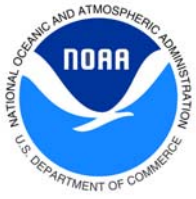
PASS CHALAND TO GRAND BAYOU PASS BARRIER SHORELINE RESTORATION PROJECT

CWPPRA PROJECT Fed No. BA-35

Final ENVIRONMENTAL ASSESSMENT



U.S. DEPARTMENT OF COMMERCE

National Oceanic and Atmospheric Administration

National Marine Fisheries Service

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ACRONYMS

ADCIR	Advanced Circulation Model for Oceanic, Coastal and Estuarine Waters
CEC	Coastal Engineering Consultants, Inc.
CEQ	Council of Environmental Quality
CRL	Coastal Research Laboratory, University of New Orleans
CWPPRA	Coastal Wetlands Planning, Protection and Restoration Act
CWPPRA TASK FORCE	Louisiana Coastal Wetlands Conservation and Restoration Task Force
EA	Environmental Assessment
EFH	Essential Fish Habitat
EPA	U.S. Environmental Protection Agency
FMP	Fishery Management Plans
FONSI	Finding of no significant impact
GEC	Gulf Engineers and Consultants
GMFMC	Gulf of Mexico Fisheries Management Council
LDNR	Louisiana Department of Natural Resources
NAVD	National Annotated Vertical Datum
NEPA	National Environmental Policy Act
NMFS	National Marine Fisheries Service
NOAA	National Oceanic Atmospheric Administration
NRCS	Natural Resources Conservation Service
SAV	Submersed aquatic vegetation
SBEACH	Storm Induced Beach Change Model
STWAVE	Steady-State Spectral Wave
USACE	U.S. Army Corps of Engineers
USFWS	U.S. Fish and Wildlife Service
WCRA	Wetlands Conservation and Restoration Authority

Finding of No Significant Impact For Implementation of the Pass Chaland to Grand Bayou Pass Barrier Shoreline Restoration Project

National Oceanic and Atmospheric Administration Administrative Order (NAO) 216-6 (May 20,1999) contains criteria for determining the significance of the impacts of a proposed action. In addition, the Council on Environmental Quality (CEQ) regulations at 40 C.F.R. 1508.27 state that the significance of an action should be analyzed both in terms of "context" and "intensity." Each criterion listed below is relevant to making a finding of no significant impact and has been considered individually, as well as in combination with the others as described in the attached Environmental Assessment (EA) for this project. The significance of this action is analyzed based on the NAO 216-6 criteria and CEQ's context and intensity criteria. These include:

1) Can the proposed action reasonably be expected to cause substantial damage to the ocean and coastal habitats and/or essential fish habitat (EFH) as defined under the Magnuson-Stevens Fishery Management and Conservation Act and identified in fishery management plans?

No. The purpose of the proposed action is to protect and restore a critically eroding section of the Louisiana shoreline for coastal wetland habitat benefits to fish and wildlife. The proposed action is not expected to result in significant adverse impacts to coastal habitats or EFH, although some temporary and localized adverse effects may reasonably be expected to occur. The project may result in short term (e.g., months) increases in turbidity during project construction in the vicinity of the borrow area. However, turbidity levels are very high in the western Gulf of Mexico, and therefore such impacts are expected to be localized and minor. The proposed action will also result in minor (e.g., tens of acres) conversion of some categories of various types of EFH to other EFH categories (i.e., estuarine water bottoms to coastal wetlands). All impacts to EFH have been avoided and minimized to the maximum extent practical, are essential to meeting the project goals, and are offset by the overall benefits to EFH resulting from the proposed project (hundreds of acres of wetland creation and protection). Such localized short-term impacts are considered insignificant to coastal habitats and EFH in light of the long term project benefits and improvements to various habitat types and functions. In the long term, the proposed action would improve coastal integrity and EFH by re-establishing marsh and protecting existing marsh habitat from erosion. Over 400 acres of marsh, inner marsh, and marsh edge, and beach habitat would by directly benefited by beach restoration, vegetative plantings and construction of tidal features in the created marsh. Without action, project area habitats will continue to erode and are anticipated to disappear within the next twenty years. With action, increases in beach habitat would increase diversity of habitat. Thus, the proposed action would benefit brown shrimp, white shrimp, red drum, and spanish mackerel. King mackerel, blue fish, cobia, and bonnethead and sharpnose sharks likely would benefit since these species depend on various

types of estuarine features during their life cycles. See section 4.2.2 of the attached EA.

2) Can the proposed action be expected to have a substantial impact on biodiversity and/or ecosystem function within the affected area (e.g., benthic productivity, predator-prey relationships, etc.)?

No. The proposed action will not have a substantial adverse affect on ecosystem structure or function. The proposed project will benefit ecosystem structure by decreasing erosion rates, protecting estuarine mud bottoms, and maintaining estuarine gradients in the project area. Project design mimics naturally occurring Louisiana barrier islands, thus providing similar geophysical features for ecosystem development. Vegetative plantings will include a variety of nursery grown, native species specifically selected for growth in the Louisiana coastal plain. Overall biodiversity and ecosystem function would be maintained and enhanced through longevity of the island structure that protects area marshes.

3) Can the proposed action reasonably be expected to have a substantial adverse impact on public health or safety?

No. The project area is remote. The impact to human health would be negligible. Temporary adverse impacts would result from the noise and exhaust of construction equipment. See section 4.3 of the attached EA.

4) Can the proposed action reasonably be expected to adversely affect endangered or threatened species, their critical habitat, marine mammals, or other non-target species?

No. Although brown pelicans and piping plovers occur in the general vicinity of the project area, the project area has not been identified as a nesting area for the brown pelican or as critical habitat for piping plover, although individuals of both species may use the area for feeding. During construction activities, endangered or threatened species may be temporarily displaced to nearby suitable habitats. Individuals of these species may be temporarily displaced during the six to eight month construction window to similar barrier island habitats that are located immediately adjacent to the project area. Marine mammals, such as coastal dolphin species, may also be affected similarly, but there are sufficient adjacent areas to where they would be temporarily displaced during the construction window. Given the availability of nearby suitable habitat and feeding areas, no direct or significant effect is anticipated. Because of the availability of immediately adjacent suitable habitats, it is anticipated that there will be no effects on these managed species.

Sea turtles and mantees are known to occur in the Gulf of Mexico, although no sea turtles nest on the Louisiana coast. The proposed project is not anticipated to have any adverse affects on either sea turtles or manatees due to their relative scarcity and the highly mobile nature of these species in the western Gulf of Mexico. A hydraulic cutter head dredge would be used for project construction, avoiding potential impacts to turtles

via taking during dredging operations. Additionally, the construction personnel will be required to avoid manatees, sea turtles, and other endangered or threatened species during the period of construction.

The proposed action may result in short term (i.e., months) displacement of brown pelicans and piping plovers. No long term significant adverse affects to threatened or endangered species, their critical habitats or marine mammals are anticipated. In the long-term, the preferred alternative would increase the longevity and enhance the quality and quantity of available habitat for protected species. See section 4.2.2.4 of the attached EA.

5) Are significant social or economic impacts interrelated with natural or physical environmental effects?

No. The proposed action would not be expected result in significant social or economic impacts. During the period of construction, come minor local increases in commercial activity of existing businesses may occur but such effect is insignificant in the local construction industry. Improvements to barrier-island and marsh habitats would affect fisheries resources positively and indirectly support nearby businesses that provide services of recreational and commercial fishing, but these effects are not expected to be significant in the broader context from this specific activity. See section 4.3 of the attached EA.

6) Are the effects on the quality of the human environment likely to be highly controversial?

No. The need for the proposed project was identified through the Coastal Wetlands Planning, Protection and Restoration Act's annual public planning process and the project has received support from the State and Federal natural resources agencies and the public. The intent of the proposed project is to protect and enhance barrier islands along the Louisiana coast, which will improve the human environment, and this section of shoreline has been identified as critically eroding. Plaquemines Parish proposed the project with support from local users. See section 1.2 and 5.1 of the attached EA.

7) Can the proposed action reasonably be expected to result in substantial impacts to unique areas, such as historic or cultural resources, park land, prime farmlands, wetlands, wild and scenic rivers, EFH, or ecologically critical areas?

No. In coordination with the State's Historic Preservation Officer, the project area has undergone complete assessment and field surveys for historic and cultural resources and no significant resources were identified, therefore the proposed action is not expected to impact archeological, cultural, or historic resources. The project is not located in any park, recreational area, nor wild or scenic river system. Coordination with state and federal natural resource agencies throughout project planning and development has revealed no significant environmental or social resources in the project area. The proposed action will affect EFH by converting minor amounts of

various types of EFH to other EFH categories, however, these impacts are considered localized in nature and will be offset by creation and protection of equally important fisheries habitat. The project will also protect and restore critically eroding wetlands in the Louisiana coastal plain. These wetlands and associated coastal habitats are considered ecologically significant and the purpose of the proposed action is to protect and restore these habitats. No long term adverse impacts are expected to result to wetlands, EFH or ecologically critical areas, as described in Chapter 4.0 of the attached EA.

8) Are the effects on the human environment likely to be highly uncertain or involve unique or unknown risks?

No. The proposed action is similar to previous actions and involves known and avoidable risks, as described in section 4.3 of the attached EA.

9) Is the proposed action related to other actions with individually insignificant, but cumulatively significant impacts?

No. The proposed action would have individually insignificant adverse impacts and, in relation to other actions, cumulatively insignificant adverse impacts. The proposed and related actions are part of an over-arching effort to restore and project critically eroding areas of south Louisiana. Each project may result in short term localized affects as described herein, but each project is implemented separately over a five to twenty year period. Individually, the proposed action is expected to benefit over 400 acres of critically eroding coastal habitats. In combination with other proposed restoration projects, the proposed action is expected to protect ecologically important and institutionally significant resources to over ten miles of eroding coastal areas. See section 5.1 of the attached EA.

10) Is the proposed action likely to adversely affect districts, sites, highways, structures, or objects listed in or eligible for listing in the National Register of Historic Places or cause loss or destruction of significant scientific, cultural or historical resources?

No. No such sites are known to exist on the project area. See 3.3.1 of the attached EA.

11) Can the proposed action reasonably be expected to result in the introduction or spread of a non-indigenous species?

No. The proposed action would not introduce or spread non-indigenous species. The action would increase the ability of the area to support indigenous species by protecting and creating natural habitat with benefits described in section 4.2.2 of the attached EA.

12) Is the proposed action likely to establish a precedent for future actions with significant effects or does it represent a decision in principle about a future consideration?

No. The proposed action is independent of future actions, is similar in context to other barrier island/wetlands restoration activities in coastal Louisiana and would not be precedent setting.

13) Can the proposed action reasonably be expected to threaten a violation of Federal, State, or local law or requirements imposed for the protection of the environment?

No. The proposed action was discussed with appropriate congressional, Federal, state, and local agencies and other interested parties. Laws and regulations have been considered as discussed in section 5.4 of the EA.

14) Can the proposed action reasonably be expected to result in cumulative adverse effects that could have a substantial effect on the target species or non-target species?

No. While implementation of this project and similar projects in the vicinity would not result in a greater area of EFH, it would result in the creation of more productive forms of EFH (e.g., beachfront and marsh) from less productive forms of EFH (water column and water bottoms). The long-term impact would be beneficial as described in section 5.1 of the attached EA.

DETERMINATION

In view of the information presented in this document and the analysis contained in the supporting Environmental Assessment prepared for the implementation of the Pass Chaland to Grand Bayou Pass Barrier Shoreline Restoration project, it is hereby determined that the proposed action will not significantly impact the quality of the human environment as described above and in the Environmental Assessment. In addition, all beneficial and adverse impacts of the proposed action have been addressed to reach the conclusion of no significant impacts. Accordingly, preparation of an EIS for this action is not necessary. Based on the conclusion of this document and the available information relative to the Pass Chaland to Grand Bayou Pass Barrier Shoreline Restoration project, no significant adverse environmental impacts would result from implementing the preferred alternative. Furthermore, preparation of an Environmental Impact Statement on this action is not required by the National Environmental Policy Act or its implementing regulations.

Date 4/30/07

Patricia A. Montanio
Director, Office of Habitat Conservation
National Marine Fisheries Service
National Oceanic and Atmospheric Administration
U.S. Department of Commerce

1. INTRODUCTION

This Environmental Assessment (EA) was prepared to assess impacts related to implementation of the Pass Chaland to Grand Bayou Pass Barrier Shoreline Restoration project (BA-35), Plaquemines Parish, Louisiana. The project is commonly referred to as Bay Joe Wise, and will be referred to with this name throughout this EA. As Federal sponsor for the implementation of the Bay Joe Wise project, the National Marine Fisheries Service, U.S. Department of Commerce, is responsible for NEPA compliance. The Louisiana Department of Natural Resources (LDNR) is the non-Federal local project sponsor, and the Federal action on this project is invoked through National Marine Fisheries Service establishing a cooperative agreement with LDNR to oversee, through contracted services and use of their own staff, construction of this project. The CWPPRA Task Force approved engineering and design of the project in January 2002 as part of the 11th Priority Project List. The CWPPRA Task Force chooses projects for this annual list by conducting a careful technical and public evaluation of candidate projects. The intent of the project is to rebuild and nourish this particular stretch of barrier shoreline.

