

**Project Plan and  
Environmental Assessment  
for  
Barataria Basin Landbridge Shoreline Protection Project  
Phases 1, 2, and 3 (BA-27)  
Jefferson and Lafourche Parishes, Louisiana**

**United States Department of Agriculture  
Natural Resources Conservation Service**

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## SUMMARY OF PROJECT PLAN/EA

Project Name: Barataria Basin Landbridge Shoreline Protection Project Phases 1, 2, and 3 (BA-27)

Parishes: Jefferson and Lafourche

State: Louisiana

Federal Sponsor: U.S.D.A. Natural Resources Conservation Service

Non-federal Sponsor: Louisiana Department of Natural Resources

Description of Recommended Plan:

The proposed project consists of 25,000 feet of shoreline protection along the west bank of Bayou Perot; 30,500 feet along the east/south bank of Bayous Rigolettes and Perot; 9,100 feet along the north shore of Little Lake; 6,000 feet along the northeast shore of Little Lake; 2,700 feet along the east bank of Harvey Cutoff; and 2,700 feet along the west bank of Harvey Cutoff; for a total of 76,000 feet of shoreline protection. About 46 percent of the proposed project, or about 35,000 feet of the shoreline protection, is fully funded under authorization of Public Law 101-646 (Seventh and Eighth Priority Project Lists) as a project entitled Barataria Basin Landbridge Shoreline Protection Project Phases 1 and 2 (BA-27). Planning, engineering, design, and pre-construction monitoring of the remaining 41,000 feet of the shoreline protection are also funded under authorization of Public Law 101-646 (Ninth Priority Project List) as a project entitled Barataria Basin Landbridge Shoreline Protection Project Phase 3 (BA-27).

Resource Information:

Size of Project	4,862 Acres
Land Ownership	
Private	100%
Habitat Types	
Brackish Marsh	1,707 Acres (35.1%)
Intermediate Marsh	1,521 Acres (31.3%)
Open Water (excluding B. Perot and B. Rigolettes)	1,481 Acres (30.5%)
Upland Scrub-Shrub	153 Acres (3.1%)

Threatened and Endangered Species

No threatened and endangered species presently occur within the project area.

#### Essential Fish Habitat

The essential fish habitats that occur in the project area include estuarine emergent wetlands, seagrass (submerged aquatic vegetation), mud and shell substrates, and estuarine water column.

#### Cultural Resources

There is one known cultural resource site located within Phases 1 and 2. The Louisiana Department of Recreation and Tourism (LCRT) has determined that this site is not eligible for the National Register of Historic Places. There are several known cultural resource sites located within Phase 3; all necessary investigations and consultation with the LCRT will be performed prior to initiation of any work.

#### Problem Identification:

Loss of vegetated wetlands and associated functions due to:

Wind, boat-wake, and tidal energy

Hydrologic modifications, including elimination of overbank flooding of the Mississippi River, closure of Bayou Lafourche, dredging of the Gulf Intracoastal Waterway, Barataria Bay Waterway, Harvey Cutoff, and oilfield access channels

Subsidence

Sea level rise

#### Alternative Plans Considered:

No Action

Shoreline Protection

#### Project Objective:

Reduce or eliminate shoreline/bankline erosion for portions of Bayou Perot, Bayou Rigolettes, Little Lake, and Harvey Cutoff

#### Principle Project Measures:

76,000 feet of shoreline protection. The final engineering design is yet to be selected, but may include a combination of the following or other techniques: a) foreshore rock dike using a construction technique where the underlying organic substrate is displaced, b) foreshore rock dike using a construction technique which attempts to retain and compact the underlying organic substrate, c) foreshore rock dike with a lightweight core material, d) rock revetment, e) steel sheetpile structure, f) concrete sheetpile structure, and/or g) PVC sheetpile structure.

Project Benefits:

Prevent the loss of 1,570 acres of emergent marsh  
Increase extent of submerged aquatic vegetation

Potential Adverse Impacts:

No long-term adverse impacts to wetlands, water quality, threatened or endangered species, species managed by Gulf of Mexico Fishery Management Council or their essential habitat, other fish and wildlife resources, recreational or socio-economic resources, or cultural resources are anticipated. Construction activities will result in localized destruction of some non-motile benthic organisms and their habitat, as well as short-term water quality degradation, such as a localized increase in turbidity.

## INTRODUCTION

The objective of the Barataria Basin Landbridge Shoreline Protection Project Phases 1, 2, and 3 (BA-27) is to reduce or eliminate shoreline/bankline erosion for portions of Bayous Perot and Rigolettes, Little Lake, and Harvey Cutoff in Jefferson and Lafourche Parishes, Louisiana. Secondary benefits would include maintenance and, in some areas, an increased extent of submerged aquatic vegetation. The proposed project consists of 25,000 feet of shoreline protection along the west bank of Bayou Perot; 30,500 feet along the east/south bank of Bayous Rigolettes and Perot; 9,100 feet along the north shore of Little Lake; 6,000 feet along the northeast shore of Little Lake; 2,700 feet along the east bank of Harvey Cutoff; and 2,700 feet along the west bank of Harvey Cutoff; for a total of 76,000 feet of shoreline protection.

Federal funds to be used for planning and implementing projects which create, protect, restore, and enhance wetlands in coastal Louisiana are provided by the Coastal Wetlands Planning, Protection, and Restoration Act (CWPPRA) of 28 November 1990, House Document 646, 101st Congress. The Act calls for formation of the Louisiana Coastal Wetlands Conservation and Restoration Task Force (LCWCRTF) to consist of the Secretary of the Army, the Administrator of the Environmental Protection Agency (EPA), the Governor of Louisiana, the Secretary of Interior, the Secretary of Agriculture, and the Secretary of Commerce. The Louisiana Department of Natural Resources (LDNR) typically serves as the local cost share partner for projects.

Phase 1 and Phase 2 of the proposed action are approved, fully funded, and included on the Seventh and Eighth Priority Project Lists, respectively, submitted to Congress in September 1998 and October 1999, respectively (LCWCRTF 1998, 1999). Phase 1 of the proposed project consists of 14,000 feet of shoreline protection along the west bank of Bayou Perot and 13,000 feet along the east/south bank of Bayou Rigolettes; Phase 2 consists of 8,000 feet along the east bank of Bayou Rigolettes. The LCWCRTF has formerly approved combining Phase 1 and Phase 2 into a single project for accounting and construction purposes. Once compliance with applicable environmental laws and regulations is achieved and project plans and specifications are completed, construction of Phases 1 and 2 is authorized to begin.

On the Ninth Priority Project List, the planning, engineering, design, and pre-construction monitoring of Phase 3 are also funded. Phase 3 consists of 9,000 feet along the north shore of Little Lake; 11,000 feet along the west bank of Bayou Perot; 6,000 feet along the northeast shore of Little Lake; 9,600 feet along the east bank of Bayou Perot; 2,700 feet along the west bank of Harvey Cutoff, and 2,700 feet along the east bank of Harvey Cutoff. Once planning, engineering, and design of Phase 3 are substantially complete, Phase 3 will be submitted for construction, maintenance, and post-construction monitoring funding.

Under CWPPRA specifications, the project must be cost-shared between the federal sponsoring agency and the State of Louisiana. Pursuant to approval of the Louisiana Coastal Wetlands Conservation Plan, the federal government provides 85 percent of the project cost and the State of Louisiana contributes the remaining 15 percent. The United States

Department of Agriculture (USDA), through the Natural Resources Conservation Service (NRCS), acts as the federal sponsor for this project, and the State of Louisiana has indicated its willingness to cost-share on Phases 1 and 2, and it is also anticipated that LDNR will provide the non-federal share of the total cost of Phase 3.

This Project Plan/Environmental Assessment (Plan/EA) has been prepared to fulfill the requirements of the National Environmental Policy Act of 1969 (NEPA). This Plan/EA describes problems affecting the area, significant resources, alternatives, the recommended alternative and its impacts, and public participation.

## **PROJECT SETTING**

### **Location**

The Barataria Basin Landbridge Shoreline Protection Project Phases 1, 2, and 3 (BA-27) is located in Jefferson and Lafourche Parishes, Louisiana, central to a point approximately 14 miles south of Lafitte, along the east /south bank of Bayou Rigolettes, the west and east banks of Bayou Perot, the north and northeast shores of Little Lake and the east and west banks of Harvey Cutoff (Figure 1). The project area encompasses approximately 4,862 acres of intermediate marsh, brackish marsh, upland shrub-scrub, and open water habitat in all or parts of Sections 7, 11, 14, 15, 17, 18, 19, 20, 21, 22, 23, 26, 27, 28, 29, 30, 31, 32, and 33 of T17S-R23E, and Sections 23, 24, 25, and 26 of T17S-R22E. This project area was identified by the CWPPRA Environmental Work Group (EnvWG) and represents the acreage that, without the project over 20 years, would be lost directly to shoreline erosion, as well as additional acreage that would be affected by increased tidal exchange, coalescence of interior ponds, and deepening of interior ponds throughout the project life.

### **Climate**

While summers in the project area tend to be long, hot, and humid, gulf breezes frequently cool the area. Winters are generally mild with cooler air brought in from the north with passage of cold fronts. Average annual precipitation is 59 inches, coming in rains occurring throughout the year. Prevailing wind is from the southeast with an average wind speed of 10 mph (USDA-SCS 1983, USDA-SCS 1984).

### **Geology and Soils**

The project site lies in a triangular-shaped area surrounded by, but outward from the outer limits of, three Mississippi River deltas depicted by Kolb and Van Lopik (1958) (Figure 2). The project is flanked on the northwest by the Cocodrie Complex, which is believed to have been active between about 4,600 and 3,600 years before present; on the east by the St. Bernard Complex, which is believed to have been active between about 2,500 and 1,700 years before present; and on the southwest by the Lafourche Complex, which is believed to have

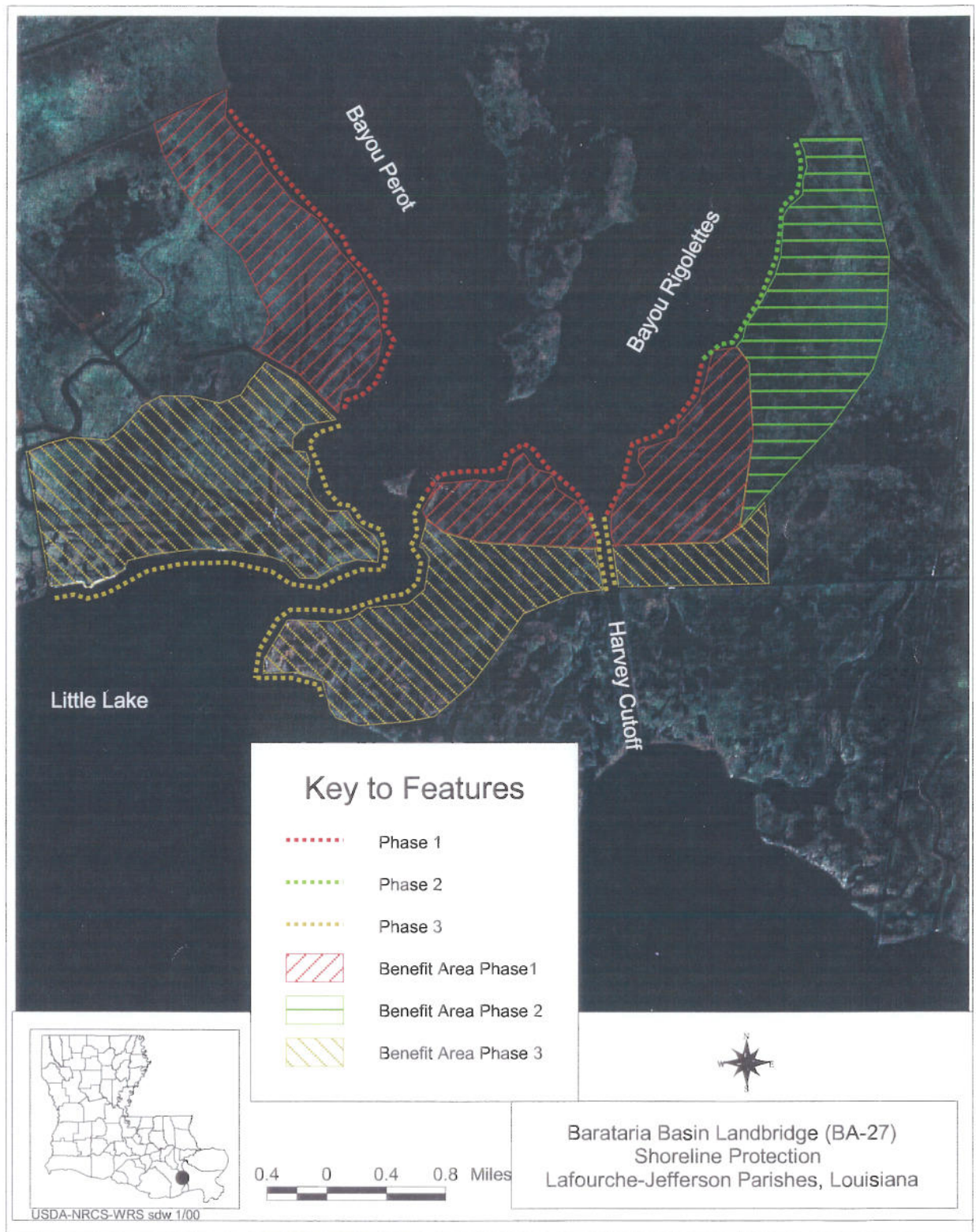
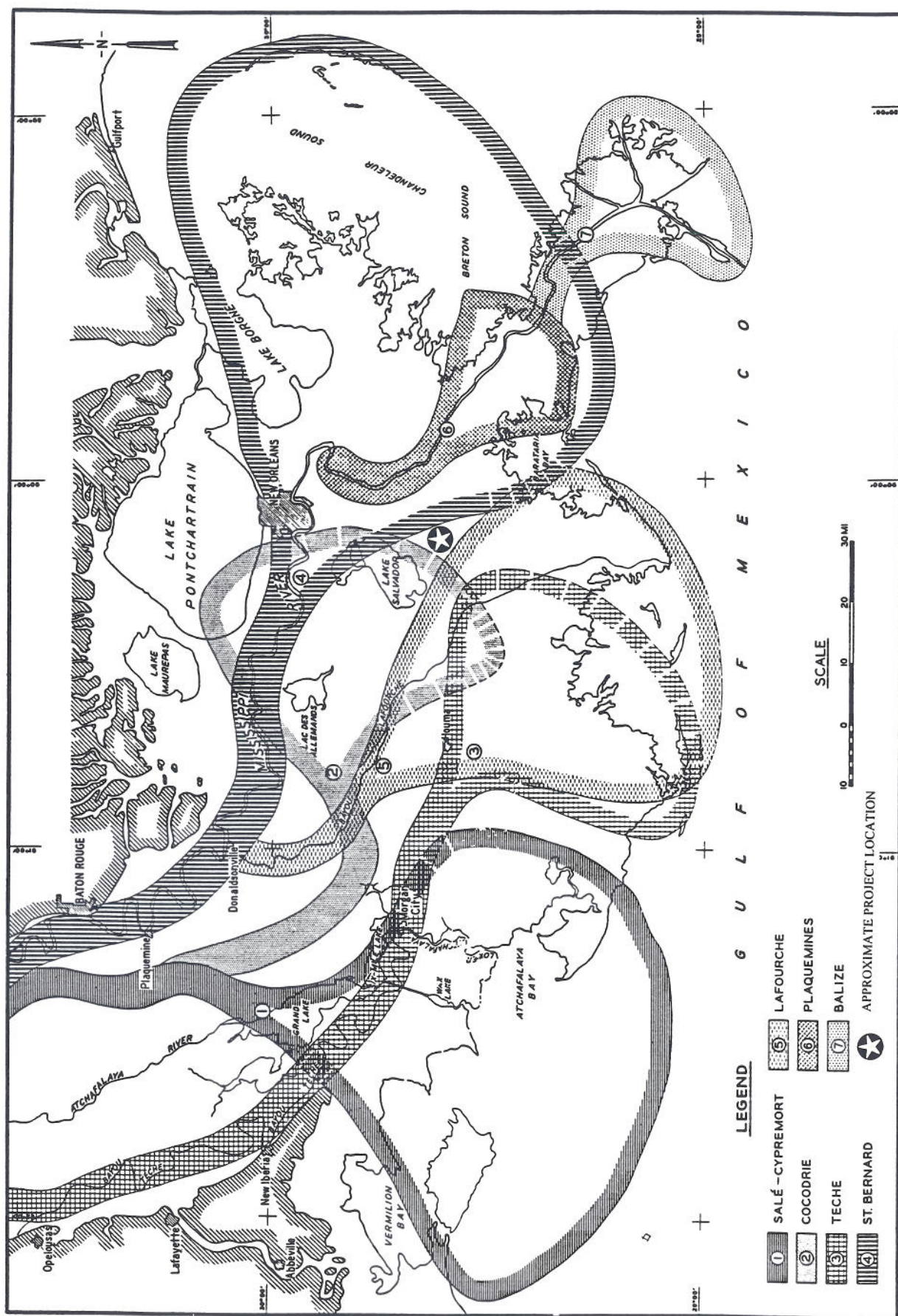


Figure 1. Project area map



been active between about 2,000 and 700 years before present. Located between the natural levee ridges of Bayou Lafourche and that of Bayou des Familles/Bayou Barataria, project area marshes formed through a combination of vegetative growth, peat accumulation, and alluvial processes. Hence, the project area marsh soils consist of decomposed herbaceous plant material (peat), herbaceous material (roots and root mats), and underlying clayey alluvium. Lafitte-Clovelly Association soils (Appendix A) occur throughout the entire project area. These soils are generally found in brackish marshes and are level with very poor drainage, resulting in flooded or ponded conditions most of the time. Lafitte soils usually occur in broad basins between natural streams. These soils are characterized by a thick surface layer of semifluid, saline muck and underlying material of semifluid, saline clay and silty clay loam. Clovelly soils usually occur on submerged ridges along natural streams. They are characterized by a moderately thick surface layer of semifluid, saline muck with semifluid, saline clay as the underlying material. While this soil association is not well suited to crops, pasture, woodland, or urban uses, it is well suited for recreation, wetland wildlife habitat, and nursery areas for estuarine and marine organisms found in the Gulf of Mexico (USDA-SCS 1983, USDA-SCS 1984).

