Finding of No Significant Impact For Implementation of the Castille Pass Sediment Delivery Project

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

1) Can the proposed action reasonably be expected to cause substantial damage to the ocean and coastal habitats and/or essential fish habitat as defined under the Magnuson-Stevens Act and identified in FMPs?

No. Short-term, adverse impacts would occur during the construction as described in section 5.2.2 of the attached Environmental Assessment (EA). However, post-construction increases in quantity of the marsh would offset these impacts.

In the long term, the proposed action would increase the quality of essential fish habitat.

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

No. With the proposed action, the natural deltaic process that builds productive habitat would be assisted. An increase in marsh, and increase in shallow open water would result. See sections 5.1 and 5.2 of the attached EA.

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

No. The proposed project area is remote. The impact to human health would be negligible. Temporary adverse impacts would result from the noise and exhaust of construction equipment. See sections 5.1.3 and 5.3.5 of the attached EA.

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

No. Direct impacts to threatened and endangered species would be confined to the short-term displacement of species during construction activities. The net result would be an increase in coastal wetland habitats available to these species. See section 5.2.5 of the attached EA.

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

No. The proposed action would not be expected to adversely affect economic resources. Marshes created would provide forage, nursery, and grow-out sites for a variety of commercially and recreationally important fisheries species. During the period of construction, a small increase in employment of dredge operators, crew members, and other construction-related technicians would occur. See section 5.3.2 of the attached EA.

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

No. The intent of the proposed project is to promote delta growth along the Louisiana coast, which will improve the human environment. The project was proposed with public input through the annual process of the CWPPRA program to develop a project priority list. See section 1.0 of the attached EA.

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

No. The proposed action is expected to improve the quality and quantity of wetlands. Some existing submerged aquatic vegetation, marsh and water bottom habitats designated as EFH would be dredged or filled with the proposed action. Impacts to EFH are expected to be more than offset by the increase in acreage of those categories of EFH most supportive of marine fishery resources, as described in Chapter 5 of the attached EA.

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

No. The proposed action is similar to previous actions and involves known and avoidable risks, as described in section 1.3 of the attached EA.

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

No. The proposed action would have individually insignificant adverse impacts and cumulatively insignificant adverse impacts. The proposed action is expected to protect ecologically important areas in combination with other state restoration efforts. See section 5.5 of the attached EA.

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

No. Creating emergent marsh would benefit the infrastructure in the project are by providing protection to a gas pipeline, as described in section 5.3.

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

No. The proposed action would not introduce or spread nonindigenous species. The action would increase the ability of the area to support indigenous species by protecting natural habitat, as described in section 5.0 of the attached EA.

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

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

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

No. The proposed action was discussed with appropriate congressional, Federal, state, and local agencies and other interested parties, as discussed in section 1.0 and 5.0 of the attached EA.

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

No. Cumulative impacts were considered and no adverse impacts are expected to either target or non-target species. The long-term impact would be beneficial as described in section 5.2 and 5.5.

DETERMINATION

In view of the information presented in this document and the analysis contained in the supporting Environmental Assessment prepared for the implementation of the Castille Pass Sediment Delivery Project, it is hereby determined that the proposed action will not significantly impact the quality of the human environment as described above and in the Environmental Assessment. In addition, all beneficial and adverse impacts of the proposed action have been addressed to reach the conclusion of no significant impacts. Accordingly, preparation of an EIS for this action is not necessary.

[signature] 10/6/06

Assistant Administrator for Fisheries, NOAA — Date

William T. Hogarth, PhD.

UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL MARINE FISHERIES SERVICE
1315 East-West Highway
Silver Spring, Maryland 20910

THE DIRECTOR

MEMORANDUM FOR: Rodney F. Weiher, Ph.D.
Chief Economist, NOAA Program Planning and Integration

FROM: William T. Hogarth, Ph.D.
Assistant Administrator for Fisheries

SUBJECT: Finding of No Significant Impact (FONSI) for the Castille Pass Sediment Delivery Project, St. Mary Parish, Louisiana

Based on the subject Environmental Assessment, I have determined that no significant environmental impacts will result from the proposed action. I request your concurrence in this determination by signing below. Please return this memorandum for our files.

