

**UNITED STATES DEPARTMENT OF
COMMERCE
NATIONAL OCEANIC AND
ATMOSPHERE ADMINISTRATION
NATIONAL MARINE FISHERIES SERVICE
SILVER SPRING, MARYLAND**

**ENVIRONMENTAL ASSESSMENT
OF
SEDIMENT TRAPPING AT THE JAWS
CWPPRA PROJECT TV-15**

ST. MARY PARISH, LOUISIANA

JULY 2003

**U. S. DEPARTMENT OF COMMERCE
NATIONAL OCEANIC AND
ATMOSPHERIC ADMINISTRATION
NATIONAL MARINE FISHERIES SERVICE
SILVER SPRING, MARYLAND**

**ENVIRONMENTAL ASSESSMENT
OF
SEDIMENT TRAPPING AT THE JAWS**

CWPPRA PROJECT TV-15

ST. MARY PARISH, LOUISIANA

JULY 2003

Prepared by

**GOTECH, INC.
8383 BLUEBONNET BOULEVARD
BATON ROUGE, LOUISIANA 70810**

TABLE OF CONTENTS
Environmental Assessment of Sediment Trapping at the Jaws

<u>Section</u>	<u>Page No.</u>
1.0 INTRODUCTION.....	1
1.1 Project Location.....	1
1.2 Project Funding.....	2
1.3 Technical Background	2
1.3.1 Wetland Loss	3
1.3.2 Habitat Diversity.....	4
1.3.3 Current Conditions.....	4
1.4 Preliminary Performance	5
1.5 Authorization	6
2.0 PURPOSE AND NEED FOR ACTION.....	6
2.1 Purpose.....	6
2.2 Need for Action.....	6
2.2.1 Enhance Natural Wetland Creation Processes	7
2.2.2 Protection of Existing Wetlands	7
2.2.3 Protection of Wildlife Habitat.....	7
2.2.4 Protection of Marine Fisheries Habitat	8
2.2.5 Protection of Infrastructure	8
3.0 ALTERNATIVES INCLUDING PROPOSED ACTION.....	8
3.1 No-Action Alternative	8
3.2 Non-Vegetated Terrace without Distributary Network Alternative	9
3.3 Vegetated Terrace without Distributary Network Alternative.....	9
3.4 Non-Vegetated Terrace with Distributary Network Alternative	9
3.5 Vegetated Terrace with Distributary Network (Preferred Alternative) ...	9
3.5.1 Distributary Network	10
3.5.2 Terraces.....	10
3.5.3 Vegetative Plantings	11
4.0 AFFECTED ENVIRONMENT	11
4.1 Physical Environment	12
4.1.1 Geology, Soils, and Topography	12
4.1.2 Climate and Weather.....	13
4.1.3 Air Quality	14
4.1.4 Surface Water Resources	14
4.2 Biological Environment.....	14
4.2.1 Vegetative Communities.....	14
4.2.2 Essential Fish Habitat	15
4.2.3 Fishery Resources	16

4.2.4	Wildlife Resources.....	17
4.2.5	Threatened and Endangered Species	17
4.3	Cultural Environment.....	19
4.3.1	Historical or Archeological Resources	19
4.3.2	Economics (Employment and Income).....	19
4.3.3	Land Use	20
4.3.4	Recreation	20
4.3.5	Noise	21
4.3.6	Infrastructure.....	21
5.0	ENVIRONMENTAL CONSEQUENCES.....	21
5.1	Physical Environment.....	22
5.1.1	Geology, Soils, and Topography	22
5.1.2	Climate and Weather.....	22
5.1.3	Air Quality	22
5.1.4	Surface Water Resources	22
5.2	Biological Environment.....	23
5.2.1	Vegetative Communities.....	23
5.2.2	Essential Fish Habitat	23
5.2.3	Fishery Resources	24
5.2.4	Wildlife Resources.....	24
5.2.5	Threatened and Endangered Species	25
5.3	Cultural Environment.....	25
5.3.1	Historical or Archeological Resources	25
5.3.2	Economics (Employment and Income).....	25
5.3.3	Land Use	25
5.3.4	Recreation	25
5.3.5	Noise	26
5.3.6	Infrastructure.....	26
6.0	CONCLUSIONS	26
7.0	PREPARERS.....	27
8.0	FINDING OF NO SIGNIFICANT IMPACT.....	27
9.0	LITERATURE CITED	28

LIST OF FIGURES

Figure

- 1 Vicinity Map
- 2..... Vicinity Map
- 3..... Plan View
- 4..... Typical Terrace Section
- 5..... Vegetation Layout

LIST OF APPENDICES

- Appendix A..... Agency Coordination Letters

**Environmental Assessment
of
Sediment Trapping at The Jaws
CWPPRA Project TV-15**

1.0 INTRODUCTION

This Environmental Assessment (EA) evaluates the impacts of activities to enhance wetlands in and around the northeastern portion of West Cote Blanche Bay at its junction with the Gulf Intracoastal Waterway (GIWW) in an area known as The Jaws or Little Bay (Figure 1). The project is called Sediment Trapping at The Jaws and is located in south-central St. Mary Parish, in the Teche-Vermilion Basin, Louisiana (Figure 2).

This project is funded by the Coastal Wetlands Planning, Protection, and Restoration Act (CWPPRA) of 1990 (16 U.S.C. §§ 777c, 3951-3956). In accordance with CWPPRA, the heads of five Federal agencies and the Government of the State of Louisiana comprise a Task Force to implement a "comprehensive approach to restore and prevent the loss of coastal wetlands in Louisiana" (16 U.S.C. § 3952 (b) (2)). The Federal agencies involved are: the U.S. Army Corps of Engineers (USACE); the U.S. Department of Commerce, National Oceanic and Atmospheric Administration, National Marine Fisheries Service (NMFS); the U.S. Department of Interior, Fish and Wildlife Service (FWS); the U.S. Department of Agriculture, Natural Resources Conservation Service (NRCS); and the U.S. Environmental Protection Agency (EPA). These agencies held public forums in coastal areas of Louisiana to determine wetland problems. Subsequently, comprehensive restoration and protection plans for each river basin were developed that listed the identified problems and potential solutions (Louisiana Coastal Wetlands Conservation and Restoration Task Force, 1993). Each year thereafter, agency personnel reviewed the needs of each basin and prioritized projects for implementation. The Sediment Trapping at The Jaws project was on the Sixth Priority Project List, approved by the CWPPRA Task Force on April 24, 1997, (Louisiana Coastal Wetlands Conservation and Restoration Task Force, 1997).

1.1 Project Location

The project is located near the center of the Vermilion-Atchafalaya Bay complex in the most northeastern portion of West Cote Blanche Bay near an area called "The Jaws." The Jaws is the outfall of the Charenton Drainage and Navigation Canal (referred to as Charenton Canal in remainder of text) after it intersects with the Gulf Intracoastal Waterway

(GIWW)(Figure 2). The project site is approximately 16 kilometers (10 miles) southwest from Franklin, Louisiana, in St. Mary Parish.

1.2 Project Funding

CWPPRA is providing 85 percent of the funding for this project with 15 percent of the cost shared by the State of Louisiana Department of Natural Resources. The project is administered by a cooperative agreement between the LDNR and NMFS.

1.3 Technical Background

The Louisiana Coastal Zone contains approximately 3,200,000 hectares (7,900,000 acres) of which about 1,200,000 hectares (3,000,000 acres) are coastal marshes. These marshes convert to shallow open water at a rate of 90.4 square kilometers (34.9 square miles per year) (Barras et al., 1994). The site-specific factors influencing conversion of marsh to open water vary widely and are difficult to assess, but natural as well as anthropogenic factors are responsible.

A most important process in landscape dynamics in coastal Louisiana is the delta lobe cycle (Coleman, 1988). This cycle consists of natural periods of wetland creation and wetland loss. As part of the delta lobe cycle, the Mississippi River began shifting into the Atchafalaya River early this century. In 1900, the Atchafalaya River received 13 percent of the Mississippi River's flow at the point of convergence near Simmesport, Louisiana, approximately 110 kilometers (70 miles) northeast of Lafayette, Louisiana (Morgan et al., 1953). By 1952, the Atchafalaya River had captured 30 percent of the Mississippi River's flow. In 1963, to prevent completion of the channel switching, flow from the Mississippi River into the Atchafalaya River was regulated by the construction of the Old River Control Structure near Simmesport, Louisiana (Figure 1). Even with this structure, sediment deposition is converting shallow open water to wetlands in the lower Atchafalaya Basin (Adams and Baumann, 1980), Atchafalaya Bay (van Heerden et al., 1981), and on the down drift coast of the Gulf of Mexico (Wells and Kemp, 1981; Orton, 1959). The GIWW has become a conduit carrying sediment-rich waters from the Atchafalaya River west to West Cote Blanche Bay (Coastal Environments, Inc., 1977), and Vermilion Bay. Subaqueous deltas are developing where confined flow from the GIWW slows and spreads upon entry into these bays (Coastal Environments Inc., 1977).

1.3.1 Wetland Loss

Natural wetland loss results from compaction and subsidence of deltaic deposits, eustatic sea level rise, physical substrate scouring, and erosion exacerbated by periodic tropical cyclonic storms (Craig et al., 1979; Boesch et al., 1983). Herbivory, especially by the non-native nutria *Myocastor coypus*, may also accelerate wetland loss (Nyman et al., 1993).

In addition to natural processes, human activity also causes wetland loss. Anthropogenic activity accounted for 26 percent of total wetland loss within Louisiana between 1955 and 1978 (Turner and Cahoon, 1988). These direct losses were caused by dredging canals and creating spoilbanks, draining land, and expanding agricultural and urban areas. Human activity also causes wetland loss indirectly. Turner and Cahoon (1988) attribute indirect causes of wetland loss to five interrelated effects. These include temporal trends in estuarine salinity, saltwater intrusion in waterways, saltwater movement in marshes, plant responses to salinity change and submergence, and subsidence, water level rise and sediment deprivation. Indirect losses were exacerbated by levee construction for flood protection along the Mississippi River (Templett and Meyer-Arendt, 1988), extensive canal construction associated with oil and gas exploration (Turner et al., 1982), and navigation channel development and maintenance dredging. These large-scale perturbations altered hydrological conditions and sediment distribution over large areas and facilitated saltwater intrusion into coastal marshes.

Land loss rates have been calculated over three time periods for the deltaic plain. The U. S. Geological Survey quadrangle map labeled Jeanerette, on which the project area is located, lost 0.21 square kilometers (0.08 square miles) per year for the time periods 1937 to 1956 and 1956 to 1974. The loss rate dropped to 0.16 square kilometers (0.06 square miles) for the period 1974 to 1983. This was the lowest rate in the study (Britsch and Kemp, 1990), even though erosion rates in West Cote Blanche Bay were 4.5 meters (15 feet) per year (Louisiana Coastal Wetlands Conservation and Restoration Task Force, 1997)

Recent land loss trend analysis indicates that loss around the project area between 1990-2002 was 0.23 percent per year (Barras, personal communication). The trend analysis does not compensate for environmental and man-induced influences that may effect land/water classification at the time of image acquisition. These influences include, but are not limited to: meteorological

and tidal conditions; the presence and/or absence of floating aquatic vegetation; management conditions that may alter water levels or marsh surface appearance, (i.e., burning for trapping or hunting); and influence of catastrophic events such as hurricanes or floods. The trend interpretation may also contain process error due to misclassification of land and water. The base spatial resolution of the classified data is 30 meters and is designed for analysis of 1:40,000 and greater and is not directly comparable to high resolution aerial photography.

1.3.2 Habitat Diversity

Recent habitat maps indicate that the project area includes fresh marsh, navigable waterways, natural bayous and open water areas (Chabreck et al., no date). Because of the various elevations and salinity regimes, vegetative types range from brackish/intermediate species along West Cote Blanche Bay, to fresh marsh near the Charenton Canal. Upland species occur on levees, with typical transitional, wetland and submerged intermediate or fresh vegetation in the marsh and open water areas.

Wildlife resources in the project area include game and nongame animals and commercially important furbearers and alligators. There are a great variety of resident and migratory birds, including the waterfowl which traverse the westerly side of the Mississippi Flyway.

The intermediate to fresh marshes of the project area provide nursery and forage habitat for numerous recreationally and commercially important estuarine and estuarine-dependent marine finfish, mollusks and crustaceans. The Charenton Canal, north east of the project area, supports a variety of freshwater fishes.

1.3.3 Current Conditions

Fresh to intermediate marsh vegetation surrounds the project area on the western, northern and eastern sides. Waters of West Cote Blanche Bay form the southern boundary.

Navigation charts indicate that water depth in West Cote Blanche Bay was 0.9 to 1.5 meters (3 to 5 feet) in the 1960's, but currently is shallower in the project area. Waters of West Cote Blanche Bay range from 1.8 to 3 meters (6 to 10 feet). A subaqueous delta is developing in West Cote Blanche Bay where confined flow from the GIWW is delivered via The Jaws, which is also a constructed navigation channel (Figure 2). The subaqueous delta is associated

with an artificial channel leading from The Jaws into West Cote Blanche Bay. Subaqueous levees resulting from redistributed spoil material and natural sedimentation are associated with the channel. The subaqueous levees indicate that this channel is functioning as a distributary network carrying sediment from the GIWW to the open bay.

There have been few environmental studies that encompassed the Vermilion/Cote Blanche Bay area (Coastal Environments Inc., 1977; Coleman, 1966; Dugas, 1970; Fontenot, 1967; Norden, 1966; Perret, 1965). However, more recent data from other areas are becoming available that are relevant to proposed project features. Sediment diversions are a common and effective method of inducing wetland creation at the mouth of the Mississippi River (LDNR, 1996a, Boyer et al., 1997) and recent CWPPRA projects (i.e., AT-2 Atchafalaya Sediment Delivery, AT-3 Big Island Mining) have been constructed along the Atchafalaya River. Terraces have been used to create wetlands in coastal Louisiana and are particularly effective at increasing the length of marsh water interface (LDNR, 1993). Furthermore, Shell Oil Company constructed terraces in Little Vermilion Bay, which is west of the project area. Some terraces were planted with marsh vegetation, while others were not. After 13 months, those that were vegetated continued to be colonized by additional vegetation but the unplanted terraces eroded away (Edwards, 1998). Vegetative plantings have been used to slow shoreline erosion with varying success in coastal Louisiana. Plantings on the Gulf of Mexico have been unsuccessful (LDNR 1996b), whereas plantings on the shoreline of Vermilion Bay have been very successful (LDNR, 1997a) as have been plantings on dredged terraces (LDNR, 1993).