### **Emergent Marsh Vegetation**

In 1949, O'Neil (1949) classified the project area as "floating three-cornered grass" (*Scirpus olneyi*) marsh. Vegetative type maps for 1968 (Chabreck et al. 1968) and 1978 (Chabreck and Linscombe 1978) indicated that the entire project area consisted of brackish marsh. Based on data from Chabreck and Linscombe (1988), USGS and DNR (1999) determined that the 1988 habitat distribution, excluding Bayous Perot and Rigolettes, was 35.1% brackish marsh, 31.3% intermediate marsh, 30.5% open water, and 3.1% scrub-shrub (primarily canal spoil banks) and other habitats (Figure 3).

The brackish marsh portion of the project area is dominated by marshhay cordgrass (*Spartina patens*). Olney threesquare bulrush (*Scirpus olneyi*), marsh morningglory (*Ipomoea sagittata*), black needle rush (*Juncus roemerianus*), and smooth cordgrass (*Spartina alterniflora*) occur in small scattered stands throughout the brackish marsh of the project area.

The intermediate portion of the project area is also dominated by marshhay cordgrass. Deer pea (*Vigna luteola*), cattail (*Typha* sp.), Olney threesquare bulrush, marsh morningglory, and wax myrtle (*Myrica cerifera*) occur in small scattered stands throughout the intermediate marsh of the project area.

Canal spoil banks are vegetated with eastern baccharis (*Baccharis halimifolia*), black willow (*Salix nigra*), palmetto (*Sabal minor*), and Chinese tallow (*Sapium sebiferum*). Isolated, higher elevation areas of the Little Lake shoreline are vegetated with eastern baccharis.

### **Open Water and Submerged Aquatic Vegetation**

Based on data from Chabreck and Linscombe (1988), USGS and DNR (1999) determined that in 1988, 30.5% of the project area (excluding Bayous Perot and Rigolettes) was open water.

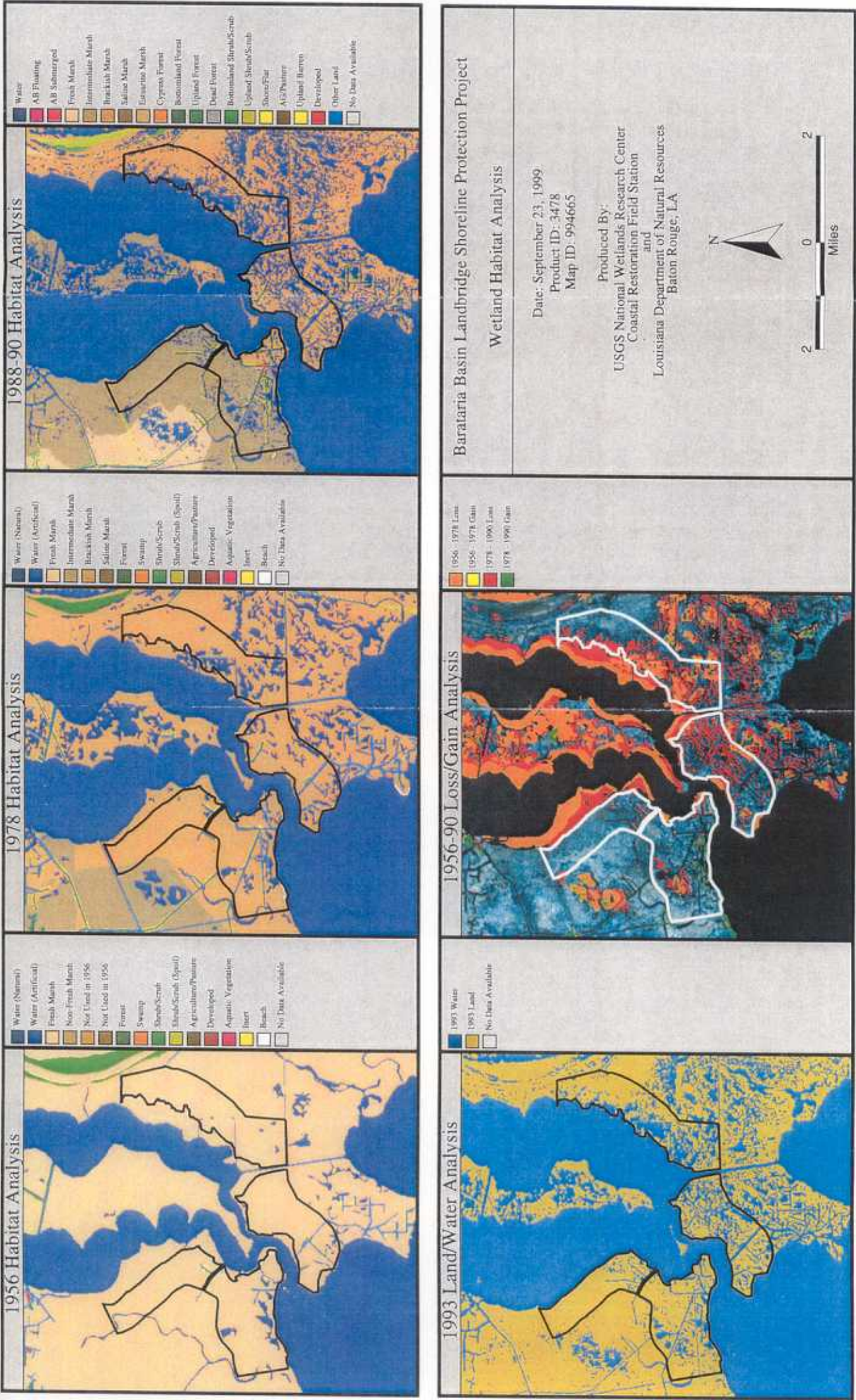


Figure Historical habitat and land loss information.

As part of the CWPPRA Wetland Value Assessment (WVAs) for this project, the CWPPRA EnvWG (1997, 1998, 1999) estimated that about 25 to 30 percent of the interior open water within the project area contains submerged aquatic vegetation. Common species include Eurasian watermilfoil (*Myriophyllum spicatum*), coontail (*Ceratophyllum demersum*), wigeongrass (*Ruppia maritima*), water-celery (*Valisineria americana*), and pondweed (*Potamogeton* sp.).

## **Fish and Wildlife Resources**

Emergent wetlands and open water in the project area provide important habitat for a multitude of ecologically, recreationally, and commercially important fish and wildlife species. The dynamic and highly productive ecosystems of coastal marshes provide valuable detrital material and nutrients that nourish primary producers, zooplankton, benthic organisms, and nekton, which are crucial to the food web. Shallow open water areas provide nursery habitat for a variety of aquatic organisms. Wetland wildlife species are afforded food, cover, nesting, and resting habitat by emergent marsh and open water areas.

Project area wetlands provide suitable habitat for estuarine-dependent fishes and shellfish such as brown shrimp (*Penaeus aztecus*), white shrimp (*Penaeus setiferus*), Atlantic croaker (*Micropogonias undulatus*), Gulf menhaden (*Brevoortia patronus*), blue crab (*Callinectes sapidus*), southern flounder (*Paralichthys lethostigma*), black drum (*Pogonias cromis*), red drum (*Sciaenous ocellata*), striped mullet (*Mugil cephalus*), and spotted seatrout (*Cynoscion nebulosus*) (Gosselink 1984, Conner and Day 1987). Recreational fishing activity in the project area is centered on spotted seatrout, red drum, Atlantic croaker, southern flounder, white shrimp, brown shrimp, and blue crab (Hankla 1982, Gosselink 1984, Conner and Day 1987).

Intermediate and brackish marshes, such as those within the project boundaries, provide high value winter habitat to gadwall (*Anas strepera*), green-winged teal (*Anas creca*) blue-winged teal (*Anas discors*), ring-necked duck (*Aythya collaris*) and lesser scaup (*Aythya affinis*), and provide year-round habitat for mottled ducks (*Anas fulvigula*) (Williams and Chabreck 1986). Levees and spoil banks, which are often vegetated with woody plants, provide crucial habitat for neo-tropical migrants to rest and refuel during spring and fall migration (Gosselink 1984, Bettinger and Hamilton 1985).

Marshes such as those found in the project area provide habitat for a number of furbearers, including muskrat (*Ondatra zibethicus*), raccoon (*Procyon lotor*), mink (*Mustela vison*), otter (*Lutra canadensis*), and nutria (*Myocaster coypu*) (O'Neil 1949, Palmisano 1972, Linscombe and Kinler 1985).

Alligator (*Alligator mississippiensis*) nest production is highest in intermediate marsh with an average of 78 acres per nest; brackish marsh areas exhibit an average of 146 acres per nest (McNease et al. 1994).

### ***Threatened and Endangered Species***

Based on a 1999 consultation with the U.S. Fish and Wildlife Service (USFWS), no federally listed threatened or endangered species presently occur within the project area.

### ***Essential Fish Habitat***

Pursuant to the Magnuson-Stevens Fishery Conservation and Management Act, the Gulf of Mexico Fishery Management Council (Council) has identified essential fish habitat for those species managed under its fishery management plans (Gulf of Mexico Fishery Management Council, 1998). Project area wetlands provide habitat for a number of managed species - white shrimp juveniles and subadults (year round), brown shrimp juveniles and subadults (year round), and red drum juveniles, subadults, and adults (year round). Additionally, Council-managed species (such as mackerels, red drum, snappers, and groupers) and highly migratory species (such as billfish and sharks) feed upon estuarine-dependent species (such as spotted seatrout, gulf menhaden, striped mullet, and blue crab) that are also supported by the project area wetlands. The essential fish habitats that occur in the project area include estuarine emergent wetlands, seagrass (submerged aquatic vegetation), mud and shell substrates, and estuarine water column.

### **Cultural Resources**

A review of the archaeological records housed at the Louisiana Department of Culture, Recreation, and Tourism (LCRT) indicates that there is one known cultural resource site located within the Phases 1 and 2 project area and several cultural resource sites are located within the Phase 3 project area.

### **Economic Resources**

The coastal wetlands of Jefferson and Lafourche Parishes produce furbearers, alligators, freshwater and estuarine-dependent fish, can support domestic livestock, and provide both consumptive and non-consumptive recreational opportunities. Jefferson and Lafourche Parish marshes and wetlands are responsible for producing many freshwater and estuarine-dependent fisheries species that are commercially and recreationally important. While the recreational value is unknown, the value of 1998 commercial landings for Jefferson Parish include \$128,918 for freshwater fisheries, \$37,672,893 for marine fisheries, \$83,776 for fur animals and \$79,313 for wild alligators (Louisiana State University Agricultural Center and Louisiana Cooperative Extension Service 1999). The value of 1998 commercial landings for Lafourche Parish include \$99,174 for freshwater fisheries, \$20,458,980 for marine fisheries, \$464,559 for fur animals and \$352,238 for wild alligators (Louisiana State University Agricultural Center and Louisiana Cooperative Extension Service 1999).

## PROBLEMS, FORECASTED CONDITIONS, AND OPPORTUNITIES

### Historic Changes to Bayou Perot and Bayou Rigolettes

A comparison among the 1892, 1944, and 1964 Barataria 15 minute Quadrangles and the Britsch and Dunbar (1996) map depicts the transformation of Bayou Perot and Bayou Rigolettes (Figure 4). Initially, these water bodies were narrow meandering bayous. "By the 1940's both bayous exhibited estuarine stream configuration of oblong pools connected by narrow channels at the bends, exhibiting sinuous curves with narrow and long point bars" (Reed 1995). Presently, the two water bodies, while still referred to as "bayous", essentially exist as broad elongated lakes. Over this same time period, the marsh area between the two bayous has converted from a contiguous landmass to a pronounced peninsula, to a very broken and deteriorating series of islands.

### Form and Extent of Historic and Forecasted Emergent Marsh Loss

#### *Shoreline Erosion*

For the period of 1985-1990, Swenson and Kinler (1997, unpublished) reported shoreline erosion rates of 114, 103, and 70 feet per year for three locations in the project area. For the period of 1990-1995, they reported rates of 76, 101, and 97 feet for the same locations. Figure 5 illustrates the location of those three sites, as well as the highly variable erosion rates elsewhere in the project area and vicinity.

Calculated pursuant to Britsch and Dunbar (1996), shoreline erosion in the project area and for the southern portion of the Perot-Rigolettes peninsula accounted for the loss of over 2,400 acres from 1932 to 1990. As part of the CWPPRA WVAs for this project, the CWPPRA EnvWG (1997, 1998, 1999) forecasted that without the project, over 20 years, about 1,560 acres of emergent marsh in the project area would be lost to shoreline erosion (Table 1).

Table 1. Projected, without project, form and extent of emergent marsh loss over 20 years by project phases.

