Project Information
Project Name: Mid-Barataria Sediment Diversion
Sector: Water Resources
Type: Non-Federal Green Infrastructure (reconnection and re-establishment of the natural or deltaic sediment deposition process between the Mississippi River and the Barataria Basin as a long-term resilient, sustainable strategy to reduce land loss rates and sustain Deepwater Horizon (DWH) injured wetlands through the delivery of sediment, freshwater, and nutrients)
Location: Plaquemines Parish, Louisiana

Project Sponsor
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Statement of the Purposes and Objectives of the Project
Freshwater diversions have been recommended as tools for wetland restoration in Louisiana in 20 different plans dating back to 1927, and sediment diversions have been recommended in 17 plans dating back to 1973 (Gagliano et al. 1973). These previously proposed diversions had discharge capacities ranging from 5,000 to 150,000 cubic feet per second.

A Mississippi River sediment diversion project in the vicinity of Myrtle Grove, Louisiana was initially identified as part of the Coastal Wetlands Planning, Protection and Restoration Act (CWPPRA) funded Mississippi River Sediment, Nutrient and Freshwater Redistribution Study (MRSNFR) in 2000; a Notice of Intent to Prepare an Environmental Impact Statement (EIS) was published in the Federal Register in 1995 to solicit public input on use of the Mississippi River for creation, restoration, protection, and enhancement of coastal wetlands in Louisiana. Subsequent studies ensued relevant to the sediment diversion alternatives analysis including location, diversion flow, and ancillary features such as various combinations of marsh creation and sediment introduction. In 2001, the CWPPRA Task Force approved study of the Delta Building Diversion at Myrtle Grove (BA-33) with the National Marine Fisheries Service (NMFS) as the federal sponsor; a Notice of Intent to Prepare an Environmental Impact Statement (EIS) was published in the Federal Register in 2002 and the public scoping resulted in a range of diversion operation for further analysis. Concurrently, a Medium Diversion at Myrtle Grove with Dedicated Dredging project was evaluated by the U.S. Army Corps of Engineers (USACE) New Orleans District under the Louisiana Coastal Area (LCA) program as a long-term restoration opportunity to bring significant reversal of the wetland loss trend in the Barataria Basin and the project was recommended as a critical near-term restoration project in the Final Programmatic EIS, dated 2005; the subsequent Chief's Report recommended conditional authorization for construction of the project and inclusion in the LCA Restoration Plan. The Water Resources Development Act (WRDA) of 2007 authorized USACE to carry out the Medium Diversion at Myrtle Grove in accordance with the 2005 LCA Restoration Plan. As a result, the CWPPRA project was de-authorized in 2008 and transferred to USACE for implementation. Also in 2007, the State of Louisiana included the CWPPRA Mississippi River Diversion at Myrtle Grove with Dedicated Dredging in the Comprehensive Master Plan for a Sustainable Coast (Master Plan). The Master Plan was updated in 2012 and the Mid-Barataria Sediment Diversion was identified as a project in the First Implementation Period (2012-2031); the Master Plan was developed through a rigorous technical effort with extensive public outreach and collaboration with local, state, and national

stakeholders and currently serves as the foundation of the State of Louisiana's coastal program. In 2016, the DWH oil spill Programmatic Damage Assessment and Restoration Plan and Programmatic Environmental Impact Statement (PDARP/PEIS) established Mississippi River Diversions as an approved restoration alternative to restore resources, including wetlands, injured by the DWH oil spill.

The Barataria Basin is suffering from significant land-loss—approximately 75,000 acres (30% of its land area) between 1975 and 2010, with projected loss by 2060 ranging from 105,000 to 150,000 acres or approximately 3,000 acres per year. The causes of wetland loss in Barataria Basin are both natural and human-induced, with principal drivers such as sea level rise, subsidence, modification of freshwater/sediment delivery to wetlands, and saltwater intrusion (Boesch et al., 1994). Navigation and flood protection levees that were constructed along the Mississippi River have reduced fluvial interaction and material transport (freshwater, sediment, and nutrients) to the basin wetlands, which continue to deteriorate as tidal influence is exacerbated by oil and gas canals and the loss of barrier island systems (USACE and the State of Louisiana, 2004). While the man-induced and natural causes of wetland loss are difficult to separate, Barataria Basin has been severed from river-born subsidies of freshwater, sediment, and nutrients that historically created and sustained the deltaic wetlands.