1.4 Preliminary Performance

Problems and potential solutions in the Teche/Vermilion Basin were identified by the Task Force during the developmental stages of the Louisiana Coastal Wetlands Restoration Plan (1993) and further documented in the Coast 2050 report (Louisiana Coastal Wetlands Conservation and Restoration Task Force and the Wetlands Conservation and Restoration Authority (1998). Subsequent to selection by the Task Force on the Sixth Priority Project List, the area has been inspected and pertinent data collected by project engineers and Federal and State sponsor personnel. Geotechnical investigations (Soils and Foundation Engineers, Inc., 1999); water circulation, sediment distribution and transport (Walker et al., 1997) and hydrologic studies (C.H. Fenstermaker & Associates, Inc., 2002) have been conducted. On the basis of these studies, preliminary plans were revised.

1.5 Authorization

The NMFS is the Federal sponsor for implementation of Sediment Trapping at The Jaws Project, that was included on the Sixth Priority Project List (Louisiana Coastal Wetlands Conservation and Restoration Task Force, 1997). The sponsor's responsibility includes conducting the evaluation and other activities involved for final decision-making in compliance with the National Environmental Policy Act (NEPA) of 1969.

The project was listed as TV-15 in the CWPPRA Restoration Plan (Louisiana Coastal Wetlands Conservation and Restoration Task Force, 1993) and PTV-19b by the State of Louisiana (LDNR, 1997b). In 1998, the State of Louisiana also prepared a conservation and restoration plan. Aspects of this project could be included in their Regional Ecosystem Strategies Number 8 (Dedicated delivery of sediment for marsh building by any feasible means) and 15 (Reduce sedimentation in bays). This project also supports Mapping Unit Strategy number 74 (Protect bay/lake shorelines) and 75 (Beneficial use of dredged material) for West Cote Blanche Bay (Louisiana Coastal Wetlands Conservation and Restoration Task Force and the Wetlands Conservation and Restoration Authority, 1998).

2.0 PURPOSE AND NEED FOR ACTION

The major goal of CWPPRA is to restore and prevent the loss of coastal wetlands in Louisiana. The Sediment Trapping at The Jaws project was proposed and designed to partially meet that goal in an area of St. Mary Parish and to respond to the need for action as outlined below.

2.1 Purpose

The purposes of this project are (1) to increase the amount of wetlands created by natural sediment deposition where confined flow of Atchafalaya River water enters West Cote Blanche Bay, and (2) protect from erosion the existing wetlands bordering the bay.

2.2 Need For Action

There is a critical need to create new wetlands that will offset marsh loss in coastal Louisiana. There is also a critical need to slow the loss of existing wetlands. The proposed action provides a unique opportunity to address both needs.

2.2.1 Enhance Natural Wetland Creation Processes

Natural coastal wetland creation, which was faster than natural wetland loss until early this century when the Mississippi River became managed for flood-control and navigation (Coleman, 1988), has virtually ceased except for 1,158 hectares (2,860 acres) created by the river at the Wax Lake Outlet and Atchafalaya River since 1973 (Evers et al., 1998). Thus, no net loss cannot be achieved in coastal Louisiana simply by ending human induced wetland loss because natural wetland loss associated with the delta lobe cycle continues (Coleman, 1988; Penland and Suter, 1990). Measures to enhance natural wetland creation processes, such as sediment diversions used elsewhere in coastal Louisiana (LDNR, 1996a, Boyer et al., 1997) are needed. Such measures are particularly critical where wetland development processes are constrained by artificial navigation channels.

2.2.2 Protection of Existing Wetlands

Recent erosion rates in West Cote Blanche Bay of 4.5 meters (15 feet) per year (Louisiana Coastal Wetlands Conservation and Restoration Task Force, 1997) are expected to continue, thereby causing the loss of emergent wetlands surrounding the bay. The loss of intermediate marsh in the Louisiana coastal zone from 1956 to the present represents a significant natural resource loss. Intertidal marshes are among the most productive ecosystems on earth and their rapid disappearance may significantly impact the economy of South Louisiana. Action is therefore needed to provide immediate protection to existing wetlands.

2.2.3 Protection of Wildlife Habitat

Lack of wetland creation and continued wetland loss reduce habitat availability for many wildlife species in the project area and coastwise. Wetland loss increases the availability of shallow open water by approximately 90.4 square kilometers (34.9 square miles) per year in coastal Louisiana (Barras et al., 1994). The project area also contains emergent wetlands, which are heavily utilized by wildlife because they are fresh to intermediate marshes, which provide higher quality habitat than brackish and saline marsh for nutria, raccoon *Procyon lotor*, puddle ducks *Anas* sp., and alligator *Alligator mississippiensis* (Palmisano, 1973; McNease and Joanen, 1978). Reversing declines in habitat availability for wetland wildlife species requires creating new emergent wetlands, protecting existing wetlands from erosion, and increasing the abundance of submerged aquatic vegetation (SAV).

2.2.4 Protection of Marine Fisheries Habitat

The West Cote Blanche Bay complex, provides significant estuarine habitat for marine-transient and resident fishery species, but has a relatively low length of interface between emergent wetlands and shallow open water. Interface areas are particularly valuable to estuarine dependent fish and crustacean species. This estuary, near the Gulf of Mexico spawning areas, provides nursery and foraging habitats that support the production of commercial and recreational fish and shellfish. West Cote Blanche Bay along with East Cote Blanche Bay, Vermilion Bay, and Atchafalaya Bay, forms one of the most extensive Louisiana estuarine complexes. Although this area also has a relatively low land loss rate compared to other areas of the state, marsh is lost to shoreline erosion. Action, therefore, is needed to take advantage of sediment-rich Atchafalaya waters to build marshes to not only slow erosion along West Cote Blanche Bay but to replace marshes that are converting to shallow open water elsewhere in coastal Louisiana.

2.2.5 Protection of Infrastructure

There are no state or parish roads within the project area, nor have any pipelines been identified in the immediate area. Tidal and wind-induced waves and currents cause erosion along the marsh/water interface. The roots of marsh vegetation help to stabilize soils and provide some protection to the GIWW and Charenton Canal interface. Emergent vegetation in open water areas enhances sedimentation by slowing currents.

3.0 ALTERNATIVES INCLUDING PROPOSED ACTION

The project site and scope were identified by NMFS as part of Task Force submittals on the Sixth Priority Project List. This project is one of several selected by the Task Force for the Teche-Vermilion Basin. The recognition that an artificial channel leading from GIWW into West Cote Blanche Bay is functioning as a distributary channel stimulated interest in designing a plan to enhance sediment deposition and wetland creation by this artificial channel. Consequences of the proposed action are discussed in Section 5.0.

3.1 No-Action Alternative

The no-action alternative would allow current shoreline erosion rates to continue. The no-action alternative would thus fail to protect existing wetlands that provide and protect other resources in Louisiana. The no-action alternative would also postpone, and possibly reduce, the area of

wetlands created by natural sediment deposition in West Cote Blanche Bay. The no-action alternative was not the preferred alternative because of the public need to create new coastal marshes to offset losses elsewhere and to protect existing coastal marshes as evidenced by the public funding through the CWPPRA.

3.2 Non-Vegetated Terrace without Distributary Network Alternative

This alternative could temporarily reduce wave energies, and thus temporarily reduce erosion of existing wetlands. However, with the wave-wind energy, it is unlikely that the terraces would last long enough to be colonized by vegetation (Edwards, *personal communication*). This would then re-expose fragile shoreline to erosion. Furthermore, dredging and construction of terraces without considering the natural distributary network could destroy development of that system and hence prevent natural wetland development expected to eventually occur in the bay. This alternative was rejected because of the likely damage to delta development processes operating in West Cote Blanche Bay.

3.3 Vegetated Terrace without Distributary Network Alternative

Construction of vegetated terraces without regards to the distributary network in the bay was considered. This alternative could reduce wave energies and thereby slow the erosion of existing wetlands that border the bay. However, dredging and construction of terraces without considering the natural distributary network developing in the bay could stop development of that system and hence prevent natural wetland development expected to eventually occur in the bay. This alternative was also rejected because of the likely damage to delta development processes operating in West Cote Blanche Bay.

3.4 Non-Vegetated Terrace with Distributary Network Alternative

Dredging to enhance the existing distributary network initially would result in the creation of 25 hectares (61 acres) of emergent terraces. Without the stabilizing influence of wetland plant root systems, terraces would likely erode within 12 to 24 months. Erosion of existing wetlands would proceed at current rates and the predicted development of subaerial delta deposits and subsequent natural wetland creation would be delayed. Therefore, this alternative was rejected.

3.5 Vegetated Terrace with Distributary Network (Preferred Alternative)

Dredging 12,220 meters (40,100 feet) to enhance the distributary network, combined with utilizing the material excavated to construct 10-meter (30-foot) wide terraces, followed by vegetative plantings on the terraces and

between terraces was the preferred alternative. This project is expected to:

1. Create 710 hectares (1,760 acres) of new marshes as subaerial deltas develop from subaqueous deltas within 20 years;
2. Immediately create 25 hectares (61 acres) of marsh on the terraces;
3. Protect approximately 2,130 meters (7,000 feet) of existing marsh from shoreline erosion; and
4. Greatly increase the abundance of SAV.

Due to the findings of a thick layer of clayey silts (Soils and Foundation Engineers, Inc., 1999) the terrace cross section width may vary with soil characteristics in the project area.

3.5.1 Distributary Network

The project will use dredging off the Charenton Canal to increase the capacity of eight artificially induced, but naturally developing distributary channels in the project area (Figure 3). The length of distributary channels dredged will be 12,220 meters (40,100 linear feet). The maximum extent of dredging is indicated in Figure 3. Enhancing the capacity of this network will facilitate spreading of a larger sediment load over a wider area than the current system is affecting. Given that sedimentation exceeds subsidence, the spreading of sediments is expected to cause 710 hectares (1,760 acres) of the bay to become subaerial within a decade. The bottom of dredged distributaries, extending on either side of the Charenton Canal through The Jaws, would be 3 meters (10 feet) wide and 4 meters (12 feet) deep (Figure 4).

3.5.2 Terraces

Wave energy in West Cote Blanche Bay is eroding existing wetlands fringing the bay and may be slowing development of the existing subaqueous levees and deltas into subaerial features. To reduce wave energy in the bay, dredged material excavated during construction of the distributary system will be placed as terraces adjacent to each dredged distributary. Initial plans showed construction of terraces on both sides of the dredged distributary network. However, the presence of a thick layer of clayey silts in the project area caused the plans to be revised to a single terrace with a crown width of 10 meters (30 feet) on the seaward side of the dredged distributary (Figures 3 and 4). A second lift may be

required to maintain a target elevation of +1.2 meters (4 feet NAVD 88) (Soils and Foundation Engineers, 1999). The terraces will be planted with wetland vegetation to slow their erosion. The area of wetland created, approximately 25 hectares (61 acres), reflects the intertidal slopes of the terraces as well as the crests. Terraces will be at least 15 meters (50 feet) from the channels and have gaps every 300 meters (1000 feet).

3.5.3 Vegetative Plantings

Unvegetated wetland soil is weaker and erodes faster than vegetated wetland soil (McGinnis, 1997). Therefore, gallon containers of bullwhip *Scirpus californicus* or giant cutgrass *Zizaniopsis miliacea* (or other suitable species) will be planted on terrace surfaces (Figure 5).

4.0 AFFECTED ENVIRONMENT

West Cote Blanche Bay is the centermost of four bays on the central Louisiana coast: Vermilion Bay, West Cote Blanche Bay, East Cote Blanche Bay, and Atchafalaya Bay. Prior to 1950, marshes fringing West Cote Blanche Bay were brackish (O'Neil, 1949), but by 1952, the Atchafalaya River had captured sufficient flow from the Mississippi River to reduce salinity and increase sediment availability in these bays (Adams and Bauman, 1980; van Heerden et al., 1981). Most Atchafalaya River water is discharged into Atchafalaya Bay via one natural and one artificial channel, the Atchafalaya River and Wax Lake Outlet, respectively. Natural delta building processes are operating where these channels become unconfined and have created 1,152 hectares (2,847 acres) of vegetated wetlands (Evers et al., 1998). A portion of Atchafalaya River flow is not discharged through the Atchafalaya River or Wax Lake Outlets, however, but instead enters the GIWW and is carried westward (Coastal Environments Inc., 1977; Walker et al., 1997; Walker and Hammack, 1999). Flows in the GIWW averaged 7,957 cubic feet per second (cfs) east of the opening at the Jaws and reached a maximum of 17,000 cfs. West of the Jaws, the average of all discharge measurements was 3,412 cfs and the flow was always to the west Swarzenski (In preparation).

The GIWW was completed between the Mississippi and Sabine Rivers by 1925 as an east-west inland waterway. Its purpose was to enhance transportation of products and services by protecting these interests from wave energy in open bays and the Gulf of Mexico. The GIWW is maintained at 38 meters (125 feet) wide and 4 meters (12 feet) deep. The Charenton Drainage Canal, completed in 1948, is 22 meters (75 feet) wide and 3 meters (9 feet) deep and provides an outlet for the intercepted drainage carried by the West Atchafalaya River Basin Project levee borrow pit (Saucier, 1998). Since the Charenton Drainage Canal

intersects the GIWW before reaching West Cote Blanche Bay, the southerly portion of the drainage canal provides a conduit for sediment-rich waters from the Atchafalaya River and the Charenton area to reach The Jaws. As the flow from the GIWW slows and spreads upon entry into West Cote Blanche Bay through The Jaws, suspended sediments are deposited over the project area; therefore, the area is becoming shallower. Using satellite observations to determine sediment distribution, Walker and others (1997) observed several sources of sediment for the western bays. The most frequently observed source region for suspended sediment was The Jaws. In many images, high concentrations of suspended sediments were observed across a large region from West Cote Blanche Bay into Atchafalaya Bay. Later research (Walker and Hammack, 1999) showed sediment resuspension and transport are maximized by the sequence of events associated with the passages of winter storms. Suspended sediments (turbidity) was greatest during storm events, particularly northwest and north winds, and in tandem with falling water levels.

A study by Walker and Hammack (1999) concentrated on impacts of Atchafalaya River discharge and wind forcing on circulation, sediment transport, sediment resuspension and salinity in the Vermilion/Cote Blanche Bays System. River discharge was an important determinant of monthly-averaged salinity and turbidity. There were highly significant negative correlations between monthly averaged salinity and monthly averaged river discharge. Circulation changes associated with cold front passages also impacted salinities. Salinity spikes occurred at locations in East and West Cote Blanche and Vermilion Bays during low water periods with persistent and strong southeast winds. Salinities at the Jaws reached a high of nearly 5 parts per thousand (ppt) following strong southerly winds that occurred at the time of a spring tide (Walker and Hammack, 1999). Strong winter storms caused salinity to decrease to fresh conditions due to strong currents flowing into West Cote Blanche Bay from the GIWW. Coastal wind direction was the major controlling factor for circulation, sediment resuspension, sediment transport and salinity for time periods of less than 1 month (Walker and Hammack, 1999).

4.1 Physical Environment

4.1.1 Geology, Soils, and Topography

Over the past 7,500 years, five major delta complexes have prograded into coastal Louisiana. The earliest and westernmost two of these deltaic lobes, Maringouin and Teche overlapped the project area. Each lobe covered an area of approximately 30,000 square kilometers (11,600 square miles) and had an average thickness of 35 meters (115 feet). After progradation, each delta complex was abandoned by the Mississippi River and destructive processes began (Coleman, 1988). The present, but relatively

stable, configuration of the coastline of West Cote Blanche Bay is the result of centuries of erosion of the former deltas.

