DEPARTMENT OF THE ARMY
NEW ORLEANS DISTRICT, CORPS OF ENGINEERS
7400 LEAKE AVENUE
NEW ORLEANS, LOUISIANA 70118

REPLY TO ATTENTION OF

September 1, 2023

Regional Planning and Environment
Division South

Project Name: Supplemental Environmental Impact Statement for the St. Tammany Parish Feasibility Study

Mr. David Bernhart
NMFS - Protected Resources Division
Southeast Regional Office
263 13th Avenue South
St. Petersburg, Florida 33701

Dear Mr. Bernhart,

This Biological Assessment (BA) evaluates the potential impacts associated with proposed flood risk reduction project and associated mitigation project in St. Tammany Parish, Louisiana. This BA provides the information required pursuant to the Endangered Species Act (ESA) and implementing regulation (50 CFR 402.13), to comply with the ESA. Additional legal authorities include the National Environmental Policy Act (NEPA) of 1969, 42 U.S.C. section 4321, et seq.; the Fish and Wildlife Conservation Act of 1958 (PL 85-624; 16 U.S.C. 661 et seq.); the Marine Mammal Protection Act of 1972; and the Migratory Bird Treaty Act of 1918.

The proposed project consists of construction of a levee and floodwall system, channelization of a section of Mile Branch, and creation of marsh to offset construction impacts. The levee and floodwall system would be constructed in southeast St. Tammany Parish near Slidell, Louisiana. The Mile Branch channel improvement project is located in St. Tammany Parish, Louisiana within the City of Covington. The marsh creation site (M2) is located along the northeast shore of Lake Pontchartrain near Big Branch Marsh National Wildlife Refuge.

Construction of the proposed M2 site may impact species protected under National Marine Fisheries (NMFS) jurisdiction including the giant manta ray, Gulf sturgeon and Gulf sturgeon critical habitat, and three species of sea turtles including the green, Kemp's ridley, and loggerhead. An analysis of these impacts is discussed below. Additional impacts to sea turtles, gulf sturgeon and other ESA-listed species from construction of the levee and floodwall system, and channelization of Mile Branch are addressed in a separate consultation with the U.S. Fish and Wildlife Service (USFWS).

CEMVN has determined that the proposed project “may affect but is not likely to adversely affect” (NLAA) the federally listed giant manta ray, Gulf sturgeon and Gulf sturgeon critical habitat,

and the three species of sea turtles including the green, Kemp's ridley, and loggerhead. These species could potentially be found in the project area, which also contains its critical habitat; therefore, CEMVN is submitting a request for consultation and requesting concurrence with our determinations pursuant to Section 7 of the ESA of 1973, as amended (16 U.S.C. § 1536), and the consultation procedures at 50 C.F.R. Part 402.

This ESA letter is being submitted to the NMFS by the CEMVN to initiate informal consultation regarding potential impacts to threatened and endangered species from construction projects related to the St. Tammany Parish Feasibility Study SEIS.

Pursuant to our request for informal consultation, CEMVN is providing, enclosing, or otherwise identifying the following information:

- A description of the action to be considered;
- A description of the action area;
- A description of any listed species or designated critical habitat (DCH) that may be affected by the action; and
- An analysis of the potential routes of effect on any listed species or DCH.

Questions and/or concerns should be directed to Ms. Kristin Gunning; U.S. Army Corps of Engineers; Regional Planning and Environment Division, South; CEMVN PDS-C; Room 139; 7400 Leake Avenue, New Orleans, Louisiana 70118. Ms. Gunning may also be contacted by email at kristin.t.gunning@usace.army.mil or by phone 504-862-1514.

Proposed Action

Description of Proposed Action

Construction Elements

The proposed action consists of the construction of a levee and floodwall system along an alignment in South and West Slidell, Louisiana, channelization of a portion of the Mile Branch in Covington, Louisiana, and the creation of new habitat mitigation areas (M2) to offset losses within the project's construction footprint areas. Only construction of the M2 site and associated actions will impact ESA-listed species within NMFS jurisdiction. See Appendix for details of the project features.

Channel improvements would occur on the lower 2.15 miles (11,341 ft channel) of Mile Branch in Covington, Louisiana (Figure 1). The proposed work would consist of approximately 20 acres of channel that would be cleared and grubbed prior to mechanical dredging. The Mile Branch channel improvements would start at the intersection of Mile Branch and Highway 190, crossing Highway 190 Business, and end at the intersection of Mile Branch and the Tchefuncte River. Assumptions for channel improvements included a 65-ft from the centerline of each side of the channel for ROW as a general guideline (total width of 130 ft).

The improvements would include clearing and grubbing and mechanical dredging of the channel. The channel would be widened as well as deepened. The channel bottom would be lowered by 5 ft. All work would be performed from the bank. The trees located close to the bank would be removed. The banks would be stabilized and seeded and fertilized to have a grass cover. Work would be done by excavators or small skid steers. Material removed may include sediment, trees, debris, or other obstructions within the waterway. Up to 130,000 cubic yards of material would be removed by truck or sidecast along the bank. Sidecast material would

temporarily increase water turbidity and decrease water quality, and naturally revegetate or move through the water channel to be deposited downstream. Removed material would be trucked off-site and disposed at a facility licensed to handle the material. Table 1 lists the Mile Branch attributes of the TSP for the 50-year period of analysis.