	Shoreline Erosion (Acres)	Interior Loss (Acres)
Phase 1 Project Area	974	133
Phase 2 Project Area	322	80
Phase 3 Project Area	264	97
TOTAL	1560	310

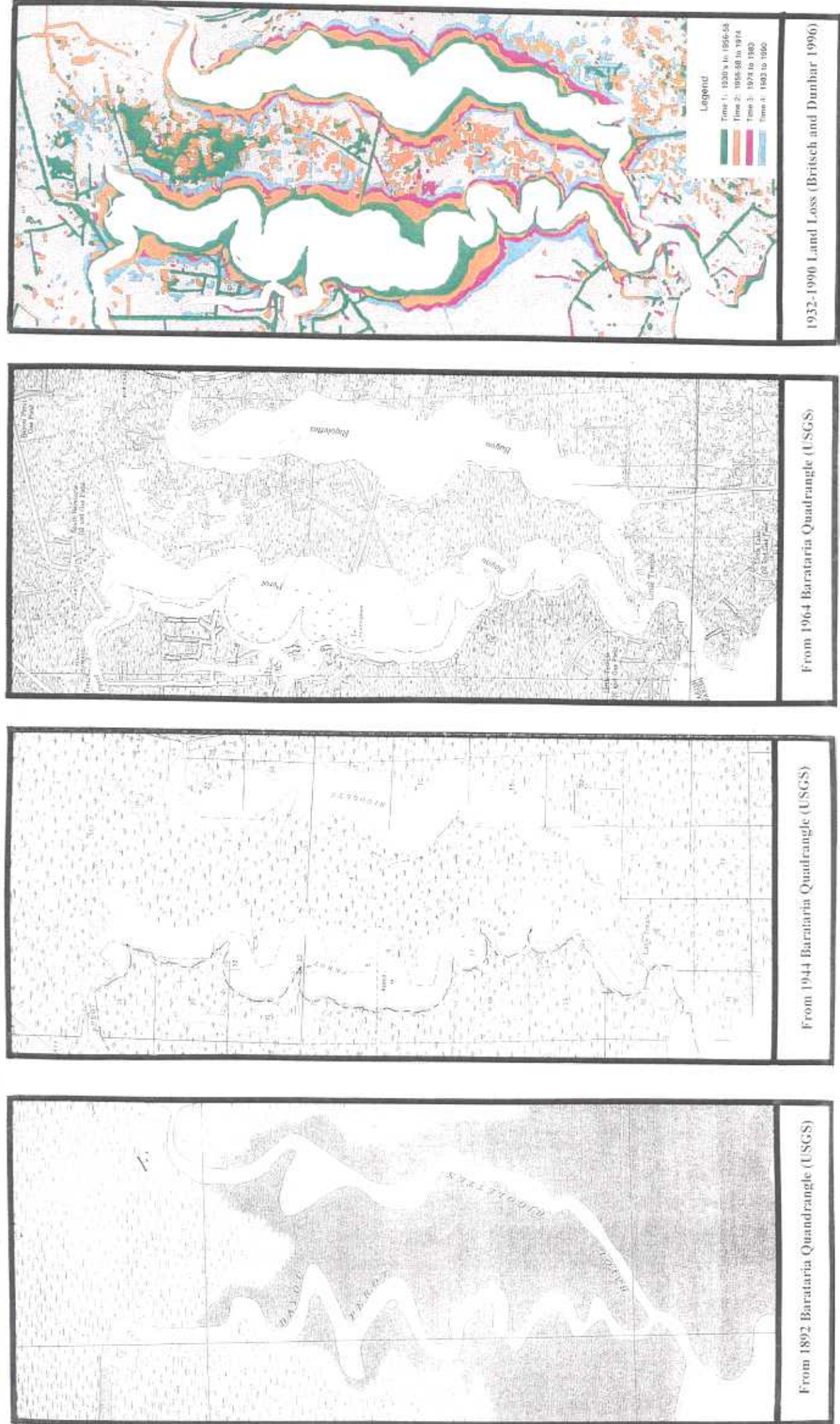


Figure 4. The transformation of Bayou Perot and Bayou Rigolettes depicted by the 1892, 1944, and 1964 Barataria Quadrangles and the Britsch and Dunbar (1996) Land Loss in Coastal Louisiana map.

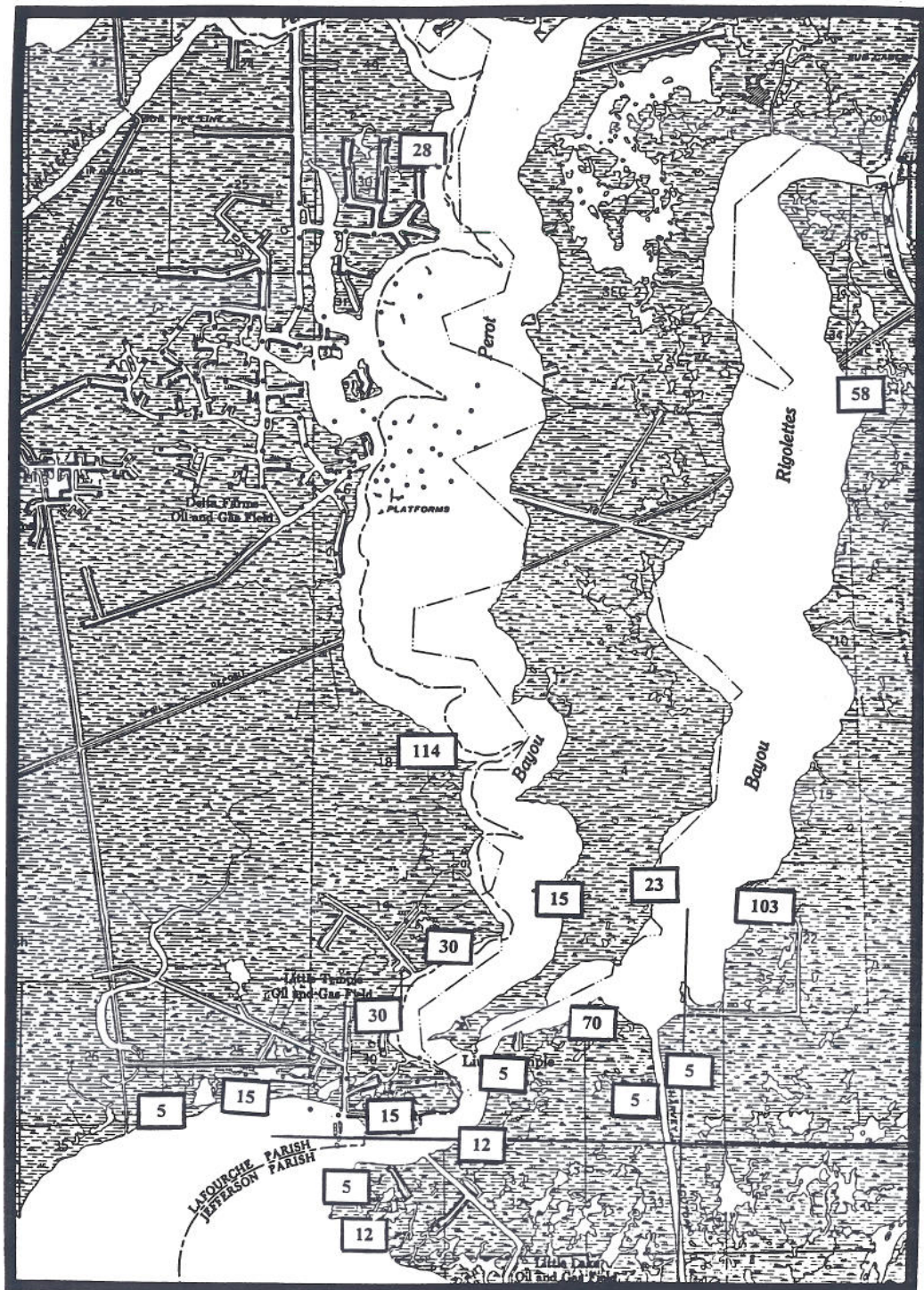


Figure 5. 1985-1990 annual shoreline erosion rates (feet/year) in the project area and vicinity.

### ***Interior Marsh Loss***

While shoreline erosion is the more significant form of marsh loss, interior marsh loss is also very pronounced. Calculated pursuant to Britsch and Dunbar (1996), from 1932 to 1990 greater than 1,550 acres of interior marsh was lost in the project area and the southern portion of the Perot-Rigolettes peninsula. As part of the CWPPRA WVAs for this project, the CWPPRA EnvWG (1997, 1998, 1999), forecasted that without the project, over 20 years, about 310 acres of interior marsh loss would occur (Table 1).

### **Causes of Historic Emergent Marsh Loss**

Factors contributing to the excessive marsh loss in this area include elimination of overbank flooding of the Mississippi River; the closure of Bayou Lafourche at the Mississippi River; other hydrologic modifications including the dredging of the Gulf Intracoastal Waterway, Barataria Bay Waterway, Harvey Cutoff, and oilfield access channels; physical erosion due to wind, boat-wake, and tidal energy; subsidence; and sea level rise. The deep organic soils have rendered this area particularly susceptible to marsh loss. While one can partially chronicle certain events using historical maps and photographs, the exact sequence, relative contribution, and the cause and effect relationships of the above referenced factors has not, and probably can not, be determined.

### **The "Landbridge" Concept and Opportunity**

The Barataria Basin is approximately 90 miles long, bounded on the north and east by the Mississippi River, on the west by Bayou Lafourche, and on the south by the Gulf of Mexico. The upper portion of the Barataria Basin is largely a freshwater-dominated system of natural levee ridges, baldcypress - water tupelo swamps, and fresh marsh habitats. The lower portion of the basin is dominated by marine/tidal processes, with barrier islands, saline marsh, brackish marshes, tidal channels, and large bays and lakes. Historically, a small meandering Bayou Perot, and the longer, narrower Bayou Dupont-Bayou Barataria-Bayou Villars channels provided limited hydrologic connection between the upper and lower basin. The hydrologic connections between upper and lower basin are much greater today due to the Barataria Bay Waterway, Bayou Segnette Waterway, Harvey Cutoff, and the substantial erosion and interior marsh loss along and between the now-enlarged Bayou Perot and Bayou Rigolettes. Fortunately, there still exists a landmass, albeit deteriorating, that extends southwest to northeast across the basin, roughly between Lake Salvador and Little Lake; this landmass can be referred to as the "Barataria Basin Landbridge".

Many concepts and potential projects have been discussed for this general area, including a) shoreline protection along the west bank of Bayou Perot, the north shore of Little Lake, the east/south bank of Bayous Rigolettes and Perot, and along each bank of Harvey Cutoff (i.e., the proposed project); b) shoreline protection for the east and west banks of both Bayou Perot

and Bayou Rigolettes; c) restoration of the peninsula between these two bayous; d) closure or constriction of Harvey Cutoff; e) a lock on Barataria Bay Waterway; and f) constriction of Bayou Perot near Little Lake. The proposed Barataria Basin Landbridge Shoreline Protection Project represents the consensus of a local-state-federal-academic work group as to what measures should be implemented first in addressing this critical Barataria Basin area. The proposed project is an opportunity to initiate action, but it does not represent a complete solution for this area.

## **SCOPE OF THE PROJECT PLAN/EA**

### **Scoping of Concerns**

Development of the proposed project, selection of the project for funding, and development of this Plan/EA resulted from the recognition of, and efforts to address, the concerns specific to the "Barataria Basin Landbridge" area.

During the scoping process, a range of environmental, economic, and social concerns were analyzed. The concerns determined to be highly significant to decision making are loss of marsh, condition of open water areas, loss of fish and wildlife habitat, and preservation of cultural resources. Each of these concerns was considered in the analysis of all alternatives. Other factors that might be impacted by alternative solutions were identified, including recreational resources, floodwater and drainage, mineral resources, maintenance of threatened and endangered species, maintenance or improvement of water quality, land use, social and economic concerns, and public acceptance. Groundwater, visual resources, prime farmland, transportation, employment, and air quality were considered, but found not relevant to decision making for this project.

## **FORMULATION, DESCRIPTION, AND COMPARISON OF ALTERNATIVES**

### **Formulation of Alternatives**

In April 1996, a local-state-federal-academic work group was formed to investigate potential conservation and restoration measures that would serve to protect the functional integrity of the "Barataria Basin Landbridge". The many concepts and potential projects listed above were discussed in considerable detail. Predictive hydrologic and wind-wave models and preliminary cost/benefit ratios were employed to assist the work group in developing a consensus alternative. In May 1997, as an alternative to no action, the work group reached consensus that 72,000 feet of shoreline protection should be the first measure implemented in addressing this critical area of the Barataria Basin. In June 1999, the CWPPRA EnvWG

agreed that an additional 4,000 feet of shoreline protection should be added to the original proposal to accomplish the desired level of benefits for the “Barataria Basin Landbridge”, yielding a total of 76,000 feet of proposed shoreline protection.

## **Description of Alternatives**

### ***No Action Alternative***

The No Action Alternative consists of no treatment for the project area. No structural or non-structural measures would be planned beyond those already in existence.

### ***Shoreline Protection Alternative***

The Shoreline Protection Alternative reflects the consensus reached by the local-state-federal-academic work group in May 1997 plus the 1999 recommendation of the CWPPRA EnvWG, and therefore includes approximately 76,000 feet of shoreline protection (Figure 1 and Table 2).

Table 2. General location and approximate lengths of shoreline protection by project phases.

Project Phase	General Location	Length of Shoreline Protection (feet)
Phase 1	West Bank Bayou Perot	14,000
	East / South Bank Bayou Rigolettes	13,000
<i>Phase 1 Subtotal</i>		<i>27,000</i>
Phase 2	East Bank Bayou Rigolettes	8,000
<i>Phase 2 Subtotal</i>		<i>8,000</i>
Phase 3	North Shore of Little Lake	9,000
	West Bank of Bayou Perot	11,000
	East Bank of Bayou Perot	9,600
	Northeast Shore of Little Lake	6,000
	East Bank of Harvey Cutoff	2,700
	West Bank of Harvey Cutoff	2,700
<i>Phase 3 Subtotal</i>		<i>41,000</i>
GRAND TOTAL		76,000

Some segments of the shoreline appear as remnant shell banks; some segments appear as continuous but fragile reaches of marsh vegetation; and other segments exist as discontinuous collections of points, islands, and broken marsh. Because of this variance in shoreline

configuration and variable substrate within the project area, multiple engineering techniques are being considered. The final engineering design is yet to be selected, but may include a combination of the following techniques: a) foreshore rock dike using a construction technique where the underlying organic substrate is displaced, b) foreshore rock dike using a construction technique which attempts to retain and compact the underlying organic substrate, c) foreshore rock dike with a lightweight core material, d) rock revetment, e) steel sheetpile structure, f) concrete sheetpile structure, and/or g) PVC sheetpile structure (Appendix B). At one location along Bayou Perot and at one location along Bayou Rigolettes, 400-foot-long "test sections" of four different designs or construction techniques -- most likely, concrete sheetpile structure, foreshore rock dike using a construction technique which attempts to retain and compact the underlying organic substrate, and foreshore rock dike with a lightweight core material using two different construction techniques -- will be installed and evaluated for up to one year to help determine the appropriate final design. These techniques are tentatively selected for testing because they have not been tried as shoreline protection on a highly organic substrate and because of their potential to minimize project costs.

The steel sheetpile and the foreshore rock dike using a construction technique where the underlying organic substrate is displaced are not proposed for testing because their high cost and high potential for success are well established. Rock revetment is not proposed for testing at this time because approximately 300 feet of this technique was installed in August 1998 as part of the nearby Jonathan Davis Wetland Project. The PVC sheetpile structure is not proposed for testing at this time because at least three variations of this technique have been installed as part of the Lake Salvador Shoreline Protection Project and the Cote Blanche Wetland Hydrologic Restoration Project.

Selection of a final project design will be based on the results of on-site field surveys, geotechnical investigations, review of alternative designs, and preliminary design analyses, including the "test sections".