Approximately 98 percent of the soils in the marsh surrounding The Jaws are classified as Kenner muck (NRCS, 1996). These soils are level, very poorly drained, rapidly to very rapidly permeable organic soils. There is a small area of Balize Silt Loam on the eastern side of the Charenton Canal south of the GIWW. This area is very frequently flooded. Soil along the banks of the GIWW and Charenton Canal is classified as Aquents, dredged. These soils are occasionally flooded. (Floyd, personal communication). Borings in the project area revealed very soft clays, organic clays, and very loose clayey silts (Soils and Foundation Engineers, Inc., 1999).

Topographic relief of the marshes surrounding West Cote Blanche Bay is typical for coastal Louisiana, with elevations ranging from approximately 0.3 to 0.4 meter (nearly 1 to 1.5 feet) North American Vertical Datum (NAVD) 88. Slightly higher elevations occur along the banks of Charenton Canal and the GIWW.

4.1.2 Climate and Weather

West Cote Blanche Bay and St. Mary Parish area has a subtropical climate, which is characterized by long, hot and humid summers, and short, mild and humid winters (Dugas, 1970). Temperatures between May and October average between 31^o and 32^o C (83^o to 90^o F). Temperatures of 32^o C (90^o F) or higher occur approximately 100 days between May and October with an average humidity of 62 percent (Dugas, 1970). Winter temperatures between November and April average 20^o C (69^o F) with relative humidity between 30 and 85 percent. Cold spells usually last no more than 3 days because of the dominance of warm gulf air moving inland from the coast year round. A winter temperature of 0^o C (32^o F) or less is expected 15 days per year with a 20 percent chance of temperatures falling below -6^o C (20^o F) during the winter (Dugas 1970). The highest wind velocities accompany northerly winds. From October through March, cold-front passages occur at least once per week. Coastal and bay water levels usually rise before frontal passage due to the strengthening of the pre-frontal southerly winds (Walker and Hammack, 1999). Then north winds force water level changes in the western bays of 1.0 meter (3.3 feet) on average (Walker et al., 1997).

The total annual rainfall falling approximately 130 centimeters (52 inches) with about 55 percent during April through September.

Thunderstorms occur on about 80 days each year. Less rainfall usually occurs in February and March. Snow rarely occurs and is seldom on the ground for more than a day. The growing season near the project area varies between 259 and 313 days (U.S. Department of Agriculture, 1995).

A hurricane crosses the parish every few years and a few have been extremely severe. Hurricanes have impacted an area within 60 miles of Morgan City, Louisiana, 41 times in the last 132 years (St. Mary Parish Chamber of Commerce, personal communication). Statistically, the area is brushed or hit by a hurricane every 3.19 years. In 1992, Hurricane Andrew inflicted heavy damage to the area with winds of 210 kilometers (130 miles) per hour at Morgan City (St. Mary Parish Chamber of Commerce, personal communication). This area was last affected by Hurricane Lili in 2002.

4.1.3 Air Quality

Air quality over West Cote Blanche Bay is good. Air masses are highly unstable in this area because of coastal activity. There are no industrial or automotive air emissions in the project area.

4.1.4 Surface Water Resources

There is no data on water quality of surface waters in West Cote Blanche Bay or The Jaws. However, the water quality in East Cote Blanche Bay is designated as fully supporting primary-contact recreation (e.g. swimming), secondary-contact recreation (e.g. fishing and boating), and fish and wildlife propagation (LDEQ, 2000). Waters of Charenton Canal (north of the GIWW to Charenton Floodgate) are designated as fully supporting primary and secondary contact recreation but not supporting fish and wildlife propagation. Suspected causes of impairment are cadmium, copper and lead concentrations from an unknown source. In addition, GIWW waters are used for commercial boat traffic and are drawn upon for agricultural irrigation in other parts of the parish.

4.2 **Biological Environment**

4.2.1 Vegetative Communities

Data indicate that vegetative communities have changed in response to increasing Atchafalaya River discharge. In 1949, marshes surrounding West Cote Blanche Bay were brackish

(O'Neil, 1949). By 1978, the boundary between fresh and intermediate marshes was mapped near the middle part of the project area (Chabreck and Linscombe, 1978). Chabreck and Linscombe in 1988 also classified the upper area as fresh and the lower area to the east as intermediate. In 1997, marshes in the project area also were classified as fresh (Chaubreck, et al., no date). In 1998, primary plant species in the marshes surrounding West Cote Blanche Bay were marshhay cordgrass *Spartina patens*, bulltongue *Sagittaria* sp., leafy three-square *Scirpus californicus*, three-cornered grass *Scirpus olneyi*, cattail *Typha* sp., and sawgrass *Cladium jamaicense*.

Vegetative communities in the open water portion of the project area currently consist of small, scattered stands of Eurasian watermilfoil *Myriophyllum spicatum* and some coontail *Ceratophyllum demersum* and southern naiad *Najas guadalupensis*.

4.2.2 Essential Fish Habitat

Under the Magnuson-Stevens Fishery Conservation and Management Act, the Gulf of Mexico Fishery Management Council identified Essential Fish Habitat for those species managed under its fishery management plans for coral and coral reefs, spiny lobster, stone crab, coastal migratory species, reef fish, red drum, and shrimp (Gulf of Mexico Fishery Management Council, 1998). The Council's Essential Fish Habitat Amendment was partially approved by the NMFS in February 1999. Habitats in and near The Jaws now are recognized as Essential Fish Habitat for postlarval, juvenile, and subadult stages of brown shrimp *Penaeus aztecus*, white shrimp *Penaeus setiferus*, and red drum *Sciaenops ocellatus*, as well as the adult life stage of red drum. Managed species (Gulf of Mexico Fishery Management Council, 1998) and their essential habitat requirements that occur in The Jaws area include: brown shrimp postlarvae and juveniles – marsh edge, submerged aquatic vegetation, tidal creeks; brown shrimp subadults – mud bottoms and marsh edge (Lassuy, 1983); white shrimp postlarvae, juveniles, subadults – marsh edge, submerged aquatic vegetation, (Turner and Brody, 1983) and red drum postlarvae and juveniles – submerged aquatic vegetation, mud bottom, marsh edge; red drum subadult/adult – mud bottom (Buckley, 1984).

The proposed action is designed to create coastal marsh habitat and enhance sedimentation in the outlet area of the GIWW and Charenton Canal. Projects like this sediment trapping effort are

recommended in the Essential Fish Habitat amendment (Gulf of Mexico Fishery Management Council, 1998) as a viable approach to large-scale habitat protection and restoration in coastal Louisiana. Sediment Trapping at The Jaws project will help to ensure the long-term sustainability of important habitats and the managed species that depend on those habitats during some stage in their life cycle. The need for restorative action in this area has been recognized for many years and was selected by a public process that offered ample opportunity for public input and debate prior to funding through the CWPPRA process.

Coordination letters regarding Essential Fish Habitat may be found in Appendix A.

4.2.3 Fishery Resources

The Vermilion and West Cote Blanche Bay complex has been studied by several authors (Coastal Environments Inc., 1977; Coleman, 1966; Dugas, 1970; Fontenot, 1967; Norde, 1966; Perret, 1965). These authors identified the most abundant fishery species as Atlantic croaker *Micropogonias undulatus*, hogchoker *Trinectes maculatus*, sand seatrout *Cynoscion arenarius*, spot *Leiostomus xanthurus*, gulf menhaden *Brevoortia patronus*, gafftopsail catfish *Bagre marinus*, blue catfish *Ictalurus furcatus*, bay anchovy *Anchoa mitchilli*, brown shrimp, white shrimp, blue crab *Callinectes sapidus*, and clams *Rangia cuneata*. A complete list of fish species collected in West Cote Blanche Bay for the period 1960-1970 can be found in Dugas (1970, Table 6). These resources are species of national economic importance in accordance with Section 906(e)(1) of PL 99-602, the Water Resources Development Act of 1986. These species vary in abundance from season to season due to their migratory life cycle and the variation in salinity (Herke, 1978; Rogers et al., 1993). Most spawn offshore in the open Gulf of Mexico and enter West Cote Blanche Bay as larvae or young juveniles to use the shallow bay bottoms and surrounding marshes as a nursery. Usually these species return to the open gulf as subadults or adults.

Freshwater fish species such as largemouth bass *Micropterus salmoides*, blue catfish, channel catfish *Ictalurus punctatus*, yellow bass *Morone mississippiensis*, bluegill *Lepomis macrochirus*, redear sunfish *Lepomis microlophus*, and crappie are caught in low salinity waters. Commercial species such as the catfishes; the American eel *Anguilla rostrata* (an important export commodity); and baitfish (e.g., killifish *Fundulus* sp., and sailfin molly *Poecilia* sp.) also may be harvested from the Charenton Canal.

4.2.4 Wildlife Resources

In 1990 and 2001, a census of wading birds and seabird nesting colonies was conducted in Louisiana. Twenty-seven species of colonial nesting waterbirds were studied; Martin and Lester, 1990). Station 097, located approximately 3.2 kilometers (2 miles) west of Kemper, Louisiana, is approximately 11 kilometers (7 miles) northwest of the project area. Martin and Lester (1990) reported 1,000 nesting adults at Kemper, of which 750 were great egret *Casmerodius albus*, and 250 great blue herons *Ardea herodias*. More recently, the survey was updated (Michot et al., 2003) and of the stations (numbers 097, 327, and 497) in the vicinity of West Cote Blanche Bay, no data were reported. Although no wading bird rookeries are listed for West Cote Blanche Bay, wading birds could be expected to feed on small fish and invertebrates in this shallow bay.

The fresh marshes around West Cote Blanche Bay provide high quality habitat for nutria, raccoon, puddle ducks, and alligator. Muskrat *Ondatra zibethicus*, mink *Mustela vison*, and river otter *Lutra Canadensis*, game such as white-tailed deer *Odocoileus virginianus*, rabbit *Sivlagus* sp., squirrel *Sciurus* sp., and snapping turtle *Macroclemys temmincki* (McNease and Joanen, 1978; and Palmisano, 1973) occur in the vicinity of the project area.

Geese (snow goose *Chen caerulescens*), dabbling ducks (mallard *Anas platyrhynchos*, northern pintail *Anas acuta*, gadwall *Anas strepera*, blue-winged teal *Anas discors*, mottled duck *Anas fulvigula*, green-winged teal *Anas crecca*, and American wigeon *Anas americana*) and diving ducks (lesser scaup *Aythya affinis*, greater scaup *Aythya marila*, red-breasted merganser *Mergus merganser*, ring-necked duck *Aythya collaris*, redhead *Aythya americana*, canvasback *Aythya valisnera*, and bufflehead *Bucephala albeola*) occur along the coast. Most of these waterfowl breed in the northern plains and migrate to the coastal marshes of Louisiana for the winter. Geese are primary grazers and feed on rice, bulrush and marshhay cordgrass. Puddle ducks feed in water up to 40 centimeters (15 inches) deep and diving ducks in deeper water. Only the mottled duck nests within the project area (Condrey et al., 1995; U.S. Department of Agriculture, 1995).

4.2.5 Threatened and Endangered Species

Threatened and endangered birds listed for the State of Louisiana include the bald eagle *Haliaeetus leucocephalus* (threatened), piping plover *Charadrius melodus* (threatened), and the brown

pelican *Pelecanus occidentalis* (endangered) (U.S. Department of Interior, Fish and Wildlife Service, 2003). Eagles typically nest from October through mid-May in bald cypress trees near fresh to intermediate marshes or open water in the southeastern parishes. The closest bald eagle nests were at least 6.4 kilometers (4 miles) from the vicinity of West Cote Blanche Bay in the vicinity of Bayou Sale (Melancon, personal communication), however, the project area may be used for hunting or feeding. The piping plover winters in coastal Louisiana and utilizes intertidal flats, beaches and associated dune systems, and other sparsely vegetated areas adjacent to flats and beaches. Because their critical habitat does not occur in the project area, piping plover would not be expected. The brown pelican may occasionally utilize project area, however, its important nesting, feeding and resting habitats are located closer to the gulf shoreline.

The Louisiana black bear *Ursus americanus luteolus* is listed as threatened and utilizes forests, marshes, and agricultural lands throughout St. Mary Parish. Their denning and feeding habitats are located primarily north of the GIWW in bottomland hardwood forests therefore, the black bear would not be expected to utilize the open water habitats associated with this project.

The threatened Gulf sturgeon *Acipenser oxyrinchus desotoi* rarely occurs west of the Mississippi River and thus is not expected to utilize the project area. The endangered pallid sturgeon *A. albus* is found in both the Mississippi and Atchafalaya Rivers. They are adapted to riverine conditions with a large volume of free-flowing, turbid water and a diverse assemblage of physical habitats that are in a constant state of change. Thus they are not expected to utilize the project area.

Sea turtles have been reported along the Louisiana coast (Condrey et al., 1995). Dundee and Rossman (1989) report that Kemp's ridley turtle *Lepidochelys kempii* occasionally appears along the Louisiana Gulf coast. Possible factors related to this occurrence include the widespread availability of relatively shallow water marine and estuarine habitat with high turbidity levels from proximity to the Atchafalaya River (Frazier, 1980). In Florida, Kemp's ridleys are routinely found foraging in very shallow water, on shallow oyster reefs with nearby connecting channels (Schmid et al., 2002). Although the shallow depth in the project area of West Cote Blanche Bay, plus the nearby marshes and open water areas may be attractive for foraging and development sites for the Kemp's ridley, the low salinities may be a deterrent.

Of the other four species of endangered sea turtles, the loggerhead turtle *Caretta caretta* and the green turtle *Chelonia mydas* are relatively common in the nearshore waters of the Gulf of Mexico. The loggerhead feeds on sponges, jellyfish, mollusks, crustaceans, sea urchins, fishes, seaweeds and grasses while the green turtle's diet is primarily marine grasses and macrophytic algae. The hawksbill turtle *Eretmochelys imbricata* is usually found in sea waters less than 15 meters (49 feet) and feeds on invertebrates, marine grasses and macrophytic algae. The leatherback turtle *Dermochelys coriacea* is found in deeper oceanic waters and feeds primarily on jellyfish (Condrey et al., 1995). None of these four species are likely to be found within the project area due to the unavailability of forage or suitable habitat, especially salinity.

Coordination letters regarding Threatened and Endangered Species may be found in Appendix A.