The EA was prepared in accordance with all applicable statutes and regulations, including the National Environmental Policy Act (NEPA) (Public Law 91-190, as amended), the Council of Environmental Quality (CEQ) regulations (Code of Federal Regulations 1500 – 1508), and the National Oceanic and Atmospheric Administration's (NOAA) Administrative Order. This EA augments an Environmental Impact Statement for the Louisiana Coastal Wetlands Restoration Plan prepared by the Coastal Wetlands Planning, Protection and Restoration Act (CWPPRA) Task Force (Louisiana Coastal Wetlands Conservation and Restoration Task Force [CWPPRA Task Force] 1993).

1.1 PROJECT LOCATION

The Bay Joe Wise project location is 7.5 miles southwest of Empire in Plaquemines Parish, Louisiana. The area is included in the Barataria Barrier Shorelines Mapping Unit, Region 2 of the Coast 2050 Restoration Plan (CWPPRA Task Force and Wetlands Conservation and Restoration Authority [WCRA] 1998 and 1999) and is at the center of the Plaquemines Barrier Shoreline (U.S. Army Corps of Engineers [USACE] 2004). The project area is bordered by the Gulf of Mexico and Bay Joe Wise, and extends 2.25 miles between Bayou Huertes to Grand Bayou Pass (Figure 1). The area is located 49 miles south-southeast of New Orleans, Louisiana, at approximately 29^{0}18'34"N, 89^{0}45'26"W.

Figure 1: Pass Chaland to Grand Bayou Pass Barrier Island Restoration (Bay Joe Wise) Project Area

1.2 PURPOSE AND NEED FOR ACTION

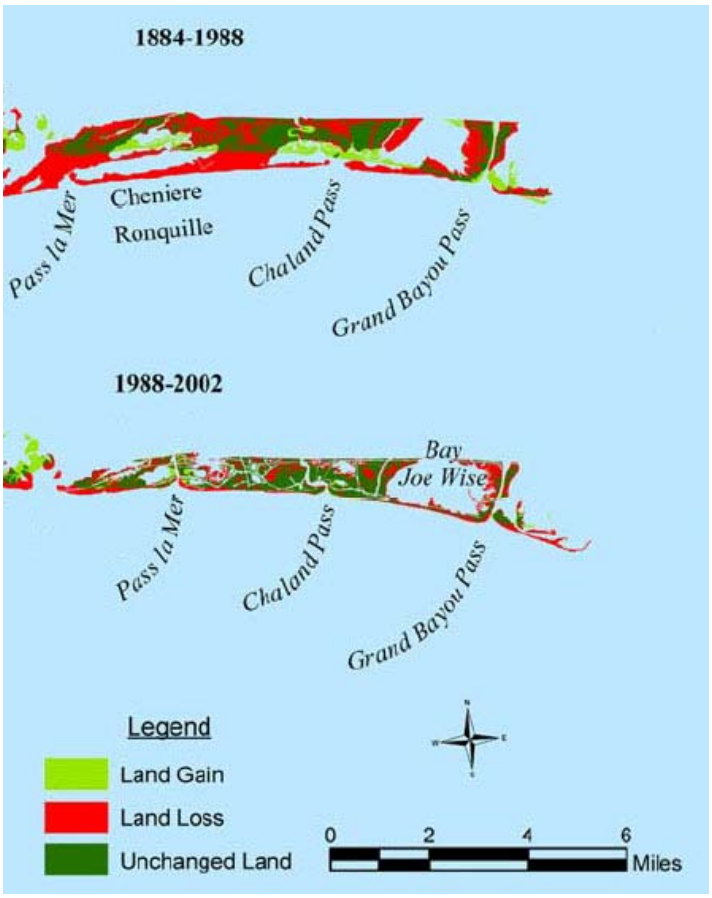
The purposes of the project are to protect and restore coastal wetlands and protect the structural integrity of the barrier shoreline. The project addresses a strategy in the plan to restore the Louisiana coastline for the Plaquemines region to "restore/maintain barrier headlands, islands, and shorelines" (CWPPRA TASK FORCE and WCRA 1998). The CWPPRA authorizes and maintains projects for twenty years; therefore the project purpose is stated in terms of this twenty-year timeframe. As authorized under CWPPRA, project objectives include the following:

- Repair breaches in the shoreline.
- Create dune, supratidal, and intertidal marsh habitat.
- Plant native species to vegetate the island.
- Create tidal inlets in the created marsh platform.
- Prevent breaching for twenty years.

During the last 50 years, land loss rates in Louisiana have at times exceeded 40 square miles per year (103.6 square kilometers) (CWPPRA TASK FORCE and WCRA 1998). In the 1990s, the rate was estimated at 25 to 35 square miles (64 to 90 square kilometers) each year (CWPPRA TASK FORCE and WCRA 1998). A healthy coastal marsh provides rearing habitat for shellfish and finfish; furnishes habitat for waterfowl, wading birds, small mammals, and numerous amphibians and reptiles; reduces storm surges; and helps maintain water quality. Louisiana's coastal wetlands are essential to sustain renewable fisheries resources integral to the local, state, and national economies. Of the 1.7 billion pounds of fisheries landings reported for the Gulf Coast in 2000, more than 75% were caught in Louisiana (NOAA 2001). Barrier island wetlands, flats, and subtidal habitat provide unique nursery, foraging, and spawning habitat for numerous marine and estuarine species of commercial and recreational importance. Island fragmentation results in loss of habitat, as more area is exposed to storm surges and erosion. As the islands break up, both habitat and infrastructure behind the islands become more vulnerable to damage from high energy Gulf waves (USACE 2004).

Erosion and deterioration of the shoreline and back-bay wetlands result from increased eustatic sea-level rise; diminished sediment supply; repeated storm events; construction of canals and navigation channels; and high rates of subsidence (USACE 2004). As the barrier shoreline degrades, the infrastructure and interior marshes of Barataria Bay in Plaquemines Parish become more vulnerable to erosion.

The long-term erosion rate for the Bay Joe Wise area between 1884-2002 was –19.7 ft/yr (-6 m/yr) (Figure 2). A report from 2000 describes project area losses of 73 acres/yr (0.3 km^2/yr) since 1988 (CRL 2000). The barrier island has receded to a critical width and has breached during recent storm and hurricane activity. Estimates of breaching due to Hurricanes Katrina and Rita of 2005 were not available while preparing this EA. Average marsh elevation is nearly identical to the reported mean high water elevation (Coastal Engineering Consultants, Inc. [CEC] and SJB Group 2005). The proposed action is needed to regain and preserve the structural integrity of the shoreline.



Source: U.S. Army Corps of Engineers 2004

Figure 2: Pass Chaland to Grand Bayou Pass Barrier Shoreline (Bay Joe Wise) land change.

1.3 AUTHORITY

This project is authorized under the CWPPRA of 1990 (16 U.S.C. §777c, 3951-3956), which stipulates that five Federal agencies and the State of Louisiana jointly develop and implement a plan to reduce the loss of coastal wetlands in Louisiana (16 U.S.C. §3952 (b) (2)). The Federal agencies involved include the National Marine Fisheries Service, U.S. Department of Commerce; the U.S. Army Corps of Engineers; the U.S. Fish and Wildlife Service (USFWS), U.S. Department of Interior; the Natural Resources Conservation Service, U.S. Department of Agriculture; and the U.S. Environmental Protection Agency (EPA).

As Federal sponsor for the implementation of the Pass Chaland to Grand Bayou Pass Barrier Shoreline Restoration Project (BA-35), the National Marine Fisheries Service, U.S. Department of Commerce is responsible for NEPA compliance. The Louisiana Department of Natural Resources (LDNR) is the non-Federal local project sponsor. The CWPPRA Task Force approved engineering and design of the project in January 2002 as part of the 11th Priority Project List. The CWPPRA Task Force chooses projects for

this annual list by conducting a careful technical and public evaluation of candidate projects. Under CWPPRA guidelines, the Federal sponsor provides 85% of the project cost and the LDNR contributes the remainder. A cooperative agreement between the LDNR and the National Marine Fisheries Service documents cost sharing.

2. ALTERNATIVES

A range of alternatives was considered to achieve the project goals outlined in the CWPPRA Task Force's 2002 project authorization. Alternatives considered in depth generally consisted of dredging offshore sand deposits to restore beach and dune, and placing marsh fill materials to restore and create saline marsh. Alternatives considered in depth, including the no action alternative, were ranked based on optimization of project goals, avoidance of potential adverse impacts, constructability, and estimated costs. The preferred alternative was selected based on that ranking and is evaluated in detail in this EA. A detailed description of alternatives and associated evaluations can be found in the Preliminary Design Report (CEC and SJB Group 2005).

Alternatives were modeled using Storm-Induced Beach Change SBEACH, Advanced Circulation Model for Oceanic, Coastal and Estuarine Waters (ADCIR), and Steady-State Spectral Wave (STWAVE) to evaluate long term and storm performance (CEC 2004). The SBEACH model is a two-dimensional model that simulates cross-shore transport of sediment due primarily to breaking waves and changing water levels. Water level changes are calculated from input wave, storm surge and tide data. The ADCIRC models circulation patterns to determine the impact marsh fill would have on water flow through Bay Joe Wise. The STWAVE model was used to evaluate changes to wave refraction and sediment transport patterns resulting from the proposed borrow area alteration. Coastal Engineering Consultants, Inc. and SJB Group (2005) should be consulted for more information.

Identification and evaluation of a borrow area to obtain necessary materials to construct any alternatives, except the no action alternative, was considered in alternative selection and environmental impact scenarios. The borrow area determination followed an extensive surveys and geologic analysis that identified the Quatre Bayou Deep Sand Body for borrow consideration (Kindinger and Flocks 2001).

2.1 ALTERNATIVES CONSIDERED BUT ELIMINATED

Alternatives considered in detail that were determined not meet the project objectives listed in Section 1.2 were eliminated from further evaluation in this EA. A detailed description of alternatives can be found in the Preliminary Design Report (CEC and SJB Group 2005). Alternatives considered but eliminated from further consideration, included: (1) construction of a 250-acre marsh platform without dune and beach components (this alternative was eliminated from further consideration because it did not meet the project objective of preventing breaches) and (2) construction of a marsh platform with a beach and dune component with elevations corresponding to storm surge levels of a five and ten-year storms in order to minimize overtopping into the

marsh (this alternative was not considered further because engineering analyses indicated that the restored shoreline would be subject to breaching within the 20-year project life and thus the alternative was not supportive of the project goals).

2.2 ALTERNATIVES CONSIDERED

2.2.1 No Action

This alternative considers not constructing shoreline or marsh, allowing conditions to remain in their present state. The project area is experiencing a loss rate of over 73 acres per year since 1988 (CRL 2000). In 2000, the land versus water acreage within the project area was estimated to be approximately 1,039 acres and 3,503 acres, respectively. With no action, the island in the project area is predicted to become open water by 2014 (CEC 2004).

2.2.2 Preferred Alternative

The preferred alternative consists of mining and transporting up to five million cubic yards of offshore sand and marsh material (including losses expected due to transporting material) to create marsh and dune in the project area (Figure 3 and Figure 4).