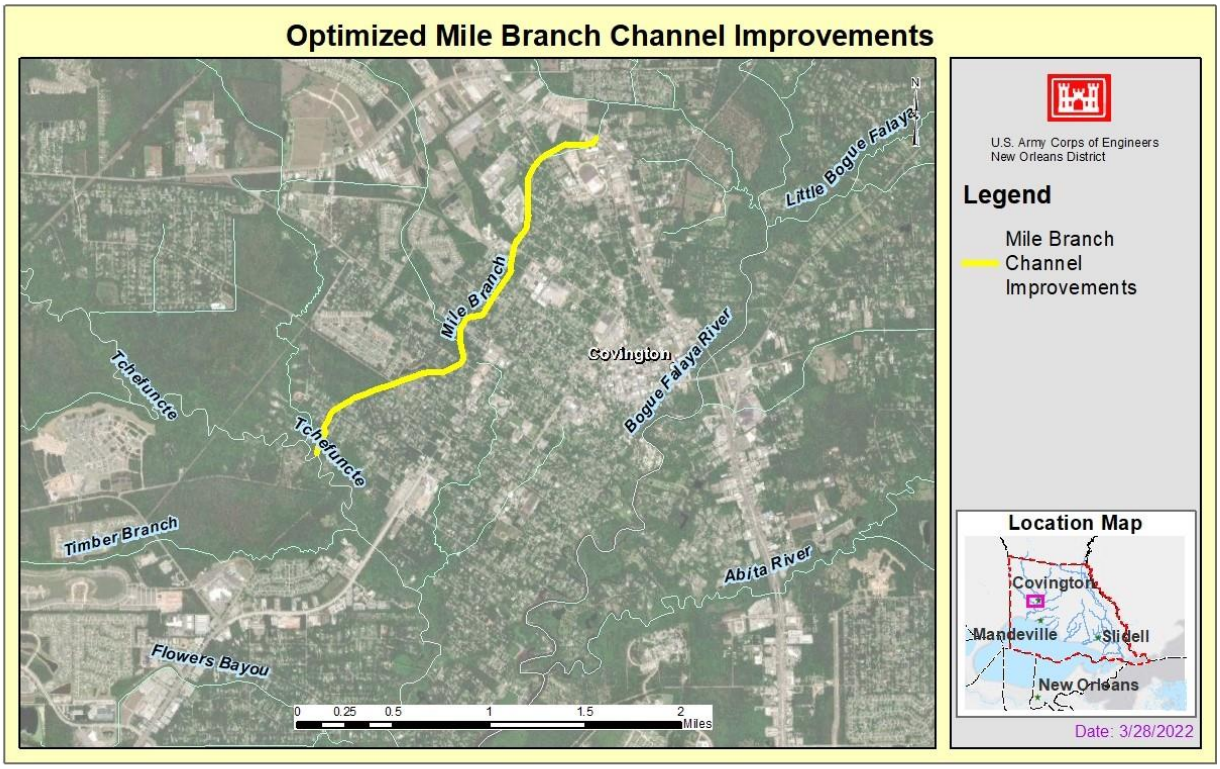

Figure 1. Mile Branch Channel Improvements

Table 1. Summary Table of TSP for Mile Branch

Attribute	Mile Branch Channel Improvements
Total Length of improvements	2.15 miles (11,341 feet)
Material to be Mechanically Dredged	130,000 cubic yards
Access Roads for both clearing and for bridge replacement?	0 acres
Number of staging areas for clearing and grubbing and mechanical dredging and for culvert/bridge replacement	19 (7 for culvert/bridge replacements, 11 for clear and grubbing and mechanical dredging and one that becomes a backwater area)
Number of Bridge Replacements of Culverts	7
Temporary ROW	7.3 acres (2.2 acres for culvert/bridge replacements and 5.1 acres for

	clear and grubbing and mechanical dredging)
Permanent ROW	38.5 acres (34 acres for clear and grubbing and mechanical dredging and 4.5 acres for one staging area that becomes a backwater area)

The levee and floodwall system would consist of a total of approximately 18.4 miles (96,950 feet) of earthen levee and floodwall which includes approximately 15 miles (79,100 feet) of levees constructed in separate (non-continuous) segments, and 3.4 miles (17,850 feet) of separate (non-continuous) segments of a floodwall (Figure 2). Construction of the levee alignment would impact approximately 520.7 acres of permanent ROW and it would require approximately 7,069,000 cubic yards of fill, including fill material required for future levee lifts (estimates include a 30 percent contingency). Table 2 provides a summary of the attributes of the South and West Slidell Levee and Floodwall System.