4.3 Cultural Environment

4.3.1 Historical or Archeological Resources

The Chitimacha Indians were the original inhabitants of St. Mary Parish. They settled in the area along Bayou Teche around 500 A.D. Wars with the French and Spanish during the early 1700s left the Chitimacha near extinction. Other than the French and Spanish, early settlers included Acadian, German, Danish and Irish. After the Louisiana Purchase in 1803, predominately English people settled in the area (St. Mary Parish Chamber of Commerce, *personal communication*). Louisiana coastal waters have been traversed by water-craft since the earliest colonization. At present, 42-recorded wrecks have been documented in Louisiana coastal waters. Because of the dependence on ship travel during the colonization of south Louisiana and the frequency of tropical storms in the area, there is the potential that historical ship remains may be located beneath the sediments that have accumulated during the past four or five decades.

There also is the possibility of inundated prehistoric archaeological sites in and around West Cote Blanche Bay. However, a review of the project area revealed no known sites (Rivet, *personal communication*).

4.3.2 Economics (Employment and Income)

Wetlands surrounding West Cote Blanche Bay have great value as forage, cover, and nursery habitat for the diverse and abundant

assemblage of finfish and invertebrates that are harvested by Louisiana's commercial and recreational fishers. About 90 percent of the fish harvested from the Gulf of Mexico rely on aquatic habitats such as those found around West Cote Blanche Bay.

St. Mary Parish ranks third behind Plaquemines and Terrebonne Parishes for commercial fisheries landings (finfish and invertebrates) in coastal Louisiana (Hightower, personal communication). The combined ports of Morgan City and Berwick, Louisiana, closest port for statistical purposes, to West Cote Blanche Bay, consistently rates among the top 50 ports in the United States for commercial fishery landings. In 1998, Morgan City-Berwick ranked 9th in landings with 158.6 million pounds and 38th in value with \$7.8 million. In 1999, this port area ranked 11th with 137.0 million pounds landed, dropped to 34th in 2000 with 20.2 million pounds, and was 33rd in 2001 with 23.3 million pounds (Holliday and O'Bannon, 2000, 2001 and 2002). Due to the large amounts, but relatively low price per pound, of Gulf menhaden landed in Morgan City-Berwick, this area did not rate in the top 50 ports for value in 1999-2001.

4.3.3 Land Use

Present and historical land use in the project area is restricted to fish and wildlife resource management and harvest. Muskrat, nutria, raccoon, and mink are currently harvested; with the exception of nutria, these species have probably been harvested from the project area continually since settlement. Nutria, brought to the United States from Argentina and farmed for their fur, escaped into the wild in the mid to late 1930's. They have been trapped since World War II. Alligator harvest has occurred in the marshes surrounding West Cote Blanche Bay except during the 1960's and early 1970's when alligator populations were too low to allow sustainable harvest (Joanen et al., 1984). The area is a traditional, valuable waterfowl hunting area. Various sized recreational and commercial boats use the GIWW, Charenton Canal and West Cote Blanche Bay.

4.3.4 Recreation

The project area has been used for outdoor recreational activities for decades partly because the project area can be reached within one-half hour of inland ports. Recreational activities in the project area depend primarily on the excellent fish and wildlife habitat provided by the marshes surrounding West Cote Blanche Bay. Historically, recreational fishing, hunting, and boating, have been

common, although this estuary could serve as an excellent site for migratory bird observation.

4.3.5 Noise

West Cote Blanche Bay represents a state-owned water bottom in a remote area that has no industry other than oil production. Ambient noise in the area would result from oil and gas exploration, boats, or wildlife.

4.3.6 Infrastructure

The project area is adjacent to the GIWW, which is an artificial route heavily used by deep water vessels traveling between inland ports and offshore oil rigs, and by commercial fishers traveling between inland ports and deep water shrimping grounds. Sport hunters and fishers also heavily utilize the GIWW. The project area includes the junction of the GIWW and West Cote Blanche Bay. In this area, shipping in the GIWW is directly exposed to wave energy from West Cote Blanche Bay. Marshes that protect adjacent portions of the GIWW from wave energy in West Cote Blanche Bay are being eroded by waves in the project area. There is one artificial channel within the bay that is used to access inland ports via the GIWW and Charenton Canal.

5.0 ENVIRONMENTAL CONSEQUENCES

The long-term resource benefits of the project derive primarily from increasing the amount of emergent wetlands and SAV within the project area. These increases in emergent and submerged aquatic vegetation provide indirect natural resource benefits by increasing the abundance and quality of foraging and cover habitat for numerous wetland and estuarine fish and wildlife species. The increases in emergent and submerged aquatic vegetation also provide indirect infrastructure benefits by reducing wave energy on shipping in the GIWW.

Without the project, existing environmental conditions would continue to deteriorate. Vegetated areas would convert to open water due to shoreline erosion; sediment-laden waters would continue to flow through the maintained navigation channel and the sediments would settle out in deeper waters; and SAV would decrease because of turbidity and turbulence. A thorough assessment of the environmental consequences of the preferred alternative is provided below.

5.1 Physical Environment

5.1.1 Geology, Soils, and Topography

The project would not affect geology. Topography would be altered in two ways. Some parts of bay would be deepened to extend and improve the efficiency of the distributary channel system carrying water from the Charenton Canal into the bay. Much of this channel system would likely fill with sediments as the system matures over the next 10 to 20 years (Coleman, 1988). Some areas of the bay would be converted to emergent sediment directly by the placement of dredged material. Emergent sediment would revert to shallow open water within a few years where vegetation fails to establish. Areas of emergent sediment where vegetation establishes would convert to vegetated wetland and would maintain subaerial elevation indefinitely through natural vertical accretion processes, which depend on mineral sedimentation and in situ organic matter production by marsh vegetation (Mitsch and Gosselink, 1993, pages 226-231). The only consequence of the project on soils would be the initiation of natural soil formation processes on the emergent sediments.

5.1.2 Climate and Weather

The project would create a net carbon sink of approximately 144 ± 45 grams of carbon per square meter per year, based on carbon storage rates in wetland soils of the Chenier Plain (Foret, 1997). The removal of atmospheric carbon dioxide would be too small to affect climate or weather, however.

5.1.3 Air Quality

Minor temporary adverse impacts would result from the proposed activities. Exhaust emissions from dredging equipment with airborne pollutants should be quickly dissipated by prevailing winds and should be limited to the construction phase of the project.

5.1.4 Surface Water Resources

The project would create a net sink of approximately 0.5 ± 0.1 gram phosphorus per square meter per year and 8.4 ± 2.6 grams of nitrogen per square meter per year based on phosphorus and nitrogen storage rates in wetland soils of the Chenier Plain (Foret 1997). The removal of nutrients would be too small to reduce coastal eutrophication (the process of a water body becoming super rich in dissolved nutrients and low in oxygen). Dredging

would increase turbidity during the period of construction. Newly created wetlands may reduce wind fetch across the bay that would reduce turbidity following construction. Turbidity also could be reduced somewhat as the sediment-laden water is stilled by the vegetation and terraces, thus allowing sediment deposition. Clearer and less turbulent water is conducive to sunlight penetration and submerged aquatic plant growth.

5.2 Biological Environment

5.2.1 Vegetative Communities

The project would create new habitat suitable for colonization by emergent vegetation. Plants and terraces would trap sediments, leading to increases in elevation of subaqueous habitats and conversion to subaerial deltas. The emergent plant communities that develop on the new habitat are expected to be similar to existing communities found along the shoreline of the bay. The project is not anticipated to change existing vegetative communities. Planted vegetation would increase the rate of vegetation colonization and help reduce shoreline erosion.

The project is expected to increase SAV abundance to levels similar to that in other areas of coastal Louisiana where deltas are developing. In such areas, extensive SAV beds develop on the downstream side of emergent marsh (see Castellanos, 1997). Thus, whereas the project area currently contains some SAV beds; more numerous and extensive SAV beds are expected to develop after construction in areas protected from direct river flow. Such areas are expected to initially be confined to the downstream side of terraces, but should expand to include the downstream side of naturally developing marshes as subaerial delta deposits eventually develop and convert to emergent marsh.

5.2.2 Essential Fish Habitat

In the long term, the proposed activities would improve Essential Fishery Habitats by creating marsh and protecting existing marsh. Marsh and marsh edge habitat would be increased by an estimated 24,400 meters (80,200 feet) with the survival and growth of the vegetation to be planted on the terraces. A large amount of marsh edge has been shown to support higher densities of transient species such as penaeid shrimps and blue crabs (Minello and Rozas, 2002). Terrace marsh supports higher standing crops of most fishery species compared with shallow marsh ponds of similar size (Rozas and Minello, 2001). With project completion, vegetated

terraces would replace less productive forms of Essential Fish Habitat in The Jaws area. Detrital material, formed by the breakdown of emergent vegetation, would contribute to the aquatic food web of The Jaws and West Cote Blanche Bay .

Short-term adverse impacts to aquatic organisms would occur during the construction phase of the project. Other temporary impacts include entrapment of slow-moving organisms during construction of the terraces, and increased turbidity in waters near dredging sites. These impacts are minor and would be limited to the immediate vicinity of action and only for the duration of dredging and terrace construction.

5.2.3 Fishery Resources

The 25 hectares (61 acres) of emergent wetlands created and associated submerged aquatic plant communities that are expected to develop should provide fish habitat similar to that at the Atchafalaya River delta. That delta is used by 33 species of freshwater and estuarine dependent fish species and seven species of freshwater and estuarine dependent crustaceans (Castellanos, 1997).

Increases in fish and wildlife resources would result directly from creation of emergent wetlands, and, perhaps more importantly, through a large increase in interface between emergent wetlands and shallow open water (Rozas and Minello, 2001; Minello and Rozas, 2002).

5.2.4 Wildlife Resources

The 25 hectares (61 acres) of wetlands created would be fresh to intermediate. Such wetlands provide high quality habitat for nutria, raccoon, many species of puddle and diving ducks, shorebirds, and alligator. Herons and egrets also are common in the area, although no known nesting colonies occur within the project area (Martin and Lester 1900; Michot et al., 2003). Migratory Bird Protection – Executive Order 13186 of January 2001 mandates that all Federal agencies incorporate the protection of migratory bird habitat in all planning efforts. Continued deterioration of herbaceous and wooded areas within the project is expected under the no action scenario. It is likely that implementation of the project would slow or reverse land loss and create emergent wetlands (perhaps even woody areas), thus enhancing an area suitable for migratory avian species.

Furbearers and game would benefit from increased marsh areas and improved marsh. Reduction of water currents in the open water areas of The Jaws would enhance growth of SAV, thus providing additional food for many waterfowl. During the construction phase of the project, furbearers, game and waterfowl would avoid the area, but would return after cessation of activity.

5.2.5 Threatened and Endangered Species

Although the project area is within the known range of bald eagles, no adverse impacts from construction or implementation are anticipated since there are no nesting sites within 6.4 kilometers (4 miles) of the project area. It is likely that implementation of the project would slow or reverse land loss and create emergent wetlands, thus enhancing an area suitable for foraging habitat for bald eagles. Vegetated marsh and deeper open water channels created by construction of the project would provide additional habitat for those threatened and endangered species that utilize such areas. Implementation of the project is not likely to adversely affect either the listed threatened or endangered species or their critical habitats.

5.3 **Cultural Environment**

5.3.1 Historical or Archeological Resources

No impacts are anticipated to historical or archaeological resources since there are no known sites within the project area.

5.3.2 Economics (Employment and Income)

No adverse impacts to economic resources would result from the proposed activity. Project construction would provide temporary employment.

5.3.3 Land Use

No negative impacts to current land use would result from the proposed activity in the marshes surrounding West Cote Blanche Bay. An increase in the harvest of furbearers and alligators may result from the increase in supporting habitat.

5.3.4 Recreation

Some temporary adverse short-term impacts to recreation would occur (i.e. increased turbidity of surface water) as a result of

dredging activity. However, the long-term impact is likely to be an increase in the carrying capacity of wetlands, thus sustaining or increasing the opportunity for sport fishers and hunters.

5.3.5 Noise

Short-term adverse impacts, limited to the construction phase, include increased noise associated with supply boats and dredging machinery.

5.3.6 Infrastructure

The project would stop and reverse marsh erosion that is exposing shipping on the GIWW to wave energy from West Cote Blanche Bay. The terraces and developing marshes would reverse the marsh erosion that has exposed 228 meters (750 feet) of the GIWW to wave energy from West Cote Blanche Bay.

No permanent adverse impacts to navigation within West Cote Blanche Bay are anticipated. Dredging would create relatively short navigable channels extending from the existing channel to the end of the terraces. These side channels temporarily would increase vessel access in the project area. If periodic dredging is conducted to provide material for additional lifts to the terraces, these new channels would be expected to be fairly persistent. Without dredging, however, they are expected to fill within 20 years as deltaic marshes develop at their ends and thereby slow discharge and enhance sedimentation.

6.0 CONCLUSIONS

This Environmental Assessment finds that no significant adverse environmental impacts are anticipated by implementation of the Sediment Trapping at The Jaws project. This CWPPRA wetland restoration project would use dredging to enhance natural wetland development processes in an area where those processes are currently developing but are constrained by artificial navigation channels. Material excavated during dredging would be used to construct terraces to reduce wave energy in the bay and thereby slow shoreline erosion of existing wetlands. The artificial terraces would be planted with wetland vegetation to stabilize the terraces and further slow erosion. The conclusion is based on a comprehensive review of relevant literature, site-specific data, and project-specific engineering reports. This finding supports the recommendations of the CWPPRA Task Force, including NMFS, the sponsoring agency. The natural resource benefits anticipated from the implementation of the Sediment Trapping at The Jaws project are expected to enhance and sustain the diverse

ecosystem of the West Cote Blanche Bay complex. Creation of vegetated wetlands would partially offset coastal wetland loss occurring in the area.

7.0 PREPARERS

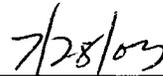
Dr. John Foret and Dr. John Nyman prepared the initial Environmental Assessment in 1997 under the direction and guidance of Dr. Teresa McTigue of NMFS. This Environmental Assessment was revised and updated by Ms. Peggy A. Mobley in 2002 to correspond to redesigned project plans. Figures were prepared by GOTECH, Inc. under contract to NMFS. In addition to Dr. McTigue, invaluable reference material and guidance were provided by Mr. Rickey Ruebsamen, Mr. Richard Hartman, and Dr. Erik Zobrist of NMFS and Mr. Marty Floyd of NRCS.