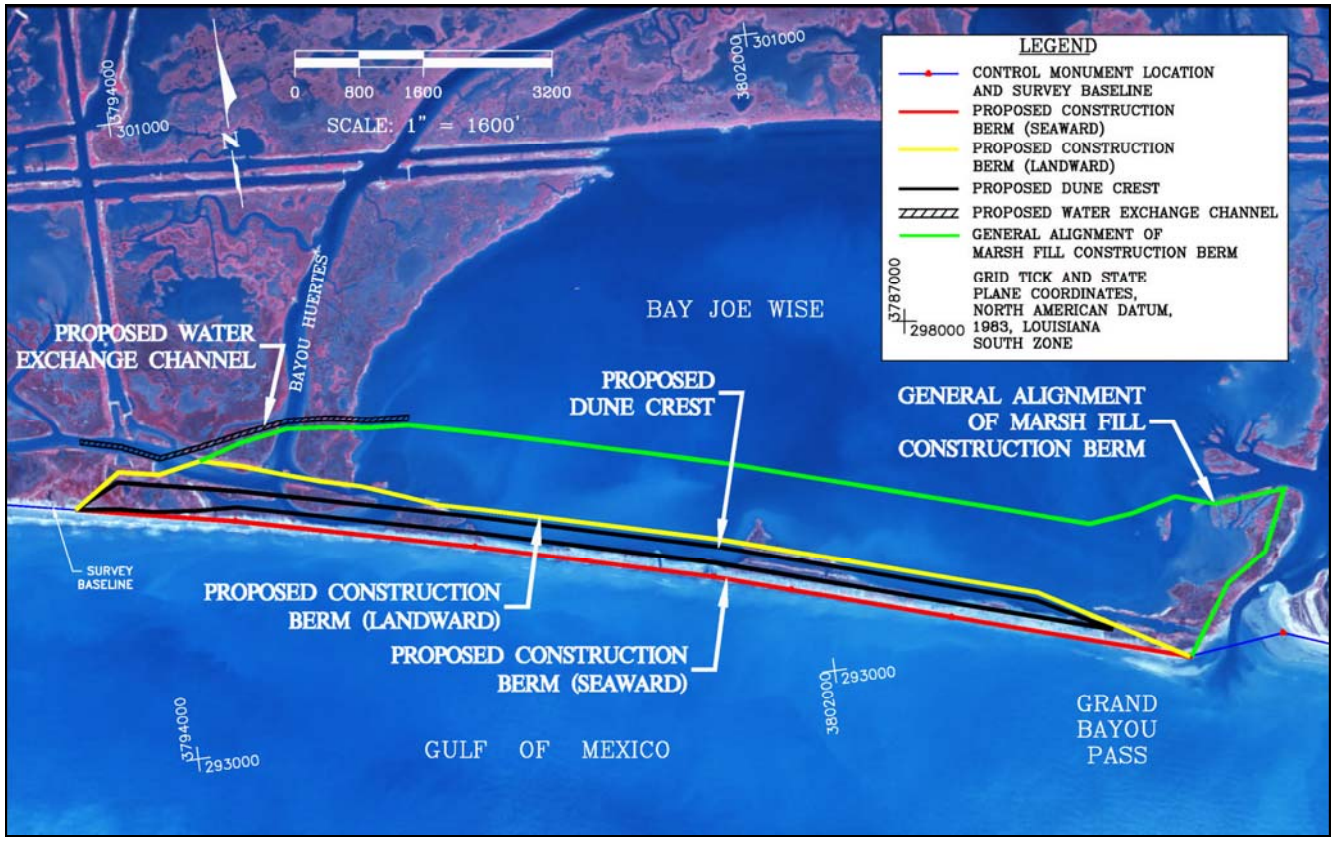
A marsh platform would be created to an elevation of +2.6 feet NAVD. The marsh would be constructed in a section 13,500 feet long by 920 feet wide and taper eastward and westward to tie into the existing marsh. Maintaining tidal exchange within the marsh would be accomplished by pre-excavating about 4,000 feet of primary tidal creeks. This would create approximately 5 acres of tidal creeks.

Along the Gulf shoreline, 153 acres of beach and dune would be created to fill shoreline breaches that have occurred and increase the width of the beach to prevent future breaches. Material would be placed along 14,000 feet of shoreline to create beach and dune habitat, and taper eastward and westward to tie into the existing beach. The dune component would have a crest about 50 feet wide and 7 feet high, widening to 190 feet at Bayou Huertes. The beach would be constructed to around +4.5 feet NAVD with an average width of 350 feet widening to over 600 feet at Bayou Huertes with a 1:30 side slope.

Construction of marsh and beach/dune would require about 30,000 feet of containment dikes. Material for containment dikes would be acquired from the inlet ebb shoals, interior channels and Bay Joe Wise sediments. Marsh containment dikes would be constructed to +4.5 feet NAVD. Containment dikes are necessary only for retaining sediments during initial placement and for in situ dewatering of placed sediments. If required to ensure tidal exchange, containment dikes may be gapped or degraded during project maintenance.

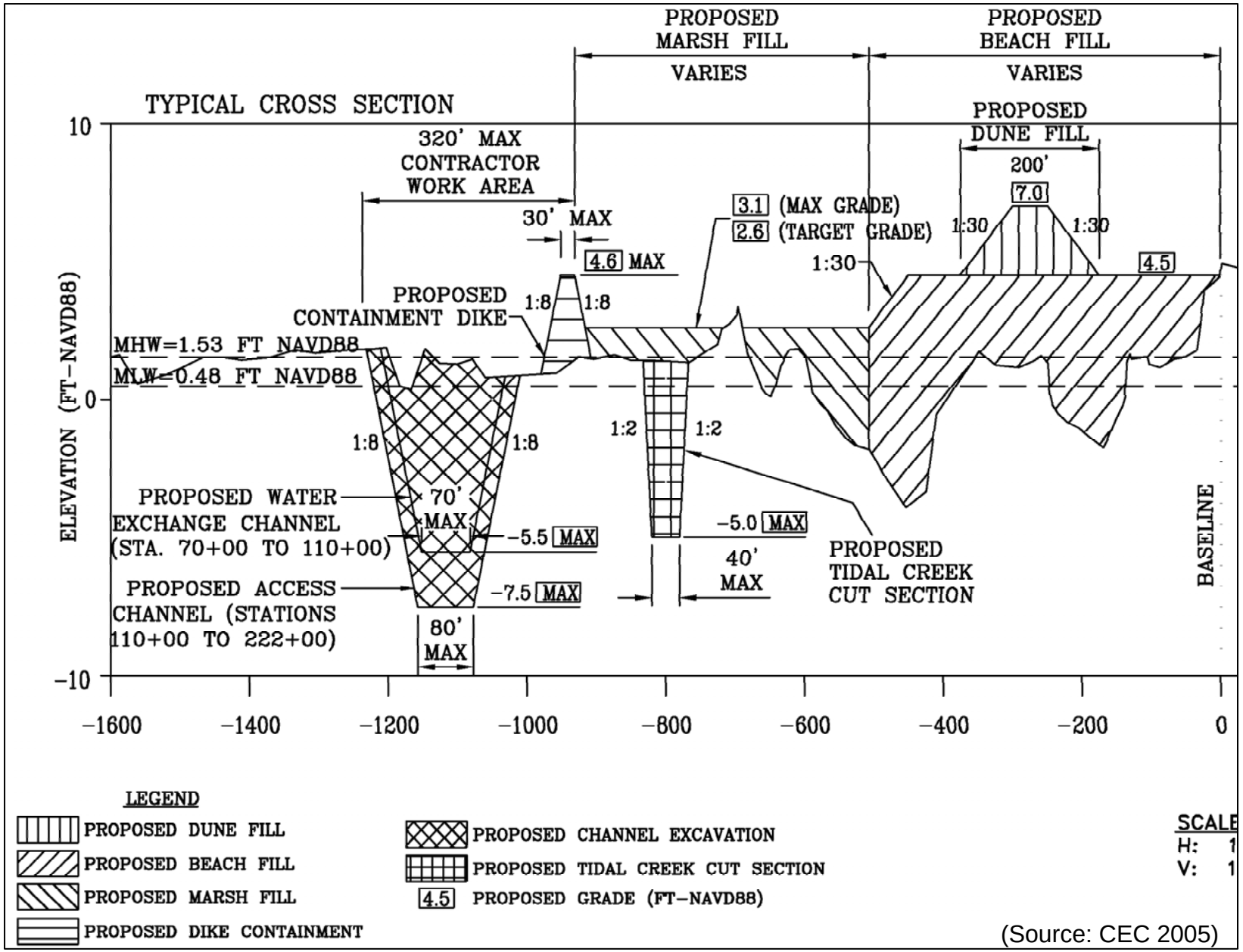
In order to construct the beach and dune area wide enough to prevent breaching, an existing water channel at the west end of the area would be filled. To maintain circulation and drainage patterns between Pass Chaland and Bay Joe Wise, a channel would be created north of the marsh creation area. Approximately 70,000 cubic yards of material would be dredged to construct the 2,700 feet long channel.

Sand fencing would be installed upon completion of the dune and beach platforms, and would be re-installed periodically to encourage development of dune features while maintaining the constructed beach/dune feature. Vegetative plantings would also be installed following dune and marsh creation to help stabilize sediments and encourage natural vegetation growth. Anticipated plantings include smooth cordgrass (*Spartina alterniflora*), bitter panicum (*Panicum amarum*), marshay cordgrass (*S. patens*), gulf cordgrass (*S. spartinae*), and other native coastal species.



(Source: CEC 2004)

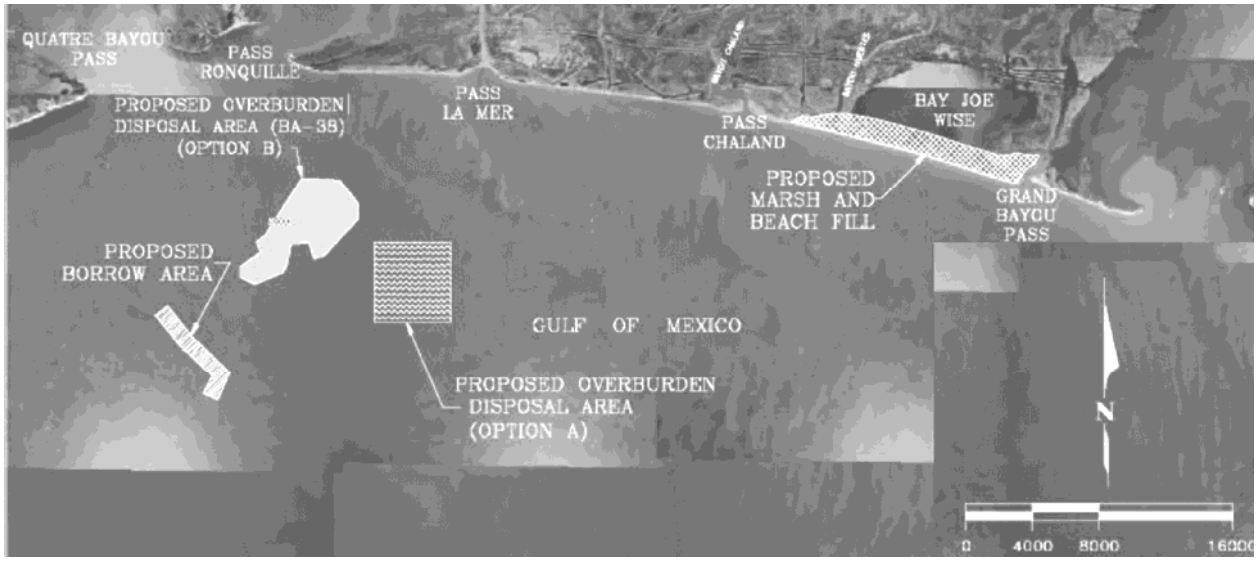
Figure 3: Preferred alternative features



(Source: CEC 2005)

Figure 4: Typical cross-section of the preferred alternative feature.

The preferred alternative includes a preferred borrow area location. The borrow area is less than ten miles from the project area south of Quatre Bayou, as shown in Figure 5. Sediment from this location would be excavated using a hydraulic cutter-head dredge and transported via pipeline to the construction area. The borrow area lies in 20 to 28 feet of water. Side scan sonar and magnetometer surveys indicated a flat, featureless surface providing reasonable assurance that there are no areas of environmental concern or any pipeline or other man-made obstructions that might be adversely impacted by the dredging activities (CEC and SJB 2005). There is a layer of clay material that lies over material suitable for construction (i.e. overburden). This overburden material would be disposed at either the overburden disposal area Option A or in an adjacent borrow pit created by another project (Option B). A ten-foot thick clay, silt, and sand layer would be used for marsh construction, which is estimated to have a volume of 2.78 million cubic yards. A 12-foot thick layer of fine sand would be used for beach material. The estimated volume of this sand layer is 2.12 million cubic yards. Seismic records indicate this sand layer continues deeper, so a five-foot overdredging tolerance is included to provide additional material and maximize dredge efficiency.



Source: CEC 2005

Figure 5: Proposed borrow area and overburden disposal location.

3. AFFECTED ENVIRONMENT

3.1 PHYSICAL ENVIRONMENT

3.1.1 Geology, Soils, Topography, and Coastal Processes

The project is at the center of the Plaquemines Barrier Shoreline in the Mississippi River delta plain (USACE 2004). The island was formed by fluvial and marine depositional and erosional processes over the last 7,000 years. The Mississippi River has been the primary source of sediment to the shoreline system as deltaic headlands formed and the coastline progressed seaward.

Soils in the project area consist of clayey sand. Analysis of soils in the overburden disposal area determined no marsh or beach compatible materials existed at that location (CEC and SJB Group 2005).