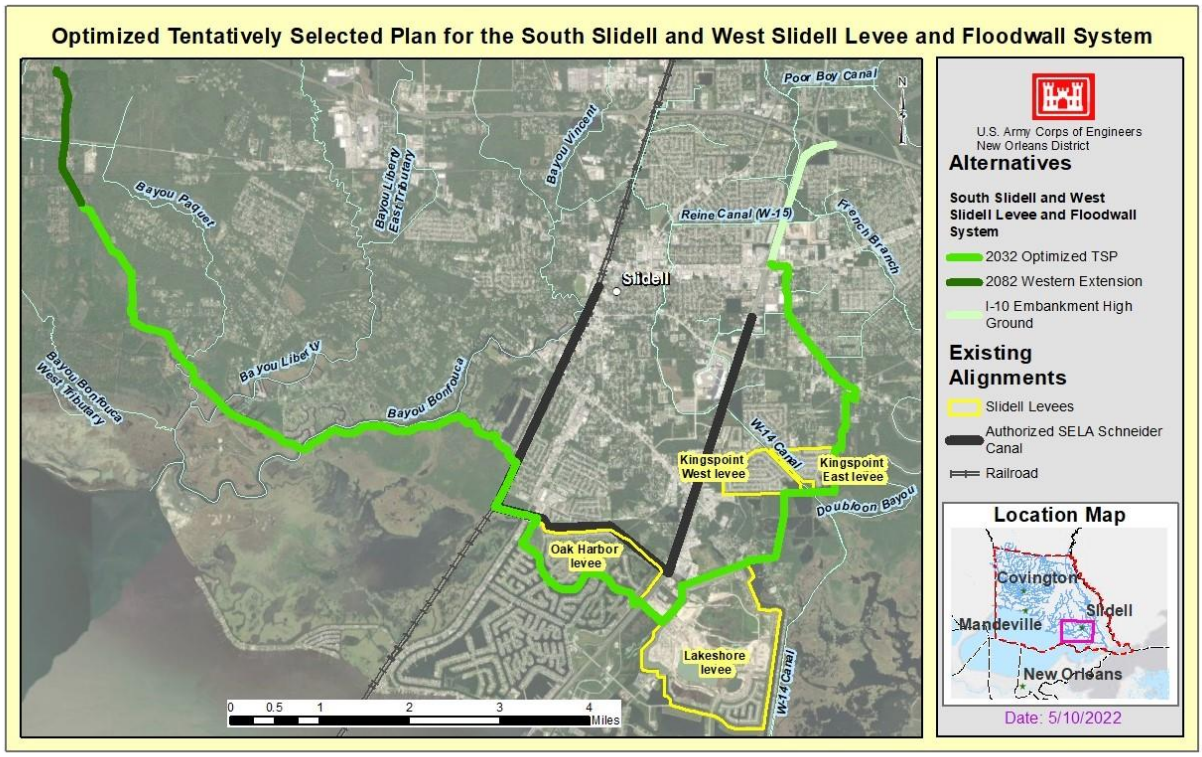

Figure 2. South and West Slidell Levee and Floodwall alignment in St. Tammany Parish, Louisiana

Table 2. Summary Table of South Slidell and West Slidell Levee and Floodwall System

Attribute	South Slidell and West Slidell Levee and Floodwall System
Total Length of alignment	18.4 miles (96,950 feet)
Length of Floodwall	3.4 miles (17,850 feet)
Length of earthen Levee	15 miles (79,100 feet)
Temporary Acres of Construction for Levee and Floodwall system	109 acres
Permanent Acres for Levee and Floodwall system	521 acres
Hydraulic Design Elevation Range (Dependent on location)	13.5 to 16 (year 2032) 17.5 to 20 (year 2082)
Pump Stations	8
Sluice Gates/Lift Gates	13
Number of Vehicular Floodgates	16
Number of Pedestrian Floodgates	1
Number of Railroad Gates	1
Number of Road Ramps	11
Fill (Borrow Material) Required	7,069,000 cubic yards

Proposed mitigation for marsh consists of 200 acres of marsh creation on the north shore of Lake Pontchartrain, east of the Causeway Bridge near Lacombe (30.277561, -89.964761; Figure 3). The assumed existing elevation is -1.65' NAVD88. Initial target elevation for dredge fill would be to approximate elevation +2.5 NAVD88, to ultimately hit a target marsh elevation of +1.0 NAVD88. At this 35% design level, total perimeter retention would be required to retain dredge material and allow for vertical accretion. Approximately 14,718 linear ft of new retention dike would be required along the limit of the project footprint. The dike would be built with borrow from within the footprint. The dike would be built with a 5 ft crown width to elevation +4.8' NAVD88, to provide one ft of freeboard during pumping operation and allow for settlement. This dike would be degraded in year 1, upon settlement and dewatering of the created marsh platform. The degraded material can be disposed of in the original borrow canal if settlement allows or cast into the open water immediately outside of the project footprint. Spill boxes or weirs would be constructed at pre-determined locations within the retention dike to allow for effluent water release from within the marsh creation area. If deemed necessary by the construction contractor, low level interior weir or baffle dikes can be constructed to assist in vertical stacking of dredged material.

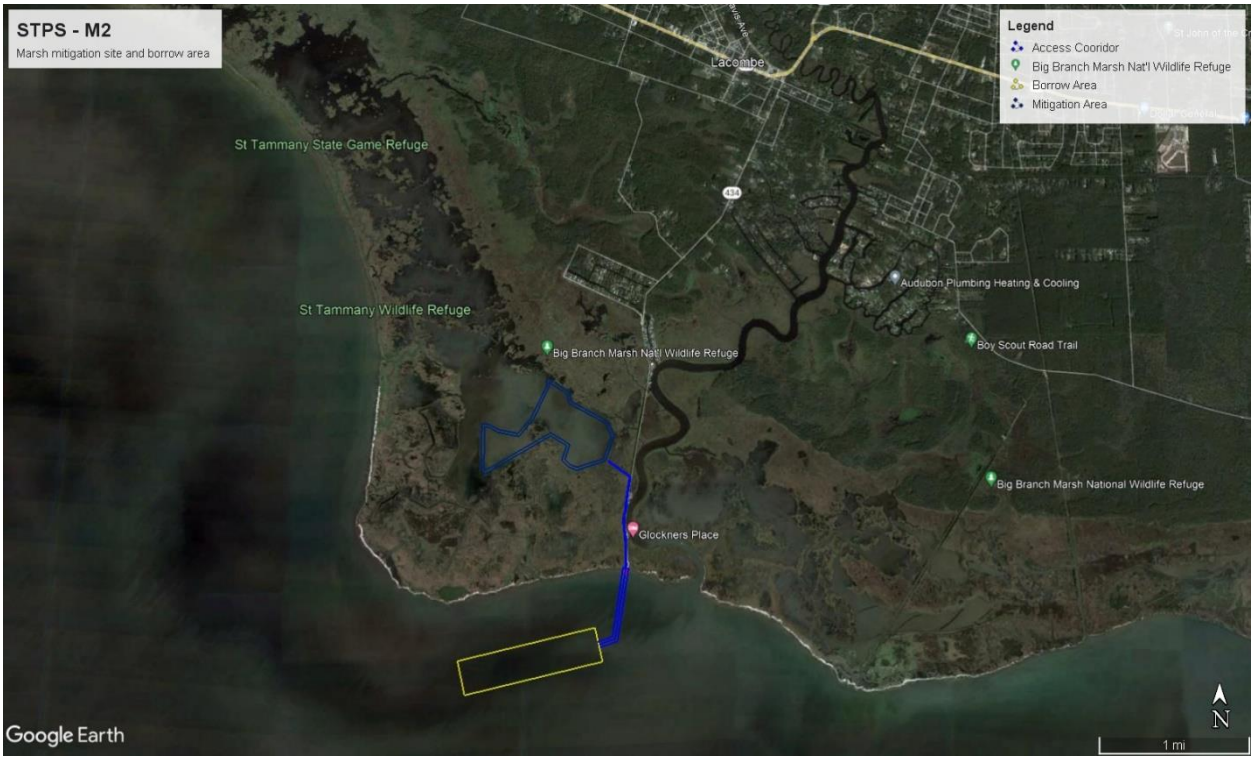

Figure 3. Marsh mitigation site and borrow area.