1. I concur. ______________ 10/16/06
Date

2. I do not concur. ______________
Date

Attachments

UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
PROGRAM PLANNING AND INTEGRATION
Silver Spring, Maryland 20910

OCT 16 2006

TO ALL INTERESTED GOVERNMENT AGENCIES AND PUBLIC GROUPS:

Under the National Environmental Policy Act, an Environmental Assessment (EA) has been performed on the following action:

TITLE: Castille Pass Sediment Delivery Project

LOCATION: St. Mary Parish, Louisiana

SUMMARY: The Castille Pass Sediment Delivery Project (CWPPRA Project No. AT-04), is funded under the Coastal Wetlands Planning, Protection, and Restoration Act or CWPPRA (16 U.S.C. §§ 777c, 3951-3956). The U.S. Department of Commerce, represented by the National Marine Fisheries Service, is one of five Federal agencies (i.e., the CWPPRA Task Force) responsible for coordinating projects to restore and prevent the loss of coastal wetlands in Louisiana. The other members of the Task Force are: the U.S. Army Corps of Engineers; the U.S. Environmental Protection Agency; the U.S. Department of Interior, represented by the U.S. Fish and Wildlife Service; the U.S. Department of Agriculture, represented by the Natural Resource Conservation Service; and the State of Louisiana. Thus far, over 140 projects have been authorized by the Task Force. As stipulated by CWPPRA, all projects are funded through a grant or cost-share agreement between the sponsoring Federal agency and the Louisiana Department of Natural Resources. A Programmatic Environmental Impact Statement addressing the Louisiana Coastal Wetlands Restoration Plan was prepared by the CWPPRA Task Force and a Record of Decision to proceed with the plan was signed March 18, 1994.

The major goal of CWPPRA is to restore and prevent the loss of coastal wetlands in Louisiana. The Castille Pass Sediment Delivery Project would use dedicated dredged materials to create over 577 acres of wetlands with additional accretion of acres expected after twenty years. The project will improve the quality of Essential Fish Habitat (EFH) by conversion of 523 acres of water bottom and 54 acres of submersed aquatic vegetation to wetlands. Short-term impacts related to construction are considered temporary or reversible. This conclusion is based on a comprehensive review of literature, site-specific data, and project-specific engineering reports related to biological, physical and cultural resources. The natural resource benefits anticipated from implementing this project would enhance and sustain wetland, dune, and swale habitat within the project area. The maintenance of fisheries habitat is expected to have long-term beneficial impacts on the local economy, as it relates to recreational and commercial fishing. All together, these project features will increase the value of the area for local fisheries and are expected to enhance and sustain the area's diverse ecosystem.

RESPONSIBLE OFFICIAL:

William T. Hogarth, Ph.D.
Assistant Administrator for Fisheries
National Marine Fisheries Service
1315 East-West Highway
Silver Spring, Maryland 20910
301/713-2239

The environmental review process led us to conclude that this action will not have a significant effect on the human environment. Therefore, an environmental impact statement will not be prepared. A copy of the finding of no significant impact (FONSI) including the supporting EA is enclosed for your information.

Although NOAA is not soliciting comments on this completed EA/FONSI we will consider any comments submitted that would assist is in preparing future NEPA documents. Please submit any written comments to the responsible official named above.