Southeasterly waves generally transport sediment westward in the project vicinity. Marine processes and subsidence have been the primary source of erosion and land change, although human influences have exacerbated the natural cycle of these islands (Penland and Suter 1987). Decreased sediment supply, reworking of the coastline by marine processes, and rapid relative sea level rise have caused a rapid landward retreat of the shoreline and increased tidal prism and storm impacts. As a result of these factors, tidal inlets have formed, and the barrier shoreline has breached and fragmented. The shoreline migrates landward as sediment is redistributed and erosional processes predominate (USACE 2004). Due to the low elevation of the island, sediment is transported over the top of the island by waves during storm events. This is the primary mechanism for island rollover.

Wave climate information was assessed for the borrow area and adjacent shorelines. Numerical simulations (i.e., Steady-state Spectral Wave Model) were developed to evaluate existing and predicted wave refraction and associated sediment transport patterns. Eleven sets of input wave parameters were modeled for the existing condition in the proposed borrow area and adjacent shorelines. Waves heights in the borrow area range from less than 2.5 feet during fair weather conditions to up to 13 feet during storm events. Wave heights along the Bay Joe Wise shoreline also vary with weather (CEC and SJB Group 2005).

3.1.2 Climate and Weather

Coastal Louisiana is characterized by long hot summers and short mild winters with high humidity year round. Over the past 40 years, air temperature ranged from 14 to 102 °F; average winter and summer temperatures are 55.3 and 82.4 °F, respectively. Rainfall is typically heaviest during the storm season between April and September and averages 59 inches annually. The storm season is characterized by summer thunderstorms and hurricanes that sporadically pass through the area. Winds are

predominately southeasterly but shift to the north for periods during the winter. Tides, currents, Gulf waves, bay waves, storm surges, winds, subsidence, and sea level rise relative to the project area were used for evaluating alternatives and described in the design report (CEC and SJB Group 2005).

3.1.3 Air Quality

Plaquemines Parish meets all national ambient air quality standards, according to the Louisiana Department of Environmental Quality Office of Environmental Assessment (http://www.deq.state.la.us/evaluation/airmon/tedi.htm). No significant point sources of air-borne pollutants occur in the vicinity of the preferred project area, and air quality is generally good. The most prominent source of air-borne pollutants in the area is boat exhaust. Offshore breezes mix and freshen the air, and frequent precipitation prevents accumulation of particulates. Plaquemines Parish reduced its overall toxic air pollutant emissions from over 4 million pounds (1.8 million kilograms) per year in 1991 to less than 600,000 pounds (272,155 kilograms) per year in 2002 (http://www.deq.state.la.us/evaluation/airmon/tedi.htm).

3.1.4 Water Resources

The project area is surrounded by Gulf and bay waters. Waters primarily flow westward. Waves are generated by wind, which prevails from the south. Turbidity (suspended particulate level) in the water column at the borrow areas normally fluctuates due to seasonal riverine inputs and discharge rate. Groundwater is saline (GEC 2001). A 2002 survey showed estuaries in the vicinity of the proposed project have “good” to “fair” water quality based on dissolved inorganic nitrogen, dissolved inorganic phosphorus, chlorophyll a, water clarity, and dissolved oxygen (EPA 2004).

3.2 BIOLOGICAL ENVIRONMENT

3.2.1 Vegetative Resources

A habitat inventory of the project vicinity (i.e., Bay Joe Wise Headland) in 2000 estimated the area is predominately composed of intertidal saline marsh, with significant areas of shrub-scrub habitat and minor amounts of beach, upland and intertidal habitats. The island has not had a habitat analysis since Hurricane Katrina and Hurricane Rita in the fall of 2005 although site inspections reveal significant losses of beach and dunes. Based on 2004 survey information, the project area contains about 39 acres of beach rim and swale habitats characteristic of Louisiana barrier shorelines. These areas are vegetated primarily with roseau cane (*Phragmites australis*) and marshhay cordgrass. The project area also contains about 65 acres of saline marsh vegetated with smooth cordgrass, marshhay cordgrass and black mangrove (*Avicennia germinans*).

3.2.2 Fish and Wildlife Resources

3.2.2.1 Fisheries Resources

Barrier island wetlands, flats, and subtidal habitat provide unique nursery, foraging, and spawning habitat for numerous marine and estuarine species of commercial and recreational importance. The project area barrier island is utilized by distinct groups of fish and crustaceans that exhibit a preference for barrier island habitats over mainland habitats or are dependent on these habitats as transients during portions of their life history for foraging and predator refugia (Williams 1998). Common surf zone species include gulf menhaden (*Brevoortia patronus*), spot (*Leiostomus xanthurus*), striped mullet (*Mugil cephalus*), southern kingfish (*Menticirrhus americanus*), anchovies (*Anchoa* spp.), scaled sardine (*Harengula jaguana*), Florida pompano (*Trachinotus carolinus*), Atlantic bumper (*Chloroscombrus chrysurus*), spotfin mojarra (*Eucinostomus argenteus*), and rough silverside (*Membras martinica*). The surf zone temporarily is used by larval and juvenile life stages of some of these species awaiting transport to back-barrier, bay, or mainland habitats. Barrier island flats typically are used by white mullet (*Mugil curema*), longnose killifish (*Fundulus similis*), darter goby (*Ctenogobius boleosoma*), and inland silversides (*Menidia beryllina*). Marsh edge and interior creeks are used by brown shrimp (*Farfantepenaeus aztecus*), white shrimp (*Litopeneaus setiferus*), Atlantic croaker (*Micropogonias undulatus*), spotted seatrout (*Cynoscion nebulosus*), sheepshead minnow (*Cyprinodon variegatus*), killifish, and sand seatrout (*Cynoscion arenarius*), some of which are constituents of assemblages that use the other island aquatic habitats (Foreman 1968; Zimmerman 1988). Additionally, shallow, back bay areas are inhabitated by american oysters (*Crassostrea virginica*).

Economically important fish species such as spotted seatrout, red drum (*Sciaenops ocellatus*), black drum (*Pogonias cromis*), and southern flounder (*Paralichthys lethostigma*) use barrier island habitats (e.g., shorelines and passes) for foraging areas, nursery habitat, and staging areas during spawning or associated migratory aggregations (Saucier and Baltz 1993). Additionally, young of the year red drum and mangrove snapper (*Lutjanus griseus*) have a high affinity for quiescent intra-island creeks and ponds in the post larval early juvenile stages (Thompson 1988).

The island reduces storm surge for the Barataria Estuary (i.e., bay and mainland marshes) north of the project area. The estuary supports a variety of invertebrate and fish species of ecological, commercial, and recreational value. The nearest port, at Empire-Venice, Louisiana, ranks third in the Nation for quantity of commercial fisheries landings and sixth in the Nation for value of landings (NOAA 2001). The Barataria basin was nominated for participation in the National Estuary Program in 1989 in recognition of its significance for ecological and economic sustainability of estuarine resources (http://www.btnep.org/). Abundant harvested species include brown shrimp, white shrimp, sand seatrout, black drum, southern flounder, blue crab (*Callinectes sapidus*), gulf menhaden, and anchovies (Patillo et al. 1997). Important forage species in the area bays and mainland marshes include many of the species associated with barrier islands (Patillo et al. 1997; Zimmerman 1988). Other species that occur in the project

area during some portion of their life history include the ecologically important grass shrimp (*Palaemonetes* spp.) (Pattillo et al. 1997). Many other non-game species of finfish and shellfish are important links in the food chain to commercially and recreationally harvested species. Project area wetlands produce nutrients and detritus that contribute to the overall productivity of the Barataria estuary aquatic food web.

In the Barataria Barrier Shorelines Mapping Unit, estuarine-dependent species such as blue crab, black drum, gulf menhaden, southern flounder, and spotted seatrout have shown decreasing trends over the last 10-20 years, as has the estuarine resident, American oyster (*Crassostrea virginica*) (CWPPRA TASK FORCE and WCRA 1999).

The most typical bottom substrate in the central Gulf of Mexico is soft muddy bottom where polychaetes are the dominant benthic organism. Benthic habitats near the project support bacteria and algae. Dominant groups of benthic fauna are infauna (animals that live in the substrate, such as burrowing worms, crustaceans, and mollusks) and epifauna (animals closely associated with the substrate, such as crustaceans, echinoderms, mollusks, hydroids, sponges, and soft and hard corals). The benthic community supports higher levels of the food chain, such as shrimp and demersal fish.

3.2.2.2 Essential Fish Habitat

This resource has statutory significance because of the Magnuson-Stevens Fishery Conservation and Management Act (P.L. 104-297), which intended to promote the protection, conservation, and enhancement of essential fish habitat (EFH). Essential fish habitat are waters and substrate necessary to Federally-managed fish species for spawning, breeding, feeding or growth to maturity. Table 1 contains a summary of EFH requirements for species managed by the Gulf of Mexico Fishery Management council (GMFMC), and for which EFH occurs in the project area, including the sites where sediment would be mined. Specific categories of EFH that have been designated in the in the proposed fill area of the project area include: estuarine water column; estuarine mud, sand, and shell substrate; and estuarine emergent wetlands. The project area includes about 597 acres (2.4 km^2) of existing intertidal and sub-tidal habitats including vegetated marsh, tidal flats and beaches, and shallow open water bottoms, all of which provide EFH for managed species. In the borrow area, EFH categories include marine water column and non-vegetated water bottoms. Detailed information on EFH for Federally-managed shrimp, red drum, reef fish, and coastal migratory pelagic species is provided in the 1998 generic amendment of the Fishery Management Plans (FMPs) for the Gulf of Mexico prepared by the GMFMC. Information on EFH for highly migratory species (HMS) is contained in the Atlantic Tunas, Swordfish, and Sharks FMPs prepared by the Secretary of Commerce. The generic amendment and HMS FMPs were prepared as required by the Magnuson-Stevens Fishery Conservation and Management Act.

Essential fish habitat alterations of particular concern in Louisiana are marsh loss and maintenance of habitat, because the marshes are the most extensive in the Nation and

are believed to be largely responsible for the high production of estuarine-dependent species in the north-central Gulf of Mexico (GMFMC 1988). In addition to being designated as EFH for a number of species, aquatic and wetlands habitats in the project area provide nursery, foraging, and predator refugia habitat that support other marine fishery species discussed in the Fishery Resource section. Some of these species serve as prey for other fish species managed under the Magnuson-Stevens Act by the GMFMC.

Table 1: Essential Fish Habitat (EFH) for Federally managed species in the project vicinity

Common Name	Latin Name	Life Stage	System	EFH
Brown shrimp (Estuarine-dependent)	*Farfantepenaeus aztecus*	Eggs	Marine (M)	<110 m, demersal
		Larvae	M	<100 m, planktonic
		postlarvae/ juvenile	Estuarine (E)	marsh edge, submerged aquatic vegetation (SAV), tidal creeks, inner marsh
		Subadults	E	mud bottoms, marsh edge
		Adults	M	<110 m silt sand, muddy sand
White shrimp (Estuarine-dependent)	*Litopenaeus setiferus*	Eggs	M	<40 m, demersal
		Larvae	M	<40 m, planktonic
		postlarvae/ juvenile	E	marsh edge, SAV, marsh ponds, inner marsh, oyster reefs
		Subadults	E	same as postlarvae/ juvenile
		Adults	M	<35 m, silt, soft mud
Red drum (Estuarine-dependent)	*Sciaenops ocellatus*	Eggs	M	planktonic
		Larvae	M	planktonic
		postlarvae/ juvenile	M/E	SAV, estuarine mud bottoms, marsh/water interface
		Subadults	E	mud bottoms, oyster reefs
		Adults	M/E	Gulf of Mexico and estuarine mud bottoms, oyster reef

Table 1 continued….

Red snapper	Lutjanus campechanus	Eggs	M	Over shelf in summer/fall
		Larvae	M	7-183 m
		postlarvae/ juvenile	M	7-183 m
		Subadults	M	20 – 46 m; oversand and mud
		Adults	M	7-146 m
Spanish mackerel	*Scomberomorus maculatus*	Juvenile	M/E	offshore, beach, estuarine
		Adult	M	pelagic
King mackerel	*Scomberomorus cavalla*	Juvenile	M	pelagic
		Adult	M	pelagic
Bluefish	*Pomatomus saltatrix*	Postlarvae/juvenile	M/E	beaches, estuaries, inlets
		Adult	M/E	Gulf and estuaries, pelagic
Cobia	*Rachycentron canadum*	Eggs	M	pelagic
		Larvae	M/E	estuarine & shelf
		postlarvae/ juvenile	M	coastal & shelf
		Adult	M	coastal & shelf
Dolphin	*Coryphaena hippurus*	Juvenile	M	epipelagic
		Adult	M	epipelagic
Bonnethead shark	*Sphyrna tiburo*	Juvenile	M	inlet, estuaries, coastal waters <25 m
		Adult	M	<25 m deep
Atlantic sharpnose shark	*Rhizoprionodon terraenovae*	Juvenile	M	<25 m deep

Source: Gulf of Mexico Fisheries Management Council (1998)

3.2.2.3 Wildlife Resources

In the Barataria Barrier Shorelines Mapping Unit, populations of most wildlife species such as seabirds, shorebirds, wading birds, ducks, and furbearers have exhibited decreasing trends as the area is experiencing rapid erosion, leading to loss of habitat (CWPPRA TASK FORCE and WCRA 1999).