Further contributing to land loss, on April 20, 2010, the DWH mobile drilling unit exploded, caught fire, and sank in the Gulf of Mexico approximately 50 miles off the Louisiana coast, resulting in a massive release of oil and other substances into the northern Gulf of Mexico. Oil spread from the deep ocean to the surface and nearshore environment. In Louisiana, oil spread into the Barataria Basin, injuring wetland habitats and multiple species of wildlife. The Mid-Barataria Sediment Diversion will help recover wetlands injured or lost due to the DWH oil spill by reducing future losses of existing wetlands, creating new wetlands, and providing potential benefits that are intended to complement the benefits of other wetland restoration approaches in the Basin. The sediment diversion will also help maintain Louisiana's coastal landscape and its ability to overcome other environmental stressors by: stabilizing wetland substrates; reducing coastal wetland loss rates; increasing habitat for freshwater and estuarine fishes, birds, and invertebrates; and reducing storm risk, thus providing protection to nearby infrastructure.

CPRA submitted a permit application to USACE on July 13, 2013 to construct the Mid-Barataria Sediment Diversion. An updated permit application was submitted to USACE on June 22, 2016.

The ultimate goal of the Mid-Barataria Sediment Diversion is to divert sediment from the Mississippi River into the Barataria Basin for identifiable benefits. Based on recent geomorphology and wetland habitat models, it is anticipated that the proposed 75,000 cubic foot per second sediment diversion will create and sustain wetland habitat by introducing approximately 150 million tons of new sediment into the Barataria Basin over a 50 year project (compared to a future without the project scenario), and the benefits are anticipated to extend beyond this time. The Project will also create and sustain a gradient of estuarine habitats that would otherwise be lost in the future without the Project. Through new habitat creation and the restoration of an estuarine gradient, resident and estuarine-dependent species productivity will be sustained in a manner not achievable through mechanical wetland creation approaches alone.

A key strategy for wetland restoration is implementing a sediment diversion operation that will maximize sediment delivery to existing wetlands and create new wetlands in areas where they historically occurred, recreating the connection of River and Basin. During the early phase of sediment

diversion operation, it is anticipated that existing natural wetlands and recently created wetlands near the diversion outfall will benefit from the subsidy of mineral sediments.

The creation of estuarine habitats by the Project is the primary short- and long-term benefit. Given the direct oiling impacts to wetlands in Barataria Basin from the DWH oil spill, the Project will overall create new wetlands that offset the deterioration of wetlands due to oil impacts.

General Location
River Mile 60.7 on the right descending bank of the Mississippi River;
Latitude 29° 39' 42.5" Longitude -89° 57' 48.6"
Township 16S Range 25E Sections 5, 16, 47, 48, 49
Township 16S Range 24E Sections 3, 2, 1, 41, 19

Locations of environmental, cultural, or historic resources
USACE Regulatory has completed a Jurisdictional Determination of the sediment diversion channel footprint between the Mississippi River and the Barataria Basin and confirmed the locations of wetlands and other waters of the U.S. regulated under Section 404 of the Clean Water Act; the outfall area is primarily open water with fragmented marsh. The sediment diversion intake will be located in the Mississippi River, outside of the navigation fairway.

USACE's Engineer Research Development Center (ERDC) Environmental Laboratory conducted a pallid sturgeon census in the Mississippi River between 2005 and 2011. The stretch of the Mississippi River studied was between River Mile 0 and River Mile 320. The goal of the census was to determine the probability of pallid sturgeon entrainment in existing diversion structures. No pallid sturgeon were documented below River Mile 95.5. ERDC's conclusion was pallid sturgeon entrainment risk below New Orleans is low and unlikely below River Mile 50 (ERDC-EL 2013).