Borrow Excavation Component

Marsh creation would require borrow of approximately 2,200,000 cubic yards of material. A borrow site of 134 acres would accommodate this requirement. The borrow plan is to obtain material from Lake Pontchartrain, requiring a buffer of 2000 ft between the existing shoreline and the borrow area limit (30.252642, -89.967658). Borrow would not be allowed greater than 10 ft below the existing lake bottom, except that a tolerance of 1-ft below this target elevation would be provided the contractor to account for inaccuracies in the dredging process. To assure adequate borrow, the fill quantity was doubled account for unsuitable materials, unknown utilities, unidentified anomalies, and/or unsighted cultural finds. An access corridor of approximately 7,340 linear feet would be allowed from the lake to the proposed marsh creation site. The access corridor can be used to establish a pipeline corridor, offload equipment as necessary, and transport personnel to and from the worksite. The contractor would be instructed to minimize usage and damage within the access corridor, by using existing waterways for daily transportation of supplies and personnel where possible.

Construction Access and Staging Components

Site access to Mile Branch would be via public roads and public rights of way. Staging areas are assumed to be dry. Any trees would be removed and hauled away to an approved facility. If necessary, crushed stone would be placed in the staging area prior to construction. After construction, the crushed stone would be removed and the disturbed areas would be fertilized and seeded. For the culvert and bridge replacement work, all staging areas were assumed to be

located within the individual structure construction areas. Staging areas are to be tree and vegetation free and covered with crushed stone.

Levee and floodwall construction sites would be accessed via existing public roads to the maximum extent as possible. In locations where access cannot be achieved via existing roadways, a new road would be constructed. Construction of new roads would require permanent ROW. New access roads would be a 40-ft wide footprint (consisting of a 25 ft right-of-way for the access road itself and a 7.5-ft width for VFZ on both sides of the road. Access roads would be constructed using crushed stone for the road surface.

For the construction of the levee on the refuge land (from Bayou Bonfouca to the railroad tracks), the ingress and egress would be at the Norfolk Southern railroad tracks on the east side of Bayou Bonfouca and existing roads on the west side. A one-way flow of traffic would be maintained. The USACE would need to obtain permission from the railroad owner (Norfolk Southern Railway Corp.) prior to construction. An access road would be constructed on the protected side of the ROW between the proposed crown of the levee and Bayou Bonfouca. The access road would be a temporary road. Once construction is complete, the area would be cleared of vegetation within the right of way and graded to drain away from the levee. Access during future inspections would be done by driving on the crown of the levee.

There would be one 2-acre staging area on the reach on the refuge land that would be considered a temporary easement. The staging area would be located off the refuge and would be used to process the material prior to building the levee. Staging areas would be required to be continuously accessible. Any trees would be removed and hauled away to an approved facility. The area would be restored to pre-construction elevation that existed prior to impacting the site due to construction activities.

Table 3 provides a summary of the necessary staging areas and permanent ROW required for construction of the levee and floodwall segments for the 50-yr period of analysis. The staging areas required during initial construction of the levee alignment would be the same staging areas required for construction of future levee lifts. Staging areas are assumed to be dry. Any trees would be removed and hauled away to an approved facility. If necessary, crushed stone would be placed in the staging area prior to construction. After construction, the crushed stone would be removed and the disturbed areas would be fertilized and seeded.

Table 3. Summary of Staging Areas and Permanent ROW

SUMMARY of STAGING AREAS AND PERMANENT ROW		
Levees	**Staging Areas (Acres)**	**Permanent ROW (Acres)**
Western High Ground Tie In	2	30
West Slidell	8	270
South Slidell (includes 23 acres for I-10)	29	120
Sub-Total for Levees	**39**	**420**
Floodwall Segments		
Western High Ground Tie In	NA	NA
West Slidell	0	3.7
South Slidell	0	22.7
Sub-Total for Floodwall Segments	**0 ***	**26.4**
Floodgates and Pump Stations		

Western High Ground Tie In	1.5	2.5
West Slidell	11	21
South Slidell	3.75	6.25
Sub-Total for Floodgates and Pump Stations	**16.25**	**29.75**
Vehicular, Pedestrian, and Railroad Gates		
Western High Ground Tie In	1.5	1.25
West Slidell	1.25	0
South Slidell	9	0
Sub-Total for Vehicular, Pedestrian, and Railroad Gates	**11.75**	**1.25**
Road Ramps		
Western High Ground Tie In	0.5	0
West Slidell	0	0
South Slidell	5	0
Sub-Total for Road Ramps	**5.5**	**0**
Access Roads - New		
Western High Ground Tie In	0.1	0.1
West Slidell	0.45	0.45
South Slidell	2.75	2.75
Access Roads - Existing		
Western High Ground Tie In	0	0
West Slidell	15.8	0
South Slidell	9.9	0
Sub-Total for Access Roads	**29**	**3.3**
Mile Branch Channel Improvements	7.3	38.5
Sub-Total for Mile Branch Channel Improvements	**7.3**	**38.5**
Total Acres for 50-year Period of Analysis	**109**	**520**

*for floodwall segments, staging areas would be included in the 80 ft wide permanent ROW.