To allow continued aquatic organism ingress and egress, the following design parameters, as prescribed by the National Marine Fisheries Service (NMFS), will be incorporated into the construction plans:

1. In any area where rock revetment would be installed, all historic channels will be left open, but lined with rock to prevent further enlargement.
2. For the east bank of Harvey Cutoff and the east bank of Bayou Rigolettes north of Harvey Cutoff, there will be a minimum of 500 total feet of opening, with a sill set at least 2 feet below average water level, distributed among a minimum of five locations. These openings will be distributed throughout the structure length with the exact sizes and locations to be determined based on engineering surveys and associated field observations.
3. Figure 6 identifies six specific locations where 75 feet of opening will be incorporated and three specific locations where 100 feet of opening will be incorporated. The length of individual openings will vary from 30 to 100 feet. The sill of each opening will be set

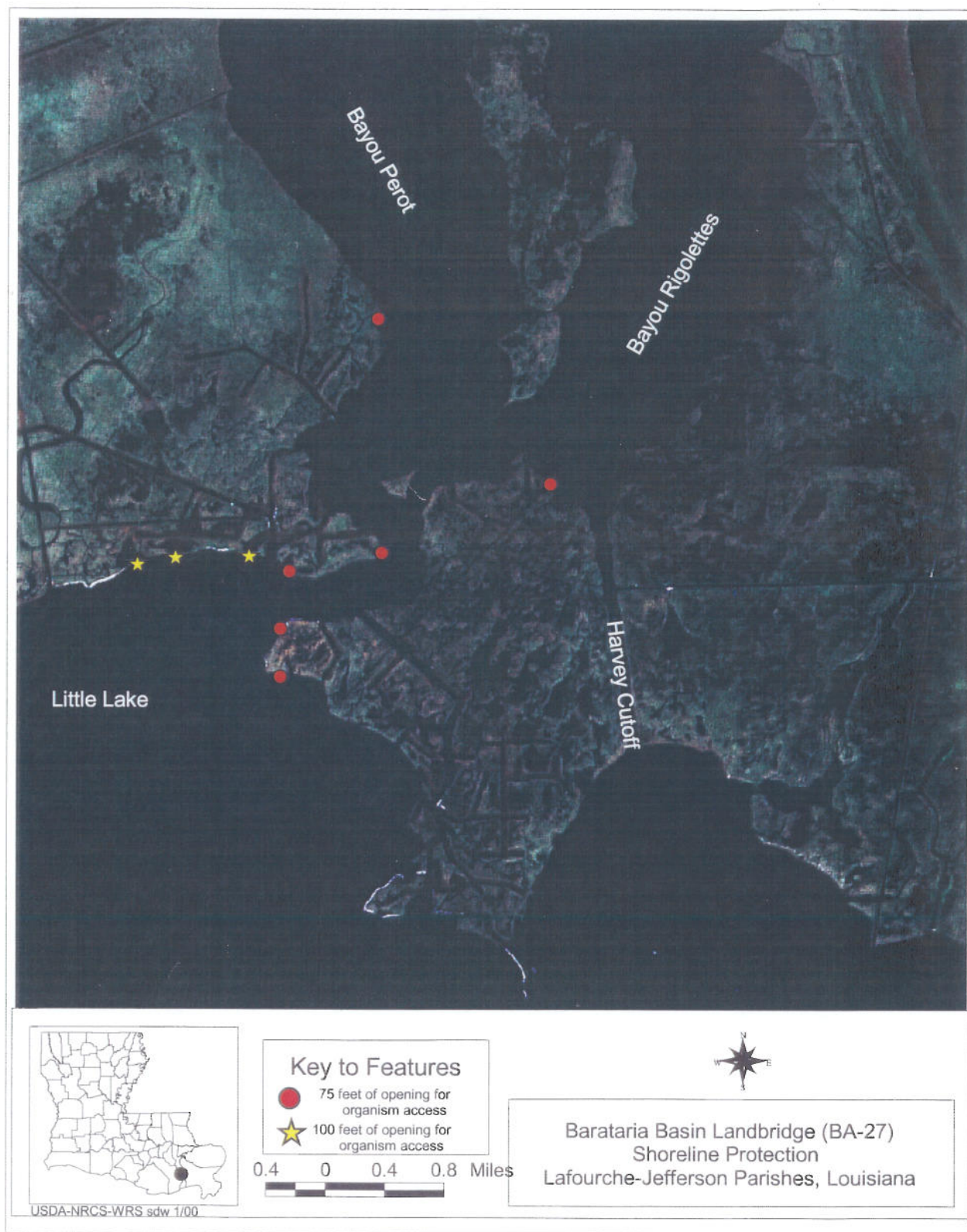


Figure 6. Locations of openings for organism access.

at least 2 feet below average water level.

Additional openings may be incorporated if needed to allow adequate discharge of surface flow drainage, and active oil and gas canals will be left open.

## **Environmental Effects and Comparison of Alternatives**

### ***Emergent Marsh Vegetation***

The No Action Alternative provides no treatment to address the loss of emergent marsh vegetation in the project area. As part of the CWPPRA WVAs for this project the CWPPRA EnvWG (1997, 1998, 1999) forecasted that with no action, over 20 years, about 1,560 acres of emergent marsh would be lost to shoreline erosion and about 310 acres of interior emergent marsh would be lost (Table 1).

With the Shoreline Protection Alternative, the CWPPRA EnvWG (1997, 1998, 1999) predicted that shoreline erosion would be eliminated, but that about 300 acres of interior marsh loss would still occur (Table 3). Therefore, over 20 years, this alternative would prevent the loss of 1,570 acres of emergent marsh.

Table 3. Projected, with project, form and extent of emergent marsh loss over 20 years by project phases.

	Shoreline Erosion (Acres)	Interior Loss (Acres)
Phase 1 Project Area	0	140
Phase 2 Project Area	0	64
Phase 3 Project Area	0	96
TOTAL	0	300

### ***Open Water and Submerged Aquatic Vegetation***

With no action, the CWPPRA EnvWG (1997, 1998, 1999) forecasted that open water would increase by 1,870 acres, for a total of 3,450 acres of which about nine percent would have submerged aquatic vegetation. Water depth is expected to increase and average salinity is not expected to change.

With the Shoreline Protection Alternative, the CWPPRA EnvWG (1997, 1998, 1999) predicted that open water would increase by 300 acres, for a total of 1,880 acres of which about 41 percent would have submerged aquatic vegetation. Water depth and average salinity are not expected to change.

The Shoreline Protection Alternative would include the dredging of a construction access channel parallel to the location of the shoreline protection feature. Depending on the type of construction equipment used, tide conditions, and actual water depth, from 0 to 75 acres of

bayou bottom would be dredged to allow construction access. Where feasible, dredged material shall be placed in the open water between the protection feature and the shoreline. As a result, some emergent marsh may be created. Where the shoreline protection feature would be located on the existing shoreline, dredged material shall be placed in the open water of Bayou Perot, Bayou Rigolettes, and/or Little Lake. No dredged material will be placed on emergent marsh. Short-term impacts associated with the access channel, dredged material placement, and shoreline protection construction include localized increase in turbidity and suspended solids during construction and localized destruction of some non-motile benthic organisms and their habitat. No long-term adverse impacts are anticipated.

### ***Fish and Wildlife Resources***

Over time, the No Action Alternative would allow a substantial decrease in the project area's fish and wildlife habitat quality and a substantial decrease in the area's potential to provide valuable detrital material and nutrients that nourish primary producers, zooplankton, benthic organisms, and nekton due to the extensive loss of emergent marsh (1,870 acres). As water depth increases, there would be less shallow open water areas available as nursery habitat for a variety of aquatic organisms. Wetland wildlife species would have less food, cover, nesting, and resting habitat available.

By preventing the loss of 1,570 acres of brackish and intermediate marsh over 20 years, project-area fish and wildlife habitat quality and detrital production will be much higher with the Shoreline Protection Alternative. However, because that alternative will not completely eliminate the loss of emergent marsh, there will be a decrease in fish and wildlife habitat quality and detrital production over time, albeit at a much slower rate than with the No Action Alternative. By incorporating low-sill openings, and allowing historical channels and oil and gas access channels to remain open, aquatic organism ingress and egress and adequate discharge of surface flow drainage will be maintained.

### ***Threatened and Endangered Species***

Because no federally listed threatened or endangered species presently occur within the proposed project area, neither alternative would impact this resource. If any federally listed threatened or endangered species are discovered in the project area or if construction is not initiated within one year, further coordination will be initiated with USFWS and NMFS.

### ***Essential Fish Habitat***

Over time, the No Action Alternative would allow a substantial decrease in the quality of the project area's essential fish habitat due to the extensive loss of emergent marsh (1,870 acres). The project area's ability to support Council-managed species (white shrimp, brown shrimp, and red drum) would be significantly reduced. Furthermore, the No Action Alternative would adversely impact estuarine-dependent species (such as spotted seatrout, gulf menhaden, striped mullet, and blue crab) that are preyed upon by other Council-managed species (such as mackerels, red drum, snappers, and groupers) and highly migratory species (such as billfish and sharks).

By preventing the loss of 1,570 acres of brackish and intermediate marsh over 20 years, the Shoreline Protection Alternative will significantly protect the quality of the project area's essential fish habitat. The project area will be able to maintain most of its current ability to support Council-managed species (white shrimp, brown shrimp, and red drum), as well as the estuarine-dependent species (such as spotted seatrout, gulf menhaden, striped mullet, and blue crab) that are preyed upon by other Council-managed species (such as mackerels, red drum, snappers, and groupers) and highly migratory species (such as billfish and sharks).

However, because the Shoreline Protection Alternative will not completely eliminate the loss of emergent marsh, there will be a decrease in the quality of the project area's essential fish habitat over time, albeit at a much slower rate than with the No Action Alternative. Furthermore, short-term impacts associated with the access channel, dredged material placement, and shoreline protection construction include localized increase in turbidity and suspended solids during construction and localized destruction of some non-motile benthic organisms and their habitat. No long-term adverse impacts are anticipated.

By incorporating low-sill openings, and allowing historical channels and oil and gas access channels to remain open, aquatic organism ingress and egress and adequate discharge of surface flow drainage will be maintained.

### ***Cultural Resources***

With the No Action Alternative, cultural resource sites in the project area would continue to be exposed to erosive forces. It is anticipated that the Shoreline Protection Alternative would serve to protect the sites from further erosion and scattering along the shorelines. Furthermore, investigations and consultation with the LCRT will be performed prior to initiation of any work to ensure that any adverse impact to those sites would be avoided.

### ***Risk and Uncertainty***

Project measures will be designed with the intent of eliminating shoreline erosion; it is predicted that the measures will also maintain and, in some areas, increase the extent of submerged aquatic vegetation. Because of the multiple and intertwined causes of wetland loss in coastal Louisiana, the risk of continued wetland loss and associated uncertainties can not be entirely eliminated.

Geotechnical investigations have revealed very poor substrate/soil conditions throughout the project area. Uncertainties regarding the effectiveness and longevity of the potential shoreline protection measures will be addressed in part by installing and evaluating two sets of 400-foot-long "test sections" of three different designs. These "test sections", in combination with geotechnical investigations, engineering evaluations, interagency coordination, and public review, will serve to reduce risk and uncertainty to the greatest extent possible.

## **Rationale for Plan Selection**

The selected plan results from the consensus of a local-state-federal-academic work group; a recommendation of the CWPPRA EnvWG; review of available information; expertise of personnel involved in coastal wetlands planning, engineering, and construction; public comments; and consideration of potential impacts of alternatives. This plan addresses the most critical needs of the project area while striving to minimize adverse impacts. The proposed project is not anticipated to cause any long-term, significant, adverse environmental impacts.

## **CONSULTATION AND PUBLIC PARTICIPATION**

During project planning, coordination has been maintained with the following agencies and entities: USFWS, NMFS, EPA, U. S. Army Corps of Engineers, LCRT, LDNR, Louisiana Governor's Office for Coastal Activities, Lafourche Parish, Jefferson Parish, Lafourche-Terrebonne Soil and Water Conservation District, Crescent Soil and Water Conservation District, and CWPPRA Academic Advisors. Consultation with USFWS shows that no federally listed threatened or endangered species presently occur within the proposed project area. Based on consultation with NMFS, it has been determined that there would be no long-term adverse effect on essential fish habitat and that adequate marine organism ingress and egress will be provided. Investigations and consultation with LCRT will be performed prior to initiation of any work to ensure that there are no adverse impacts to cultural resource sites.

Federal, state, and local agencies, as well as other interested parties were given the opportunity to review and comment on a draft of this document. A copy of the mailing list is available upon request. Comments received and responses to those comments are provided in Appendix C. Commenting parties will receive a copy of the Finding of No Significant Impact (FONSI) and the Final Plan/EA. Other interested parties will be notified that the FONSI and Final Plan/EA are available upon request.

Project development and selection under the CWPPRA process utilizes input from the public, in addition to local, state, and federal agency input. Public involvement in CWPPRA is achieved through the Citizen Participation Group and annual public meetings conducted during project development and selection stages. Landowners in the project area are in full support of this project.

Two public meetings, one in Jefferson Parish and one in Lafourche Parish, were held in November 1999 to specifically receive public comment. A summary of comments received is presented in Appendix D.

## **RECOMMENDED PLAN**

### **Purpose and Summary**

The objective of the Barataria Basin Landbridge Shoreline Protection Project Phases 1, 2, and 3 (BA-27) is to reduce or eliminate shoreline/bankline erosion for portions of Bayou Perot, Bayou Rigolettes, Little Lake, and Harvey Cutoff in Jefferson and Lafourche Parishes. The alternatives developed have been analyzed for their ability to meet project objectives and avoid or minimize impacts to critical resources. The selected alternative has been determined to most adequately meet project objectives, while enhancing and protecting area resources.

### **Proposed Measures**

The proposed project consists of 25,000 feet of shoreline protection along the west bank of Bayou Perot; 30,500 feet along the east/south bank of Bayous Rigolettes and Perot; 9,100 feet along the north shore of Little Lake; 6,000 feet along the northeast shore of Little Lake; 2,700 feet along the east bank of Harvey Cutoff; and 2,700 feet along the west bank of Harvey Cutoff; for a total of 76,000 feet of shoreline protection. The final engineering design is yet to be selected, but may include a combination of the following techniques: a) foreshore rock dike using a construction technique where the underlying organic substrate is displaced, b) foreshore rock dike using a construction technique which attempts to retain and compact the underlying organic substrate, c) foreshore rock dike with a lightweight core material, d) rock revetment, e) steel sheetpile structure, f) concrete sheetpile structure, and/or g) PVC sheetpile structure (Appendix B). At one location along Bayou Perot and at one location along Bayou Rigolettes, 400-foot-long "test sections" of four different designs or construction techniques -- most likely, concrete sheetpile structure, foreshore rock dike using a construction technique which attempts to retain and compact the underlying organic substrate, and foreshore rock dike with a lightweight core material using two different construction techniques -- will be installed and evaluated for up to one year to help determine the appropriate final design. Selection of a final project design will be based on the results of on-site field surveys, geotechnical investigations, review of alternative designs, and preliminary design analyses, including the "test sections".

To allow continued aquatic organism ingress and egress, the following design parameters, as prescribed by NMFS, will be incorporated into the construction plans:

1. In any area where rock revetment would be installed, all historic channels will be left open, but lined with rock to prevent further enlargement.
2. For the east bank of Harvey Cutoff and the east bank of Bayou Rigolettes north of Harvey Cutoff, there will be a minimum of 500 total feet of opening, with a sill set at least 2 feet below average water level, distributed among a minimum of five locations. These

openings will be distributed throughout the structure length with the exact sizes and locations to be determined based on engineering surveys and associated field observations.

3. Figure 6 identifies six specific locations where 75 feet of opening will be incorporated and three specific locations where 100 feet of opening will be incorporated. The length of individual openings will vary from 30 to 100 feet. The sill of each opening will be set at least 2 feet below average water level.

Additional openings may be incorporated if needed to allow adequate discharge of surface flow drainage, and active oil and gas canals will be left open.

### **Permits and Compliance**

All necessary permits and approvals will be obtained before project construction commences. Applicable federal statutes are shown in Table 4. The proposed action is not expected to cause adverse environmental impacts requiring environmental mitigation.

Table 4. Environmental compliance.

STATUTE	COMPLIANCE
Archaeological and Historic Preservation Act	Full
Clean Air Act, as amended	Full
Coastal Barrier Resources Act (PL 97-348; 1982)	Full
Coastal Zone Management Act of 1972, as amended	Full*
Endangered Species Act of 1973, as amended	Full
Executive Order 11988, Floodplain Management	Full
Executive Order 11990, Protection of Wetlands	Full
Farmland Protection Policy Act	Full
Federal Water Pollution Control Act	Full*
National Environmental Policy Act of 1969, as amended	Full*
National Historic Preservation Act of 1966, as amended	Full
Magnuson-Stevens Fishery Conservation and Management Act	Full
Subtitle B, Highly Erodible Land Conservation, and Subtitle C, Wetland Conservation, of the Food Security Act of 1985	Full
Wild and Scenic River Act, as amended	Full

\* Full compliance and applicable documentation will be completed prior to construction.

### **Costs, Financing, and Installation**

Total project cost was estimated and includes all aspects of planning, engineering, administration, landrights acquisition, construction, inspection, monitoring, and operations

and maintenance. Cost information is provided in Appendix E.