8.0 FINDING OF NO SIGNIFICANT IMPACT (FONSI)

Based on the conclusion of this document and the available information relative to the Sediment Trapping at The Jaws project, including hydrodynamic modeling and geotechnical investigations, there would be no significant environmental impacts from this action. Furthermore, the National Environmental Policy Act or its implementing regulations do not require preparation of an Environmental Impact Statement on this project.



for _____
William T. Hogarth, Ph.D.
Assistant Administrator for Fisheries
National Marine Fisheries Service



Date

9.0 LITERATURE CITED

- Adams, R.D., and R.H. Bauman. 1980. Land Building in Coastal Louisiana: Emergence of the Atchafalaya Bay Delta. Louisiana Sea Grant College Program. Louisiana State University, Baton Rouge, Louisiana. LSU-T-80-02.
- Barras, J.A. 2002. Personal communication. United States Geological Service, Baton Rouge, Louisiana.
- Barras, J.A. P.E. Bourgeois, and L.R. Handley. 1994. Land Loss in Coastal Louisiana 1956-90. National Biological Survey, National Wetlands Research Center Open File Report 90-01. 4 pp. 10 color plates.
- Boesch, D.F, D. Levin, D. Nummedal, and K. Bowles. 1983. Subsidence in Coastal Louisiana: Causes, Rates, and Effects on Wetlands. U.S. Fish and Wildlife Service, Division of Biological Services, Washington, D.C. FWS/OBS-83/26. 30 pp.
- Boyer, M.E., J.O. Harris, and R.E. Turner. 1997. Constructed crevasses and land gain in the Mississippi River Delta. *Restoration Ecology* 5:85-92.
- Britsch, L.D., and E.B. Kemp, III. 1990. Land Loss Rates: Mississippi River Deltaic Plain. U.S. Army Engineer District, New Orleans. New Orleans, Louisiana. 25 pp. plus appendices.
- Buckley, J. 1984. Habitat suitability index models: larval and juvenile red drum. U.S. Fish and Wildlife Service. FWS/OBS-82/10.74. 15 pp.
- Castellanos, D.L. 1997. Nekton use of submerged aquatic vegetation, marsh, and shallow unvegetated bottom in a Louisiana tidal freshwater ecosystem. M.S. Thesis, University of Southwestern Louisiana, Lafayette, Louisiana. 79 pp.
- Chabreck, R.H., and G. Linscombe. 1978. Vegetative type map of the Louisiana coastal marshes. Louisiana Department of Wildlife and Fisheries. Baton Rouge, Louisiana.
- Chabreck, R.H., and G. Linscombe. 1988. Louisiana Coastal Marsh Vegetative Type Map. New Orleans, Louisiana Department of Wildlife and Fisheries. Baton Rouge, Louisiana.
- Chabreck, R.H., Linscombe, G., Hartley, S., Johnston, J.B., and A. Martucci. No date. Coastal Louisiana Marsh-Vegetation Types. CD-ROM. A partnership between USGS-National Wetlands Research Center, the Coastal Wetlands, Planning, Protection and Restoration Act, and the Louisiana Department of Wildlife and Fisheries.

- Coastal Environments, Inc. 1977. A jetty from Point Chevreuil: an evaluation of a proposal to reduce sedimentation in the Cote Blanche Bays and Vermilion Bay. Coastal Environments Incorporated. Baton Rouge, Louisiana. 60pp.
- Coleman, James. 1966. Recent coastal sedimentation of the central Louisiana coast. Louisiana State University Press, Coastal Studies Series No. 17. 71 pp.
- Coleman, J.M. 1988. Dynamic changes and processes in the Mississippi River delta. Geol. Soc. Am. Bull. 100:999-1015.
- Condrey, R., P., Kemp, J. Visser, J. Gosselink, D. Lindstedt, E. Melancon, G. Peterson, and B. Thompson. 1995. Status, Trends, and Probable Causes of Change in Living Resources in the Barataria and Terrebonne Estuarine Systems. BTNEP Publ. No. 21, Barataria-Terrebonne National Estuary Program, Thibodaux, Louisiana, 434 pp.
- Craig, N.J., R.E. Turner, and J.W. Day, Jr. 1979. Land loss in coastal Louisiana, pp. 227-254. In J.W. Day Jr. et al. (eds.). Proceedings of the Third Coastal Marsh and Estuary Management Symposium. Louisiana State University, Division of Continuing Education. Baton Rouge, Louisiana.
- Dugas, R. J. 1970. An Ecological Survey of Vermilion Bay 1968-1969. M.S. Thesis, University of Southwestern Louisiana, Lafayette, Louisiana. 107 pp.
- Dundee, H.A., and D.A. Rossman. 1989. The Amphibians and Reptiles of Louisiana. Louisiana State University Press. Baton Rouge and London. 300 pp.
- Edwards, W.P., III. 1998. Personal communication. Vermilion Land Corporation. Abbeville, Louisiana.
- Evers, D.E., C.E. Sasser, J.G. Gosselink, D.A. Fuller, and J.M. Visser. 1998. The impact of vertebrate herbivory on wetland vegetation in Atchafalaya Bay, Louisiana. Estuaries 21:1-13.
- Fenstermaker, C.H. and Associates, Inc. 2002. Hydrodynamic modeling of the Sediment Trapping at the Jaws (TV-15). Prepared for National Marine Fisheries Service and Louisiana Department of Natural Resources. 17 pp.
- Floyd, M. 2002. Personal communication. U.S. Department of Agriculture, Natural Resources Conservation Service, Alexandria, Louisiana.
- Fontenont, B.J. 1967. Seasonal relative abundance and distribution of postlarval white and brown shrimp in Vermilion and Cote Blanche Bay. M.S. Thesis, University of Southwestern Louisiana, Lafayette, Louisiana. 101 pp.

- Foret, J.D. 1997. Accretion, sedimentation, and nutrient accumulation rates as influenced by manipulations in marsh hydrology in the Chenier Plain, Louisiana. M.S. Thesis, University of Southwestern Louisiana, Lafayette, Louisiana. 56pp.
- Frazier, J.G. 1980. Marine Turtles and Problems in Coastal Management, pp. 2395-2411. In B.L. Edge (ed.). Coastal Zone 80: Proceedings of the Second Symposium on Coastal and Ocean Management. American Society of Engineers, New York.
- Gulf of Mexico Fishery Management Council. 1998. Generic amendment for addressing essential fish habitat requirements in the following fishery management plans of the Gulf of Mexico: Shrimp Fishery of the Gulf of Mexico, United States Waters, Red Drum Fishery of the Gulf of Mexico, Reef Fish Fishery of the Gulf of Mexico, Coastal Migratory Pelagic Resources (Mackerels) in the Gulf of Mexico and South Atlantic, Stone Crab Fishery of the Gulf of Mexico, Spiny Lobster in the Gulf of Mexico and South Atlantic, Coral and Coral Reefs of the Gulf of Mexico.
- Herke, W.H. 1978. Some effects of semi-impoundment on coastal Louisiana fish and crustacean nursery usage, p. 325-346. In R.H. Chabreck (ed.). Proceedings of the Third Coastal Marsh and Estuary Management Symposium. Division of Continuing Education, Louisiana State University, Baton Rouge, Louisiana.
- Hightower, M. 1998. Personal communication. National Marine Fisheries Service, Office of Statistics, Galveston Laboratory, Galveston, Texas.
- Holliday, M.C., and B.K. O'Bannon. 2000, 2001, 2002. Fisheries of the United States. U.S. Department of Commerce, National Oceanic and Atmospheric Administration, National Marine Fisheries Service. 126 pp.
- Joanen, T., L. McNease, G. Perry, D. Richard, and D. Taylor. 1984. Louisiana's alligator management program. Proc. Southeastern Assoc. Fish Wildlife Agencies 38:201-211.
- Lassuy, D.R., 1983. Species profiles: life histories and environmental requirements (Gulf of Mexico) – brown shrimp. U.S. Fish and Wildlife Service, Division of Biological Services. FWS/OBS-82/11.1 U.S. Army Corps of Engineers, TR EL-82.4. 15 pp.
- Louisiana Department of Environmental Quality. 2000. State of Louisiana Water Quality Management Plan Water Quality Inventory. Section 2000 305(b). Appendix A. Statewide Water Quality Assessments.
- Louisiana Department of Natural Resources. 1993. Sabine terracing project annual monitoring report. Biological Monitoring Section, Coastal Restoration Division, Louisiana Department of Natural Resources. Baton Rouge, Louisiana.

- Louisiana Department of Natural Resources. 1996a. Small sediment diversions (MR-01) Progress Report No. 2. Louisiana Department of Natural Resources, Coastal Restoration Division. Baton Rouge, Louisiana.
- Louisiana Department of Natural Resources. 1996b. Dewitt-Rollover plantings (ME-08) comprehensive monitoring report. Louisiana Department of Natural Resources, Coastal Restoration Division, Baton Rouge, Louisiana.
- Louisiana Department of Natural Resources. 1997a. Boston Canal/Vermilion Bay Shoreline Protection (TV-0). Progress report no. 3. Louisiana Department of Natural Resources, Coastal Restoration Division, Baton Rouge, Louisiana.
- Louisiana Department of Natural Resources. 1997b. Coastal Wetlands Planning, Protection, and Restoration Act. Summary of Priority Project Lists 1-6. Louisiana Department of Natural Resources, Coastal Restoration Division, Baton Rouge, Louisiana. 194 pp.
- Louisiana Coastal Wetlands Conservation and Restoration Task Force. 1993. Louisiana Coastal Wetlands Restoration Plan: Main Report and Environmental Impact Statement.
- Louisiana Coastal Wetlands Conservation and Restoration Task Force. 1997. Sixth Priority Project List Report. 67 pp. plus plates and appendices.
- Louisiana Coastal Wetlands Conservation and Restoration Task Force and the Wetlands Conservation and Restoration Authority. 1998. Coast 2050: Toward a Sustainable Coastal Louisiana. Louisiana Department of Natural Resources. Baton Rouge, LA. 161 pp.
- Martin, R.P., and G.D. Lester. 1990. Atlas and Census of Wading Bird and Seabird Nesting Colonies in Louisiana: 1990. Louisiana Department of Wildlife and Fisheries, Louisiana Natural Heritage Program, Special Publication No. 3. 182 pp.
- McGinnis, T.E. 1997. Shoreline movement and soil strength in a Louisiana coastal marsh. M.S. Thesis, University of Southwestern Louisiana, Lafayette, Louisiana. 80 pp.
- McNease, L., and T. Joanen. 1978. Distribution and relative abundance of the alligator in Louisiana coastal marshes. Proc. Southeastern Assoc. Fish Wildlife Agencies. 32:182-186.
- Melancon, G., 2002. Personal communication. Department of Wildlife and Fisheries Fur and Refuge Division, Rockefeller State Wildlife Refuge and Game Preserve, Grand Chenier, Louisiana.

- Michot, T.C., C.W. Jeske, J. Mazourek, W. Vermillion, and R.S. Kemmerer. 2003 (In press). Atlas and Census of Wading Bird and Seabird Nesting Colonies in Louisiana 2001. BTNEP Publication Number xx. Barataria-Terrebonne National Estuary Program, Thibodaux, Louisiana. 84 pp.
- Minello, T.J., and L.P. Rozas. 2002. Nekton in Gulf coast wetlands: fine-scale distributions, landscape patterns, and restoration implications. *Ecological Applications* 12(2):441-455.
- Mitsch, W. J., and J. G. Gosselink (eds.). 1993. *Wetlands*. Second Edition. Von Nostrand Reinhold Publishing, New York. 722 pp.
- Morgan, J.P., J.R. Van Lopik, and L.G. Nichols. 1953. Occurrence and Development of Mudflats Along the Western Louisiana Coast. Coastal Studies Institute, Louisiana State University Tech. Report. 2. 34 pp.
- Norden, C.R. 1966. The seasonal distribution of fishes in Vermilion Bay, Louisiana. *Wisconsin Academy of Sciences, Arts and Letters* 55: 119-137.
- NRCS. 1996. Soil Survey of Vermilion Parish, Louisiana. Natural Resources Conservation Service, U.S. Department of Agriculture in cooperation with Louisiana Agricultural Experiment Station. 183 pp.
- Nyman, J.A., R.H. Chabreck, and N. Kinler. 1993. Some effects of herbivory and 30 years of weir management on emergent vegetation in a brackish marsh. *Wetlands* 13(3):165-175.
- O'Neil, T. 1949. The muskrat in the Louisiana coastal marshes. Federal Aid Section-Fish and Game Division, Louisiana Department of Wild Life and Fisheries, New Orleans, Louisiana.
- Orton, E. W. 1959. A geological study of Marsh Island, Iberia Parish, Louisiana. Louisiana Wild Life and Fisheries Comm. New Orleans, Louisiana. 22 pp.
- Palmisano, A.W. 1973. Habitat preference of waterfowl and fur animals in the northern Gulf Coast marshes, pp. 163-190. In R.H. Chabreck (ed.). *Proceedings of the Coastal Marsh and Estuary Management Symposium*. Louisiana State University, Division of Continuing Education. Baton Rouge, Louisiana.
- Penland, S., and J.R. Suter. 1990. The geomorphology of the Louisiana Chenier Plain. *Mar. Geol.* 90:231-258.
- Perret, William S. 1965. Occurrence, abundance, and size distribution of fishes and crustaceans collected with otter trawl in Vermilion Bay, Louisiana. M.S. Thesis, University of Southwestern Louisiana, Lafayette, Louisiana. 87 pp.

- Rivet, D. 1998. Personal communication. State Historical Preservation Office, Baton Rouge, Louisiana.
- Rogers, B.D., R.F. Shaw, W.H. Herke, and R.H. Blanchet. 1993. Recruitment of postlarval and juvenile brown shrimp (*Penaeus aztecus* Ives) from offshore to estuarine waters of the northwestern Gulf of Mexico. *Estuarine, Coastal and Shelf Science*. 36:377-394.
- Rozas, L.P., and T.J. Minello. 2001. Marsh terracing as a wetland restoration tool for creating fishery habitat. *Wetlands*:21(3): 327-341.
- Saucier, M.H. (ed.) 1998. *Water Resources Development in Louisiana*. U.S. Army Corps of Engineers, New Orleans District, New Orleans, La. 177 pp.
- Schmid, J.R., A.B. Bolten, K.A. Bjorndal, and W. J. Lindberg. 2002. Activity patterns of Kemp's ridley turtles, *Lepidochelys kempii*, in the coastal waters of the Cedar Keys, Florida. *Marine Biology*:140(2):215-228.
- Swarzenski, C.M. (In preparation). Flow and selected water-quality characteristics of the Gulf Intracoastal Waterway in South-Central Louisiana. U.S. Geological Survey.
- Soils and Foundation Engineers, Inc. 1999. Geotechnical Investigation, Sediment Trapping at The Jaws Project (TV-15), Teche/Vermilion Basin, West Cote Blanche Bay, St. Mary Parish, Louisiana for Miller Engineers, Inc. , Franklin, Louisiana. 4 pp. plus figures and appendix.
- St. Mary Parish Chamber of Commerce. 2002. Personal communication. www.cajuncoastchamber.com/stmaryparish and hurricanecity.com/morgancity.
- Templet, P.H., and K.J. Meyer-Arendt. 1988. Louisiana Wetland Loss: A Regional Water Management Approach to the Problem. *Environmental Management* 12: 181-192.
- Turner, R.E., and M.S. Brody. 1983 Habitat suitability index models: northern Gulf of Mexico brown shrimp and white shrimp. U.S. Department of Interior, Fish and Wildlife Service, FWS/OBS-82/10.54. 24pp.
- Turner, R.E., and D.R. Cahoon (eds.). 1988. Causes of Wetland Loss in the Coastal Central Gulf of Mexico. Volume 1: Executive Summary. Final report submitted to Minerals Management Service, New Orleans, LA. Contract No. 14-12-0001-30252. OCS Study/MMS 87-0119. 32 pp.
- Turner, R.E., R. Constanza, and W. Scaife. 1982. Canals and Wetland Erosion Rates in Coastal Louisiana: Causes, Consequences and Options. U.S. Fish and Wildlife Service, Office of Biological Services, FWS-OB 82-59.