Operation and Maintenance Elements

During the operation and maintenance (O&M) phase of the project, prior to transfer of monitoring responsibilities to the non-Federal sponsor (NFS), the site would be monitored and surveyed to ensure the marsh creation area has met the initial success criteria. At a minimum, these actions would include periodic eradication of invasive/nuisance plants in the mitigation feature and mitigation monitoring and reporting. Approximately one year after the construction of the marsh platform is complete, once dewatering and settlement of the marsh platform has occurred, the retention dikes would be degraded to the target marsh elevation. The degraded material can be disposed of in the original borrow canal if settlement allows or cast into the open water immediately outside of the project footprint. The marsh feature is not expected to require planting, since it is assumed that native marsh plants would colonize the marsh naturally. If marsh species do not colonize the site on their own, marsh plant species would be planted.

Description of Project Purpose

The proposed action consists of the construction of a levee and floodwall system along an alignment in South and West Slidell, Louisiana, channelization of a portion of the Mile Branch in Covington, Louisiana (Figure 1), and the creation of 200-acres of new marsh habitat to mitigate losses within the project's construction footprint areas.

Conservation Measures and BMPs

To reduce impacts to giant manta rays, sea turtles, and Gulf sturgeon critical habitat, a cutterhead dredge would be utilized to remove borrow material from the designated borrow area. This equipment is slower moving and has not been identified as equipment that would impact protected species. CEMVN would also adhere to the Protected Species Construction Conditions[1].

Description of the Action Area

Pursuant to 50 C.F.R. § 402.02, the term *action area* is defined as "all areas to be affected directly or indirectly by the federal action and not merely the immediate area involved in the action." Accordingly, the action area typically includes the affected jurisdictional waters and other areas affected by the authorized work or structures within a reasonable distance. The ESA regulations recognize that, in some circumstances, the action area may extend beyond the limits of the Corps' regulatory jurisdiction.

For the purposes of this consultation, CEMVN has defined the action area to include the following:

Mile Branch

This measure consists of channel improvements on the lower 2.15 miles (11,341 ft channel) of Mile Branch in Covington, Louisiana. The proposed work would consist of approximately 20 acres of channel that would be cleared and grubbed prior to mechanical dredging (Figure 1). The Mile Branch channel improvements would start at the intersection of Mile Branch and Highway 190, crossing Highway 190 Business, and end at the intersection of Mile Branch and the Tchefuncte River.

Levee and Floodwall System

The levee and floodwall system would consist of construction of approximately 18.4 miles of earthen levee and floodwall in St. Tammany Parish, Louisiana. Construction of the levee alignment would impact approximately 520.7 acres of permanent ROW and it would require approximately 7,069,000 cubic yards of fill, including fill material required for future levee lifts. Figure 2 provide illustrations of the proposed levee and floodwall alignment.

PSR-01 Mitigation Site

Impacts to Big Branch Marsh National Wildlife Refuge would be mitigated by managing approximately 70 acres of pine savanna habitat (PSR-01) within the refuge via controlled burns.

M2 Mitigation Site

Proposed mitigation for marsh consists of 200 acres of marsh creation on the north shore of Lake Pontchartrain, east of the Causeway Bridge near Lacombe. Borrow would be obtained from a 134-acre site within Lake Pontchartrain. Figure 3 provides an illustration of the M2 mitigation site.

[1]NMFS. 2021. Protected Species Construction Conditions. U.S. Department of Commerce, National Oceanic and Atmospheric Administration, National Marine Fisheries Service, Southeast Regional Office, Saint Petersburg, FL.

Physical and Biological Attributes of the Action Area

The Louisiana Department of Wildlife and Fisheries, Wildlife Diversity Program, identified 22 habitat types occurring within St. Tammany Parish. Of the 22 vegetative habitat types identified, 15 are classified as wetlands, of which all are in a state of decline. Habitat to be impacted within the Action Area that may impact Gulf sturgeon and Gulf sturgeon critical habitat include freshwater marsh, intermediate marsh, and open water.

Freshwater marsh is found surrounding bodies of open water and is located along the shoreline of Lake Pontchartrain. It forms in accreting, sediment rich, high-energy environments typical for this region and is dominated by rush and reed plant species like cattails and arrowhead. These marshes can form detached mats of vegetation, known as flotant, which encourage colonization by other plant species. Fresh marshes provide nursery habitat for estuarine-dependent species important to recreational and commercial fisheries such as blue crab, white shrimp, Gulf menhaden, Atlantic croaker, red drum, southern flounder, bay anchovy, striped mullet, and others. Fresh marshes also provide habitat for largemouth bass, warmouth, black crappie, blue catfish, bowfin, and gar.

Intermediate marsh is a unique type of wetland marsh found in the Action Area whose vegetative community reflects the shifts in salinity associated with proximity to marine environments. This type of marsh is the middle part of the gradient found in vegetative communities shifting from fresh to saline waters, and the marsh species that are found in this type like saltmeadow grass are capable of withstanding spikes of salinity that are associated with tropical storm surge events. It is commonly a narrow band of vegetation when compared with other marsh types due to the large differences between freshwater and brackish salinities. Wildlife found within an intermediate marsh is less diverse than found in freshwater marshes, but more individuals may be present.

Open water habitats within Lake Pontchartrain are characterized by sandy bottoms and relatively shallow depths extending to 15 feet (NOAA Chart 11639). Desktop review of National Oceanic and Atmospheric Administration Bathymetric Data of Lake Pontchartrain (ESD-PHB-21, W00561) indicate water depth between approximately 3 ft to 11 ft in the vicinity of the M2 borrow site.

Potentially Affected NMFS ESA-Listed Species and Critical Habitat

Within St. Tammany Parish there are ten documented animals and one plant species under the jurisdiction of the ESA. Of the listed animal and plant species occurring in St. Tammany Parish, the giant manta ray, Gulf sturgeon, and the three species of sea turtles including the green, Kemp's ridley, and loggerhead could potentially be found in the proposed borrow area in Lake Pontchartrain. Additionally, although Gulf sturgeon could be found in the M2 mitigation site, CEMVN believes their presence would be highly unlikely due to the very shallow water in this area. Gulf sturgeon are typically found in deeper water where they are able to maneuver and forage effectively. Giant manta rays are also unlikely to be within the M2 site due to their rare appearance in Lake Pontchartrain as a whole.