The west bank of the Mississippi River and the Barataria Basin has a long history of human occupation. The Barataria Basin is within the ancestral homeland of the Chitimacha Tribe of Louisiana and the post-European contact homeland of several Native American Tribes—the Alabama-Coushatta Tribe of Texas, the Coushatta Tribe of Louisiana, the Choctaw Nation of Oklahoma, the Mississippi Band of Choctaw Indians, the Jena Band of Choctaw Indians, the Seminole Nation of Oklahoma, the Seminole Tribe of Florida, and the Tunica-Biloxi Tribe. Following European colonization in the 18th century, plantations were established along the west bank of the Mississippi River. The sediment diversion traverses land formerly within the boundaries of St. Rosalie Plantation, a sugar plantation with big house, slave quarters, and associated outbuildings that was owned and operated from 1828 to 1850 by Andrew Durnford, a Free Man of Color; following the Civil War and into the twentieth century, the former plantation was occupied by tenant farmers. Ironton Plantation, immediately south of St. Rosalie Plantation, was also established in the 19th century; the community of Ironton was founded by freed slaves who purchased the former plantation land after the Civil War, during Reconstruction, and the community remains populated by descendants of the community's founders. Numerous archaeological sites, prehistoric and historic, are located in the Barataria Basin and many have been identified through surveys conducted for federal actions in compliance with Section 106 of the National Historic Preservation Act.

Barataria Basin, a combination of open water and fragmented marsh, provides life cycle habitat for Essential Fish Habitat (EFH) species as well as bottlenose dolphins that feed on such species and other fishes. This productive estuary provides for commercial and recreational fishing. Endangered Species

Act (ESA) protected sea turtles may feed within the Basin. Migratory Bird Treaty Act species feed and nest within areas of the Basin.

Technical and Financial Ability to Construct the Project

The State of Louisiana will receive approximately $5 billion in NRDA funds and anticipates using an estimated $1.3 billion of these funds to construct the Mid-Barataria Sediment Diversion. Use of these restoration funds is contingent upon a project-specific restoration plan prepared by the Louisiana NRDA Trustee Implementation Group[1]. The restoration plan must be consistent with the PDARP/PEIS and compliant with the Oil Pollution Act (OPA), OPA/NRDA Regulations, and the National Environmental Policy Act (NEPA).

CPRA has activated a fully integrated Program Management Team that consists of in-house expertise and consultant assistance. This team is responsible for managing scope, schedule, and budget of all environmental, engineering, and construction aspects of the Mid-Barataria Sediment Diversion project. A third-party contractor will prepare the EIS and a team of engineering consultants will lead the design effort. Additionally, CPRA will execute an innovative project delivery method that involves hiring a construction contractor near the beginning of the engineering phase. This model integrates contractor input throughout the engineering process and then allows that contractor to begin construction at the completion of engineering.

The entire Engineering and Design phase of the project, including all environmental and permitting tasks, will be funded by the Gulf Environmental Benefit Fund (GEBF) administered by the National Fish and Wildlife Foundation (NFWF), which has recently awarded $110 million to fully fund this phase of the project.

Anticipated Environmental Reviews and Authorizations

USACE published a Notice of Intent to Prepare an EIS in the Federal Register on October 4, 2013 for the Mid-Barataria Sediment Diversion pursuant to Clean Water Act and Rivers and Harbors Act permissions. The EIS requires compliance with nine (9) separate statutes—Section 404 of the Clean Water Act, Section 10 of the Rivers and Harbors Act of 1899, Section 408 of the Rivers and Harbors Act of 1899, the Fish and Wildlife Coordination Act, Endangered Species Act, the Magnuson-Stevens Fishery Conservation and Management Act, Marine Mammal Protection Act (MMPA), Section 106 of the National Historic Preservation Act (and both state and local authorizations) and OPA. These reviews will result in the preparation of at least four (4) Records of Decision—1) Section 10/404 by USACE; 2) Section 408 by USACE; 3) MMPA by NMFS; and 4) OPA/NRDA by the Louisiana NRDA Trustee Implementation Group.