Sincerely,

Rodney F. Weiher, Ph.D.
NOAA NEPA Coordinator

Enclosure

CASTILLE PASS SEDIMENT DELIVERY PROJECT

Coastal Wetland Planning Protection and Restoration Act Project AT-04

FINAL ENVIRONMENTAL ASSESSMENT

St. Mary Parish, Louisiana

Prepared for:
U.S. Department of Commerce
National Oceanic and Atmospheric Administration
National Marine Fisheries Service

Prepared by:
Tetra Tech EM Inc.
11955 Lakeland Park Blvd. Suite 100
Baton Rouge, LA 70809
(225) 753-4949

March 7, 2006

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Appendix

FIGURES

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ACRONYMS

ADWMA	Atchafalaya Delta Wildlife Management Area
BCG	Brown, Cunningham & Gannuch, Inc.
CASC	Central Administrative Support Center
CEQ	Council on Environmental Quality
CFR	Code of Federal Regulations
CWPPRA	Coastal Wetlands Planning, Protection, and Restoration Act
DOI	U.S. Department of Interior
EA	Environmental Assessment
EFH	Essential Fish Habitat
ft^3/sec	Feet per second ft^3/sec
GMFMC	Gulf of Mexico Fishery Management Council
LDEQ	Louisiana Department of Environmental Quality
LDNR	Louisiana Department of Natural Resources
LDWF	Louisiana Department of Wildlife and Fisheries
LSU	Louisiana State University
MLLW	Mean low water
NEPA	National Environmental Policy Act
NOAA Fisheries Service	National Marine Fisheries Service
NOAA	National Oceanic and Atmospheric Administration
PPL	Priority project list
ppt	Parts per thousand
SAV	Submerged aquatic vegetation
USACE	U.S. Army Corps of Engineers
USC	U.S. Code
USGS	U.S. Geological Survey
WMA	Wildlife Management Area

1.0 INTRODUCTION

This Environmental Assessment (EA) evaluates the impacts of activities to enhance the eastern sub-delta development of the emerging lower Atchafalaya River Delta located in southeast St. Mary Parish, in the Atchafalaya Basin, Louisiana (Figure 1). The Castille Pass Sediment Delivery project (project number AT-04) contains approximately 5,368 acres (2,172 hectares) of shallow open water at latitude 29º41'45" North and longitude 91º26'84" West (personal communication from the National Marine Fisheries Service [NOAA Fisheries Service].

This project is funded by the Coastal Wetlands Planning, Protection, and Restoration Act (CWPPRA) of 1990 (16 U.S. Code (USC) §§ 777c, 3951-3956). In accordance with the 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 USC § 3952 (b) (2)). Federal agencies involved are the U.S. Army Corps of Engineers (USACE); the U.S. Department of Commerce, National Oceanic and Atmospheric Administration (NOAA), NOAA Fisheries Service; the U.S. Department of Interior, Fish and Wildlife Service; the U.S. Department of Agriculture, Natural Resources Conservation Service; and the U.S. Environmental Protection Agency.

These agencies held public forums in coastal Louisiana and developed a comprehensive restoration and protection plan that identifies problems and potential solutions for each basin (Louisiana Coastal Wetlands Conservation and Restoration Task Force 1993a). Each year, the agencies hold public forums to develop an annual priority project list (PPL) of wetland restoration projects to be considered by the Task Force for funding. The Coast 2050 report (Louisiana Coastal Wetlands Conservation and Restoration Task Force and the Wetlands Conservation and Restoration Authority 1998) further documented the problems and proposed solutions, by region, for the state. In Region 3, which includes the project area, Strategy 2 (Maximize land building in Atchafalaya Bay) stated that "Another element of the strategy would be to train a delta lobe to extend toward Four League Bay to protect nearby mainland marshes from storm surges and to increase the amount of sediment available for transit into the marshes from storms." Strategy 15 (Reduce sedimentation in bays) would be addressed by implementing Strategy 2 and the proposed project (Louisiana Coastal Wetlands Conservation and Restoration Task Force and the Wetlands Conservation and Restoration Authority 1998).

The Castille Pass Sediment Delivery project consists of dredging and extending three distributary channels in the East Pass Delta Lobe of the Atchafalaya Delta to promote sub-delta development by improving conveyance of freshwater sediments into the northeastern area of Atchafalaya Bay.