Under CWPPRA, Phases 1 and 2 of the project are fully funded, and the planning, engineering, design, and pre-construction monitoring of Phase 3 are also funded. Due to approval of the Louisiana Coastal Wetlands Conservation Plan on November 30, 1997, the federal government (through USDA-NRCS) will provide 85 percent of the cost and the State of Louisiana will contribute the remaining 15 percent. USDA-NRCS and LDNR have executed a cost-sharing agreement for all of Phases 1 and 2, and it is anticipated that a similar cost-sharing agreement will be executed for Phase 3.

Installation of Phases 1 and 2 will begin after all regulatory permits, approvals, landrights and engineering (design, plans, and specifications) are complete. Project construction will be administered by NRCS in cooperation with the LDNR.

Once planning, engineering, and design of Phase 3 are substantially complete, Phase 3 will be submitted for construction, maintenance, and post-construction monitoring funding.

### **Monitoring and Operation, Maintenance, and Rehabilitation**

Funding for Phases 1 and 2 includes funds specifically dedicated for monitoring and operation, maintenance, and rehabilitation for the 20-year project life. If Phase 3 is approved for construction, funding for post-construction monitoring, operation, maintenance, and rehabilitation would be made available on a 3-year cycle, over the 20 year project life. LDNR is responsible for monitoring. Operation, maintenance, and rehabilitation maintenance will be administered by LDNR in cooperation with NRCS.

## **CONCLUSION**

The United States Department of Agriculture, Natural Resources Conservation Service finds no significant long-term adverse impacts to wetlands, water quality, threatened or endangered species, species managed by Gulf of Mexico Fishery Management Council or their essential habitat, other fish and wildlife resources, recreational or socio-economic resources, or cultural resources associated with the Barataria Basin Landbridge Shoreline Protection Project (BA-27). Project implementation is expected to protect emergent marsh and encourage growth of aquatic vegetation. The project will produce net long-term benefits to project area resources.

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## LIST OF PREPARERS

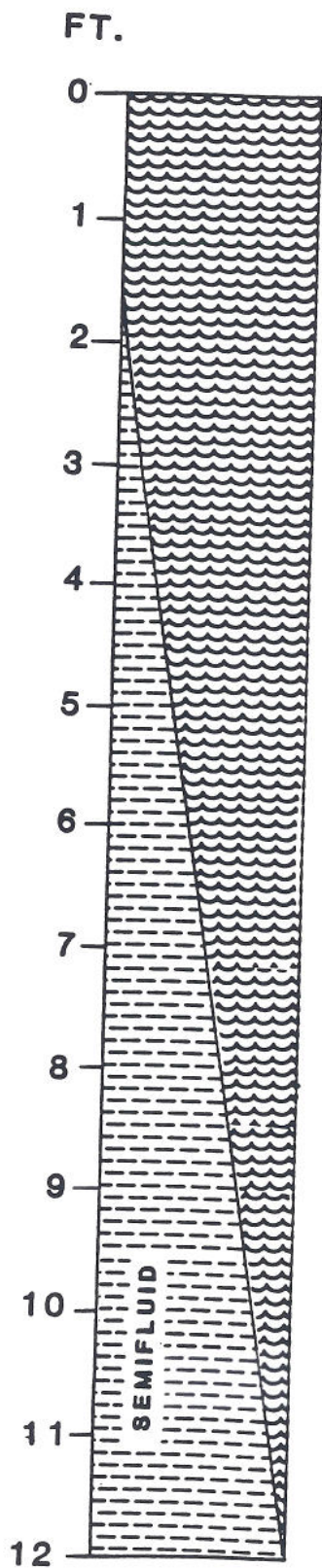
<u>Name</u>	<u>Present Position</u>	<u>Employer</u>
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John Jurgensen	Civil Engineer	Natural Resources Conservation Service
Allen Bolotte	District Conservationist	Natural Resources Conservation Service
Tim Landreneau	District Conservationist	Natural Resources Conservation Service
Scotty Windham	Civil Eng. Technician	Natural Resources Conservation Service
Suzanne Beasely	Oceanographer	U.S. Geological Survey

## APPENDIX A

### SOIL PROFILE

# SOIL PROFILE

## LAFITTE-CLOVELLY



These level, very poorly drained soils have a thick or moderately thick mucky surface layer and clayey underlying material; in brackish marshes.

The soils of this map unit are in brackish marshes that are flooded or ponded most of the time. Elevation ranges from sea level to about 1 foot above sea level. Slope is less than 0.5 percent.

The Lafitte soils are in broad basins between natural streams and have a thick surface layer of semifluid, saline muck and underlying material of semifluid, saline clay and silty clay loam.

The Clovelly soils are on submerged ridges along natural streams. They have a moderately thick surface layer of semifluid, saline muck and underlying material of semifluid, saline clay.

Of minor extent are the very poorly drained Allemands soils in adjacent areas of freshwater marsh and the very poorly drained Scatlake and Timbalier soils in adjacent areas of saline marsh. Many small ponds and perennial streams are in most areas.

Most of the soils in this unit are in native vegetation and are used for recreation and as habitat for wetland wildlife. A small acreage has oil and gas wells.

These soils are well suited to use as habitat for wetland wildlife. They provide suitable habitat for many species of wetland wildlife. Hunting, fishing, and other outdoor activities are popular in areas of this unit. This unit is part of the estuary that contributes to the support of marine life in the Gulf of Mexico.

These soils are not suited to crops, pasture, woodland, or urban areas. The limitations of flooding, wetness, salinity, and low strength are too severe for these uses.



ORGANIC



SANDY



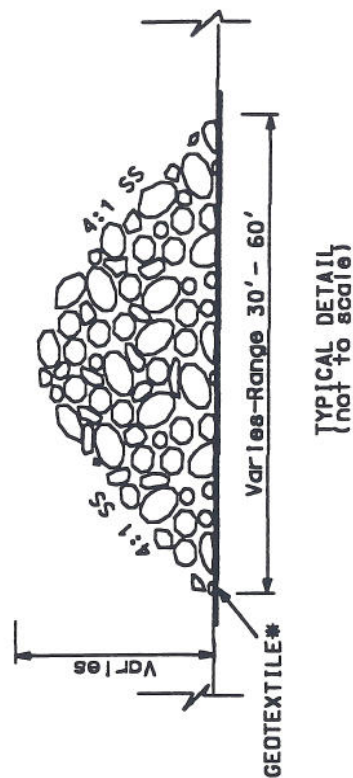
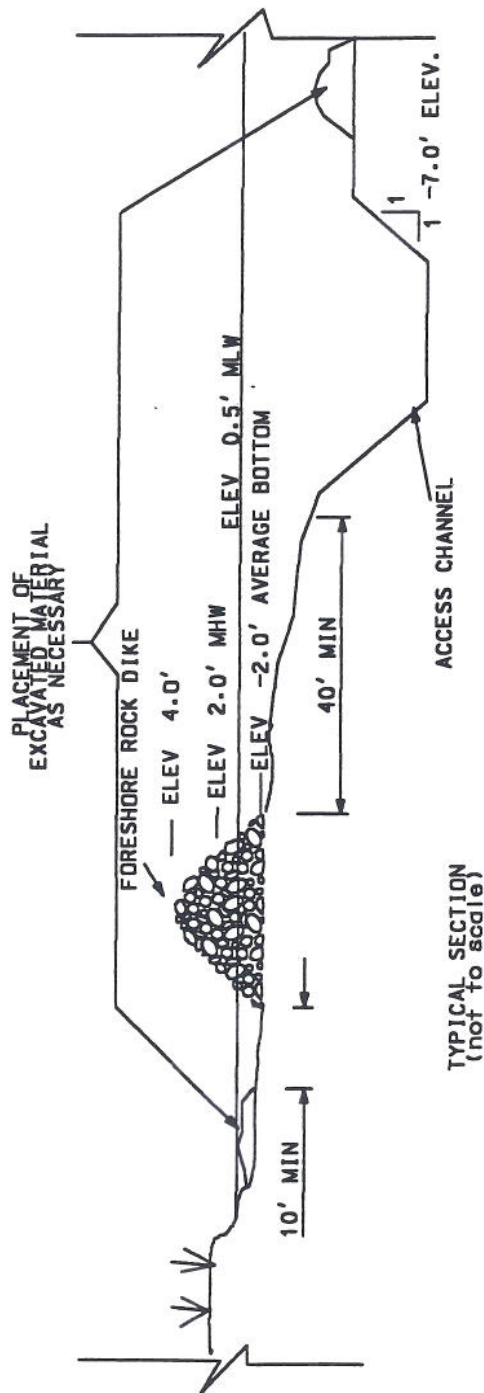
LOAMY



CLAYEY

## **APPENDIX B**

### **TYPICAL DRAWINGS OF POTENTIAL STRUCTURES**



# As Needed

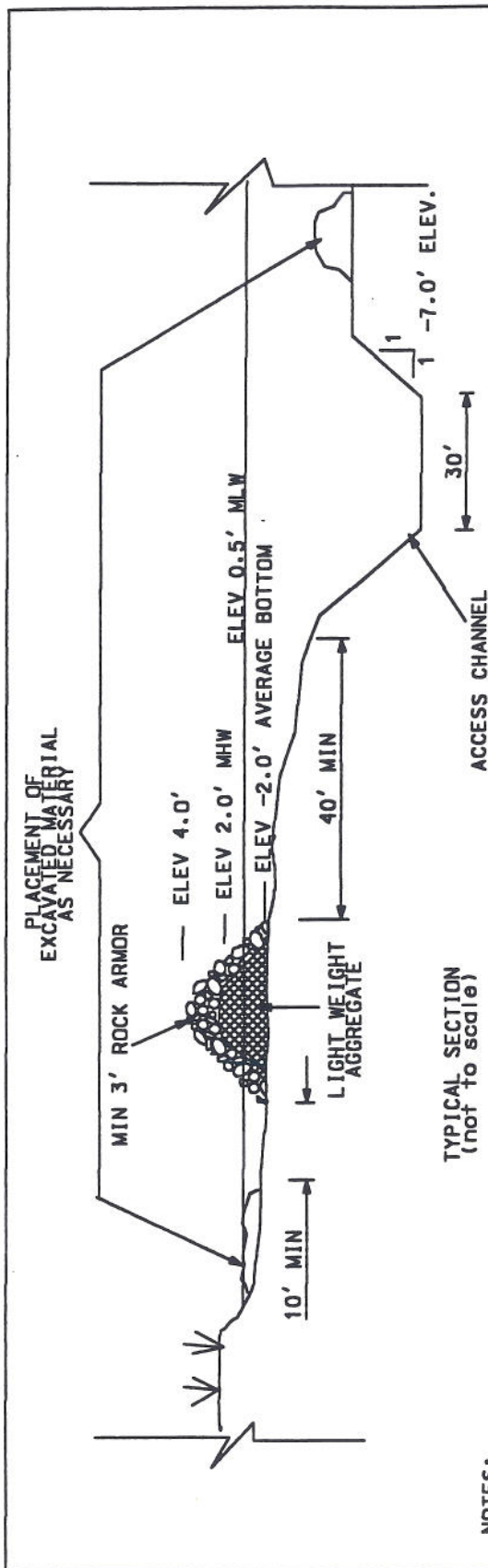
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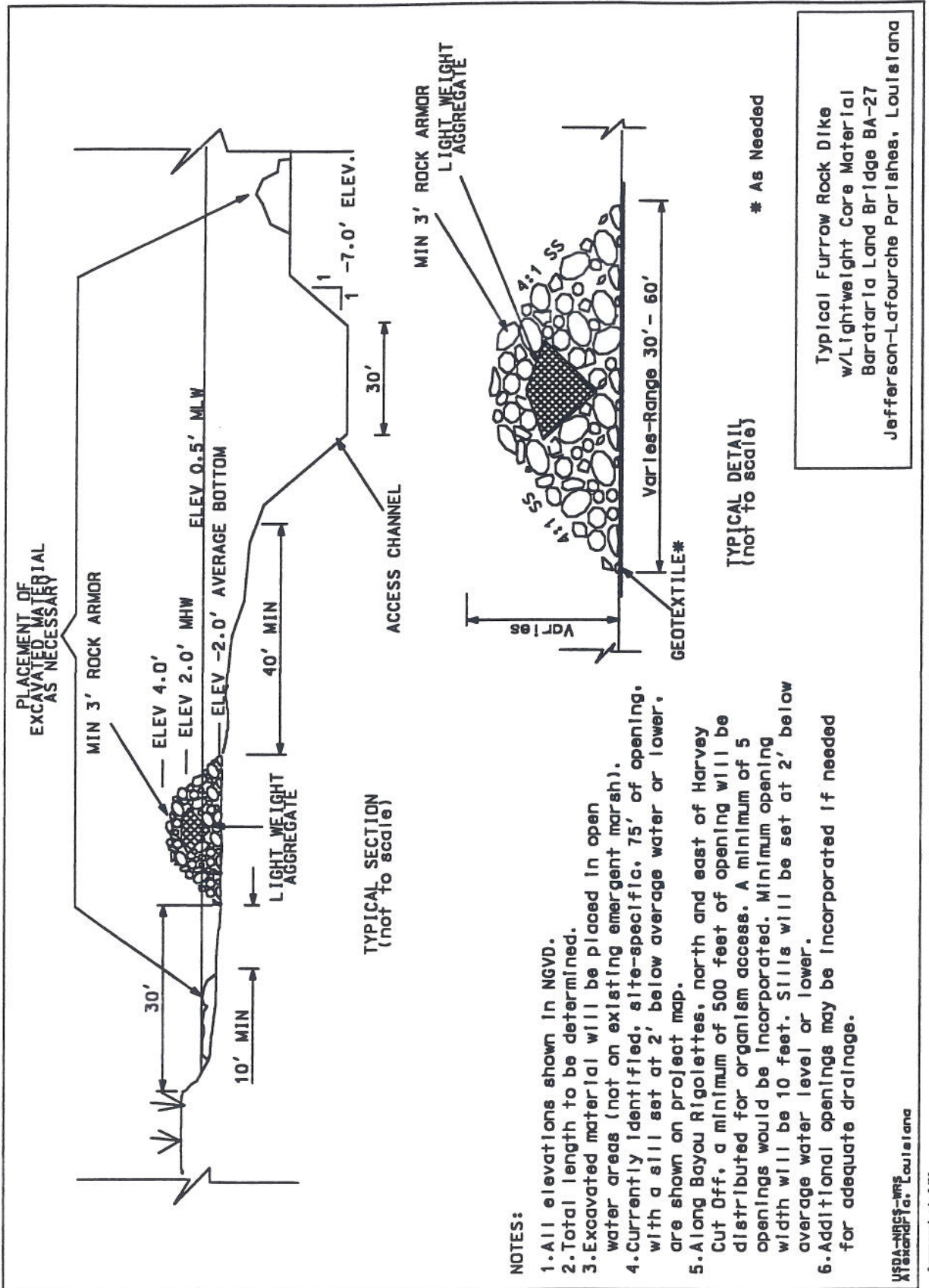
1. All elevations shown in NGVD.
2. Total length to be determined.
3. Excavated material will be placed in open water areas (not on existing emergent marsh).
4. Currently identified, site-specific, 75' of opening with a sill set at 2' below average water or lower, are shown on project map.
5. Along Bayou Rigolettes, north and east of Harvey Cut Off, a minimum of 500 feet of opening will be distributed for organism access. A minimum of 5 openings would be incorporated. Minimum opening width will be 10 feet. Sills will be set at 2' below average water level or lower.
6. Additional openings may be incorporated if needed for adequate drainage.