A Clean Water Act Section 404 permit is required from USACE for impacts to wetlands and other waters of the U.S. within the sediment diversion channel footprint and the Mid-Barataria Basin. USACE authorization under Section 10 of the Rivers and Harbors Act of 1899 is required for construction of the sediment diversion intake in the Mississippi River. USACE permission under Section 408 of the Rivers and Harbors Act of 1899 is also required for alteration of the Mississippi River Levee and the New

[1] The Louisina NRDA Trustee Implementation Group consists of the following Louisiana and federal agencies: CPRA, Louisiana Oil Spill Coordinator's Office, Louisiana Department of Wildlife and Fisheries, Louisiana Department of Environmental Quality, Louisiana Department of Natural Resources, Department of Commerce—National Oceanic and Atmospheric Administration (NOAA), Department of Interior (DOI), United States Department of Agriculture (USDA), and United States Environmental Protection Agency (EPA).

Orleans to Venice (NOV) Hurricane Protection Levee as well as potential shoaling impacts to the Mississippi River Ship Channel.

As the lead federal agency for the Section 10/404 EIS, USACE will consult with NOAA/NMFS and the DOI/U.S. Fish and Wildlife Service (USFWS) for impacts to trust resources in the Mississippi River and the Barataria Basin. USACE will undertake consultations with NOAA/ NMFS under the Magnuson-Stevens Fishery Conservation and Management Act for potential Essential Fish Habitat (EFH) impacts (species and habitats) in the Barataria Basin; Section 7 of the Endangered Species Act for potential impacts to sea turtles and/or their critical habitat(s) within the Barataria Basin; and the MMPA for potential authorization to harass, injure, or kill bottlenose dolphins within the Barataria Basin. It is anticipated that NOAA/NMFS will utilize the USACE EIS to prepare an EIS and Record of Decision for an Incidental Harassment Authorization or a Letter of Authorization under the MMPA.

USACE will consult with USFWS under Section 7 of the Endangered Species Act for West Indian manatees and, potentially, pallid sturgeon. Additional consultations may be conducted with USFWS under the Migratory Bird Treaty Act and the Bald and Golden Eagle Protection Act through the Fish and Wildlife Coordination Act process.

USACE has initiated consultation with the Advisory Council on Historic Preservation, the Louisiana State Historic Preservation Office, and Federally-recognized Tribes under Section 106 of the National Historic Preservation Act for potential impacts within the Project's construction footprint(s) and within the Project's outfall in the Mid-Barataria Basin.

Permits will also be required from state and local agencies for construction of the Mid-Barataria Sediment Diversion. Authorization under the Coastal Zone Management Act will be handled by the Louisiana Department of Natural Resources through the Coastal Use Permit process. A Water Quality Certification is required from the Louisiana Department of Environmental Quality under Section 401 of the Clean Water Act. A dredge and fill permit is required from the Louisiana Department of Wildlife and Fisheries for the dredging of state water bottoms within the Barataria Basin. A right-of-way permit is required from the Louisiana Department of Transportation and Development for the relocation of a portion of Louisiana Highway 23. A construction permit is required from Plaquemines Parish.

CPRA will consult with NOAA/NMFS outside of the USACE-led Section 10/404 process under the MMPA. Bottlenose dolphins utilize the Barataria Basin for forage, breeding, and calving. Operation of the sediment diversion may harass, injure, or kill bottlenose dolphins. CPRA will apply for an Incidental Harassment Authorization, if operation modeling predicts injury or disturbance to bottlenose dolphins, or a Letter of Authorization, if operation modeling predicts serious injury to or mortality of bottlenose dolphins. Both an Incidental Harassment Authorization and a Letter of Authorization require NMFS to prepare a NEPA document (potentially an EIS).

Additionally, with the use of DWH NRDA funds for the construction of the diversion, under OPA, the Louisiana NRDA Trustee Implementation Group must prepare a NEPA document that is integrated with the NEPA analysis tiered from the DWH oil spill PEIS. This PEIS identifies sediment diversions as a restoration technique in the preferred alternative. It is anticipated that the Louisiana NRDA Trustee Implementation Group will utilize the USACE-led EIS to prepare a NEPA document (potentially an EIS) tiered from the DWH oil spill PEIS.

FAST Act Covered Project

The impacts of coastal land loss threaten Louisiana's economy, commerce, infrastructure, and culture. Furthermore, the collapse of coastal Louisiana would negatively impact the entire country—Louisiana

provides protection for infrastructure that supplies 90% of the nation's outer continental oil and gas, 20% of the nation's annual waterborne commerce, 26% (by weight) of the continental U.S. commercial fisheries landings, and winter habitat for five million migratory waterfowl.