Table 4: DCH in the action area

Species	DCH in the Action Area	DCH Rule/Date	USACE Effect Determination (DCH)
Gulf sturgeon	Unit 8. Lake Pontchartrain, Lake St. Catherine, The Rigolets, Little Lake, Lake Borgne, and Mississippi Sound in Jefferson, Orleans, St. Tammany, and St. Bernard Parish, Louisiana, Hancock, Jackson, and Harrison Counties in Mississippi, and in Mobile County, Alabama	68 FR 13369/ March 19, 2003	Not likely to adversely affect

Giant Manta Ray

The giant manta ray is federally listed as threatened throughout its range. It is the world's largest ray growing up to 5,300lbs with a wingspan of 30 feet. They are filter feeders and eat large quantities of zooplankton and sometimes small fish. Giant manta rays are slow-growing, migratory animals with small, highly fragmented populations that are sparsely distributed across the world in tropical, subtropical, and temperate bodies of water. They are commonly found offshore, in oceanic waters, and in productive coastal areas. The species has also been observed in estuarine waters, oceanic inlets, and within bays and intercoastal waterways. As such, giant manta rays can be found in cool water, as low as 19°C, although temperature preference appears to vary by region.

Green, Kemp's ridley, and Loggerhead Sea Turtles

The three species of threatened or endangered sea turtles that could potentially occur in Lake Pontchartrain have a similar appearance, though they differ in maximum size and coloration. The Kemp's ridley is the smallest sea turtle – adults average about 100 pounds with a carapace length of 24 to 28 inches and a shell color that varies from gray in young individuals to olive green in adults. The loggerhead sea turtle is the next largest of these three species – adults average about 250 pounds with a carapace length of 36 inches and a reddish-brown shell color. The green sea turtle is the largest of these three species – adults average 300 to 350 pounds with a length of more than 3 ft and a brown coloration (its name comes from its greenish colored fat). There has been no documented nesting activity along Lake Pontchartrain therefore it is unlikely the nesting activities of these three species would be impacted as all three species nest on sandy beaches, which are minimal in Lake Pontchartrain. The life stages that may occur in Lake Pontchartrain range from older juveniles to adults.

Gulf Sturgeon

The Gulf sturgeon was federally listed as threatened throughout its range on September 30, 1991. The Gulf sturgeon is an anadromous fish that migrates from salt water into coastal rivers to spawn and spend the warm summer months. Subadults and adults typically spend the three to four coolest months of the year in estuaries or Gulf of Mexico waters foraging before migrating into the rivers. This migration typically occurs from mid-February through April. Most adults arrive in the rivers when temperatures reach 70 degrees Fahrenheit and spend 8 to 9 months each year in the rivers before returning to estuaries or the Gulf of Mexico by the beginning of October.

Prior to the listing of the species, Davis et al. (1970) reported the collection of Gulf sturgeon from Lake Pontchartrain during a Louisiana Department of Wildlife and Fisheries (LDWF) anadromous fish survey from 1966 to 1969. From 1988 to 1999, LDWF, through various means and studies, captured and recorded at least 60 Gulf sturgeon throughout Lake Pontchartrain, Lake Catherine, the Rigolets and Lake Borgne. A LDWF trammel net study conducted by Inland Fisheries Division

in the spring of 2001 resulted in the capture of three young of the year juvenile sturgeon at the intersection of the East Pearl River and Little Lake. In 2002, LDWF Seafood Division reported the capture of a Gulf sturgeon in one of their gill nets while sampling in a cove west of Alligator Point, Lake Borgne. By-catch of Gulf sturgeon has been reported by several recreational and commercial fishermen within these waters. A total of 177 Gulf sturgeon, measuring up to 7.2 feet in length and weighing from 2 to 152 lbs, were captured in these lakes and in the Rigolets from October 1991 to September 1992 (Rogillio, 1993). Reynolds (1993) reported that sturgeon measuring up to 7.2 feet in length and weighing up to 258 lbs were incidentally caught by shrimp trawlers, netters, and recreational anglers from 1889 to 1993 in Lake Pontchartrain.

Gulf Sturgeon Critical Habitat

Critical habitat identifies specific areas that have been designated as essential to the conservation of a listed species. The project area is located within the boundary of critical habitat Unit 8. In 2003, Unit 8 was designated as critical habitat for Gulf sturgeon. Unit 8 encompasses Lake Pontchartrain east of the Lake Pontchartrain Causeway, all of Little Lake, the Rigolets, Lake St. Catherine, Lake Borgne, including Heron Bay, and the Mississippi Sound in Jefferson, Orleans, St. Tammany, and St. Bernard Parish, Louisiana, Hancock, Jackson, and Harrison Counties in Mississippi, and in Mobile County, Alabama.

Unit 8 includes approximately 1377 square miles of critical habitat with 277 square miles in Lake Borgne, 3 in Little Lake, 295 in Lake Pontchartrain, 10 in Lake St. Catherine, 5 in the Rigolets, 725 in Mississippi Sound, and 62 along the Mississippi near shore Gulf (68 FR 13369-13495). Critical habitat follows the shorelines around the perimeters of each included lake. The Mississippi Sound includes adjacent open bays, including Pascagoula Bay, Point aux Chenes Bay, Grand Bay, Sandy Bay, and barrier island passes, including Ship Island Pass, Dog Keys Pass, Horn Island Pass, and Petit Bois Pass. Critical habitat excludes St. Louis Bay, north of the railroad bridge across its mouth; Biloxi Bay, north of the U.S. Highway 90 bridge; and Back Bay of Biloxi.