Coastal Birds

Birds that use the project area include swimmers, sea birds, waders, shore birds, birds of prey, and passerine birds. The most common waterfowl species likely to use the project area would be lesser scaup (*Aythya affinis*) and red-breasted mergansers (*Mergus serrator*). Buffleheads (*Bucephala albeola*) may be observed in the area but are uncommon. Seabirds are most common along the barrier islands and inland bays of Barataria Bay (Conner and Day 1987). Within the Barataria Barrier Island system in Plaquemines Parish, 10 seabird colonies have been identified (GEC 2001). Pelicans, gulls, terns, and skimmers are colonial nesters near the project area. The project area also serves as habitat for wading birds, including the least bittern (*Ixobrychus exilis*), great blue heron (*Ardea herodias*), great egret (*Casmerodius albus*), snowy egret (*Egretta thula*), and little blue heron (*Egretta caerulea)*. Shore birds are primarily winter visitors, and occur on sand beaches and tidal mud flats in large numbers (Conner and Day 1987). Birds of prey that may occur near the project include northern harrier (*Circus cyaneus*), American kestrel (*Falco sparverius*), merlin (*Falco columbarius*), and peregrine falcon (*Falco peregrinus*) (American Ornithologists' Union 1983, as cited in Gosselink 1984).

Passerine birds likely to occur in the project area include tree swallow (*Tachycineta bicolor*), bank swallow (*Riparia riparia*), cliff swallow (*Hirundo pyrrhonota*), barn swallow (*Hirundo rustica*), sedge wren (*Cistothorus platensis*), marsh wren (*Cistothorus palustris*), savannah sparrow (*Passerculus sandwichensis*), sharp-tailed sparrow (*Ammodramus caudacutus*), and seaside sparrow (*Ammodramus maritimus*) (American Ornithologists' Union 1983, as cited in Gosselink 1984).

Historically, wading bird nesting colonies have been identified near the project area, but recent surveys have not identified active colonies within the project area. The unvegetated or sparsely vegetated part of the headland may provide nesting habitat for colonial seabirds (terns, gulls, skimmers) while the woody portion not only provides much needed migration habitat but also nesting habitat for wading and other birds.

The project is located at the bottom of the Mississippi Flyway, and birds from central and northern North America start to converge in the fall. Shorebirds begin arriving in mid-July and peak in September. Waterfowl migration begins in mid-August, and populations peak in December. Birds of prey and passerine birds also converge in Louisiana. Some stay all winter, but many stay only a few days before departing southward. The spring return of migrants starts in late February or early March and peaks in late April and early May. Most wading birds do not migrate from Louisiana (Conner and Day 1987).

Mammals and Reptiles

No wildlife surveys have been conducted in the project area; however, based on the types of habitat present, some fur-bearing species may be present. The swamp rabbit is the only species of mammal harvested as game from the saline marshes typical of the project area (GEC 2001). Fur-bearing mammals that may also occur in the project area include muskrat, nutria, mink, raccoon, and otter, although trapping is not common

in the area (GEC 2001). Marsh rice rat may occur in or near the project area (GEC 2001).

Although the project area is saline, reptiles and amphibians include treefrogs, bullfrogs, salamanders, newts, diamondback terrapins, six-lined racerunners, and mole skinks have been known to utilize similar habitat in the vicinity (GEC 2001).

3.2.2.4 Threatened and Endangered Species

Federally threatened or endangered species occurring in Plaquemines Parish are listed in Table 2. Information provided in this section is summarized from communication with the USFWS.

The endangered brown pelican (*Pelecanus occidentalis)* nests on several barrier islands in the project vicinity and is known to change nesting sites as habitat change occurs. They feed along the Louisiana coast in shallow estuarine waters, using sand spits and offshore sand bars as rest and roost areas. The pelican is considered likely to use the project area at some time in the future.

Piping plovers (*Charadrius melodus*) winter throughout the Gulf Coast and its barrier islands, and the species is listed as threatened throughout its wintering range. The piping plover may spend the majority of the year in coastal Louisiana. This species feeds in intertidal beaches and other sparsely vegetated habitats (e.g. mudflats, sandflats, algal flats, and wash-over passes), and roosts on barrier islands. Although wintering piping plovers may use the project area as feeding and roosting habitat, the project area is not designated as critical habitat.

All five species of sea turtles occurring in the Gulf of Mexico are considered either threatened or endangered (Table 2). Although sea turtles forage in the nearshore water, bays, and sounds of Louisiana, no sea turtle nesting is known to occur in the vicinity of the project area.

The West Indian manatee (*Trichechus manatus*) is the only mammal listed as threatened or endangered that may be present in the project area. Manatees have occasionally been sighted in coastal marshes along the Louisiana Gulf Coast. The West Indian manatee is known to occur in Plaquemines Parish, and manatees typically frequent protected inshore waters such as bays and coastal streams.

Table 2: Threatened and endangered species of Plaquemines Parish, Louisiana

Common Name	Latin Name	Federal Legal Status
West Indian manatee	*Trichechus manatus*	E
Brown Pelican	*Pelecanus occidentalis*	E
Piping Plover	*Charadrius melodus*	T/CH
Loggerhead sea turtle	*Caretta caretta*	T
Green sea turtle	*Chelonia mydas*	T
Kemp's Ridley sea turtle	*Lepidochelys kempii*	E
Hawksbill sea turtle	*Eretmochelys imbricata*	E
Leatherback sea turtle	*Dermochelys coriacea*	E

E = Endangered, T = Threatened, CH =critical habitat has been designated
Source: Personal communication, USFWS

3.3 CULTURAL RESOURCES

3.3.1 Historic or Archaeological Resources

Prehistoric and historic archeological sites occur along the coast of Louisiana, reflecting the long history of human habitation. The Mississippi River Delta has been identified as a high probability area for shipwrecks and shipwreck preservation (Garrison et al. 1989). The earliest occupation of the area was by the Spanish in mid-eighteenth century. Because the area is known for historic maritime activity in the northern Gulf of Mexico, a Phase One cultural and archeological resources investigation was conducted to determine if potentially significant submerged cultural resources exist. The survey consisted of a complete review of existing literature and intensive field investigation of the borrow area and overburden disposal area. Field data was collected using seismic, side scan sonar, and magnetic remote sensing equipment in accordance with Louisiana's State Historic Preservation Officer's requirements (Goodwin et al. 2005).

The survey identified 19 magnetic anomalies and 23 acoustic anomalies. The majority of magnetic anomalies recorded during the survey are point source low amplitude signatures, indicating modern debris. Based on the characteristics of the magnetic and acoustic signatures, it was determined that the anomalies are not indicative of shipwrecks or other significant resources (Goodwin et al. 2005).

3.3.2 Socioeconomics

The following socioeconomic information is based on data obtained from Plaquemines Parish Economic Development Office (http://www.plaqueminesparish.com). Note that detailed information regarding the effects of Hurricane Katrina are not currently available, however it is reasonable to assume that changes in the socio-economic profile of the area have changed and will continue to change as recovery and rebuilding efforts continue.

Industry, manufacturing, and retail trade have become increasingly important to the local economy. However, fisheries and agriculture continue to be the primary industries. Plaquemines Parish supports agricultural activities along the Mississippi River. The parish exports $60 million dollars of commercial seafood annually—including oysters, shrimp, crabs, snapper, menhaden, bluefin and yellowfin tuna, and crawfish.

Four small marinas and a large commercial port are located at Empire, Louisiana. The Plaquemines Parish Port Authority provides safe anchorage for supertankers, cargo vessels, and other ships at several locations. The port imports primarily steel, crude oil, and iron ore. Major exports are coal, coke, and grains. Large sulphur and salt deposits that yield millions of tons per year are in Plaquemines Parish, including a sulphur mining area south of Empire. In addition, oil and natural gas reserves are present along with an extensive infrastructure to support the oil industry. The Plaquemines Parish Economic Development Office is promoting industries such as coal and fuel storage, metals, manufacturing, and aquaculture.

The unemployment rate in 2000 in Plaquemines Parish was 5.8%.

3.3.3 Land Use

Plaquemines Parish is predominantly rural with widespread croplands and undeveloped areas. Fisheries and oil and gas production are the primary land use in the project vicinity. There are several pipelines parallel to the shoreline in the project area. Sizes and depths of the pipelines vary (CEC and SJB Group 2005). Oyster leases are north of the project area in Bay Joe Wise.

3.3.4 Recreation

The area is accessible by boat. Limited hunting and fishing are the primary sources of recreation in the project area. Information is available only for the state of Louisiana as a whole; tax revenues associated with recreation and tourism in Louisiana were about $1.1 billion in 2001 and supported over 100,000 jobs in the state (USACE 2004).

3.3.5 Infrastructure

No major roadways or railways are within the project area (CWPPRA TASK FORCE and WCRA 1999). The Barataria Barrier Shoreline Mapping Unit includes 12 miles of oil and gas pipelines and 45 oil or gas wells (CWPPRA TASK FORCE and WCRA 1999).

3.3.6 Noise

The project area is remote with no industry other than oil production and fisheries. Ambient noise in the area results from oil and gas production, boats, and wildlife.

4. ENVIRONMENTAL CONSEQUENCES

Environmental impacts from the alternatives considered are discussed in this section and are included in consideration of cumulative impacts, section 5.1.

4.1 PHYSICAL ENVIRONMENT

4.1.1 Geology, Soils, and Topography

No action
Existing elevations in the project area are less than 3.5 feet NAVD. The average marsh elevation is +1.5 feet NAVD with a range from 1.08 - 1.65 feet NAVD, and the recorded mean high water is +1.53 feet NAVD (CEC and SJB Group 2005). Project area geomorphology is characteristic of a retreating, sand-deficient system with low beach berms, little or no significant dunes, low elevation overwash and back-barrier marsh areas. Significant shoreline breaching occurred during Hurricanes Katrina and Rita. With no action, continued breaching of the island would occur. Without action, the remaining land is expected to become open water by 2014 (CRL 2000).

With no action, material from the borrow areas is likely to be used for other restoration projects, as sand-rich sediments are limited along the Plaquemines shore (USACE 2004).

Preferred alternative
Dunes would be created, and elevation increased with the preferred alternative. The additional width of the island that would be created with the preferred alternative would create greater resistance to tidal channel and breach formation.

The dredged material proposed for both island and marsh construction consists of naturally occurring material deposited in the Gulf over time by riverine processes. Vegetative plantings would stabilize soil, reduce re-suspension of recently deposited sediment, reduce wind transport of dune material, and encourage sedimentation. Over the long-term, dredged materials removed from the borrow areas are expected to be rearranged by natural processes, creating pre-project bathymetric contours in the borrow areas. Overburden would be disposed in the location of another project's borrow area after it is utilized or would be disposed of in an offshore disposal area. Utilization of a previous project borrow area is expected to be available, but, because the option depends on another project's (BA-38) construction, an overburden disposal area was determined.

Because changes in offshore bathymetry, such as excavation of the borrow area or placement of overburden in the offshore disposal area, can affect wave patterns and adjacent shorelines, these impacts were analyzed using models described in section 2.0. Wave height changes in the borrow area are projected to be less than 0.1 feet during normal weather conditions, but may increase as much as five feet during extreme storm events. Wave conditions along the vicinity of the project area were also

projected with and without borrow area excavation to assess the potential for induced changes in wave climate to affect shoreline erosion. Model results suggest that neither wave height nor direction would be changed at the Bay Joe Wise project area. Results indicate that negligible effects on wave refraction and the resultant transport patterns would exist from these activities, and no adverse impacts to the adjacent shorelines are expected (CEC and SJB Group 2005).

4.1.2 Climate and Weather

No action
The Plaquemines shoreline would continue to be at risk in hurricanes and exposed to storm surges. It is expected that erosive coastal process would intrude further inland as the project area is breached and eroded.

Preferred alternative
This alternative would delay island breaching and continue to absorb impact of storm waves and hurricanes along the Plaquemines shoreline for 20 years (CEC and SJB Group 2005).

4.1.3 Air Quality

No action
The no action alternative is not expected to affect air quality.

Preferred alternative
Construction equipment would create a minor, localized, and temporary increase in engine emissions. Prevailing winds are expected to disperse any airborne pollutants. No post-construction effects on air quality are expected. Because the project area is removed from any residential area, the impact to human health would be negligible.

4.1.4 Water Resources

No action
The no action alternative is not expected to affect water resources.

Preferred alternative
The preferred alternative would create a localized and temporary increase in turbidity as sediments are dredged from the borrow area, placed in the project area, and overburden is discharged into designated sites. If the disturbed sediments are anoxic, the biological oxygen demand in the water column would increase. No known toxic or hazardous conditions exist in the borrow area. Dredging could exhume buried debris. It is not expected that such debris would cause water quality concerns.