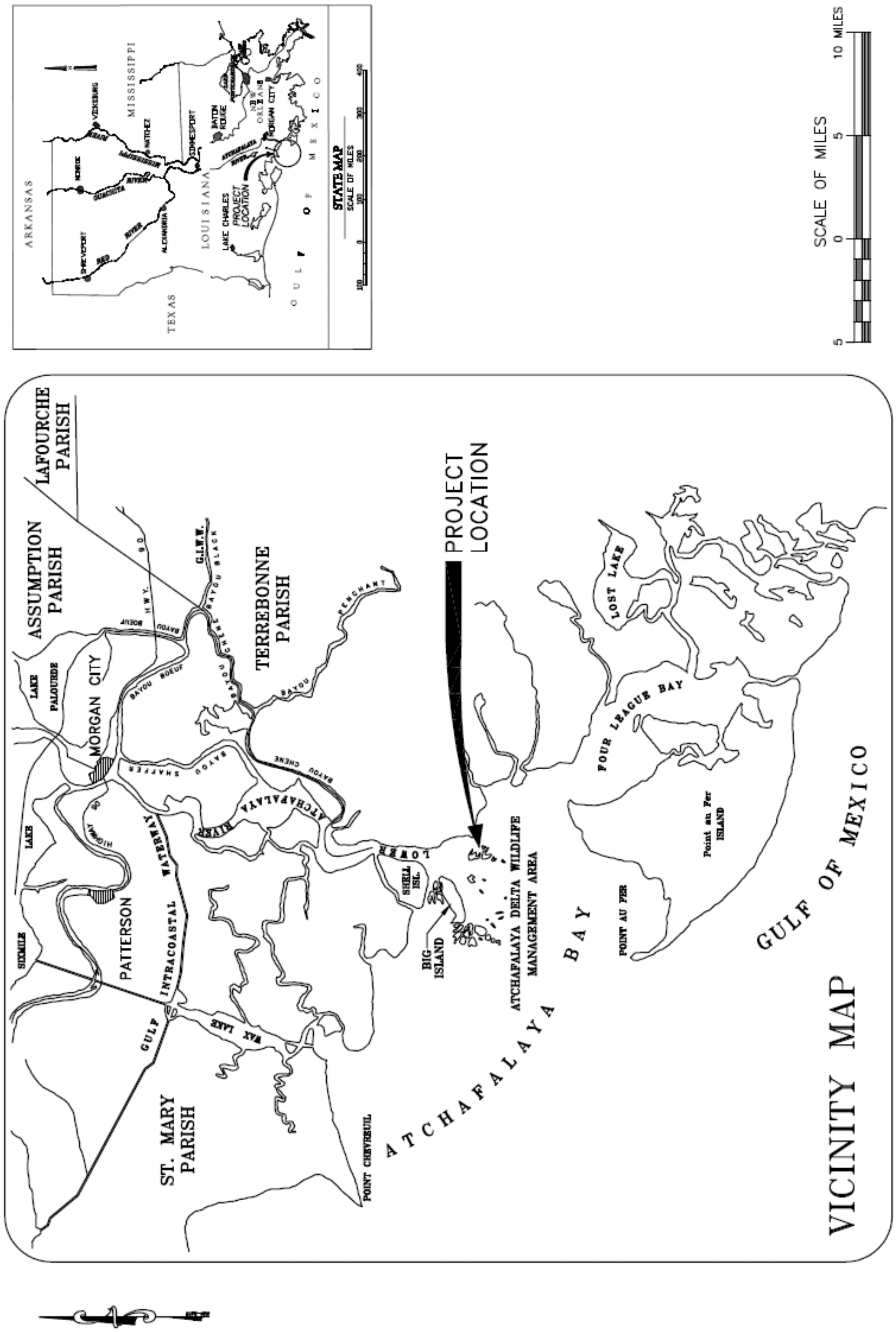

Figure 1 — Vicinity Map
Source: BCG 2004

1.1 PROJECT LOCATION

The Castille Pass Sediment Delivery project is located in the coastal area of south-central Louisiana within Atchafalaya Bay sub-basin of the Atchafalaya River Basin. Atchafalaya Bay sub-basin consists of Atchafalaya Bay and a portion of the Gulf of Mexico south of East Cote Blanche Bay and east of Marsh Island. The State of Louisiana owns the land and water bottom in Atchafalaya Bay (Atchafalaya Delta Wildlife Management Area [ADWMA]), which are leased and managed by the Louisiana Department of Wildlife and Fisheries (LDWF). The project boundary encompasses East Pass; variable depth, open-water areas of Atchafalaya Bay (NOAA Fisheries Service 2005); and Castille Pass and Natal Pass, which are distributaries of East Pass and the Atchafalaya River. Located approximately 18 miles (29 kilometers [km]) south-southwest of Morgan City, the project is bordered on the north by the Atchafalaya River and Mile Island, on the west by the mouth of Deer Island Pass, on the east by Radcliff Pass, and on the south by Atchafalaya Bay (Figure 2).

1.2 PROJECT FUNDING

As directed by the CWPPRA, the Federal Government is funding 85 percent of this project with 15 percent of the cost shared by the Louisiana Department of Natural Resources (LDNR). The project is administered by a cooperative agreement (grant) between the LDNR and the NOAA Fisheries Service. The Castille Pass Sediment Delivery project was funded under authorization of PPL 9 Public Law 101-646, and was selected for Phase I (engineering and design) funding at the Breaux Act Task Force Meeting in January 2000.

1.3 TECHNICAL BACKGROUND

Based on analysis by the U.S. Geological Survey (USGS) (Barras and others 2003), total land loss in Louisiana between 2000 and 2050 is estimated to be 674 sq mi (1,746 sq km) and total land gain 161 sq mi (417 sq km). The land gains are expected to result from the following sources: the CWPPRA projects, 54 sq mi (140 sq km); Caernarvon diversion, 25 sq mi (65 sq km); Davis Pond diversion, 53 sq mi (137 sq km); Atchafalaya Delta building, 14 sq mi (36 sq km); and Mississippi River Delta building, 15 sq mi (39 sq km). Thus, the projected net land loss between 2000 and 2050 is 513 sq mi (1,329 sq km) at an annual rate of 10.26 square miles per year (Barras and others 2003).