Critical habitat for the Gulf sturgeon has been designated within the project area, specifically the borrow area in Lake Pontchartrain (Figure 3) which is part of Unit 8 so the species may be present. USGS surveys of Lake Pontchartrain found that the majority of Lake Pontchartrain bottoms near the center of the lake were defined as having sandy composition which is prime habitat for sturgeon. As part of the design for this project those borrow locations closer to the Lake Pontchartrain center were avoided to minimize impacts to Gulf Sturgeon foraging habitat. The borrow site is approximately 2000 ft from the shoreline and likely receives fine sediment from wave induced shoreline erosion. However, the proposed borrow site is within the designated critical habitat but given that prime habitat is available nearby, any Gulf Sturgeon that may be present would likely congregate in the ample nearby prime habitat, especially during construction.

Route(s) of Effect to Giant Manta Ray:

Rays may be physically injured if struck by construction equipment, vessels, or materials during dredging and other in-water construction activities within Lake Pontchartrain. This effect is discountable due to the highly mobile nature of the species, which would likely move away from the project site if disturbed.

The construction activities and related construction noise may prevent or deter rays from foraging habitat within the M2 project area. However, the effect to rays from temporary avoidance of the project area would likely be insignificant. The size of the area from which animals would avoid is relatively small in comparison to the available similar habitat nearby,

which would be accessible to rays during construction. Disturbances and loss of habitat access would be temporary and limited to days of in-water construction. After the project is completed, rays would be able to return to the project area within Lake Pontchartrain and adjacent impacted tributaries.

Indirect impacts to giant manta rays could occur due to turbidity from construction of the M2 site (dredging and marsh creation) which would be minimized by utilizing dikes to contain the dredged material. In addition, any runoff from construction activities on land would be controlled through the use of best management practices and adherence to regulations governing stormwater runoff at construction sites and staging areas. No permanent indirect impact to rays are expected to occur from construction of the propose project.

Route(s) of Effect to Green, Kemp's ridley, and Loggerhead Sea Turtles offspring:
Effects to sea turtles include the risk of direct physical impact from dredging and other in-water construction activities. We believe the risk of physical injury is discountable due to the species' ability to move away from the project site and into adjacent suitable habitat, if disturbed. NMFS has previously determined in dredging Biological Opinions that, while oceangoing hopper-type dredges may lethally entrain protected species, including sea turtles, non-hopper-type dredging methods, such as the cutterhead dredge proposed in this project, are slower and extremely unlikely to overtake or adversely affect them (NMFS 2007). Additionally, the applicant's implementation of NMFS's Protected Species Construction Conditions will require all construction workers to observe in-water related activities for the presence of listed sea turtles. If a sea turtle is seen within 100 yards of the active daily construction/dredging operation or vessel movement, all appropriate precautions shall be implemented to ensure its protection. These precautions shall include cessation of operation of any moving equipment closer than 50 feet of a sea turtle. Operation of any mechanical construction equipment shall cease immediately if a sea turtle is seen within a 50-foot radius of the equipment. Activities may not resume until the species has departed the project area of its own volition.

Sea turtles may be entangled by in-water lines and other in-water equipment. However, we believe the effects to sea turtles from entanglement will be discountable because the following measures are included as part of the proposed action. All in-water lines and other in-water equipment must be properly secured with materials that reduce the risk of entanglement of marine species. Project materials must be designed to reduce the risk of entanglement of marine species. In-water lines (rope, chain, and cable) must be stiff, taut, and non-looping. Examples of such lines are heavy metal chains or heavy cables that do not readily loop and tangle. Flexible in-water lines, such as nylon rope or any lines that could loop or tangle, must be enclosed in a plastic or rubber sleeve/tube to add rigidity and prevent the line from looping and tangling. In all instances, no excess line is allowed in the water. In-water lines and other in-water equipment must be placed in a manner that does not entrap species within the project area or block access for them to navigate around the project area.

Sea turtles might be adversely affected by their inability to access the project area for foraging, refuge, and/or nursery habitat, due to their avoidance of construction activities, related noise, and physical exclusion from the project area due to blockage by turbidity curtains (if turbidity curtains are utilized). We have determined that these effects will be insignificant. The site does not contain any structure that could be used by sea turtles for shelter. Sea turtles may forage in the area but the size of the area from which animals will be excluded is relatively small in comparison to the available similar habitat nearby. In addition, any disturbances to listed

species would be temporary, limited to days of in-water construction, after which the site conditions are expected to return to background levels and animals will be able to return.

Sea turtles may be affected by the permanent removal of habitat, which can serve as forage resources. However, this effect will be insignificant, given the availability of similar resources nearby.

Route(s) of Effect to Gulf Sturgeon:
Gulf sturgeon may be physically injured if struck by construction equipment, vessels, or materials during dredging of the M2 borrow site within Lake Pontchartrain. This effect is discountable due to the ability of the species to move away from the project site if disturbed. Gulf sturgeon are mobile and are able to avoid construction noise, moving equipment, and placement or removal of materials during construction. NMFS has previously determined in dredging Biological Opinions (e.g., (NMFS 2007)) that, while ocean-going hopper-type dredges may lethally entrain sturgeon, non-hopper type dredging methods, such as the cutterhead dredging method used in this project, are slower and extremely unlikely to adversely affect Gulf sturgeon.

The construction activities and related construction noise may prevent or deter Gulf sturgeon from entering the project area, specifically M2. However, the effect to sturgeon from temporary avoidance of the project area due to construction activities, including related noise, would likely be insignificant. The size of the area from which animals would avoid is relatively small in comparison to the available similar habitat nearby, which would be accessible to sturgeon during construction. Disturbances and loss of habitat access would be temporary and limited to days of in-water construction. After the project is completed, Gulf sturgeon would be able to return to the project area within Lake Pontchartrain and adjacent impacted tributaries.