Discharges of fuel and oil from equipment could occur. The discharge would be restricted to time of construction and would be incidental. Pipelines occur in the area

and have been surveyed; the preferred alternative is not anticipated to impact the pipelines. Through coordination with the pipeline companies, a determination was made that the pipelines in the project area are deep enough to avoid being impacted by the preferred alternative implementation (personal communication, Rachel Sweeney, National Marine Fisheries Service). Potential impacts to water resources are expected to be minor, temporary and localized in nature.

4.2 BIOLOGICAL ENVIRONMENT

4.2.1 Vegetative Resources

No action
With no action, continued erosion and overwash are expected to occur, resulting in losses to vegetative resources. All dune and swale habitats are expected to be lost in the next 20 years. Back-barrier marsh will continue to be impacted by overwash, subsidence, and erosion. With no action, it is anticipated that about 40 acres of saline marsh are expected to be lost in the next 20 years.

Preferred alternative
The proposed project would create 423 acres of barrier island habitat through the restoration of about 153 acres of dune, berm and swale habitats and the protection and creation about approximately 270 acres of saline marsh. Installation of vegetative plantings will encourage colonization of native dune vegetation and the development of emergent vegetated wetlands. Intensive dune plantings will occur immediately post-construction to stabilize newly placed sediments, and installation of wetland vegetation on the marsh platform will occur as the material consolidates and dewaters. Anticipated plantings include smooth cordgrass (*Spartina alterniflora*), bitter panicum (*Panicum amarum*), marshay cordgrass (*S. patens*), gulf cordgrass (*S. spartinae*), and other native coastal species. Project construction would result in a net benefit of 262 acres after 20 years. Though habitat losses would continue to occur over time due to natural processes, the preferred alternative would increase vegetative resources in both quantity and quality.

The preferred alternative would convert about 42 acres of existing emergent marsh to dune and swale habitats and protect about 65 acres of existing emergent marsh. Additionally, construction of the proposed water exchange channel would negatively impact approximately eight acres of existing healthy marsh by converting it to open water. However, the preferred alternative would create about 205 acres of emergent marsh in shallow open water, resulting in a net gain in vegetated wetlands as a result of the project. Project construction is anticipated to result in conditions significantly more conducive to healthy barrier island vegetative communities than currently exists. Overall, impacts to vegetated wetland resources are offset by the protection and creation of additional dune and intertidal marsh habitats.

4.2.2 Fish and Wildlife Resources

4.2.2.1 Fisheries Resources

No action
The quality of fish habitat is expected to continue in its decreasing trend as the island erodes and marsh and back barrier is lost to open water. Oysters located in Bay Joe Wise are expected to decline as marine processes intrude and salinity levels increase due to project area erosion.

Preferred alternative
Under the preferred alternative, short-term, local, adverse impacts to fisheries resources would occur during the construction phase of the project. The direct effect of dredging is the removal of sediment along with the organisms living in the sediment. Impacts could include entrapment and likely death of slow-moving organisms (such as crabs) and benthic organisms (such as polychaetes) during dredging in the borrow areas and canals and smothering of benthic organisms and more sessile fish species in the deposition sites. Some oyster beds in the project are expected to be negatively impacted; however, those beds are declining in productivity as the shoreline erodes and marine conditions intrude. The project should provide excellent growing conditions for the remaining areas throughout the 20-year life of the preferred alternative. Construction of the water exchange channel in the proposed alternative is intended to maintain current water exchange, which would otherwise impact marine organisms, such as oysters.

Mobile aquatic animals would be expected to move away from the fill and borrow areas during construction and return following completion of construction. Hypothetical impacts to invertebrates and fish that do not move out of the area could include abrasion injuries to gills from high suspended sediment concentrations and altered optical properties of water that can change fish behavior, such as disrupting occupation of or movement through various barrier island aquatic habitats (Ray and Clarke 2001). Isolated, short-term effects on pelagic fish eggs and larvae in the immediate area may occur. However, studies along the East Coast measured suspended solid concentrations in the surf zone comparable to conditions that fish (silversides and anchovies) tolerate in naturally turbid estuarine waters (Ray and Clarke 2001). Dredging would change substrate topography, indirectly impacting benthic and other aquatic organisms using this habitat.

Depending on the depth-of-cut, dredging in the Gulf could result in low dissolved oxygen in bottom waters. Low dissolved oxygen already occurs in the nearshore Gulf, especially during the summer months, so the site and dimensions of the proposed borrow area could contribute to low dissolved oxygen which may pose some risk to some fish and crustaceans with low mobility. However, fisheries monitoring of borrow sites on the East Coast determined there was no large scale change in composition or

abundance of the fish assemblage in relation to the dredged borrow areas even with particularly low dissolved oxygen levels during the fall (Ray and Clarke 2001). Additionally, a similar offshore borrow site off of Grand Isle, Louisiana may have created favorable habitat for some species of fish as evident by the fishing effort over the borrow site.

Over the 20-year life of the preferred alternative, the quality of fish habitat would increase. As previously stated, marsh loss in Louisiana is of particular concern because these marshes are the most extensive in the Nation and believed responsible for the high productivity of fisheries in the Gulf of Mexico (GMFMC 1988). Increasing the quantity and quality of marshes and protecting back barrier waters would benefit fish and wildlife species. As the shoreface equilibrates after construction, surf zone fish assemblages associated with natural Gulf shorelines are expected to utilize the area. Species that use intra-island habitats during some or all life stages would benefit from tidal features created post-construction and from the development of a tidal hydroperiod similar to natural marsh as the created marsh consolidates and subsides (Williams 1998). Access to the Gulf would still be possible through existing passes.

4.2.2.2 Essential Fish Habitat

No action
The quality of EFH is expected to continue decreasing as the island erodes and marsh and back barrier is converted to open water habitat.

Preferred alternative
With the preferred alternative, approximately 50 acres of existing intertidal marsh, 72 acres of water bottom, and 25 acres of flats would be either dredged deeper or filled to supratidal elevations. Temporary adverse impacts to the estuarine and marine water column would result from the dredging and disposal activities. However, the project would protect and create 270 acres of marsh. After 20 years, it is expected that the project would restore or protect 148 more acres of marsh than the no action alternative. In the long term, the preferred alternative would improve EFH by re-establishing marsh and protecting existing marsh habitat from erosion. Marsh, inner marsh, and marsh edge habitat would increase with the vegetative plantings and hydrological features added post-construction. Detrital material, formed by the breakdown of emergent vegetation, would contribute to the aquatic food web of the estuary. Decreases in erosion rates and tidal scour also would protect estuarine mud and shell bottoms, and marsh ponds. Given the overall beneficial effects of the preferred alternative, the National Marine Fisheries Service has determined that any adverse impacts to EFH would be adequately compensated by the benefits provided by creation and protection of more and/or other EFH. Accordingly, the preferred alternative would benefit many life stages of Federally-managed marine fishery species.

Short-term, unavoidable, adverse impacts to brown shrimp, white shrimp, and red drum would occur during the construction phase of the project as marsh is filled. However, post-construction increases in quality and quantity of the marsh described above would

offset these impacts. Turbidity would increase during construction, but return to ambient conditions post-construction. Adverse impacts to EFH supportive of king mackerel, bluefish, cobia, dolphin, bonnethead shark, and Atlantic sharpnose shark potentially would result from turbidity and deepening of the water column associated with dredging at the borrow site. However, turbidity impacts are expected to be short-term and minor, and deepening of the water column at the borrow site would not result in the area being uninhabitable to these species. In addition to impacts associated with EFH for Federally-managed species, minor adverse impacts to prey and forage species of Federally-managed species may result during dredging and fill activities, such as those listed in section 4.2.2.1. However, post-construction increases in quality of habitat for prey and forage species would offset these impacts.

4.2.2.3 Wildlife Resources

No action

With no action, the continued conversion of marsh to open water may increase the foraging area for the lesser scaup. Over time, however, the habitat would become less suitable for this species as aquatic vegetation declines. Since most ducks prefer freshwater marshes, the increase in salinity due to fragmentation and the resulting increase in connectivity with the Gulf would most likely deter mottled duck, gadwall, blue-winged teal, and green-winged teal from using the marshes. Clapper rail numbers in the project areas would also probably decline due to deterioration of brackish and salt marsh habitats. Seabird colonies have been identified within the vicinity of the project area. Occasionally these birds construct nests in marshes or on the ground. Therefore, with no action the loss of these habitats would negatively impact these colonies.

Preferred alternative

With the preferred alternative, the quantity and quality of habitat for wildlife would increase for the twenty-year life of the project. Many bird species, either migratory or permanent residents, depend on marsh and shore areas within and surrounding the project area. Increasing the marsh and shore areas with the preferred alternative would increase the ability of the island to support those species. Mammals, reptiles, and amphibians would be maintained in the project area as habitat that would be lost with no action would be maintained in quantity and quality. Because the area has historically been used by nesting wading birds, the National Marine Fisheries Service will coordinate with the USFWS to inspect the proposed work site during nesting seasons for the presence of undocumented nesting colonies. If wading bird or seabird nesting colonies are identified, project modifications to avoid impacts to those colonies would be coordinated with the USFWS.

4.2.2.4 Threatened and Endangered Species

No action
Without action, existing habitat would continue to be lost, reducing available resources for the brown pelican and piping plover. Manatees and sea turtles would not be directly affected by on-going shoreline erosion.

Preferred alternative
In the long-term, the preferred alternative would increase the longevity and enhance the quality and quantity of available habitat for protected species. The preferred alternative would result in a more stable island in an area adjacent to habitat critical to piping plover. It is reasonable to expect that at some time during the 20-year life of the project, over-wintering piping plover may use the newly created island habitat in the project area. Brown pelican would also benefit from the increased acreage and stability of the restored project area. The increase in fisheries habitat associated with the preferred alternative would improve foraging success for both of these avian species.

During construction activities, it is anticipated that any birds in the area would be temporarily displaced to nearby suitable habitats. Also during construction, construction personnel would be informed of the potential presence of manatees and the need to avoid collisions with manatees. All construction personnel would be responsible for observing water-related activities for the presence of manatees. Temporary signs would be posted prior to and during all construction/dredging activities to remind personnel to be observant for manatees within the active construction/dredging operations or vessel movement (i.e., work zone), and at least one sign would be placed visible to the vessel operator. In the event that a manatee is sighted within 100 yards of the active work zone, special operating conditions would be implemented, including: no operation of moving equipment shall be allowed within 50 feet of a manatee; all vessels shall operate at no wake/idle speeds within 100 yards of the work zone; and siltation barriers, if used, should be re-secured and monitored. Once the manatee has left the 100-yard buffer around the work zone on its own accord, special operating conditions would no longer be necessary. Also, any sightings would be reported to appropriate Federal and State agencies.

Based on the long-term benefits of the preferred alternative, and the conservation measures during construction activities, the preferred alternative is not expected to adversely affect the brown pelican, piping plover, or manatee.

The preferred alternative is not likely to adversely affect any protected turtles or their habitat. No direct effect on protected turtles in anticipated because hopper dredges would not be used for project construction. No critical habitat or known sea turtle nesting sites occur in the project area. Dredging may temporarily disrupt a small area of foraging habitat, but food sources are abundant and turtles are mobile.

4.3 CULTURAL RESOURCES

4.3.1 Historic or Archaeological Resources

No action
With no action it is likely that the borrow areas would be utilized by other coastal restoration projects due to the high demand and short supply of viable sediment sources. With that exception, no impacts would result from the no action alternative.

Preferred alternative
Cultural resource investigations were conducted as described in section 3.3.1. Analysis of the acoustic anomalies is not indicative of shipwrecks or other significant cultural resources. Therefore, it is anticipated that the proposed project will not have any effects on historic or cultural resources.

4.3.2 Socioeconomics

No action
With no action, the current trends would continue. Pipelines may become exposed and economic activity is expected to continue. Commercial and recreational fisheries activities are not expected to change in the short term for the project area. With no action, the ability of the area to support these activities would decrease over the next twenty years due to breaching and loss of habitat and exposure and damage to infrastructure.

Preferred alternative
The preferred alternative is not expected to affect economic resources adversely. Marshes created would provide forage, nursery, and grow-out sites for a variety of commercially and recreationally important fisheries species. Improvements to barrier-island and marsh habitats would affect fisheries resources positively and indirectly support nearby businesses that provide services of recreational and commercial fishing. Pipelines would be better protected than without the project, and economic activity in the area would continue at present levels or increase. During the period of construction, a small increase in employment of dredge operators, crew members, and other construction-related technicians would occur.

4.3.3 Land Use

No action
With no action, current trends would continue. Commercial fisheries are not expected to change in the short term for the project area. With no action, the ability of the area to support these activities would decrease over the next twenty years due to breaching and loss of habitat.