U.S. Department of Agriculture, Soil Conservation Service. 1995. Calcasieu-Sabine Cooperative River Basin Study Report. USDA in Cooperation with Gulf Coast Soil and Water Conservation District, U.S. Fish and Wildlife Service, Louisiana Department of Natural Resources, Louisiana Department of Wildlife and Fisheries, and Louisiana Department of Agriculture and Forestry. 151 pp. plus maps and appendices.

U.S. Department of Interior, Fish and Wildlife Service. 2002. Endangered and Threatened Species of the Southeastern United States (The Red Book). Prepared by Ecological Services, Division of Endangered Species, Southeast Region, Government Printing Office, Washington, D.C. 1,438 pp. (two volumes). Red Book Update April 2002.

van Heerden, I. L., J.T. Wells, and H.H. Roberts. 1981. Evolution and morphology of sedimentary environments, Atchafalaya Delta, Louisiana. *Trans. Gulf Coast Assoc. Geol. Soc.* 31:399-408.

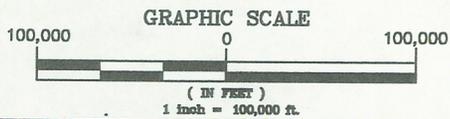
Walker, N.D., and A.B. Hammack. 1999. Impacts of river and wind forcing on circulation, sediment distribution, sediment flux and salinity changes: Vermilion/Cote Blanche Bay System, Louisiana. Submitted to the U.S. Army Corps of Engineers, Waterways Experiment Station, Vicksburg, Mississippi. Coastal Studies Institute, Louisiana State University, Baton Rouge, LA.

Walker, N., A. Hammack, R. Cunningham, and H. Roberts. 1997. Satellite Observations of Circulation, Sediment Distribution and Transport in the Atchafalaya-Vermilion Bay System. Submitted to U.S. Army Corps of Engineers Waterways Experiment Station, Vicksburg, MS. 88 pp.

Wells, J.T., and G.P. Kemp. 1981. Atchafalaya mud stream and recent mudflat progradation: Louisiana Chenier Plain. *Trans. Gulf Coast Assoc. Geol. Soc.* 31:409-416.



**JAWS
SEDIMENT
TRAPPING**
for
National Marine Fisheries Service
N.O.A.A.
U.S. Department of Commerce



VICINITY MAP

FIGURE 1

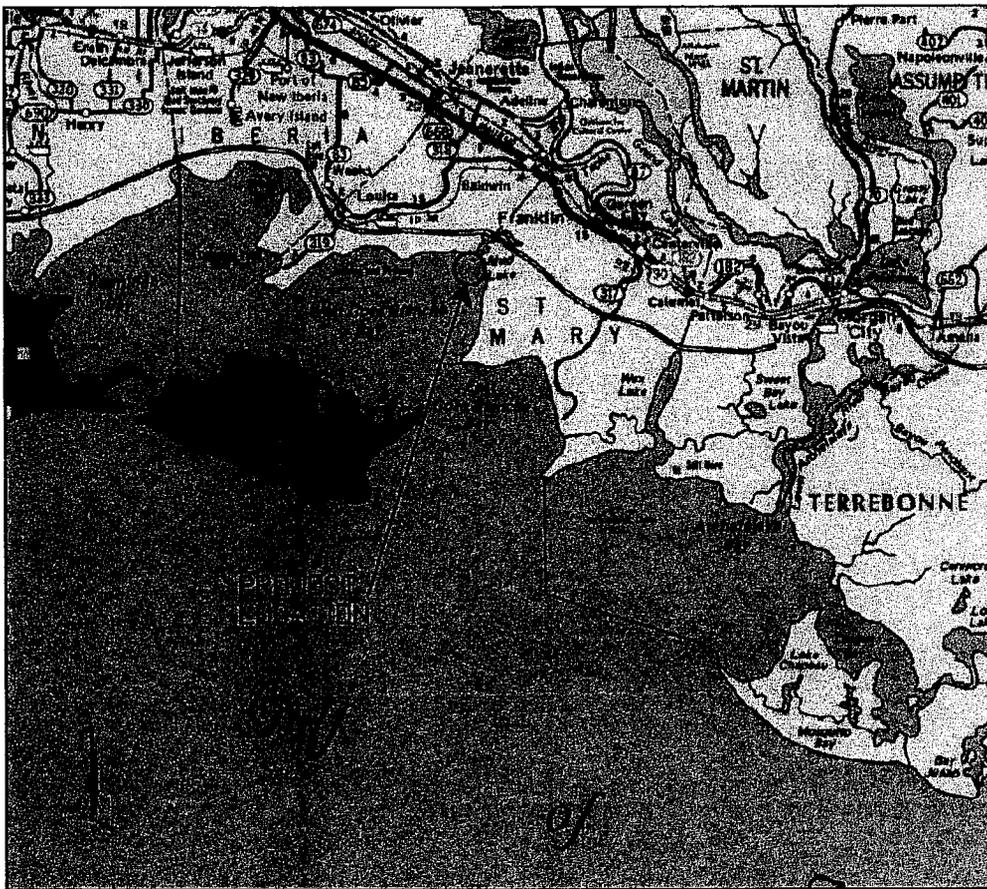


G O T E C H , I N C .

CONSULTING ENGINEERS	5353 BLUEBONNET BLVD.	BATON ROUGE, LA. 70810
Date: DEC, 2002	Job No.: 275	File: FIGURE 1
Approved By: BKD	Checked By: BKD	Drawn By: DAB



PROJECT
LOCATION



LOUISIANA DEPARTMENT OF NATURAL RESOURCES COASTAL RESTORATION DIVISION 617 N 2nd STREET SUITE 1078 BATON ROUGE, LA 70802	SEDIMENT TRAPPING AT THE JAWS ST. MARY PARISH	VICINITY MAP
		SCALE: NTS
APPROVED BY: J. MOINETT	STATE PROJECT NO.: TY-15	DATE: 10/31/02
DESIGNED BY: BEAU TATE	FEDERAL PROJECT NO.: PVT-18b	SHEET 1 OF 6

FIGURE 2

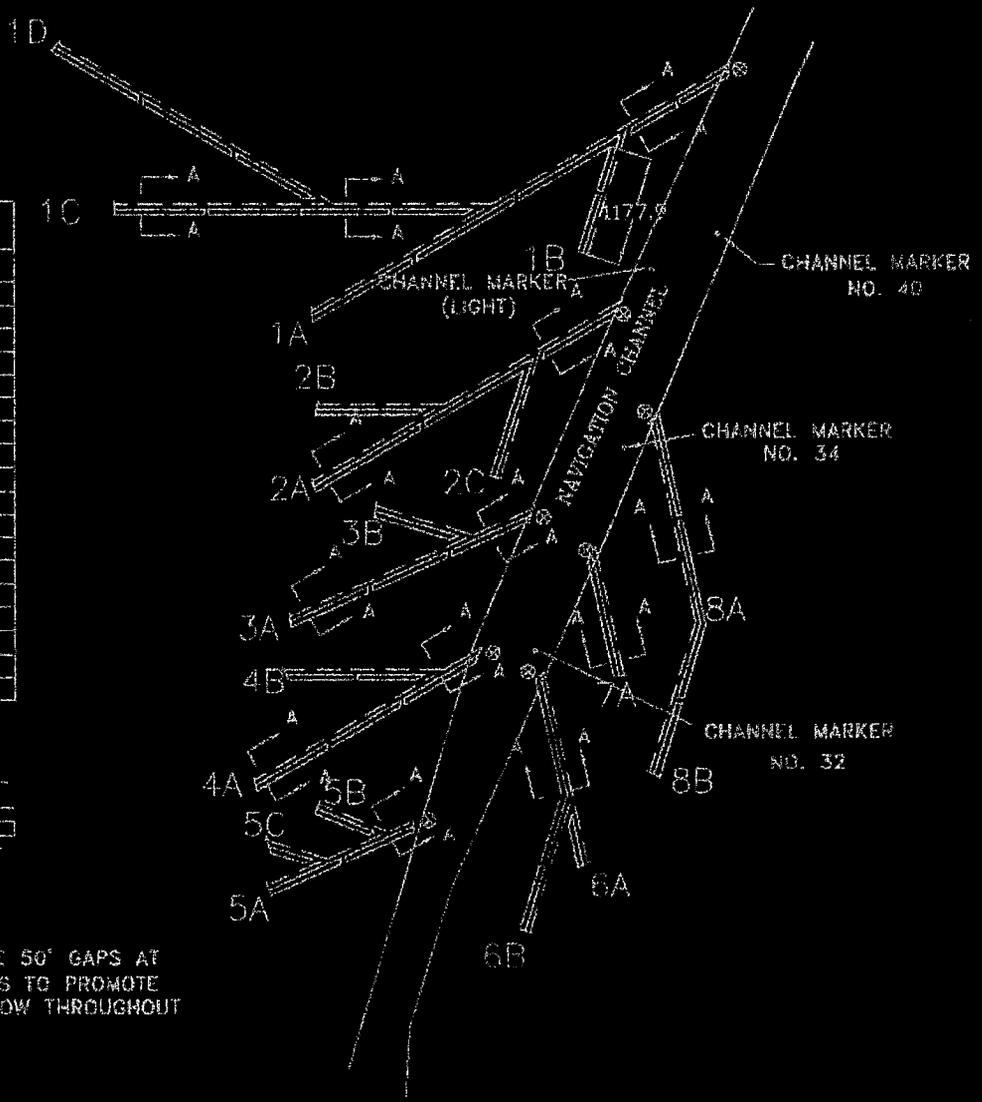
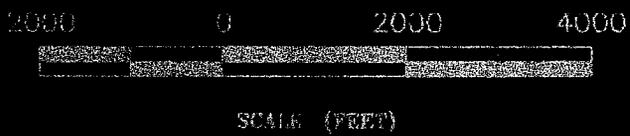


TERRACE	LENGTH
1A	5179
1B	1126
1C	3805
1D	3264
2A	3730
2B	1130
2C	1370
3A	2827
3B	1140
4A	2745
4B	1673
5A	1770
5B	773
5C	700
6A	2219
6B	1502
7A	1257
8A	2193
8B	1706

LEGEND

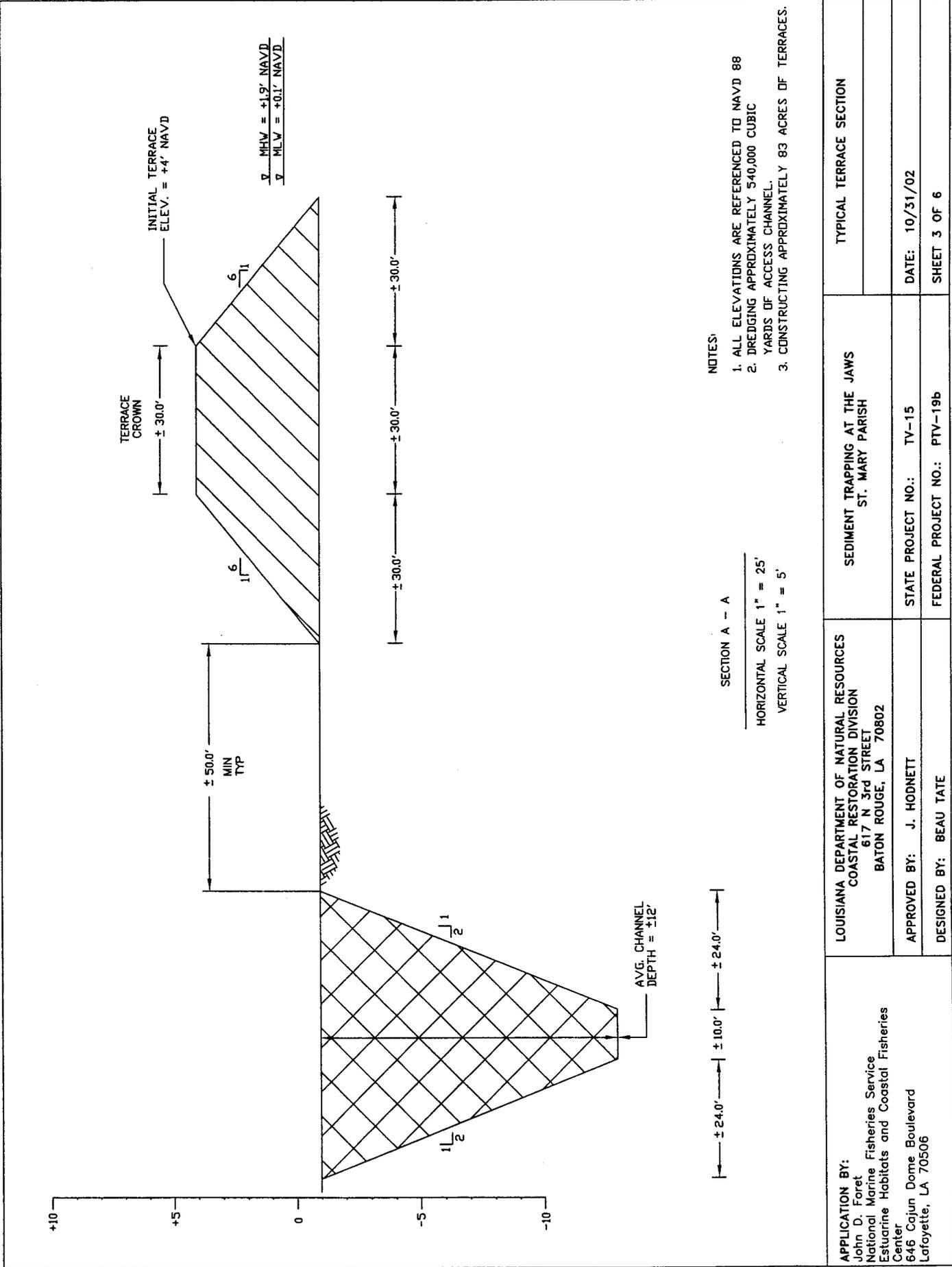
- BORROW CHANNEL
- TERRACES
- TERRACES 40,105 LF
- WARNING SIGN

NOTE: TERRACES WILL INCLUDE 50' GAPS AT APPROX. 1000' CENTERS TO PROMOTE EVENLY DISTRIBUTED FLOW THROUGHOUT PROJECT AREA



LOUISIANA DEPARTMENT OF NATURAL RESOURCES COASTAL RESTORATION DIVISION 617 N 3rd STREET BATON ROUGE, LA 70802	SEDIMENT TRAPPING AT THE JAWS ST. MARY PARISH	PLAN VIEW
		SCALE: 1" = 2000'
APPROVED BY: J. HODNETT	STATE PROJECT NO.: TV-15	DATE: 10/31/02
DESIGNED BY: BEAU TATE	FEDERAL PROJECT NO.: PTV-19b	SHEET 2 OF 6

