within the Pass. Installation of the key-in segment of the flow control feature would require excavation of approximately 1,500 cubic yards of material and placement of 1,750 tons of stone in approximately 0.4 acres of wetland areas adjacent to the Pass. The approximately 1,500 cubic yards of excavated material from these wetlands would be used to restore and nourish marsh adjacent to the western key-in feature of the project as mitigation for permanent, direct wetland impacts associated with this aspect of the project.

1.2 Authority for the Proposed Action

The Rivers and Harbors Acts of 1946 and 1962, the Supplemental Appropriations Act of 1985, and the Water Resources Development Act of 1986 (Public Law 99-662) provide for the construction of a 55-foot-deep channel in the Mississippi River from the Gulf of Mexico to Baton Rouge, Louisiana, a distance of 257 miles. Dredging of a 45-foot channel from the Gulf of Mexico to New Orleans was completed in December 1987; the 45-foot channel from New Orleans to Mile 181 was completed in December 1988; the 45-foot channel from Mile 181 to Mile 232.4 was completed in December 1994. At present, a 40-foot channel is maintained from Mile 240 to Mile 232.4, and a 45-foot channel is maintained from Mile 232.4 to the Gulf of Mexico.

1.3 Purpose and Need for the Proposed Action

The purpose of the Neptune Pass Rock Closure is to eliminate a navigational hazard in the Mississippi River. Constructing a flow control feature within Neptune Pass will decrease riverbank scour and erosion within the pass and control water flow being diverted from the Mississippi River. Flow measurements indicate approximately 16% of the Mississippi River flow at this location is being diverted through Neptune Pass. The current, uncontrolled diversion is resulting in significant shoaling and the immediate need for dredging to maintain authorized navigational depths. In the absence of the proposed action, continued scouring within Neptune Pass will occur, resulting in an increase of flow being diverted from the Mississippi River and subsequent, increased shoaling. Additionally, an increase in dredging operations within the Mississippi River would be required to compensate for the diversion effects if the proposed action is not completed. Without the proposed construction of the flow control feature, conditions will continue to deteriorate resulting in an increased threat to navigation. The lower Mississippi River is a primary access point for

commercial shipping to ports of call along the river. There is a national interest in providing progressive channel stabilization to prevent any alteration of the river flow that could potentially pose a navigation threat for large vessels transiting these sections of the river.

1.4 Prior NEPA Documents

The environmental impacts associated with maintaining channels, outlets and specified dimensions of the Mississippi River from Baton Rouge, Louisiana to deep water in the Gulf of Mexico were addressed in the EIS, "Mississippi River, Baton Rouge to the Gulf of Mexico, Louisiana". A Statement of Findings (SOF) for this EIS was signed on February 15, 1974. The project commences at the Port of Baton Rouge, 128.6 miles above the Port of New Orleans, and continues through the Port of New Orleans to about 94.5 miles below the Port of New Orleans to the Head of Passes. Below the Head of Passes, two channels, Southwest Pass and South Pass, connect to the Gulf of Mexico. A SOF for Supplement I to the 1974 EIS was signed on March 8, 1976. Supplement I addressed unintentional omissions in the original EIS and unanticipated changes in dredging requirements. Supplement II to the 1974 EIS "Mississippi River, Baton Rouge to the Gulf of Mexico, Louisiana" addressed the addition of recommended features to the existing project to reduce the amount of maintenance dredging required to maintain navigation within the project area. A SOF was signed for Supplement II on May 15, 1985.

1.5 Affected Environment

The proposed project area is located in Plaquemines Parish in southeastern Louisiana. Parish lands occupy part of the active delta of the Mississippi River, in a dynamic area dependent upon the disbursement and settlement of river sediments to maintain land elevations above water. The Mississippi River splits into three main channels within the delta region: Pass a Loutre, South Pass, and Southwest Pass. Land elevations range from sea level along the Gulf coast, to approximately +10-feet above sea level along the natural levee ridges. It is a sparsely populated region characterized by river channels with attendant channel banks, natural bayous, and man-made canals interspersed with intermediate and fresh marshes. Water levels fluctuate within the river, passes, estuarine bays, and marshes according to river flow from upstream, tide, and wind influences.

1.5.1 Wetlands

Wetlands in the vicinity of the project area are classified as tidal, fresh to intermediate, emergent marsh. These wetlands are strongly influenced by freshwater discharges from the Mississippi River and associated tributary outlets. Mean annual salinity, acquired from environmental data collection stations of the Coastal Protection and Restoration Authority's (CPRA) Coastwide Reference Monitoring System (CRMS), within wetlands adjacent to the project range from 0.65 ppt at CRMS0118 and 0.56 ppt at CRMS0139 (CPRA 2022).

Common reed (*Phragmites australis*), also known as Roseau cane, occurs in expansive monotypic clumps (monoculture) in shallow water areas near the project site and has displaced a variety of freshwater vascular plant species that have historically occupied the area. This could have been caused by periodic storms generating extremely high saltwater tides, killing off a majority of the sensitive freshwater vegetation (Hauber et al. 1991). Other common species found in the vicinity of the project include alligator weed (*Alternanthera philoxeroides*), cattail (*Typha* spp.), bulltongue (*Sagittaria lancifolia*), broadleaf arrowhead (*Sagittaria latifolia*), dotted smartweed (*Polygonum punctatum*), softstem bulrush (*Schoenoplectus tabernaemontani*), chairmaker's bulrush (*Schoenoplectus americanus*), giant cutgrass (*Zizaniopsis miliacea*) and elephant ear (*Colocasia esculenta*).