Preferred alternative
Short-term reversible impacts on fishing would occur during construction. However, habitat suitable for fishing is common in the region, and the temporary loss of opportunity for fishing in the project area is therefore considered minimal.

4.3.4 Recreation

No action
Recreational fisheries are not expected to change in the short term for the project area. With no action, the ability of the area to support these activities would decrease over the next twenty years due to breaching and loss of habitat.

Preferred alternative
Over the long term, the preferred action would have direct, beneficial impacts to waterfowl and fisheries habitats, maintaining or increasing the ability of the area to support these activities.

4.3.5 Infrastructure

No action
No impacts are expected with the no action alternative.

Preferred alternative
The preferred alternative would better protect pipelines in the area, reducing the likelihood of exposure due to erosion. Pipeline companies have been coordinated with in preparation of the preferred alternative.

4.3.6 Noise

No action
The no action alternative would not affect noise levels.

Preferred alternative
Some temporary adverse short-term impacts to noise would occur as a result of construction. However, the area is remotely located and is not expected to impact areas of human habitation.

5. OTHER CONSIDERATIONS

5.1 CUMULATIVE IMPACTS

Direct and indirect impacts of past, present, and foreseeable future events were considered in the analysis of the proposed project. These include historic and predicted future land loss rates for the area, and other restoration projects in the vicinity. Without

the protective buffer provided by barrier islands like the proposed project area, interior wetlands would be at increased risk to severe damage from tropical storm events. The preferred alternative would have temporary adverse impacts to some environmental resources but with time, cumulative benefits those environmental resources are expected.

Though CWPPRA projects are nominated and implemented one at a time and must have individual merit, the cumulative value of all wetland restoration and protection projects in an area can far exceed the summed values of the individual projects. Other barrier island restoration projects in the vicinity would add to the ultimate value of the proposed project. Projects in the immediate vicinity include various beach restoration and stabilization projects on Grand Isle, restoration of the dune and back-barrier marsh on West Grand Terre Island with the beneficial use of dredged material from the Barataria Bay Waterway, restoration of BA-05b Queen Bess Island, BA-19 Barataria Bay Waterway Wetland Restoration, and BA-28 Vegetative Plantings of a dredged material disposal site on Grand Terre Island. Projects planned for construction in the vicinity of this project include Pelican Island and Pass La Mer to Pass Chaland (BA-38) and East Grand Terre (BA-30). The statements below consider impacts that would result from implementing the proposed action as well as BA-38 and BA-30 projects, which are all similar in scope and location. Project planning documents were used to determine project specific impacts. Where appropriate, quantification of additive effects is given.

Physical cumulative impacts are related to the use of 14.42 million cubic yards of borrow sediments. Borrow areas are not expected to have any interacting cumulative effects on wave conditions due to separation of the areas of impact relative to wave direction. All proposed borrow areas were modeled cumulatively to assess potential changes in wave climate and shoreline erosion processes. Cumulative impacts as a result of overburden disposal would be minimal, temporary and localized to the dredging and disposal sites.

The cumulative impact of the three projects on climate would delay breaching across the Barataria basin, reducing storm surge further inland. Due to the remote location and temporary construction periods, negligible, minor, and localized impacts to air quality would result.

The cumulative impact to water quality is not expected to be significant as the project areas are separated geographically and the turbidity from each effort would rapidly be dispersed by tidal events. While adverse impacts to water quality could result from disturbance of borrow sediments that are possibly anoxic, surface waters in the borrow and disposal areas are well mixed and anoxic conditions should not persist for long periods.

Cumulative adverse impacts would result from placement and/or dredging of 157 acres of vegetation. However, the areas of impact are expected to be lost due to erosion without project implementation. By implementing the project, the loss of vegetation

would be more than offset by the net gain of 977 acres of vegetated land over the twenty-year project life. Further beneficial impacts would result from a net increase of approximately 200 acres in dune habitat, increases in nutrients from decomposing plant matter likely to result from increasing vegetation area, and reduced storm surge on vegetation inland as a result of retaining the island for a longer period of time.

Cumulative impacts to fish and wildlife are similar to the direct and indirect effects described in chapter 4. Approximately 641 acres of EFH would be impacted by either dredge or fill activities, this includes more than 121 acres of intertidal marsh, more than 137 acres of water, and more than 70 acres of flats. The projects would increase marsh acres and create dune and swale habitat. After twenty years, it is expected that there would be 587 acres of marsh more than with the no action alternative. While implementation of these projects would not result in a greater area of EFH, it would result in the creation of more productive forms of EFH (e.g., beachfront and marsh) from less productive forms of EFH (water column and water bottoms).

Through the creation of dune, beach, and initial marsh creation, a net increase in piping plover habitat is expected to result from the implementation of these projects. Minor adverse impacts to critical piping plover may result from the conversion of habitat to dune or marsh. Without the implementation of these projects, this piping plover habitat is expected to completely disappear during the project life due to erosion. In the long term, the critical habitat would benefit by increases in the longevity, diversity, and acreage of piping plover critical habitat.

Impacts to all significant cultural resources are similar to those described in chapter 4.0.

5.2 ENVIRONMENTAL JUSTICE

The preferred alternative includes protecting and creating dune, swale, and intertidal marsh habitat between Pass Chaland to Grand Bayou Pass. Impacts to human health are minor and include increased noise and exhaust emissions during the construction phase of the project. In the long term, positive economic impacts would result. Therefore, no disproportionately high impacts to minority or low-income populations would occur.

5.3 COORDINATION

Coordination of the preferred alternative has been maintained with each CWPPRA Task Force agency. Contents of this draft EA and the draft Finding of No Significant Impact (FONSI) were discussed with appropriate congressional, Federal, state, and local agencies and other interested parties. Comments from all reviewers on the preferred action are in Appendix A.

5.4 COMPLIANCE

The status of compliance of this project with applicable laws and regulations is presented in Table 3**.** Regulations require coordination of the EA and draft FONSI with appropriate agencies, organizations, and individuals for their review and comment. The preferred alternative is not expected to cause adverse environmental impacts requiring compensatory mitigation.

Table 3. Compliance with environmental statutes

Federal Statutes	***Status***
Archaeological and Historic Preservation Act of 1974	Complete
Clean Water Act of 1977, as amended	Complete
Coastal Zone Management Act of 1972, as amended	Complete
Endangered Species Act of 1973, as amended	Complete
Estuary Protection Act	Pending
Fish and Wildlife Coordination Act of 1958, as amended	Complete
Magnuson-Stevens Fishery Conservation and Management Act of 1976, as amended	Complete
National Environmental Policy Act of 1969, as amended	Pending
National Historic Preservation Act of 1966, as amended	Complete
State Statutes	
Archaeological Treasury Act of 1974, as revised	Complete

6. CONCLUSIONS

This EA finds that no significant long-term adverse environmental impacts are anticipated from implementing the Pass Chaland to Grand Bayou Pass Barrier Shoreline Restoration Project. Short-term impacts related to construction activities are considered temporary or reversible. This conclusion is based on a comprehensive review of relevant literature, site-specific data, and project-specific engineering reports related to biological, physical, and cultural resources. The natural resource benefits anticipated from implementing this project would enhance and sustain dune, swale, and intertidal habitat within the project area. The increase of fisheries habitat is expected to have long-term beneficial impacts on the local economy, as it relates to recreational and commercial fishing. In addition, the preferred project would result in increased protection for infrastructure in the area to be restored.

7. PREPARERS

This EA was prepared by Joy Merino of the National Marine Fisheries Service. Reference material and guidance were provided by Rachel Sweeney, Dr. John Foret and Dr. Erik Zobrist of the National Marine Fisheries Service.

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APPENDIX A

AGENCY COORDINATION LETTERS

United States Department of the Interior

FISH AND WILDLIFE SERVICE
646 Cajundome Blvd.
Suite 400
Lafayette, Louisiana 70506

December 13, 2005

Joy Merino
National Marine Fisheries Service
SEFC/Estuarine Habitats & Coastal Fisheries Center
646 Cajundome Boulevard
Lafayette, Louisiana 70506

Dear Ms. Merino:

Please reference the draft Environmental Assessment (EA) for the Pass Chaland to Grand Bayou Pass Barrier Shoreline Restoration Project and the draft Finding of No Significant Impact (FONSI). That EA evaluates the potential impacts associated with creation of barrier island habitat between Pass Chaland and Grand Bayou Pass in Plaquemines Parish, Louisiana. The proposed project was authorized for funding pursuant the Coastal Wetlands Planning, Protection and Restoration Act.

The U.S. Fish and Wildlife Service offers the following comments in accordance with provisions of the Fish and Wildlife Coordination Act (48 Stat. 401, as amended; 16 U.S.C. 661 et seq.), the Endangered Species Act of 1973 (87 Stat. 884, as amended; 16 U.S.C. 1531 et seq.), and the National Environmental Policy Act (83 Stat. 852, as amended; 42 U.S.C. 4321-4347).

General Comments

The draft EA is well written and adequately describes fish and wildlife resources and potential impacts to those resources associated with project implementation. The project area consists of beach, supratidal marsh, intertidal marsh, and subtidal habitats that are important for Federal trust resources, especially shorebirds, colonial nesting waterbirds, neotropical migrants, and estuarine-dependent fishes and shellfishes. The project is expected to result in a net gain of 262 acres of barrier island habitats at the end of the 20-year project life, thereby benefiting those and other fish and wildlife resources.

Specific Comments

Page 7, Paragraph 2, Sentence 3 – This sentence should be revised to indicate that coastal marshes reduce storm surges to interior lands. Use of the word "protect" implies that coastal marshes prevent storm surges from affecting interior lands.

Page 15, Section 3.2.2 Fish and Wildlife Resources – This section should discuss the extent of oyster resources within the project area. Subsequent sections indicate that

oyster beds are found within Bay Joe Wise and will be impacted by project implementation.

Page 20, Paragraph 1 - Historically, waterbird nesting colonies have been identified near the project area but recent surveys have not identified active colonies within the project area. Colonies may, however, be present that are not currently listed in the database maintained by the Louisiana Department of Wildlife and Fisheries.

Page 22, Table 2 – This table should only include those species and their critical habitat found within the project area. The threatened bald eagle is not likely to occur in the project area and should be removed from this table. The West Indian manatee is listed twice.

The designation "T/E" for the piping plover is incorrect. The correct designation is "T/CH" indicating that the piping plover is a threatened species and that critical habitat has been designated.

Page 29, Section 4.2.2.3 Wildlife Resources-Preferred Alternative – Because waterbird nesting colonies have been identified near the project area, we recommend that a qualified biologist inspect the proposed work site during the nesting season for the presence of nesting colonies. Should wading bird or seabird nesting colonies be identified, project modifications to avoid impacts to those colonies should be coordinated with this office.

Page 30, Paragraph 1 – We concur with your determination that the proposed project is "not likely to adversely affect" any federally listed threatened or endangered species, or their critical habitat. Reference to the Gulf sturgeon and bald eagle should be removed from this section as those species are not likely to occur in the project area.

The Service appreciates the opportunity to comment on the draft EA. If you have any questions regarding our comments, please contact Kevin Roy at (337) 291-3120.

Sincerely,

Russell C. Watson
Supervisor
Louisiana Field Office

cc: EPA, Dallas, TX
NMFS, Baton Rouge, LA
NRCS, Alexandria, LA
USACE, New Orleans, LA
LA Dept. of Wildlife and Fisheries, Baton Rouge, LA
LA Dept. of Natural Resources (CRD), Baton Rouge, LA

UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL MARINE FISHERIES SERVICE
Southeast Regional Office
263 13th Avenue South
St. Petersburg, Florida 33701

January 6, 2006 F/SER46/KS:jk
225/389-0508

Dr. John D. Foret
National Marine Fisheries Service
SEFC/Estuarine Habitats and Coastal Fisheries Center
646 Cajundome Boulevard
Lafayette, Louisiana 70506

Dear Dr. Foret:

NOAA's National Marine Fisheries Service (NMFS), Habitat Conservation Division (HCD) has received the unsigned finding of no significant impact (FONSI) and draft environmental assessment (EA) titled "Pass Chaland to Grand Bayou Pass Barrier Shoreline Restoration Project, CWPPRA Project BA-35" transmitted by your letter dated November 30, 2005. NMFS proposes to restore and protect the barrier shoreline between Pass Chaland and Grand Bayou Pass in Plaquemines Parish, Louisiana, through the creation of dune and intertidal marsh habitat. The project has been funded for engineering and design under the auspices of the Coastal Wetlands Planning, Protection and Restoration Act (CWPPRA). The transmittal letter indicates these documents are intended to initiate essential fish habitat (EFH) consultation pursuant to the Magnuson-Stevens Fishery Conservation and Management Act (Magnuson-Stevens Act).