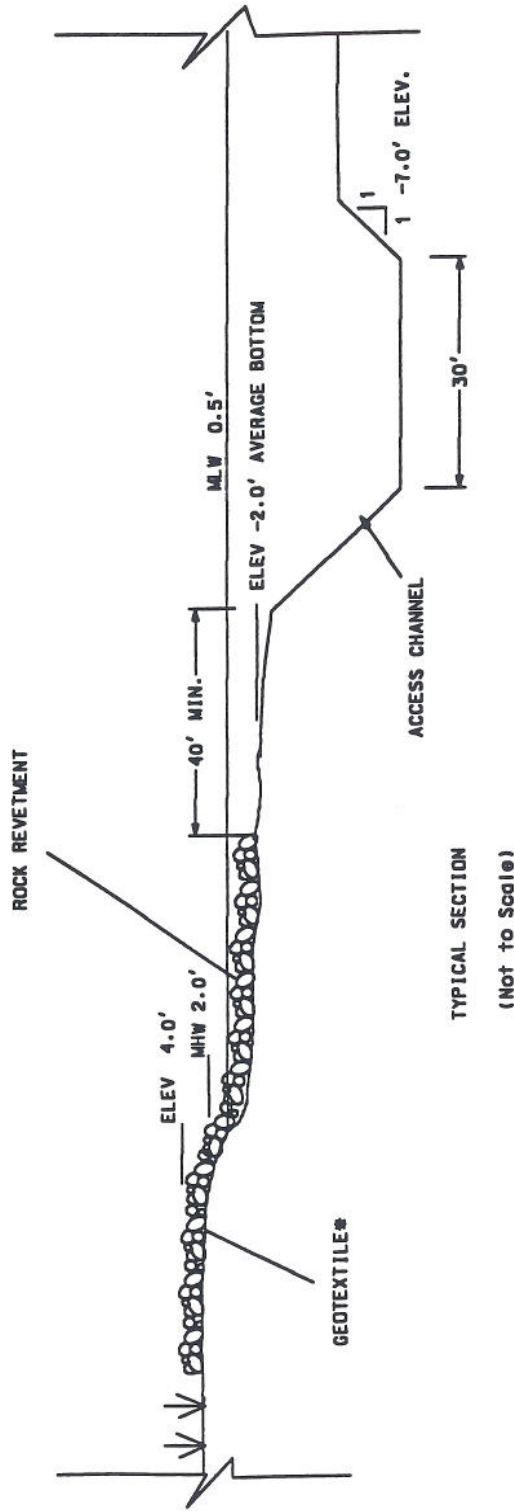
Typical Foreshore Rock Dike  
Barataria Land Bridge BA-27  
Jefferson-Lafourche Parishes, Louisiana

USDA-NRCS-WPS  
Louisiana

typical section 2/00







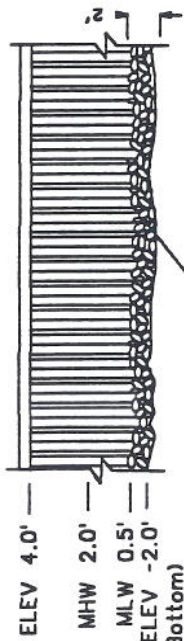
# AS NEEDED

- NOTES:
1. All elevations shown in NGVD.
  2. Total length to be determined.
  3. Excavated material will be placed in open water areas (not on existing emergent marsh).
  4. Historic channels will be lined with rock material but left open for water and organism exchange.
  5. Currently identified, site-specific, 75' of opening, with a sill set at 2' below average water or lower, are shown on project map.

USDA-NRCS-WRS  
Alexandria, Louisiana

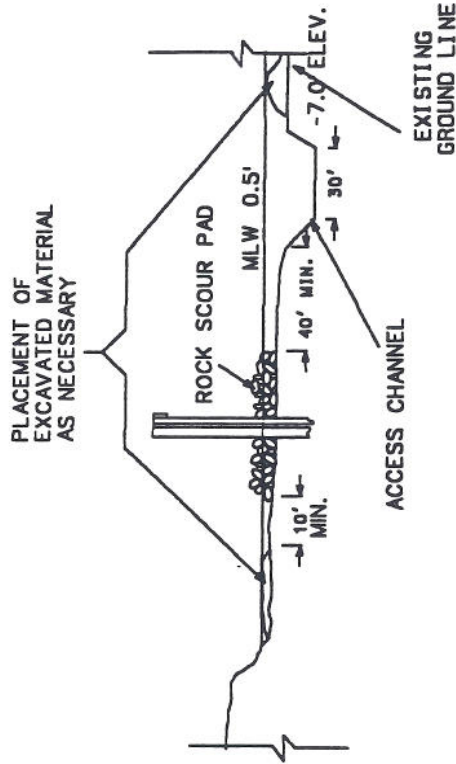
Typical Rock Revetment  
Barataria Land Bridge BA-27  
Jefferson-Lafourche Parishes, Louisiana

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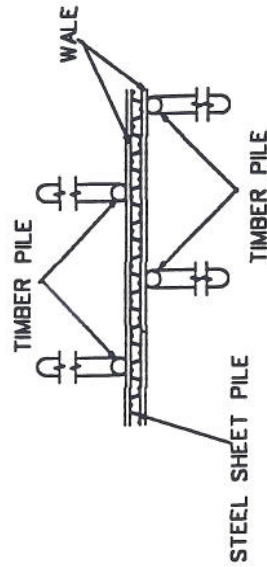


ROCK SCOUR PAD

TYPICAL SECTION  
(not to scale)



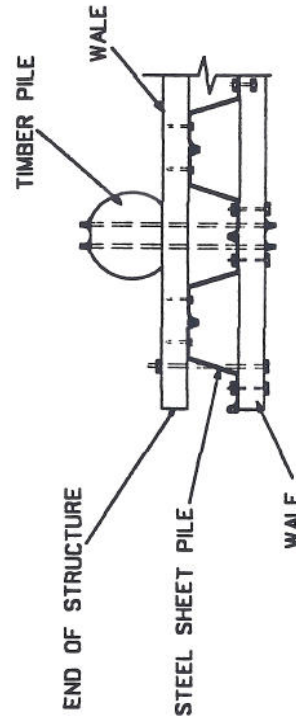
TYPICAL SECTION - DETAIL  
(not to scale)



TYPICAL PLAN  
(not to scale)

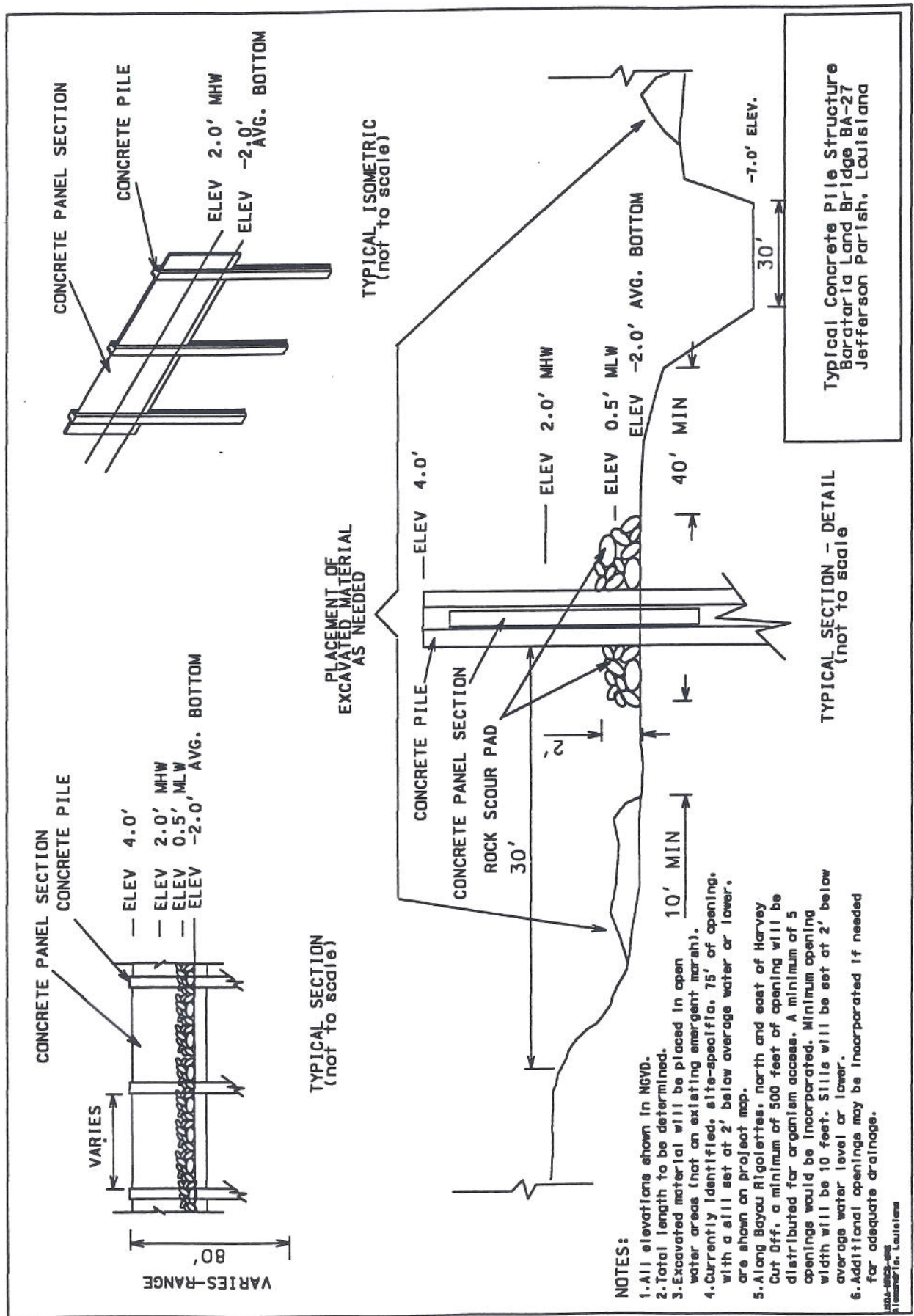
NOTES:

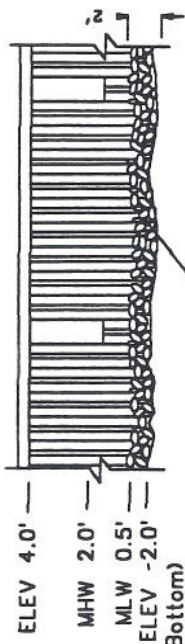
1. All elevations shown in NGVD.
2. Total length to be determined.
3. Excavated material will be placed in open water areas (not on existing emergent marsh).
4. Currently identified, site-specific, 75' of openings, with a sill set at 2' below average water or lower, are shown on project map.
5. Along Bayou Rigolottes, north and east of Harvey Cut Off, a minimum of 500 feet of opening will be distributed for organism access. A minimum of 5 openings would be incorporated. Minimum opening width will be 10 feet. Sills will be set at 2' below average water level or lower.
6. Additional openings may be incorporated if needed for adequate drainage.



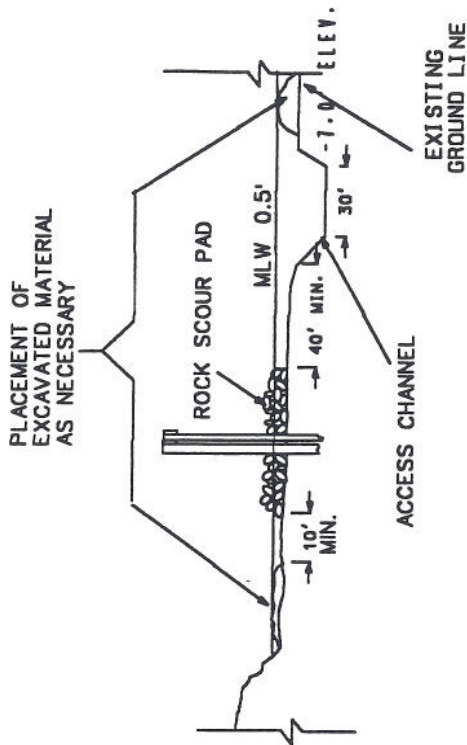
TYPICAL PLAN - DETAIL  
(not to scale)

Typical Steel Sheet Pile Structure  
Barataria Land Bridge BA-27  
Jefferson-Lafourche Parishes, Louisiana

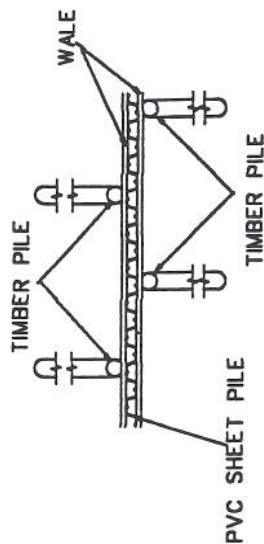




ROCK SCOUR PAD  
TYPICAL SECTION  
(not to scale)

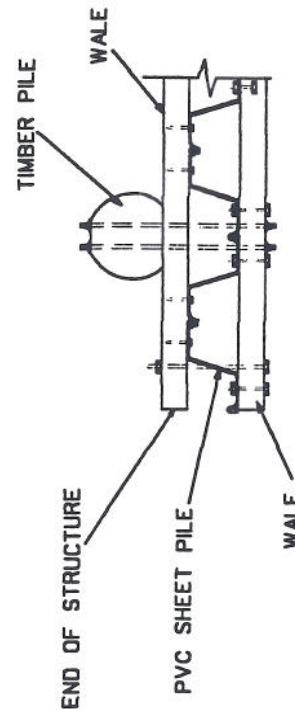


TYPICAL SECTION - DETAIL  
(not to scale)



#### NOTES:

1. All elevations shown in NGVD.
2. Total length to be determined.
3. Excavated material will be placed in open water areas (not an existing emergent marsh).
4. Currently identified, site-specific, 75' of opening, with a sill set at 2' below average water or lower, are shown on project map.
5. Along Bayou Rigollettes, north and east of Harvey Cut Off, a minimum of 500 feet of opening will be distributed for organism access. A minimum of 5 openings would be incorporated. Minimum opening width will be 10 feet. Sills will be set at 2' below average water level or lower.
6. Additional openings may be incorporated if needed for adequate drainage.



TYPICAL PLAN - DETAIL  
(not to scale)

Typical PVC Sheet Pile Structure  
Berataria Land Bridge BA-27  
Jefferson-Lafourche Parishes, Louisiana

**APPENDIX C**  
**COMMENTS RECEIVED AND RESPONSES**

**CHITIMACHA**  
TRIBE OF LOUISIANA

October 13, 1999

Quin Kinler  
USDA-NRCS  
P.O. Box 16030  
Baton Rouge, La. 70803

Dear Mr. Kinler,

**RE: PL-646, Barataria Basin Landbridge Shoreline Protection Project (BA-27)**

I am in receipt of your letter dated October 8, 1999, informing the Chitimacha Tribe of the United States Department of Agriculture, Natural Resources Conservation Service to provide shoreline protection along Bayous Perot and Rigolettes, Little Lake, Harvey Cutoff in Jefferson and LaFourche Parishes.

The Jefferson and LaFourche Parish areas where the proposed project is to take place is a part of the aboriginal Chitimacha homelands, known through oral tradition and documentation, and as such any information received will be of great interest to our tribe. Large village sites, sacred sites/burial sites, were in place in that entire area. Attached to this letter is a copy of American States Papers-Public Lands Vol. 6, p. 671, Seation and Eation edition, entry No. 38. This paper states that a certain tract of land, or island, situated in the parish of Jefferson and district of Barataria, was sold, but was formerly known as "Island of Chetimachas". If at any time during the course of your work, cultural resources were to be discovered, we request that you immediately notify the Chitimacha Tribe of Louisiana, so that we can begin consultation proceedings.

We would appreciate copies of any additional studies pertaining to fieldwork and methodologies associated with the project. We look forward to any further information on the above mentioned project and appreciate your notification to the Chitimacha Tribe.

Sincerely,



Alton D. LeBlanc, Jr.  
Tribal Chairman  
Chitimacha Tribe of Louisiana

AL/MA

- No. 38.—William Gormley, Jacques Encalada, and others, claim a certain tract of land, or island, situate in the parish of Jefferson, and district of Barataria, called the "*Island of Chetimachas*," but more generally known by the name of "*Cheniere Caminada*," containing about one hundred and twenty-six arpents front, on the bay of Caminada, with the whole depth, according to the original grant, to the "*Bayou of the West*."
- The said island was granted by the French government, in due and complete form, to Monsieur Du Roullin, on the 6th day of August, 1763, from whom it descended, through a series of regular conveyances, to Alexander Harang; under which latter claimants now hold, also in virtue of regular conveyances. We are therefore of opinion that this claim ought to be confirmed.
- No. 39.—David Urquhart claims a tract of land situate at a place called "*Gentilly*," in the vicinity of the city of New Orleans, containing twelve arpents front on each side of the *Bayou Gentilly*, by a depth

January 28, 2000

To: Project File: Barataria Basin Landbridge Shoreline Protection Project / Plan EA  
From: *QK* Quin Kinler, NRCS, Baton Rouge  
Subject: September 1999 Draft Plan/EA  
Response to October 13 1999, Comments from Chitimacha Tribe of Louisiana

Response: According the Louisiana Department of Culture, Recreation, and Tourism (LCRT) all existing information regarding known cultural resource sites in the project area has been provided to the Chitimacha Tribe of Louisiana. Should any additional sites be discovered during project implementation, the Chitimacha Tribe will be notified immediately.