Indirect impacts to Gulf Sturgeon could occur due to turbidity from construction of the M2 site (dredging and marsh creation) which would be minimized by utilizing dikes to contain the dredged material. In addition, any runoff from construction activities on land would be controlled through the use of best management practices and adherence to regulations governing stormwater runoff at construction sites and staging areas. No permanent indirect impact to gulf sturgeon are expected to occur from construction of the propose project.

Hypoxic and anoxic conditions can occur in deep borrow pits that have a tendency to accumulate organic material. This accumulation would be reduced for the M2 borrow pit within Lake Pontchartrain by limiting the depth of the pit to 10 feet. Therefore, effects to Gulf sturgeon from hypoxic or anoxic conditions are discountable.

We believe the effect to Gulf sturgeon from the potential loss of foraging habitat due to dredging within Lake Pontchartrain would be insignificant. Gulf sturgeon are opportunistic feeders that forage over large areas and would be able to locate prey beyond the small dredging footprint (approximately 134 acres). Also, impacts to foraging resources from dredging are temporary since benthic invertebrate populations in dredged areas have been observed to recover in 3-24 months after dredging (Culter and Mahadevan 1982; Saloman et al. 1982; Wilber et al. 2007).

Route(s) of Effect to Gulf Sturgeon Critical Habitat
The project is located in critical habitat unit 8. The essential features/primary constituent elements (PCEs) are present in Unit 8 and are those habitat components that support feeding, resting, sheltering, migration, and physical features necessary for maintaining the natural processes that

support those habitat components. The following are the primary constituent elements for Gulf sturgeon critical habitat that are present and CEMVN's response on how the proposed action for the M2 borrow site in critical habitat would affect these elements. Only three of the four PCEs are likely to be affected. The CEMVN has determined the proposed action is "Not Likely to Adversely Affect" Gulf sturgeon critical habitat based on these responses for the three PCEs.

(1) Abundant prey items, such as amphipods, lancelets, polychaetes, gastropods, ghost shrimp, isopods, molluscs and/or crustaceans, within estuarine and marine habitats and substrates for subadult and adult life stages.

Adult and subadult Gulf sturgeon feed on amphipods, lancelets, polychaetes, gastropods, molluscs and/or crustaceans within estuarine and marine habitats. Dredging may remove substrates containing sturgeon prey items. However, overall impacts to sturgeon prey are expected to be insignificant since the estimated impact area is relatively small compared to the surrounding area available (approximately 134 acres). Effects to sturgeon prey are also expected to be temporary and short-term in nature, consisting of a temporary loss of benthic invertebrate populations in the dredged areas. Observed rates of benthic community recovery after dredging range from 3-24 months (Culter and Mahadevan 1982; Saloman et al. 1982; Wilber et al. 2007). The relatively species-poor benthic assemblages associated with low salinity estuarine sediments can recover in periods of time ranging from a few months to approximately one year, while the more diverse communities of high salinity estuarine sediments may require a year or longer.

(2) Water quality including temperature, salinity, pH, hardness, turbidity, oxygen content, and other chemical characteristics, necessary for normal behavior, growth, and viability of all life stages.

Localized and temporary reductions in water quality through increased turbidity may result from dredging. Effects to water quality from localized and temporary increased turbidity are expected to be insignificant because the Action Area is also in a high wave/current area where construction-induced turbidity is not expected to remain and where turbidity curtains are not practical to use. Effects to temperature, salinity, pH, hardness, oxygen content, and other chemical characteristics of water quality are also not expected to result from dredging activities.

(3) Sediment quality including texture and other chemical characteristics necessary for normal behavior, growth, and viability of all life stages.

Effects to sediment quality from dredging would be insignificant. During prior consultations (BAs for SER-2010-4236 and SER-2014-14728, hereby incorporated by reference), surveys were conducted by USGS and NOAA that used remote imagery to determine bottom substrates within Lake Pontchartrain. The majority of Lake Pontchartrain bottoms were defined as having sandy composition and thus prime habitat for sturgeon.

The borrow site is approximately 2000 ft from the shoreline and likely receives fine sediment from wave induced shoreline erosion. The sandier composition areas, which are located further into the lake center, would be avoided and thus minimizing impacts to sturgeon foraging. Given that prime habitat is available nearby, any Gulf Sturgeon

that may be present would likely congregate in the ample nearby prime habitat, especially during construction. No permanent alteration of habitat composition is expected to occur within the action area.

Based on currently available historical and catch data; a review of current literature and studies; and with the employment of avoidance measures recommended through guidelines set up during coordination with NMFS; the CEMVN has determined that the proposed action is “Not Likely to Adversely Affect” the Gulf sturgeon species or Gulf sturgeon critical habitat.

Conclusion

CEMVN has reviewed the proposed project for its impacts to federally listed species and their DCH. Based on currently available historical and catch data; a review of current literature and studies; and with the employment of avoidance measures recommended through guidelines set up during coordination with NMFS; including protected species construction conditions; CEMVN has concluded the project may affect but is not likely to adversely affect the giant manta ray, green, Kemp’s ridley, and loggerhead sea turtles, Gulf sturgeon and DCH listed in Table 4. This analysis was prepared based on the best scientific and commercial data available.

CEMVN is requesting NMFS’s written concurrence with these determinations. CEMVN appreciates your cooperation in completing this informal section 7 consultation by concurring with CEMVN’s effect determination(s) a timely manner. If NMFS disagrees with the CEMVN effect determination(s) and requests formal Section 7 consultation, please contact Ms. Kristin Gunning (kristin.t.gunning@usace.army.mil) to discuss suggested modifications to the action to avoid potential adverse effects and NMFS’ additional information needs. CEMVN would continue to coordinate with NMFS office via email to provide the requested information and, if warranted, a revised effects determination.

Sincerely,

WILLIAMS.ERIC.MITCHELL.1065454323

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Date: 2023.09.03 08:47:23 -05'00'

Eric M. Williams
Chief, Environmental Studies Branch

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