The preferred alternative consists of mining 4.22 million cubic yards sand, silt, and clay from offshore borrow areas for placement on East Grand Terre Island. Material would be placed along approximately 14,000 feet of shoreline to create beach and dune features. Intertidal marsh would be created behind the dune to stabilize the beachfront and reduce breaching, as well as provide increased habitat for marine fishery species. Sand fencing and vegetative plantings would further stabilize project features and enhance habitat quality.

Based on our review of the draft EA and our knowledge of the project through previous coordination with your office, participation in the CWPPRA process, and of impacts from similar projects, NMFS HCD offers the following comments on the unsigned FONSI and draft EA:

DRAFT FINDING OF NO SIGNICANT IMPACT FOR IMPLEMENTATION OF THE EAST GRAND TERRE RESTORATION PROJECT

Page i. (1) and (2) In addition to marsh, sand substrate (i.e., intertidal portions of the beach habitat) also has been designated as essential fish habitat (EFH). Sections of the FONSI addressing project benefits to EFH should discuss the restoration and protection of beach habitat in addition to marsh creation.
Page ii. (7) While the project would increase the quantity and quality of wetlands, we recommend this section state that some existing marsh and water bottom habitats designated as EFH would be dredged or filled with the proposed action. We recognize that impacts to EFH are expected to be more than offset by the increase in acreage of those categories of EFH most supportive of marine fishery resources (e.g., intertidal wetlands and sand substrate).

DRAFT ENVIRONMENTAL ASSESSMENT

2.0 Alternatives
2.2 Alternatives Considered
2.2.2 No Action

Page 10, paragraph 2. This section of the document should be revised to state that marsh would be created in a section 13,500 feet long by 920 feet wide, and taper westward and eastward to tie into the existing marsh.

Page 10, paragraph 4. This section of the document should be revised to state that material would be placed along 14,000 feet of shoreline to create beach and dune habitat, and taper eastward and westward to tie into the existing beach.

Page 13, paragraph 1. The phrase "by creating 270 acres of new marsh and 150 acres of back barrier marsh created using borrow sediment and vegetative plantings" should be removed from the last sentence of this paragraph.

3.0 Affected Environment
3.2 Biological Environment
3.2.2 Fish and Wildlife Resources
3.2.2.2 Essential Fish Habitat

Page17. This section of the draft EA should be expanded to indicate that forage and prey species for managed species also are supported by habitat in the project area. We suggest the following be added to this section: "In addition to being designated as EFH for a number of species, aquatic and wetland habitats in the project area provide nursery, foraging, and predator refugia habitats that support other marine fishery species discussed in the Fishery Resources section. Some of these species serve as prey for other fish species managed under the Magnuson-Stevens Act by the GMFMC."

4.0 Environmental Consequences
4.2 Biological Environment
4.2.2 Fish and Wildlife Resources
4.2.2.2 Essential Fish Habitat

Page 28, paragraph 3. This section of the draft EA states that short-term, unavoidable impacts will occur to brown shrimp, white shrimp, red drum, gray snapper, and Spanish mackerel. Gray snapper does not have EFH designated in or off the coast of Louisiana and should be deleted from this section of the EA. In addition, impacts to other species with EFH designated in the project area (king mackerel, bluefish, cobia, dolphin, bonnethead shark, and Atlantic sharpnose shark), as well as to prey and forage species, should be added to this section of the EA. The EA should be revised to state that adverse impacts to EFH supportive of king mackerel, bluefish, cobia, dolphin, bonnethead shark, and Atlantic sharpnose shark potentially will result from turbidity and deepening of the water column associated with dredging at the borrow site. However, turbidity impacts are expected to be short-term and minor, and deepening of the water column at the borrow site would not result in the area being uninhabitable to these species. In addition, the EA should include a discussion of impacts to prey and forage species in the project area and borrow sites (such as those listed in section 3.2.2.1)

resulting from dredging and filling activities, similar to the discussion included for impacts to federally managed species.

4.2.2.4 Threatened and Endangered Species

Page 29. This section of the draft EA does not state whether coordination was conducted with NMFS Protected Resources Division to determine if the proposed action may affect endangered or threatened species, their critical habitat, or result in takings or harassment of marine mammals under NMFS purview. We recommend you contact Mr. David Bernhart at (727) 824-5312 or at the letterhead address regarding those resources.

5.0 Other Considerations
5.1 Cumulative Impacts

Page 32. We recommend this section of the EA be expanded and organized in the same manner as the "Affected Environment" and "Environmental Consequences" sections of the EA to address the cumulative impacts to physical, biological, and cultural resources. Specific discussions on the cumulative impacts to vegetative resources, fisheries resources, and EFH should be included in the EA. In addition, several other barrier island projects in the Barataria Bay estuary have been funded and are in various stages of completion. As such, we recommend the document be revised to provide discussion and quantitative details of the cumulative impacts and benefits of these barrier island restoration projects on the various resources of concern that have been included in the EA.

NMFS HCD supports implementation of the preferred alternative and we have no EFH conservation recommendations to provide. Submittal of the draft EA and FONSI for our review satisfies the consultation procedures outlined in 50 CFR Section 600.920, the regulation to implement the EFH provisions of the Magnuson-Stevens Act.

We appreciate the opportunity to review and comment on the draft EA and FONSI. If you have questions regarding these or the enclosed comments, please contact Kelly Shotts of my staff at (225) 389-0508, extension 209.

Sincerely,

for Miles M. Croom
Assistant Regional Administrator
Habitat Conservation Division

cc:
FWS, Lafayette
EPA, Dallas
LA DNR, Consistency
F/SER46, Ruebsamen
F/SER3, Bernhart
LDWF, Finley
Files

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

Southeast Regional Office
263 13th Avenue South
St. Petersburg, FL 33701
(727) 824-5312, FAX 824-5309
http://sero.nmfs.noaa.gov

DEC 6 2005

F/SER3:EGH

Ms. Joy Merino
NOAA Restoration Center
SEFC/Estuarine Habitats and
Coastal Fisheries Center
646 Cajundrome Boulevard
Lafayette, LA 70506

Dear Ms. Merino:

This correspondence responds to your letter dated November 30, 2005, and enclosed draft Environmental Assessment (EA) dated November 2005 for the Bay Joe Wise project (BA-35, Pass Chaland to Grand Bayou Pass Barrier Shoreline Restoration, Plaquemines Parish, LA), funded under the Coastal Wetlands Planning, Protection and Restoration Act. The National Marine Fisheries Service (NMFS), Protected Resources Division (PRD) received your submission on December 5, 2005. You requested our comments on the EA.

PRD believes the EA adequately addresses the issues associated with threatened and endangered species under NMFS' purview. We have no additional comments.

We look forward to continued cooperation with the NOAA Restoration Center in conserving our endangered and threatened resources. If you have any questions, please contact Mr. Eric Hawk, fishery biologist, at (727) 824-5312, or by e-mail at Eric.Hawk@noaa.gov.

Sincerely,

David Bernhart
Assistant Regional Administrator
for Protected Resources

File: 1514-22.F. NOAA
Ref: T/SER/2005/06395

United States Department of Agriculture

NRCS
Natural Resources Conservation Service
3737 Government Street
Alexandria, LA 71302

February 7, 2006

Ms. Joy Merino
National Marine Fisheries Service
SEFC/Estuarine Habitats & Coastal Fisheries Center
646 Cajundome Boulevard Suite # 172
Lafayette, Louisiana 70506

Dear Ms. Merino:

RE: Pass Chaland to Grand Bayou Pass Barrier Shoreline Restoration Project (BA-35)

As requested in your letter of November 30, 2005, the Natural Resources Conservation Service has reviewed the draft Environmental Assessment (EA) and the Finding of No Significant Impact (FONSI) for the proposed Pass Chaland to Grand Bayou Pass Barrier Shoreline Restoration Project (BA-35) and offers the following comments:

General Comments on the Draft EA

The draft EA is well written and generally provides an adequate description of the proposed project, the affected environmental resources, and the anticipated project impacts to those resources. However, the purpose of the EA is not only to evaluate project impacts, but also to compare those impacts to the anticipated impacts of various alternatives. Therefore, we believe that reasonable alternatives and their impacts to the environment should be developed in the EA. Those alternatives should meet the project objectives, but be limited by the rule of reason as provided in the Council of Environmental Quality Regulations, 40 CFR 1502.14. The emphasis in determining the scope of alternatives should be on what is "reasonable." Reasonable alternatives include those alternatives that are practical or feasible from a technical and economic standpoint. For example, rock breakwaters have been used in the past to achieve similar project objectives and may be a reasonable alternative for this EA. Another alternative could be to bring fill material in by barge instead of using borrow areas. The environmental impacts of those alternatives should then be evaluated and compared in the EA.

Specific Comments on the Draft EA

Page 7, Section 1.2, Paragraph 3, First Sentence - Relative sea-level rise includes subsidence, which is listed separately in this sentence. We suggest that you list eustatic sea-level rise if you want to list subsidence separately.

Page 7, Section 1.2, Paragraph 4, Last Sentence - This sentence states that "Construction of marsh, beach, and dune platforms is proposed to increase island longevity, protect estuarine systems, and return the island to a more historical alignment." However, those are not consistent with the objectives listed in the first paragraph of Section 1.2.

Page 9, Section 2, Alternatives - This section states, "many alternatives did not meet the minimum goals of preventing marsh loss for 20 years and therefore were rejected without further consideration." However, will the Preferred Alternative prevent marsh loss for 20 years?

We believe that the project goals and objectives need to be clearly stated and remain consistent throughout the EA. According to the Purpose and Need for Action, the purpose of the project is to protect and preserve the structural integrity of the barrier shoreline. As discussed in the general comments above, we suggest that "reasonable" alternatives to protect and preserve the structural integrity of the barrier shoreline be introduced in this section and analyzed throughout the EA. For example, rock breakwaters have been used in the past to achieve similar project objectives and may be a reasonable alternative to evaluate in this EA

Page 15, Section 3.1.1, Paragraph 4 - Does the reference to offshore sediment losses mean the loss of island sediments to offshore? – Clarification is needed.

Page 16, Section 3.1.4, Paragraph 1, Second Sentence - We suggest replacing the word "preferred" with "proposed."

Page 15, Section 3.1.4, Paragraph 1 - First sentence may want to use the word gulf in place of "ocean." In addition, the second sentence could read, "Waves are generated by wind, which prevail from the south." In last sentence, we suggest adding the word "area" after the word project.

Page 16, Paragraph 3, First Sentence - We suggest describing what the Island is providing protection from.

Page 20, Section 3.2.2.3, Coastal Birds – add after paragraph 4, "The unvegetated (or sparsely vegetated) part of the headland may provide nesting habitat for colonial seabirds (terns, gulls, skimmers) while the woody portion not only provides much needed migration habitat but also nesting habitat for wading and other birds." (This all follows EO 13186 guidelines for Federal Agencies to Protect Migratory Birds).

Page 20, Section 3.2.2.3, Mammals and Reptiles – Is not salinity too high for amphibians such as tree frogs, bullfrog, salamanders, and newts as well as for racerunners and skinks?

Page 21, Section 3.2.2.4, Paragraph 2, Last Sentence - This sentence should state that it is likely the Brown Pelican is currently using the project area. For example, "It is likely the Brown Pelican is currently using the project area and will be some time in the future."

Page 22, Table 2 - The West Indian Manatee is listed twice in the table.

Page 22, Section 3.3.2 - We recommend listing the Plaquemines Parish Economic Development Office and its website once at the beginning instead of throughout the paragraph. For example, "The following Socioeconomic information is based on data obtained from the Plaquemines Parish Economic Development Office; http://www.plaqueminesparish.com."

Page 24, Section 3.3.2, Socioeconomics - We also suggest stating that the Socioeconomics of this area have changed due to Hurricane Katrina. Although it may be too early to tell what the long-term effects will be.

Page 24, Section 4.1.1, Preferred alternative, Paragraph 2 – Does the vegetative plantings include woody species? (Note: The WVA gives 10% woody by TY 14 and 15% by TY 10: 10% of shoreline is currently rosseau cane (not a woody species) so received 0% for TY 0. Where does this woody component come from if not planting and none currently occurs naturally?

Page 32, Section 4.2.2.4, Paragraph 3 - The gulf sturgeon is not included in Table 2, which lists the threatened and endangered Species found in Plaquemines Parish. Also Section 3.2.2.4, Threatened and Endangered Species, does not list the bald eagle or the sturgeon. If those species are not found in the effected area, then they should not be listed in this section. If they are, then they should also be included in Section 3.

We appreciate the opportunity to provide comments. If you have any questions or need further information, please contact Marty Floyd at 318-473-7690.

Sincerely,

W. Britt Paul
Assistant State Conservationist
for Water Resources and Rural Development

cc: Marty Floyd, Wildlife Biologist, NRCS, Alexandria, Louisiana