FIGURE 3



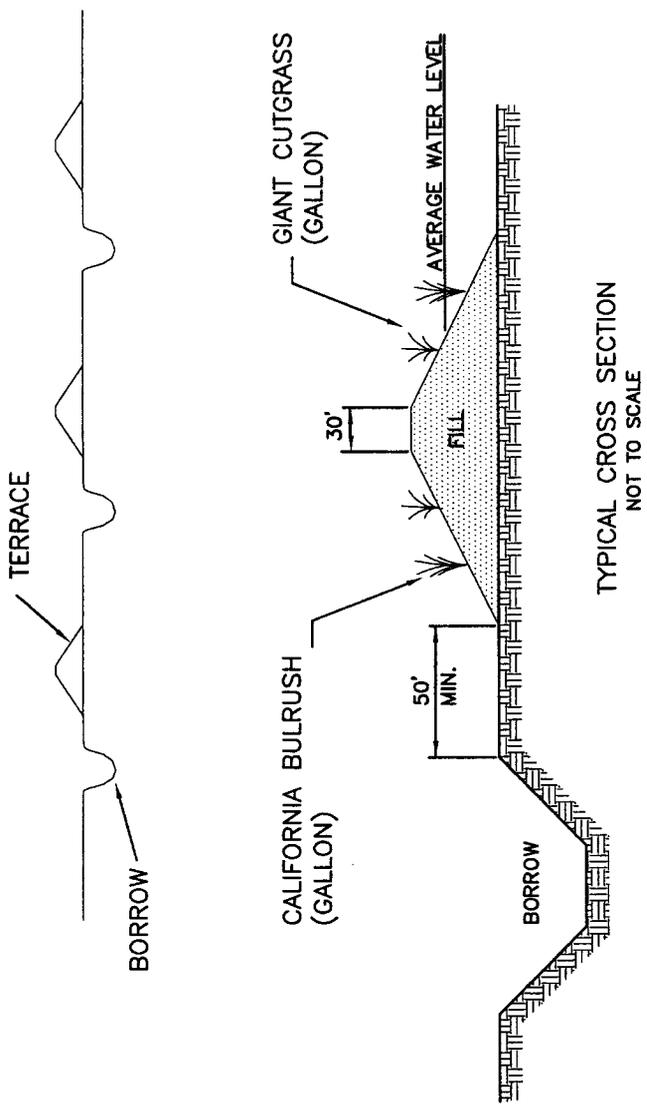
SECTION A - A

HORIZONTAL SCALE 1" = 25'
 VERTICAL SCALE 1" = 5'

- NOTES:
1. ALL ELEVATIONS ARE REFERENCED TO NAVD 88
 2. DREDGING APPROXIMATELY 540,000 CUBIC YARDS OF ACCESS CHANNEL.
 3. CONSTRUCTING APPROXIMATELY 83 ACRES OF TERRACES.

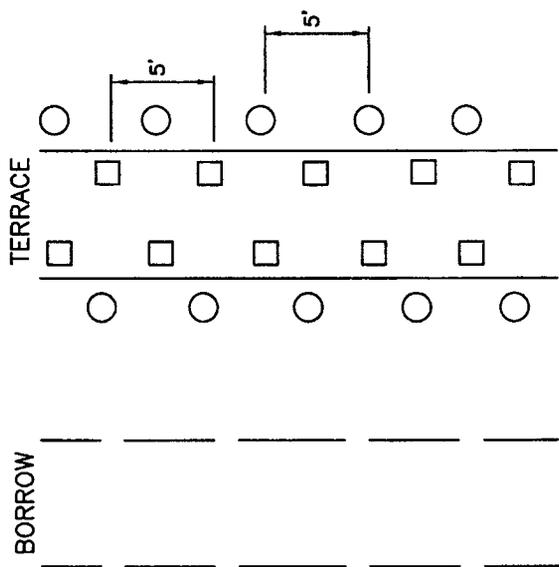
APPLICATION BY: John D. Foret National Marine Fisheries Service Estuarine Habitats and Coastal Fisheries Center 646 Cajun Dome Boulevard Lafayette, LA 70506	LOUISIANA DEPARTMENT OF NATURAL RESOURCES COASTAL RESTORATION DIVISION 617 N 3rd STREET BATON ROUGE, LA 70802	SEDIMENT TRAPPING AT THE JAWS ST. MARY PARISH	TYPICAL TERRACE SECTION
APPROVED BY: J. HODNETT DESIGNED BY: BEAU TATE	STATE PROJECT NO.: TV-15 FEDERAL PROJECT NO.: PTV-19b	DATE: 10/31/02 SHEET 3 OF 6	

FIGURE 4



TYPICAL CROSS SECTION
 NOT TO SCALE

APPROX. 40,103 L.F. OF EARTHEN TERRACES



NOT TO SCALE

- GIANT CUTGRASS
- CALIFORNIA BULRUSH

FIGURE 5

REV.	DATE	DESCRIPTION	BY	APPROVED BY

LOUISIANA DEPARTMENT OF NATURAL RESOURCES COASTAL RESTORATION DIVISION 817 NORTH AND STREETS SUITE 1000, LAFAYETTE, LOUISIANA 70502	VEGETATION LAYOUT PROJECT NAME: SEDIMENT TRAPPING AT THE LAKE VEGETATION PLANTING PROJECT	DATE: 12/02/02 SHEET NUMBER: 3 OF 4
DRAWN BY: K. LEVELL APPROVED BY: K. WILKINSON	PROJECT NUMBER: TV-18	

APPENDIX
A

Agency Coordination Letters



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

February 27, 2003

Ms. Laurel Wyckoff
State of Louisiana
Office of the Lieutenant Governor
Office of Cultural Development
Division of Archaeology
P.O. Box 44247
Baton Rouge LA 70804-4247

Date: 3-14-03
No known archaeological sites or historic properties will be affected by this undertaking. This effect determination could change should new information come to our attention.
Laurel Wyckoff: *Laurel Wyckoff*
State Historic Preservation Officer

Dear Ms. Wyckoff,

Please find enclosed an environmental assessment concerning the Sediment Trapping at The Jaws Project (TV-15), funded under the Coastal Wetlands Planning, Protection, and Restoration Act.

We would greatly appreciate your review of this document, particularly as it pertains to archaeological and historic sites. The Jaws project will enhance the capacity of this area to trap sediments, reduce shoreline erosion, and contribute to the continued existence of this unique system. Please return your comments to my office no later than April 15, 2003.

Sincerely,

John D. Foret
John D. Foret, Ph.D.
NMFS Project Manager

Enclosure

RECEIVED
FEB 28 2003
DIV. OF ARCHAEOLOGY



United States Department of Agriculture



Natural Resources Conservation Service
3737 Government Street
Alexandria, LA 71302

Water Resources Planning Staff
phone (318) 473-7690
fax (318) 473-7747

April 2, 2003

John D. Foret
NOAA-Fisheries
UL, P.O. Box 42451
Lafayette, LA 70504

John
Dear ~~Dr.~~ Foret,

Attached are the NRCS comments regarding the EA for the Sediment Trapping at the Jaws Project (TV-15).

Thanks for providing us with the opportunity to review this environmental assessment.

Sincerely,

M. D. Floyd
Martin D. Floyd
Biologist

cc Britt Paul, WRPSL, NRCS, Alexandria, LA

NRCS Comments on TV-15 Sediment Trapping at the Jaws Project EA

~~Red strikethrough~~ = remove

Red bold = insert

Blue italic = explanation only

pg3, 1.3.1 Wetland Loss, para3, sent1 – “Recent land loss ... John Barras, USGS.” ~ *cite*

pg4, 1.3.1 Wetland Loss, para1, sent1 – “and tidal conditions ... appearance = (i.e., burning ...”

pg4, 1.3.3 Current Conditions, para2, sent1 – “Navigation charts ... (Mallach, personal observation).” ~ *cite*

pg5, 1.4 Preliminary Performance, sent3 – “Geotechnical ... hydrologic studies (C. H. Fenstermaker & Associates, Inc., 2002) ...” ~ *cite*

pg8, 2.2.5 Protection of Infrastructure, sent3 – “The roots of marsh ... GIWW and Charendon Canal ...” *Check spelling of Charendon*

pg9, 3.2 Non-Vegetated Terrace without Distributary Network, sent2 – “However, with ... vegetation (Edwards, personal communication).” ~ *cite*

pg9, 3.5 Preferred Alternative, sent1 – “Dredging ... construct 19-meter (60-foot) wide terraces, followed by ...” *Next page has different dimensions*

pg10, 3.5 Preferred Alternative, para5 – “Due to the findings ... width may vary with soil ...”

pg10, 3.5.2 Terraces, sent5 – “A terrace with a crown width of 10 meters (30 feet) would ...” *Previous page has different dimensions*

pg11, 4.0 Affected Environment, sent3 – “Most Atchafalaya River water ... and Wax Lake Outlet, respectively.”

pg12, 4.0, para1, sent2 - “In many images ... across a ~~large~~ large region ...”

pg12, 4.1.1 Geology, Soils and Topography, para2, sent1 – “Approximately 98 percent ... Kenner muck (NRCS 1996).”

pg12, 4.1.1 Geology, Soils and Topography, para3, sent1 – “Topographic relief ... (1 to 1.5 feet) National Geodetic Vertical Datum (NGVD). *or NAVD 88 ??*

pg14, 4.1.4, para1, sent2 – “Waters of Charenton Canal ... to Charendon Floodgate ...” *Check spelling of Charendon*

pg14, 4.2.1, para1, sent2 – “In 1997, marshes ... (Linscombe, et al. no date).” ~ *cite*

pg16, 4.2.4 Wildlife Resources, para2, sent2 – “Muskrat ... such as white-tailed deer (*Odocoileus* deer *Odocoileus virginianus*, rabbit ...”

pg16, 4.2.4 Wildlife Resources, para3, sent1 – “Geese (snow ... *canadensis*), dabbling ducks ... mottled duck *Anas fulvigula* *Anas fulvigula*, green-winged ...”

pg21, 5.1.4 Surface Water Resources, sent1 – “The project would create and 8.4 ± 2.6 grams ...”

pg23, 5.2 Biological Environment, 5.2.4 Fish and Wildlife Resources, para2 – *add*: “Heron and egrets are also common in the area, although no known nesting colonies occur with the project area (Martin and Lester 1990; Michot, et al 2003).”

pg23, 5.2 Biological Environment – *add*: 5.2.6 Migratory Bird Protection - Executive Order 13186 of January 2001 mandates that all Federal agencies incorporate the protection of migratory bird habitat in all planning efforts. Continued deterioration of herbaceous and wooded areas within the project is expected under the no action scenario. It is likely that implementation of the project would slow or reverse land loss and create emergent wetlands (perhaps even woody areas), thus enhancing an area suitable for migratory avian species.

pg24, 5.3.6 Infrastructure, para2, sent1 and 2 – ““No permanent impacts ... are anticipated. Dredging ... expected to be fairly persistent if periodic maintenance ...” *Somewhat confusing – may not be permanent but will be persistent?*”

pg27, 9.0 Literature Cited – *add*: Barras, John, USGS, personal communication

pg27 – *move*: “Coastal Environments, Inc. ...” to after “Chabreck, R.H. and G. Linscombe. 1988. ...”

pg28 – *where was* “Deegan et al” listed in text?

pg28 – *add*: Fenstermaker, C.H. and Associates, Inc. 2002 ...

p29/30 – *insert* “Linscombe ...” between “Lassuy ...” and “Louisiana Department of Environmental Quality ...”

pg30 – *add*: Mallach, ? personal communication

pg30 – *add*: Michot, Thomas C., Clinton W. Jeske, Joyce Mazourek and William Vermilion. 2003 (Draft). Atlas and Census of Wading Bird and Seabird Nesting Colonies in Louisiana 2001, USGS, Lafayette, LA, ?p.

United States Department of Agriculture



Natural Resources Conservation Service
3737 Government Street
Alexandria, LA 71302

Water Resources Planning Staff
phone (318) 473-7690
fax (318) 473-7747

April 9, 2003

Dr. John D. Foret
National Marine Fisheries
U.L. P.O. Box 42451
Lafayette, LA 70604

Dear Dr. ^{Jolan}~~Foret~~,

Sorry, I sent comments to you too soon. Received some additional comments from other members of our staff. The attachment incorporates both sets, however I highlighted the more recent additions in case you have already begun incorporations those sent previous.

Again I am sorry for any confusion this has caused in my haste to get comments to you.

Sincerely,


Martin D. Floyd
Biologist

cc Britt Paul, WRPSL, NRCS, Alexandria, LA

NRCS Comments on TV-15 Sediment Trapping at the Jaws Project EA

Red strikethrough = remove

Red bold = insert

Blue italic = explanation only

Yellow highlight = more recent comments

pg1, 1.1 Project Location, sent3 – The Jaws is the outfall of the Charenton Drainage and Navigation Canal ~~Gulf Intracoastal Waterway (GIWW) and the Gulf Intracoastal Waterway (GIWW) Charenton Drainage and Navigation Canal ...~~ *switch: outfall of Charenton, not GIWW*

pg3, 1.3.1 Wetland Loss, para3, sent2 – “The U.S. Geological ... labeled ~~Jenerette~~ **Jeanerette**, on which the project area ~~is~~ is located, ...”

pg3, 1.3.1 Wetland Loss, para4, sent1 – “Recent land loss ... John Barras, USGS).” ~ cite

pg4, 1.3.1 Wetland Loss, para1, sent1 – “and tidal conditions ... appearance ~~,~~ (i.e., burning ...”

pg4, 1.3.2 Habitat Diversity, para1, sent1 – “Project area habitat includes intermediate and fresh marshes ...” *No map indicating such*

pg4, 1.3.3 Current Conditions, para2, sent1 – “Navigation charts ... (Mallach, personal observation).” ~ cite

pg5, 1.3.3, para2, sent3 – “Sediment diversion have not been used to induce wetland creation ...” *What about CWPPRA projects AT-2, AT-3 and (AT-4)?*

pg5, 1.4 Preliminary Performance, sent3 – “Geotechnical ... hydrologic studies (C. H. Fenstermaker & Associates, Inc., 2002) ...” ~ cite

pg6, 1.5 Authorization, para1, sent1 – “The NMFS is the ... ~~Jaws project~~, **Jaws Project**, ...”

pg8, 2.2.5 Protection of Infrastructure, sent3 – “The roots of marsh ... GIWW and Charendon Canal ...” *Check spelling of Charendon*

pg9, 3.2 Non-Vegetated Terrace without Distributary Network, sent2 – “However, with ... vegetation (Edwards, personal communication).” ~ cite

pg9, 3.5 Preferred Alternative ~ *Describe Alternative in Title as was done for 3.2, 3.3 and 3.4*

pg9, 3.5 Preferred Alternative, sent1 – “Dredging ... construct 19-meter (60-foot) wide terraces, followed by ...” *Next page has different dimensions*

pg10, 3.5 Preferred Alternative, para5 – “Due to the findings ... width may vary with soil ...”