With the No Action Alternative, cultural resource sites in the project area would continue to be exposed to erosive forces. It is anticipated that the Shoreline Protection Alternative would serve to protect the site from further erosion and scattering along the shorelines. Furthermore, investigations and consultation with the LCRT will be performed prior to initiation of any work to ensure that any adverse impact to those sites would be avoided.



# United States Department of the Interior

## FISH AND WILDLIFE SERVICE

646 Cajundome Blvd.

Suite 400

Lafayette, Louisiana 70506

October 27, 1999



Mr. Quin Kinler  
USDA-NRCS  
P.O. Box 16030  
Baton Rouge, LA 70893

*Quin*  
Dear Mr. Kinler:

The U.S. Fish and Wildlife Service (Service) has reviewed the draft Project Plan and Environmental Assessment (EA) for the Barataria Basin Landbridge Shoreline Protection Project. That project will be constructed under the authority of the Coastal Wetlands Planning, Protection and Restoration Act (CWPPRA). The Service submits 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.), and the Endangered Species Act of 1973, as amended.

### General Comments

The EA is well-written and provides an excellent description of fish and wildlife resources in the project area and project impacts on those resources. The intermediate and brackish marshes within the project area provide important habitat for several Federal trust species including wading birds, shorebirds, and resident and migratory waterfowl. Shoreline protection will prevent future shoreline erosion, improve the hydrologic integrity of interior marshes, and increase the coverage of submerged aquatic vegetation, thus, improving habitat conditions for those species.

Throughout the EA, the funded and unfunded portions of the entire Barataria Basin Landbridge Shoreline Protection Project are combined into one discussion. It is often difficult to determine if project features, benefits, and/or impacts refer to the entire project or only the funded portions. We recommend that the EA address only those projects which were approved for funding under the CWPPRA for the Seventh and Eighth Priority Project Lists. Specifically, those two projects are the Barataria Basin Landbridge Shoreline Protection Project - Phase 1 (XBA-63i) and the Barataria Basin Landbridge Shoreline Protection Project (Increment 1) - Phase 2 (XBA-63ii). Those two projects combined include 35,000 linear feet of shoreline protection, encompassed a total project area of 2,618 acres, and will protect 1,304 acres of emergent marsh.

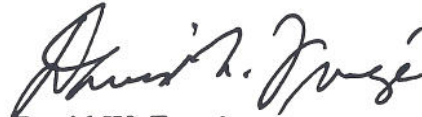
## Specific Comments

Page 7, Paragraph 5, Sentence 2 - "Wetland Value Analyses" should be changed to Wetland Value Assessment (WVA).

Page 16, Paragraph 4 - The Service concurs that no impacts to Federally listed threatened and endangered species would occur as a result of project implementation.

The Service fully supports the measures proposed thus far for Phases 1 and 2 of the Barataria Basin Landbridge Shoreline Protection Project. Thank you for the opportunity to provide comments on the EA. If you have any questions regarding our comments, please contact Kevin Roy of this office at 318/291-3120.

Sincerely,



David W. Frugé  
Field Supervisor

cc: NMFS, Baton Rouge, LA  
EPA, Baton Rouge, LA  
U.S. Army Corps of Engineers, New Orleans, LA  
NRCS, Alexandria, LA  
LA Dept. of Wildlife and Fisheries, Baton Rouge, LA  
LA Dept. of Natural Resources (CRD), Baton Rouge, LA

January 13, 2000

To: Project File: Barataria Basin Landbridge Shoreline Protection Project / Plan EA  
From: *QK* Quin Kinler, NRCS, Baton Rouge  
Subject: September 1999 Draft Plan/EA  
Response to October 27 1999, Comments from U.S. Fish and Wildlife Service

**General Comments**

Response: Since the date of the FWS comments, planning, engineering, design, and pre-construction monitoring of Phase 3 of the subject project has been funded under authorization of Public Law 101-646 (Ninth Priority Project List). Therefore, the final Plan/EA addresses all three project phases. The following changes have been incorporated in the final Plan/EA: 1) The specific reaches of shoreline protection are identified by project phase (Page 4; and Table 2, Page 17). 2) Projected form and extent of emergent marsh loss over 20 years for without and with project scenarios are presented by project phase areas in Table 1 (Page 12) and Table 3 (Page 20), respectively.

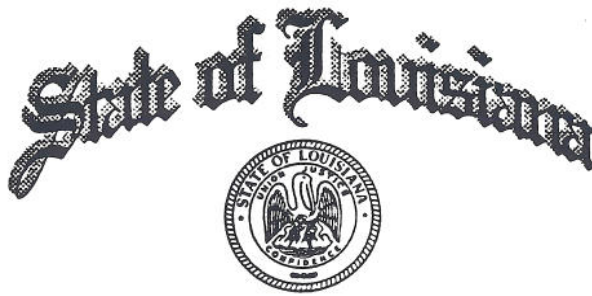
**Specific Comments**

Page 7, Paragraph 5, Sentence 2

Response: Suggested change has been made in the final Plan/EA (Page 9).

Page 16, Paragraph 4

Response: No response required.



M.J. "MIKE" FOSTER, JR.  
GOVERNOR

JACK C. CALDWELL  
SECRETARY

DEPARTMENT OF NATURAL RESOURCES

October 26, 1999

Mr. Quin Kindler  
USDA-NRCS  
P.O. Box 16030  
Baton Rouge, Louisiana 70893

RE: Comments on Draft Plan and Environmental Assessment for the Barataria Basin Landbridge  
Shoreline Protection Project (BA-27)

Dear <sup>Quin</sup>Mr. Kindler:

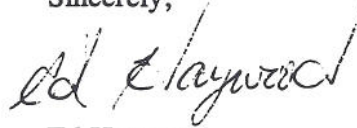
I have reviewed the Draft Plan and Environmental Assessment for the Barataria Basin Landbridge Shoreline Protection Project and my comments/questions are as follows:

- 1) Overall goals and objectives are well written and clearly stated. However, since the goal concerning "the maintenance and, in some areas, an increased extent of submerged aquatic vegetation" is listed on Page 3, Para. 1, as a secondary benefit, did NRCS intend for this variable to be monitored?
- 2) How was the project area boundary (and acreage) derived? On Page 13, Para. 1, the WVA "forecasted that, over 20 years, about 1,560 acres of emergent marsh in the project area would be lost to shoreline erosion." However, in several parts of the EA (e.g., page 1 and 4) the project area is indicated to be 4,862 acres. In the past, most shoreline protection projects would establish a project area boundary based on the shoreline erosion rate and the amount of land that would be lost if no action was taken. Clarification and/or explanation is needed.
- 3) Concerning the 1 year test project explained on Page 15, Para. 3:
  - a) What are the goals? It would seem that this project might be able to address "constructability" of the various designs but longevity and shoreline erosion behind the structures will be very difficult if not impossible to evaluate in one years time. Moreover, other shoreline protections projects in similar soils (e.g., BA-15, TE-17) and TV-04 on the Cheniere Plane have been constructed and data from these projects may be able to help address some of these questions. There may also be geotechnical survey information available from the Bayou Perot and Rigolettes Marsh Restoration Project (BA-21) that was deauthorized.
  - b) If evaluation of shoreline erosion rates behind the structures is a goal, then it is important that the test project be designed to eliminate interaction between the various designs. We experienced this problem at the Lake Salvador Shoreline Protection Project (BA-15). The structures were placed so close together that it was impossible to distinguish relative effectiveness.
  - c) We have some limited information available concerning vinyl sheetpile structures that indicate that this type of design might not hold up very well in high wave energy environments (TV-04).

d) How will this project be funded? The monitoring budget is \$81,554 and will need to span the 20 year project life. I don't envision that we will be able to use much, if any, monitoring funds for the test project. If data from the test project will be used to immediately aid the planning and engineering and design effort, then it potentially could be funded through those avenues.

Thank you for the opportunity to review the draft document. Overall, I felt that it was clearly written and easy to understand. Please don't hesitate to call if you would like to discuss any of my comments.

Sincerely,

A handwritten signature in cursive script, appearing to read "Ed Haywood".

Ed Haywood

Natural Resources Geoscience Supervisor

EH

January 13, 2000

To: Project File: Barataria Basin Landbridge Shoreline Protection Project / Plan EA

From: *QK* Quin Kinler, NRCS, Baton Rouge

Subject: September 1999 Draft Plan/EA  
Response to October 26, 1999, Comments from DNR Monitoring Section

Items below are numbered to correspond to DNR's Monitoring Section comments.

- 1) NRCS does not view the monitoring of secondary benefits (i.e., SAV) to be necessary, however, NRCS would not object to such monitoring if it could be performed within budget.
- 2) The Plan/EA has been modified at Page 5, paragraph 3 to explain the determination of the project area by the CWPPRA Environmental Work Group.
- 3) a) The goals of the test sections are "engineering in nature", that is, the test sections will be used to determine constructability and evaluate the initial stability of the structures. While the effect on shoreline erosion is the ultimate goal of the full project, the layout of the test sections and the one-year evaluation will not allow an evaluation on shoreline erosion.

NRCS and DNR engineers have evaluated each of the projects listed for insight into the design of the subject project, and NRCS has conducted extensive geotechnical evaluations to aid in design.

b) See item 3)a) above.

c) DNR engineers have expressed similar concerns regarding PVC sheetpile structures. The designs being tested may provide a viable alternative.

d) Construction of the test sections will be funded from the project construction budget. Engineering evaluations of the test sections will be funded from the project E&D budget. "Monitoring" funds can be reserved to evaluate the effectiveness (e.g., shoreline protection) of the settled upon project features.



**UNITED STATES DEPARTMENT OF COMMERCE**  
**National Oceanic and Atmospheric Administration**  
NATIONAL MARINE FISHERIES SERVICE  
Southeast Regional Office  
9721 Executive Center Drive North  
St. Petersburg, Florida 33702

October 27, 1999

F/SER44/RS:jk  
225/389-0508

Mr. Bruce Lehto  
Assistant State Conservationist  
Natural Resources Conservation Service  
U.S. Department of Agriculture  
3737 Government Street  
Alexandria, Louisiana 71302

Dear Mr. Lehto:

The National Marine Fisheries Service (NMFS) has received the Draft Project Plan and Environmental Assessment (Plan/EA) for the Barataria Basin Landbridge Shoreline Protection (BA-27) project transmitted by your October 8, 1999, letter. The Plan/EA describes the anticipated impacts associated with constructing 76,000 linear feet of shoreline protection adjacent to Bayous Perot and Rigolettes, Little Lake, and Harvey Cutoff in Jefferson and Lafourche Parishes, Louisiana. About 46% of the project has been funded under the auspices of the Coastal Wetlands Planning, Protection and Restoration Act. The remaining portion of the project has not been funded at this time. The Natural Resources Conservation Service (NRCS) is the federal sponsor of this project.

The NMFS has reviewed the Plan/EA and offers the following general and specific comments.

**General Comments**

We find this document to be poorly formatted and missing entire sections necessary for a thorough evaluation of all potential project impacts. The information which is provided lacks sufficient detail to allow for full assessment of the potential adverse impacts of the proposed project. Specifically, the final design of specific shoreline protection components has not been identified, described, or selected. Lacking this information, the NMFS is not able to assess potential project-related impacts to Essential Fish Habitat (EFH) or associated marine fishery resources. While we understand that some of the various designs are to be tested prior to selection of a final plan, a general discussion of the potential adverse effects of the various structural measures on resources of concern is appropriate. In addition, methods to minimize the potential adverse impacts (e.g., frequency and design of fish dips, prohibiting placement of spoil on emergent wetlands, and the location of openings at important water exchange points) should be identified, discussed, and included in the Plan/EA.

The NMFS also is concerned that the Plan/EA does not consider potential adverse impacts to EFH. The Magnuson-Stevens Fishery Conservation and Management Act requires federal agencies



proposing activities which may adversely affect EFH to initiate consultation with the NMFS. This consultation should have been initiated in this document.

### Specific Comments

#### SUMMARY OF THE PLAN/EA

##### Potential Adverse Impacts

Page 2. The NMFS is concerned that project implementation may adversely affect marine fishery access to EFH. While the Plan/EA indicates that fish dips and openings would be placed at historic natural channels, no specific structural designs or construction plans are provided for our review. Lacking this information, we recommend the following sentence be added to this section: "Depending on the final project design and engineering specifications, project implementation may impede marine fishery access to some localized marsh areas."

#### PROJECT SETTING

##### Fish and Wildlife Resources

Page 9. The NMFS is concerned that the Plan/EA makes no mention of the value of the project area as EFH. Federally managed species which would likely use this area include white and brown shrimp and red drum. In addition to being designated as EFH for these species, the project area provides nursery and foraging habitats that support various economically-important marine fishery species such as spotted seatrout, gulf menhaden, striped mullet, and blue crab. Some of these estuarine-dependent species serve as prey for other fisheries managed by the Gulf of Mexico Fishery Management Council under the Magnuson-Stevens Act (e.g., mackerels, red drum, snappers, and groupers) and highly migratory species managed by the NMFS (e.g., billfish and sharks). This information should be provided under a separate Essential Fish Habitat heading in this section of the Plan/EA.

#### FORMULATION, DESCRIPTION AND COMPARISON OF ALTERNATIVES

##### Description of Alternatives

Page 15, paragraph 3. Consistent nomenclature should be used for the five structure types listed for potential inclusion in the overall project design and the associated typical drawings in Appendix B. The three "test section designs" appear to include only two of the five potential engineering techniques under consideration: concrete sheetpile and rock breakwaters. The Plan/EA should describe why the remaining three techniques may be considered feasible without field trials.

Page 16, paragraph 1. The NMFS is concerned that fish dips and openings may not be of adequate size or elevation to accommodate marine fishery ingress or drainage. While we understand why the NRCS is unable to finalize a project design at this time, we believe it is possible to identify where specific types of openings may be provided. The designs and locations of all proposed fish dips, access openings, flotation channels and spoil disposal should be provided in the Plan/EA, as well as depicted on the "typical drawings" in Appendix B.

## Environmental Effects and Comparison of Alternatives

This section lacks the headings used previously in the PROJECT SETTING portion of the document. Lacking these headings, we find that a review of the impacts of the No Action and Shoreline Protection Alternatives on resources of concern is difficult. Therefore, we recommend this section be revised to include all of the headings used previously, as well as that of the EFH section recommended above. Under each heading, the impacts of the various alternatives should be described in separate paragraphs.

In addition, no mention is made in this section of potential project impacts to EFH. Because details of the design and location of the fish dips and openings are lacking, it is possible that project implementation could adversely impact marine fishery access to EFH. The NMFS recommends that an EFH section be added to this portion of the Plan/EA and that all potential effects of project implementation on EFH be identified.

Page 16, paragraph 2. Lacking details on the design and probable locations of fish dips and openings, the NMFS is concerned that project implementation may adversely affect marine fishery access to EFH and impede drainage of water from the interior marshes. Inadequate drainage could result in shoreline protection structures ponding water on the marsh. Such ponding could result in elevated salinities through evapotranspiration, increased soil sulfides caused by reduced soil conditions, decreased plant health, and marsh fragmentation. Decreases in marine organism ingress and egress could lead to a reduction in marine fishery productivity of the project area. This section should be revised to fully identify and discuss these potential adverse impacts.

## RECOMMENDED PLAN

### Permits and Compliance

Page 19, Table 1. The Magnuson-Stevens Fishery Conservation and Management Act should be added to the table of federal statutes applicable to the proposed project.