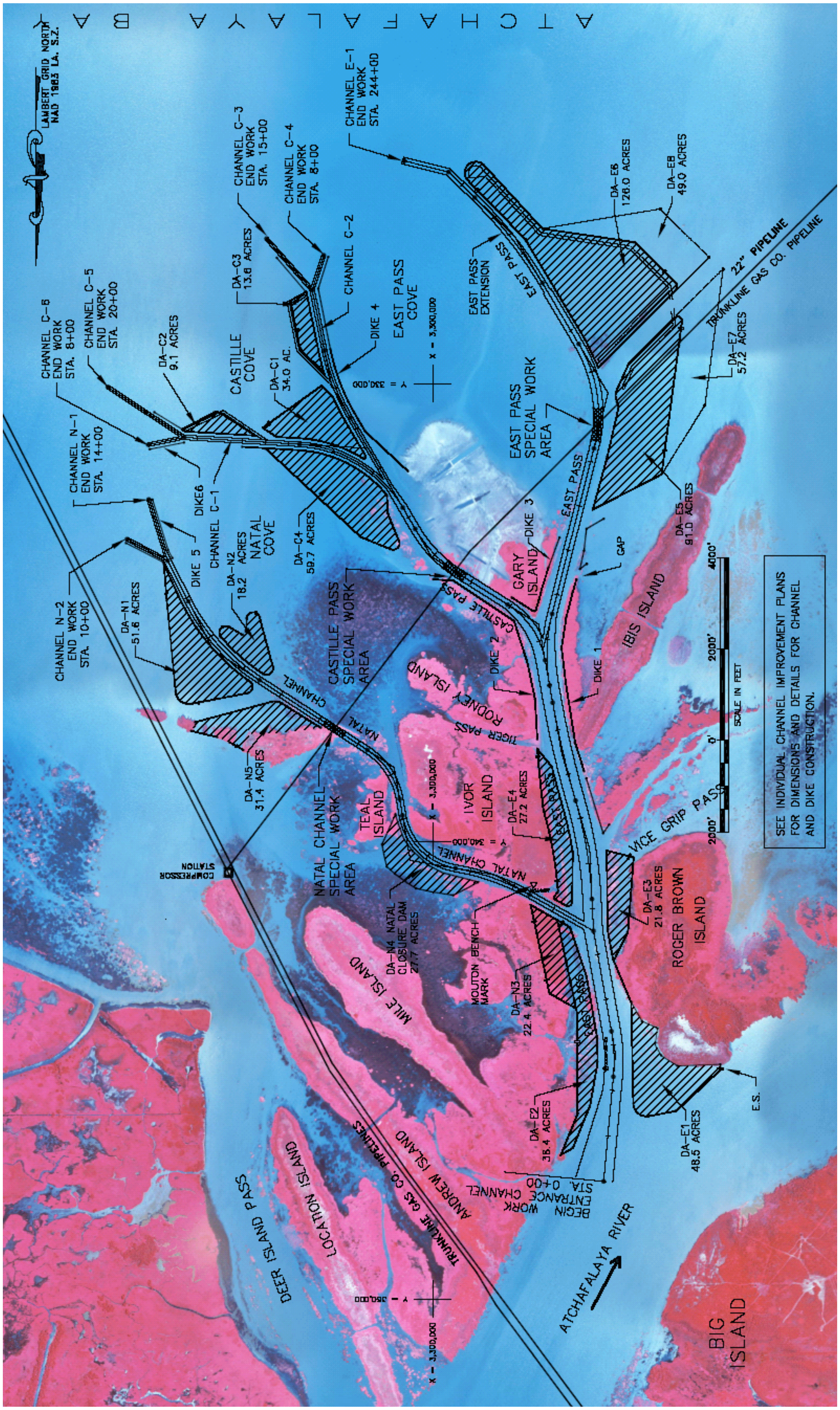

Figure 2 — Project Area Map
(Source: BCG 2005)

The dominant landscape process in coastal Louisiana is the delta lobe cycle (Coleman 1988) consisting of natural periods of wetland creation and wetland loss. The land mass of the deltaic plain was built by a sequence of overlapping deltaic lobes that developed during the last 7,000 years.

A major event affecting sediment distribution in coastal Louisiana is the current channel shift occurring within the Mississippi River Delta complex. In 1900, the Atchafalaya River captured 13 percent of the Mississippi River's flow at the point of convergence near Simmesport, Louisiana, approximately 70 miles northeast of Lafayette, Louisiana (Morgan and others 1953). By 1952, this distributary had captured 30 percent of the combined Red River and Mississippi River flow, and increased sedimentation was observed within the lower Atchafalaya Basin (Adams and Baumann 1980). In 1963, as directed by Congress, the construction of the Old River Control Structure near Simmesport, Louisiana, regulated this increased flow into the Atchafalaya River—maintaining a 30/70 split of the channel flow between the Atchafalaya and combined Red River/Mississippi River during normal river stages. During floods or high river stages, more of the flow can be diverted down the Atchafalaya River.