1.6 Mitigation

Direct impacts associated with the construction of the stone key-in feature of the flow control structure within the wetlands adjacent to Neptune Pass would result in approximately 0.4 acres of permanent wetland loss. The approximately 2,000 cubic yards of excavated material from these wetlands would be used to restore and nourish marsh adjacent to the western key-in feature of the project as mitigation for permanent, direct wetland impacts associated with this aspect of the project. Additional mitigation associated with indirect effects of project actions will be evaluated. Recommendations from the USFWS include additional marsh restoration or the construction of one or more crevasses facilitating connectivity between the Mississippi River and adjacent marsh. Coordination is currently ongoing to determine mitigation strategies and potential locations for mitigation. Coordination and creation of a mitigation plan will be finalized prior to signing of the FONSI.

2. MITIGATION MONITORING PLAN

The purpose of this document is to establish guidelines for the monitoring and assessment of wetland mitigation efforts associated with the Neptune Pass Rock Closure project. The primary intent of the environmental mitigation is to compensate for the 0.4 acres of wetland losses associated with the construction of portions of the flow control feature within Neptune Pass. The objective of the mitigation action is to increase the total spatial extent of the wetlands within the vicinity of the project site. Spatial extent of the restored wetland will be determined through pedestrian surveys and/or aerial photography. Monitoring shall be conducted to ascertain whether: 1) the mitigation is functioning in accordance with its objectives; 2) adjustments for unforeseen circumstances are needed; and 3) changes to structures or their operation, or management techniques are required.

2.1 Mitigation Success Criteria

2.1.1 General Construction

All initial mitigation construction activities must be completed in accordance with the mitigation work plan and final project plans and specifications.

2.1.2 Topography

1. Initial Success Criteria

- a. One year after completion of fill placement, at least 80% of each mitigation feature must have the desired target surface elevation

2. Intermediate Success Criteria

- a. Two years after completion of fill placement, at least 80% of each mitigation feature must have the desired target surface elevation

2.1.3 Native Vegetation

1. Initial Success Criteria (two growing seasons following completion of initial construction activities)

- a. The site must achieve a minimum average cover of at least 50% native herbaceous species
- b. Demonstrate the vegetation satisfies USACE hydrophytic vegetation criteria

2. Intermediate Success Criteria (two years following attainment of Native Vegetation Initial

Success Criteria)

- a. The site must achieve a minimum average cover of at least 60% native herbaceous species
- b. Demonstrate the vegetation satisfies the USACE hydrophytic vegetation criteria

2.1.4 Invasive and Nuisance Vegetation

The project area must be maintained such that the total average vegetative cover accounted for by the invasive and nuisance species constitute less than 5% of the total average plant cover throughout the overall monitoring period.

2.3 Monitoring Guidelines

2.3.1 Monitoring Report Requirements

A monitoring report will be prepared upon completion of each monitoring event. The following information will be provided:

1. Photographs documenting conditions in the project area will be taken at the time of the monitoring event.
2. A plan view drawing of the mitigation site showing the approximate boundaries of the restored marsh.
3. Quantitative data collected during each monitoring event will include:
 - a. Average percent cover of native plant species
 - b. Average percent cover of invasive and nuisance plant species
 - c. Composition of plant species and the wetland indicator status of each species
 - d. Estimation of percent of mitigation area currently at desired surface elevation
4. Various qualitative observations will be made in the mitigation site to help assess the status and success of mitigation and maintenance activities. These observations will include:
 - a. General condition of the mitigation sites and project area
 - b. General condition of native vegetation
 - c. Wildlife utilization of the mitigation areas and adjacent project areas during monitoring (including fish species and other aquatic organisms)
 - d. Potential problem zones and other factors deemed pertinent to the success of the project
5. A summary assessment of all data and observations along with recommendations as to actions necessary to help meet mitigation success criteria.

2.4 Monitoring Schedule and Responsibilities

Reports will be prepared following each scheduled site visit. Monitoring will likely take place in mid to late summer but may be delayed until later in the growing season due to site conditions or other unforeseen circumstances. USACE will be responsible for conducting the monitoring events and preparing the associated monitoring reports until such time that the mitigation success criteria are achieved. Failure to attain the stated success criteria would initiate the need for additional monitoring events and/or additional mitigation actions not addressed in the preceding paragraphs. The USACE would be responsible for conducting these additional actions. The following lists instances requiring additional monitoring that would be the responsibility of the USACE:

1. If the vegetative cover criterion is not achieved, a monitoring report will be required for each consecutive year until two sequential annual reports indicate that the applicable vegetative cover criteria have been satisfied. Since failure to meet the success criterion may require planting the subject marsh, the USACE would also be responsible for the purchase and installation of the required plants.
2. If the topographic success criterion is not achieved, a monitoring report will be required for each consecutive year until two sequential annual reports indicate the applicable criteria have been satisfied. Since failure to meet topographic success criteria may require corrective actions such as addition of fill, removal of fill, or other actions to change grades within the subject marsh feature, the USACE would also be responsible for performing the necessary corrective actions.

3. REFERENCES

Coastal Protection and Restoration Authority (CPRA) of Louisiana. 2022. Coastwide Reference Monitoring System – Wetlands Monitoring Data. Retrieved from Coastal Information Management System (CIMS) database. <http://cims.coastal.louisiana.gov>. Accessed June 2022.

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