## APPENDIX B, TYPICAL DRAWINGS OF POTENTIAL STRUCTURES

Pages B-1 through B-5. The NMFS is concerned that the figure drawings do not include sufficient detail to evaluate structure impacts. Specifics such as proposed crown elevations, typical distance between the shoreline and structure types, depths of flotation channels, frequency and design of fish dips, and locations of openings at natural bayous and other access points should be included in order for the NMFS to fully assess the potential impacts to vegetated wetlands and fish and wildlife resources.

We appreciate the opportunity to provide these comments. Please do not hesitate to contact Rachel Sweeney at 225/389-0508 if you or your staff would like additional information regarding this matter.

Sincerely,



for Andreas Mager, Jr.  
Assistant Regional Administrator  
Habitat Conservation Division

January 28, 2000

Mr. Andreas Mager, Jr.  
Assistant Regional Administrator  
Habitat Conservation Division  
National Marine Fisheries Service  
9721 Executive Center Drive North  
St. Petersburg, Florida 33703

Dear Mr. Mager:

Reference is made to your letter dated October 27, 1999, which provided comments regarding the Draft Project Plan and Environmental Assessment (Plan/EA) for the Barataria Basin Landbridge Shoreline Protection Project (BA-27). Each of your comments has been addressed as described below.

#### Specific Comments

##### **SUMMARY OF THE PLAN/EA Potential Adverse Impacts**

Page 2. Based on consultation with the National Marine Fisheries Service, Baton Rouge, Louisiana, Field Office (BRFO), specific design parameters to allow continued marine organism access to Essential Fish Habitat have been incorporated into the final Plan/EA under the description of the Shoreline Protection Alternative (pages 17-20), under Proposed Measures (pages 24-25), on Figure 6 (page 19), and in Appendix B. With these design parameters, it has been determined that marine organism access will not be impeded.

##### **PROJECT SETTING Fish and Wildlife Resources**

Page 9. Based on consultation with BRFO, the final Plan/EA includes a section entitled Essential Fish Habitat (page 11) within PROJECT SETTING. The new section addresses those topics listed in your comment.

##### **FORMULATION, DESCRIPTION, AND COMPARISON OF ALTERNATIVES Description of Alternatives**

Page 15, paragraph 3. Nomenclature for structure types has been made consistent in the final Plan/EA (pages 18 and 24, and Appendix B). The selection of structure types for the "test sections" is explained in the final Plan/EA (page 18).

Page 16, paragraph 1. The specific design parameters identified by BRFO are incorporated into the final Plan/EA under the description of the Shoreline Protection Alternative (pages 17-20), under Proposed Measures (pages 24-25), on Figure 6 (page 19), and in Appendix B.

Page 2  
January 28, 2000

### Environmental Effects and Comparison of Alternatives

This section has been rewritten and reformatted to include the applicable headings from PROJECT SETTING and a new subsection to address Essential Fish Habitat. Specific design parameters to allow continued marine organism access are incorporated into the final Plan/EA under the description of the Shoreline Protection Alternative (pages 17-20), under Proposed Measures (page 24-25), on Figure 6 (page 19), and in Appendix B.

Page 16, paragraph 2. Specific design parameters to allow continued marine organism access are incorporated into the final Plan/EA under the description of the Shoreline Protection Alternative (pages 17-20), under Proposed Measures (pages 24-25), on Figure 6 (page 19), and in Appendix B.

### RECOMMENDED PLAN Permits and Compliance

Page 19, Table 1. The Magnuson-Stevens Fishery Conservation and Management Act has been added to Table 4 (page 25) of the final Plan/EA.

### APPENDIX B, TYPICAL DRAWINGS OF POTENTIAL STRUCTURES

Pages B-1 through B-5. The specific design parameters identified by BRFO are incorporated into the final Plan/EA under the description of the Shoreline Protection Alternative (pages 17-20), under Proposed Measures (pages 24-25), on Figure 6 (page 19), and in Appendix B.

### General Comments

By addressing each of your specific comments as described above, your General Comments have also been addressed.

Therefore, through consultation with BRFO and by incorporating the above described modifications in the final Project Plan and Environmental Assessment, the Natural Resources Conservation Service considers the mandated Essential Fish Habitat consultation to be complete. Please contact Mr. Quin Kinler (225-382-2047) of my staff if you have further questions regarding this matter.

Sincerely,



Bruce M. Lehto  
ASTC/Water Resources/Rural Development

cc: Richard Hartman, National Marine Fisheries Service, Baton Rouge, LA  
Rachel Sweeney, National Marine Fisheries Service, Baton Rouge, LA  
Quin Kinler, Resource Conservationist, NRCS, Baton Rouge, LA  
Allen Bolotte, District Conservationist, NRCS, Boutte, LA  
Tim Landreneau, District Conservationist, NRCS, Thibodaux, LA  
George Boddie, Project Manager, LDNR, Baton Rouge, LA

**APPENDIX D**  
**SUMMARY OF PUBLIC MEETING COMMENTS**

January 12, 2000

To: Project File

From: *QK* Quin Kinler, Resource Conservationist / Project Manager

Subject: Barataria Basin Landbridge Shoreline Protection Project Phases 1 and 2  
Summary of Public Meetings

Two Public Meetings were held for the above referenced project:

**Tuesday, November 16, 1999, at 7:00 p.m. at the Lafitte Town Hall located on LA Highway 45 at the intersection of LA Highway 302 in Jean Lafitte, Louisiana.**

**Wednesday, November 17, 1999, at 6:30 p.m. at the Greater Lafourche Port Commission Office, located on LA Highway 308, in Galliano, Louisiana.**

The agendas for those meetings are included as Attachments 1 and 2. Attendance information is presented in Attachments 3 and 4.

November 16, 1999 Meeting at Lafitte

Information presented to the public, including conceptual design drawings are presented as Attachments 5 through 14. The citizens in attendance were small in number, but well "in-tuned" to the problems and issues associated with the project area. Discussion items are summarized as follows:

1. Structure design should allow the exchange of water in and out of the marsh – "let the marsh breathe" (Richard Breaux). It was explained that the design will include water exchange and fish access points.
2. Concern was expressed that the access channel may cause sloughing of the berm and therefore threaten the integrity of the structure (Milton Hymel). It was explained that the exact location of the access channel will take this potential into consideration.
3. An alternative that included the placement of narrow concrete barges was suggested by a local contractor (John Hurt). He may submit a drawing of this design.
4. The top elevation of structures as shown in the conceptual drawings is 4.0 NGVD. It was questioned whether the structure could be set lower (Richard Breaux). It was explained that the final decision regarding the height has not been made, and that consideration is being given to reducing height to 3.0 NGVD, particularly for the shoreline revetment design. It was further explained however, that storm tides frequently reach or exceed 3.0 NGVD, so that if the structure is set too low, waves could go over the structure, reducing its effectiveness.
5. General discussion centered on what might work and what might not work. Ed Perrin pointed out that riprap placed in "The Pen" seems to be holding up, but that a wooden bulkhead near Bernstein's Cut did not last. Dickie Adams indicated that pipeline companies

use rock. Many attendees expressed reservation whether the concrete sheetpile structure would work.

6. Concern was expressed that this project was located 10+ miles south of Lafitte. It was suggested project selection should be based more on protection of people and communities and less on fish and wildlife needs.

#### November 17, 1999 Meeting at Galliano

Only agency and parish representatives were in attendance. Because all present were already informed about the project, we did not proceed with agenda. We waited 45 minutes to ensure that general public participants were not simply late. As we were walking out the door, Mr. Bob Mohler (sales representative for "AJAX" blocks, showed up. He was not interested in the formal agenda so we simply discussed the possible application of the "AJAX" product. Issues raised included 1) the potential for USDA to use a patented product, 2) whether the "AJAX" blocks would sink too deep, 3) whether the wave dampening effect was sufficient. In summary, we agreed that we would look into the possible use of the "AJAX" blocks.

cc: Allen Bolotte, DC, NRCS, Boutte  
Tim Landreneau, DC, NRCS, Thibodaux  
Dale Garber, Watershed Engineer, NRCS, Thibodaux  
John Jurgensen, Planning Engineer, NRCS, Alexandria  
George Boddie, Project Manager, LDNR, Baton Rouge  
Brian Kendrick, Project Manager, LDNR, Thibodaux  
Jimmy Moore, State Design Engineer, NRCS, Alexandria  
Steve Garner, Design Engineer, NRCS, Alexandria  
Bruce Lehto, ASTC/WR, NRCS, Alexandria

## APPENDIX E

### COSTS

**Coastal Wetlands Conservation and Restoration Plan  
Priority Project List VII**

**Barataria Basin Land Bridge-Phase 1 (XBA-63i)**

Fully Funded Costs			Total Fully Funded Costs				Amortized Costs			
Year	Inflation Factor	Fiscal Year	Engineering & Design	Easements & Land Rights	Federal Supervision & Administration	LDNR Supervision & Administration	Supervision & Inspection	Contingency	First Cost Construction	Total First Cost
5			0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
4	1.000	1998	\$11,250	\$10,000	\$57,500	\$12,500	\$0	\$0	\$0	\$91,250
3	1.026	1999	\$15,390	\$13,680	\$78,660	\$17,100	\$0	\$0	\$0	\$124,830
2	1.053	2000	\$632,395	\$14,036	\$80,705	\$17,545	\$0	\$0	\$0	\$744,681
1	1.080	2001	\$0	\$3,600	\$20,701	\$16,381	\$69,123	\$1,658,140	\$6,632,560	\$8,400,504
TOTAL			\$659,035	\$41,316	\$237,566	\$63,525	\$69,123	\$1,658,140	\$6,632,560	\$9,361,265

Year	Inflation Factor	Fiscal Year	Monitoring Costs	O&M Costs	Other Costs
-1	1.108	2002	\$2,787	\$0	\$648
-2	1.137	2003	\$2,859	\$0	\$665
-3	1.166	2004	\$2,933	\$0	\$682
-4	1.197	2005	\$3,010	\$0	\$700
-5	1.228	2006	\$3,088	\$260,324	\$718
-6	1.260	2007	\$3,168	\$0	\$737
-7	1.293	2008	\$3,251	\$0	\$756
-8	1.326	2009	\$3,335	\$0	\$776
-9	1.361	2010	\$3,422	\$0	\$796
-10	1.396	2011	\$3,511	\$295,973	\$816
-11	1.432	2012	\$3,602	\$0	\$838
-12	1.470	2013	\$3,696	\$0	\$859
-13	1.508	2014	\$3,792	\$0	\$882
-14	1.547	2015	\$3,890	\$0	\$905
-15	1.587	2016	\$3,992	\$336,503	\$928
-16	1.629	2017	\$4,095	\$0	\$952
-17	1.671	2018	\$4,202	\$0	\$977
-18	1.714	2019	\$4,311	\$0	\$1,003
-19	1.759	2020	\$4,423	\$0	\$1,029
-20	1.805	2021	\$4,538	\$0	\$1,055
Total			\$71,905	\$892,799	\$16,722

\$10,342,691

\$985,782

**Coastal Wetlands Conservation and Restoration Plan  
Priority Project List VIII**

**Barataria Land Bridge Shore Protection - Phase 2 Increment A (XBA-63ii)**

Fully Funded Costs			Total Fully Funded Costs			Amortized Costs			\$883,608		
Year	Inflation Factor	Fiscal Year	Engineering & Design	Easements & Land Rights	Federal Supervision & Administration	LDNR Supervision & Administration	Supervision & Inspection	Contingency	First Cost Construction	Total First Cost	
5		0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	
4	1.026	1999	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	
3	1.053	2000	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	
2	1.080	2001	\$514,102	\$54,002	\$92,951	\$30,376	\$0	\$0	\$0	\$691,432	
1	1.108	2002	\$0	\$0	\$74,175	\$24,240	\$44,325	\$1,133,060	\$4,532,238	\$5,808,039	
TOTAL			\$514,102	\$54,002	\$167,127	\$54,617	\$44,325	\$1,133,060	\$4,532,238	\$6,499,470	

Year	Inflation Factor	Fiscal Year	Monitoring Costs	O&M Costs	Other Costs
0 Base Year		2002	\$13,314		\$665
-1	1.137	2003	\$2,859	\$4,075	\$682
-2	1.166	2004	\$2,934	\$4,181	\$700
-3	1.197	2005	\$3,010	\$4,289	\$718
-4	1.228	2006	\$3,088	\$4,401	\$737
-5	1.260	2007	\$3,169	\$4,515	\$756
-6	1.293	2008	\$3,251	\$4,633	\$776
-7	1.326	2009	\$3,335	\$215,214	\$796
-8	1.361	2010	\$3,422	\$4,877	\$817
-9	1.396	2011	\$3,511	\$5,004	\$838
-10	1.432	2012	\$3,602	\$5,134	\$860
-11	1.470	2013	\$3,696	\$5,267	\$882
-12	1.508	2014	\$3,792	\$5,404	\$905
-13	1.547	2015	\$3,891	\$5,545	\$929
-14	1.587	2016	\$3,992	\$257,574	\$953
-15	1.629	2017	\$4,096	\$5,837	\$977
-16	1.671	2018	\$4,202	\$5,988	\$1,003
-17	1.714	2019	\$4,312	\$6,144	\$1,029
-18	1.759	2020	\$4,424	\$6,304	\$1,056
-19	1.805	2021	\$4,539	\$6,468	\$1,083
-20	1.852	2022	\$4,657	\$6,636	\$1,111
Total			\$87,096	\$567,489	\$18,273

# Coastal Wetlands Conservation and Restoration Plan Priority Project List IX

## Barataria Land Bridge Shore Protection - Phase 3 (BA-27 Ph 3)

Fully Funded Costs		Total Fully Funded Costs				Amortized Costs						\$1,901,302
Year	Inflation Factor	Fiscal Year	Engineering & Design	Easements & Land Rights	Federal Supervision & Administration	LDNR Supervision & Administration	Corps Project Management	Supervision & Inspection	Contingency	First Cost Construction	Total First Cost	
5			\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	
4			\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	
3	1.000	2000	\$249,789	\$27,632	\$85,581	\$24,839	\$628	\$0	\$0	\$0	\$388,468	
2	1.033	2001	\$442,341	\$48,932	\$151,551	\$43,986	\$649	\$0	\$0	\$0	\$687,459	
1	1.067	2002	\$0	\$0	\$156,552	\$45,437	\$670	\$123,782	\$2,696,267	\$10,785,069	\$13,807,778	
TOTAL			\$692,131	\$76,563	\$393,684	\$114,262	\$1,947	\$123,782	\$2,696,267	\$10,785,069	\$14,883,705	
Year	Inflation Factor	Fiscal Year	Monitoring Costs	O&M Costs	Other Costs							
2	1.033	2001	\$14,074	\$0	\$0							
1	1.067	2002	\$2,881	\$0	\$0							
0	Base Year		\$0	\$0	\$0							
-1	1.102	2003	\$2,976	\$3,951	\$692							
-2	1.139	2004	\$3,074	\$4,081	\$715							
-3	1.176	2005	\$3,176	\$3,531,201	\$739							
-4	1.215	2006	\$3,281	\$4,355	\$763							
-5	1.255	2007	\$3,389	\$4,499	\$788							
-6	1.297	2008	\$3,501	\$4,647	\$814							
-7	1.339	2009	\$3,616	\$4,800	\$841							
-8	1.384	2010	\$3,736	\$4,959	\$869							
-9	1.429	2011	\$3,859	\$5,122	\$898							
-10	1.476	2012	\$3,986	\$5,291	\$927							
-11	1.525	2013	\$4,118	\$5,466	\$958							
-12	1.575	2014	\$4,254	\$5,646	\$989							
-13	1.627	2015	\$4,394	\$5,833	\$1,022							
-14	1.681	2016	\$4,539	\$2,115,893	\$1,056							
-15	1.737	2017	\$4,689	\$6,224	\$1,091							
-16	1.794	2018	\$4,844	\$6,429	\$1,127							
-17	1.853	2019	\$5,003	\$6,642	\$1,164							
-18	1.914	2020	\$5,169	\$6,861	\$1,202							
-19	1.977	2021	\$5,339	\$7,087	\$1,242							
-20	2.043	2022	\$0	\$7,321	\$1,283							
Total			\$93,897	\$5,746,308	\$19,179							