To address the root of the problem, it is important to "reconnect the river" and restore the natural processes that initially built the delta. Controlled sediment diversions offer a unique opportunity to strategically reestablish hydrologic flows, carry land-building sediments, nourish marshes, and sustain land. When utilized along with other forms of marsh creation and the full suite of protection and restoration projects, this integrated systems approach can combat the grave land loss that threatens the coast.

The Mid-Barataria Sediment Diversion is a complex civil works project that will be operated to create and maintain green infrastructure (coastal marshes) that provide protection to existing private infrastructure (oil/gas pipelines and wells and utilities), federal infrastructure (levees), and communities. Existing federal infrastructure—the Mississippi River Levee and the NOV Hurricane Protection Levee—will be altered for the construction of engineered gated structures and a gravity fed conveyance channel connecting the River to the Basin. Existing transportation infrastructure—Louisiana Highway 23 and the New Orleans Gulf Coast Rail Road—will be relocated and bridges will be constructed over the diversion channel to maintain service. Louisiana Highway 23 is the primary hurricane evacuation route for residents of lower Plaquemines Parish and must remain in service during the construction of the sediment diversion channel; a detour will be provided during construction of the highway bridge and approaches. Utility infrastructure—water and electrical lines—will be relocated in order to accommodate the construction and operation of the diversion channel. The intake structure will be located in the Mississippi River, in close proximity to federal anchorages for barge fleeting. The Project will require the modification of internal drainage collection swales and the construction of a new drainage pump station north of the conveyance channel in order to capture and convey area drainage north of the channel to the Barataria Basin.

USACE has invited the EPA, the Federal Rail Administration (FRA), NOAA/NMFS, the U.S. Coast Guard (USCG), and DOI/USFWS to serve as cooperating agencies in the preparation of the EIS for Clean Water Act and Rivers and Harbors Act permissions. EPA will be engaged through the Clean Water Act. FRA will be engaged in the EIS due to the relocation of the New Orleans Gulf Coast Rail Road. NOAA/NMFS staff will be engaged through consultations under the Magnuson-Stevens Fishery Management and Conservation Act, the Endangered Species Act, and MMPA. USCG will be involved under Section 10 of the Rivers and Harbors Act for potential navigation impacts in the Mississippi River Ship Channel. Staff from DOI/USFWS will be engaged through the Fish and Wildlife Coordination Act and the Endangered Species Act.

In addition, NOAA/NMFS and members of the Louisiana NRDA Trustee Implementation Group under OPA will review the Mid-Barataria Sediment Diversion outside of the USACE-led NEPA process. NOAA/NMFS' Office of Protected Resources will be responsible for the preparation of a Mid-Barataria Sediment Diversion-specific NEPA document (potentially an EIS and Record of Decision derived from the USACE-led EIS) for the review of an Incidental Harassment Authorization or a Letter of Authorization. The Louisiana NRDA Trustee Implementation Group will be responsible for preparation of a Mid-Barataria Sediment Diversion-specific NEPA document (potentially an EIS and Record of Decision derived from the USACE-led EIS) that is integrated with the NEPA analysis tiered from the DWH PEIS and compliant with NEPA.

With federal agency staff conducting these reviews under separate statutes (Clean Water Act/Rivers and Harbors Act, MMPA, and OPA) and the potential for the preparation of three (3) separate EISs (by USACE, NOAA/NMFS, and the Louisiana NRDA Trustee Implementation Group) for the Mid-Barataria Sediment Diversion Project, it is imperative that the CEQ exercises enhanced oversight and coordination for the environmental reviews of this Project. Multi-agency use of the USACE-led EIS will streamline the environmental review processes to avoid duplication of effort. It is currently anticipated the USACE-led EIS will be developed in close coordination and collaboration with NOAA/NMFS and the Louisiana NRDA Trustee Implementation Group to efficiently and effectively satisfy the necessary MMPA and OPA/NRDA environmental compliance requirements for the implementation of the Mid-Barataria Sediment Diversion.