pg10, 3.5.1 Distributary Network, sent6 – “The bottom ... either side of the ...”

pg10, 3.5.2 Terraces, sent4 – “However, the presence ... to be revised.” *Why? How?*

pg10, 3.5.2 Terraces, sent5 – “A terrace with a crown width of 10 meters (30 feet) would ...”
Previous page has different dimensions

pg11, 4.0 Affected Environment, sent3 – “Most Atchafalaya River water ... and Wax Lake Outlet , respectively.”

pg12, 4.0, para1, sent2 - “In many images ... across a ~~large~~ large region ...”

pg12, 4.1.1 Geology, Soils and Topography, para2, sent1 – “Approximately 98 percent ... Kenner muck (NRCS 1996).”

pg12, 4.1.1 Geology, Soils and Topography, para3, sent1 – “Topographic relief ... (1 to 1.5 feet) National Geodetic Vertical Datum (NGVD). *or NAVD 88 ??*

pg13, 4.1.2, para2, sent3 – “A hurricane crosses the parish ...” *Move to following paragraph*

pg14, 4.1.4, para1, sent2 – “Waters of Charenton Canal (north of the GIWW ... to Charendon Floodgate) ...” *Check spelling of Charendon close parenthesis*

pg14, 4.2.1, para1, sent2 – “In 1997, marshes ... (Linscombe, et al. no date).” ~ *cite*

pg16, 4.2.4 Wildlife Resources, para1, sent2 – “Twenty-seven species ...” *Updated data 2001 USFWS and USGS 94-2000 LDWF*

pg16, 4.2.4 Wildlife Resources, para2, sent2 – “Muskrat ... such as white-tailed deer(~~Odocoileus deer~~ *Odocoileus virginianus*, rabbit ...”

pg16, 4.2.4 Wildlife Resources, para3, sent1 – “Geese (snow goose *Chen caerulescens*, Greater White-fronted Goose *Anser albifrons*, Canada Goose *Branta canadensis*), dabbling ducks ... mottled duck *Anas fulvigula*, green-winged ...” *no Canada Geese*

pg16, 4.2.4 Wildlife Resources, para3, sent1 – “Geese ... red-breasted mergansers *Mergus merganser*... bufflehead *Bucephala albeola*...” *not exactly abundant*

pg19, 4.3.3 Land Use, sent3 – “Nutria, brought to to the United ... the turn of the 20th-century mid to late ‘30s.”

pg21, 5.1.4 Surface Water Resources, sent1 – “The project would create and 8.4 ± ± 2.6 grams ...”

pg23, 5.2 Biological Environment, 5.2.4 Fish and Wildlife Resources , para1, sent2 – “Such wetlands ... raccoon, eight many species of puddle and diving ducks, shorebirds, and alligator.”

pg23, 5.2 Biological Environment, 5.2.4 Fish and Wildlife Resources , para2 – *add*: “Heron and egrets are also common in the area, although no known nesting colonies occur with the project area (Martin and Lester 1990; Michot, et al 2003).”

pg23, 5.2 Biological Environment – *add*: 5.2.6 Migratory Bird Protection - Executive Order 13186 of January 2001 mandates that all Federal agencies incorporate the protection of migratory bird habitat in all planning efforts. Continued deterioration of herbaceous and wooded areas within the project is expected under the no action scenario. It is likely that implementation of the project would slow or reverse land loss and create emergent wetlands (perhaps even woody areas), thus enhancing an area suitable for migratory avian species.

pg24, 5.3.6 Infrastructure, para2, sent1 and 2 – “No permanent impacts ... are anticipated. Dredging ... expected to be fairly persistent if periodic maintenance ...” *Somewhat confusing – may not be permanent but will be persistent?*

pg24, 5.3.6 Infrastructure, para2, sent2 – “Dredging would enlarge existing channel ...” *Figure 3 doesn't indicate any dredging of existing channels*

pg24, 6.0 Conclusions, sent4 – “The ... and portions of the natural shoreline would be planted with ...” *Where? Not mentioned prior in report*

pg24, 6.0 Conclusions, sent7 – “The natural ... to partially offset coastal wetland loss ...” *How is this possible?*

pg27, 9.0 Literature Cited – *add*: Barras, John, USGS, personal communication

pg27 – *move*: “Coastal Environments, Inc. ...” to after “Chabreck, R.H. and G. Linscombe. 1988. ...”

pg28 – *where was* “Deegan et al” *listed in text?*

pg28 – *add*: Fenstermaker, C.H. and Associates, Inc. 2002 ...

p29/30 – *insert* “Linscombe ...” *between* “Lassuy ...” and “Louisiana Department of Environmental Quality ...”

pg30 – *add*: Mallach, ? personal communication

pg30 – *add*: Michot, Thomas C., Clinton W. Jeske, Joyce Mazourek and William Vermilion. 2003 (Draft). Atlas and Census of Wading Bird and Seabird Nesting Colonies in Louisiana 2001, USGS, Lafayette, LA, ?p.

Figure 2 – *Add North Arrow*

Figure 4, Notes: - “3. Construction of approximately ~~83~~ 61 acres of terraces” *Which is correct?*
Report states 61 acres.

Figure 5 – *Section view shows no plantings on crown of terrace*



United States Department of the Interior

FISH AND WILDLIFE SERVICE

646 Cajundome Blvd.
Suite 400
Lafayette, Louisiana 70506

April 29, 2003

John D. Foret, Ph.D.
Project Manager
National Marine Fisheries Service
646 Cajundome Boulevard
Lafayette, LA 70506

Dear Dr. Foret:

The Fish and Wildlife Service (Service) has reviewed the draft Environmental Assessment (EA) for the Sediment Trapping at the Jaws Project. That project would be constructed under the authority of the Coastal Wetlands Planning, Protection and Restoration Act. The Service submits the following comments in accordance with provisions of the Fish and Wildlife Coordination Act, the Endangered Species Act of 1973, as amended, and the National Environmental Policy Act of 1969.

General Comments

The EA adequately describes the impact of the project to fish and wildlife resources. We are providing the following specific comments for your consideration.

Specific Comments

Page 4, Sections 1.3.3 Current Conditions and Page 17, 4.2.5 Threatened and Endangered Species - The statements regarding water depths in the project area are misleading and should be clarified. While water depths in the project area may be 1 to 3 feet, depths in the more open areas of West Cote Blanche Bay are substantially greater, ranging from 6 to 10 feet. Unrestricted navigation by recreational, oil industry, and commercial fishing vessels occurs across much of the bay.

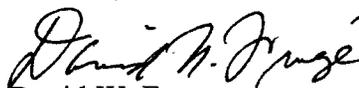
On page 17, the most current list of threatened and endangered species should be used to evaluate the impacts of the project. The list of threatened and endangered species for St. Mary Parish, prepared by the Service in 2003, includes the Louisiana black bear, bald eagle, brown pelican, piping plover and its critical habitat, Gulf sturgeon, pallid sturgeon, and the five species of sea turtles discussed in the section. It is not necessary to include the other species discussed in this section. The threatened Louisiana black bear utilizes forests, marshes, and agricultural lands throughout St. Mary Parish. Its important denning and feeding habitats are located primarily north of the Gulf Intracoastal Waterway in bottomland hardwood forests; Louisiana black bears are, therefore, not expected to utilize the open water habitats associated with this project. Bald

eagles, Federally listed as threatened, nest in Louisiana from October through mid-May. Eagles typically nest in bald cypress trees near fresh to intermediate marshes or open water in the southeastern parishes; no nests are known to occur within the project area. This area, however, may be used for hunting or feeding. The endangered brown pelican may occasionally utilize project area waters; however, its important nesting, feeding and resting habitats are located closer to the Gulf shoreline. The threatened piping plover winters in coastal Louisiana and utilizes intertidal flats, beaches and associated dune systems, and other very sparsely vegetated areas adjacent to flats and beaches. Although critical habitat for piping plover has been designated in areas along the Louisiana coast, that species is not expected to utilize the project area, and its critical habitat does not occur there. The threatened Gulf sturgeon rarely occurs west of the Mississippi River and thus is not expected to utilize the project area. The endangered pallid sturgeon is located in both the Mississippi and Atchafalaya Rivers. They are adapted to riverine conditions that can be described as large, free-flowing, turbid water with a diverse assemblage of physical habitats that are in a constant state of change. Thus they are not expected to utilize the project area.

Page 23, Section 5.2.5 - Threatened and Endangered Species - This discussion should be revised to state that the proposed project is not likely to adversely affect listed threatened and endangered species or their critical habitats.

The Service fully supports the measures proposed for the Sediment Trapping at the Jaws Project. Thank you for the opportunity to provide comments on the EA. If you have any questions regarding our comments, please contact Gerry Bodin of this office at (337)291-3118.

Sincerely,



David W. Fruge
Supervisor
Louisiana Field Office

cc: NMFS, Baton Rouge, LA
EPA, Dallas, TX
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



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

April 7, 2003 F/SER44/KS:jk
225/389-0508

Dr. John D. Foret
Project Manager
Estuarine Habitats and Coastal Fisheries Center
NOAA/NMFS
646 Cajundome Boulevard
Lafayette, Louisiana 70506

Dear Dr. Foret:

The Baton Rouge Field Office of the National Marine Fisheries Service (NOAA Fisheries) has received the draft Environmental Assessment (EA) titled "**SEDIMENT TRAPPING AT THE JAWS PROJECT (TV-19); St. Mary Parish, Louisiana**" transmitted by your March 3, 2003, letter. The draft EA evaluates the potential impacts associated with the dredging of 50 acres of shallow water bottoms and the construction of vegetated earthen terraces to create approximately 61 acres of intertidal marsh. The purpose of the project is to increase the area of marsh and submerged aquatic vegetation (SAV) in West Cote Blanche Bay by enhancing the natural sediment deposition that is occurring in the bay from the Gulf Intracoastal Waterway via the area known as the "Jaws". The project was funded under the auspices of the Coastal Wetlands Planning, Protection and Restoration Act (CWPPRA), with NOAA Fisheries serving as the Federal sponsor.

NOAA Fisheries has reviewed the draft EA and finds that the document adequately addresses potential impacts to resources of concern. However, we have the following comments regarding information provided within the document:

3.0 ALTERNATIVES INCLUDING THE PROPOSED ACTION 3.5 Preferred Alternative

Pages 9-10. This section states that the preferred alternative, which consists of dredging distributary networks and constructing vegetated terraces, will allow 710 hectares of new marsh to develop from subaqueous deltas within 20 years. However, the "Non-Vegetated Terrace without Distributary Network" alternative (Section 3.4, Page 9) also states that 710 hectares of new marsh will develop from subaqueous deltas within 20 years, even though the non-vegetated terraces would be expected to erode within 12-24 months. The document should clarify why construction of vegetated terraces is included in the preferred alternative if it is not expected to have an effect on subaerial marsh development.

Section 4.0 AFFECTED ENVIRONMENT

Page 11, Paragraph 3. The last sentence of this paragraph is intended to summarize the information provided in this section on the source of sediment in West Cote Blanche Bay, as well as in East Cote Blanche and Atchafalaya Bays. It appears that the purpose of this paragraph is to support the assertion that the Jaws is the main source of sediment for the project area. However, the last sentence contradicts this assertion, and should be revised to place it in the context of the rest of the paragraph, or deleted.



4.2 Biological Environment

4.2.2 Essential Fish Habitat

Page 14, Paragraph 3. Information in this paragraph contains several minor errors. The word "amendment" should be added to the second sentence of this paragraph after the word "Habitat". The last sentence on Page 14 should be revised to indicate that the project area consists of Essential Fish Habitat for postlarval, juvenile, and subadult life stages of brown shrimp, white shrimp, and red drum, as well as the adult life stage of red drum. The reference for Federally-managed species and EFH located in the Jaws project area should be the 1998 generic amendment to the Fishery Management Plans of the Gulf of Mexico prepared by the Gulf of Mexico Fishery Management Council. Finally, the scientific name for white shrimp, *Penaeus setiferus*, is misspelled.

4.2.3 Fishery Resources

The scientific names of the following fish species are misspelled and should be corrected: Atlantic croaker (*Micropogonias undulatus*), hogchoker (*Trinectes maculatus*), sand seatrout (*Cynoscion arenarius*), and clams (*Rangia cuneata*).

FIGURE 4

Notes. Note #3 states that 83 acres of terraces will be constructed. This statement should be corrected to state that 61 acres of terraces will be constructed.

NOAA Fisheries finds that the document adequately addresses potential impacts to resources of concern. We concur with your determination that while certain categories of EFH would be adversely impacted by project implementation, more productive categories of EFH, such as marsh, marsh edge, and SAV, would be protected and restored.

We appreciate the opportunity to review and comment on the draft EA.

Sincerely,


 for Rickey N. Ruebsamen
 Acting Assistant Regional Administrator
 Habitat Conservation Division

c:
 FWS, Lafayette
 EPA, Dallas
 NRCS, Alexandria
 COE, Planning
 DNR, Consistency
 F/SER4
 Files

Subject: The Jaws EA
From: "David Bernhart" <David.Bernhart@noaa.gov>
Date: Wed, 26 Mar 2003 14:33:27 -0500
To: John Foret <John.Foret@noaa.gov>
CC: Eric Hawk <Eric.Hawk@noaa.gov>

Dr. Foret,

I received the draft EA you sent me for comment on the Jaws project at West Cote Blanche Bay, LA. Your letter did not include a return address, so please accept these comments by e-mail.

I was pleased to see dedicated sections on threatened and endangered species. I'm not sure that I agree with the conclusion that sea turtles, particularly Kemp's ridleys, would not be present, simply based on water depth. I don't have specific information on that part of Louisiana, but Kemp's ridley may be (almost certainly was historically) the most abundant sea turtle in nearshore/inshore LA. In a more well-studied area, Cedar Key, Florida, Kemp's ridleys are routinely found foraging in very shallow water, on shallow oyster reefs, with nearby connecting channels. Authors Schmid and Ogren probably have the most info on Kemp's in this habitat. Also, juvenile green turtles use very shallow waters: recent fishery interaction studies in inshore North Carolina waters show most of the green turtle bycatch is in 2-3' of water. There was no discussion of the reasons for the other species not to be expected to occur. Not that I necessarily disagree, but no explanation was given, such as unavailability of forage species or suitable habitat.

In most coastal protection/wetlands restoration projects, our concerns relating to sea turtles mostly have to do with the risk that actual construction activities could injure or kill individual animals. Cutterhead or clamshell dredges (I assume the means to accomplish this project) have very low risk of taking a sea turtle. The long-term effects of the projects to protect existing habitat are usually neutral or beneficial to our critters. I would recommend you build your sea turtle argument around the likelihood of effects (or lack thereof) than on the absence of the animals, unless there are other environmental factors not mentioned (e.g. fresh water).

-DB