The increased flow down the Atchafalaya from 1900 to 1952 initially transported abundant prodelta clays into Atchafalaya Bay. This phase was proceeded by deposition of fine sands at the mouth of the Atchafalaya River and Wax Lake Outlet (van Heerden and Roberts 1988). In 1973, a year of record flooding of the Mississippi and Atchafalaya Rivers, the emergence of a subaerial (above water) delta confirmed the presence of a new delta within Atchafalaya Bay (van Heerden and others 1991). Sediment deposition in the new delta is highest during annual flooding events when floodwater discharge into Atchafalaya Bay averages over 400,000 cubic feet per second (ft^3/sec) with a sediment load of 46.9 million tons (Roberts 1980; Roberts 1997). This long-term source of sediment provides for delta expansion and marsh creation throughout the shallow Atchafalaya Bay.

The significance of this new prograding delta is notable when contrasted with the rapid loss of coastal wetlands within coastal Louisiana, especially near or adjacent to the current Mississippi River Delta. Wetlands adjacent to the lower Mississippi River and bird's foot delta represent areas of greatest land loss during the past 40 years (Barras and others 1994). Recent land gain reported within this rapidly subsiding area (Barras and others 1994) is due primarily to deposition of dredged material on spoil banks. Comparatively, much of the land gain within Atchafalaya Bay results from emergence of the prograding subaerial delta. Over 6,800 acres of Atchafalaya Bay bottom have been converted to subaqueous (underwater) delta since 1973 (GoTech and C-K Associates 1996). This continuing deposition of sediment forms an important foundation needed for marsh creation and nourishment. Figure 3 illustrates the delta configuration of 1976 compared to 1999.

Historically, the Atchafalaya River system has been an integral part of regional flood control management, commerce, oil and gas exploration, fish and wildlife management, and recreation (U. S. Environmental Protection Agency 1990). In addition, the freshwater and sediment discharge helps sustain adjacent coastal marshes (Gosselink 1984; Nyman and DeLaune 1991; Randall and Day 1987). For these reasons, state, federal, and university researchers have monitored closely the emergence of the prograding delta. Recent studies suggest that regular maintenance dredging of Atchafalaya Bay channel by the USACE has reduced the rate of natural delta progradation, disrupted the natural sediment delivery systems, and promoted wetlands loss (Roberts 1998).

Atchafalaya Bay Channel runs through the center of the prograding delta. The prograding delta has affected the need for maintenance dredging of Atchafalaya Bay Channel (USACE 1976). As originally authorized by the River and Harbor Act of June 1910 and superseded by the River and Harbor Act of 1968, the New Orleans District Corps of Engineers is responsible for maintaining the Atchafalaya River and Bayous Chene, Boeuf, and Black (USACE 1993). The channel follows a route along reaches of the Gulf Intracoastal Waterway and Bayou Chene, through the Avoca Island-Cutoff Bayou drainage channel to the lower Atchafalaya River, and from there across Atchafalaya Bay to the 20-foot depth contour in the Gulf of Mexico.

The USACE maintains the federally authorized 400-foot wide, 20-foot deep navigation channel in the center of Atchafalaya Bay Channel (Public Law 90-483). The navigation channel supports the largest fabrication area in the state (personal communication, Daniel Whalen, COE). Maintenance dredging of this channel has adversely impacted the natural sediment delivery system of the river by channeling suspended sediment away from secondary distributary channels into deeper and more open waters (GoTech and C-K Associates 1996; van Heerden and others 1991). Water velocity in the dredged channel increases erosion from the banks or heads of newly formed lobes resulting in loss of landmass. In addition, disposal of dredged material on the east and west sides of the channel has reduced or blocked flow through these channels. Thus the east and west migration of sediment through smaller distributary channels is reduced, subsequently reducing the delta building potential of the natural sediment delivery system (Louisiana Coastal Wetlands Conservation and Restoration Task Force 1993a). Because coastal wetlands evolve slowly as a result of annual sediment deposition and organic accumulation (Delaune and others 1987; Nyman and others 1993a, b, and c), a reduction in the volume of sediment and frequency of deposition decreases delta growth and marsh expansion, and may reduce newly created wetlands.

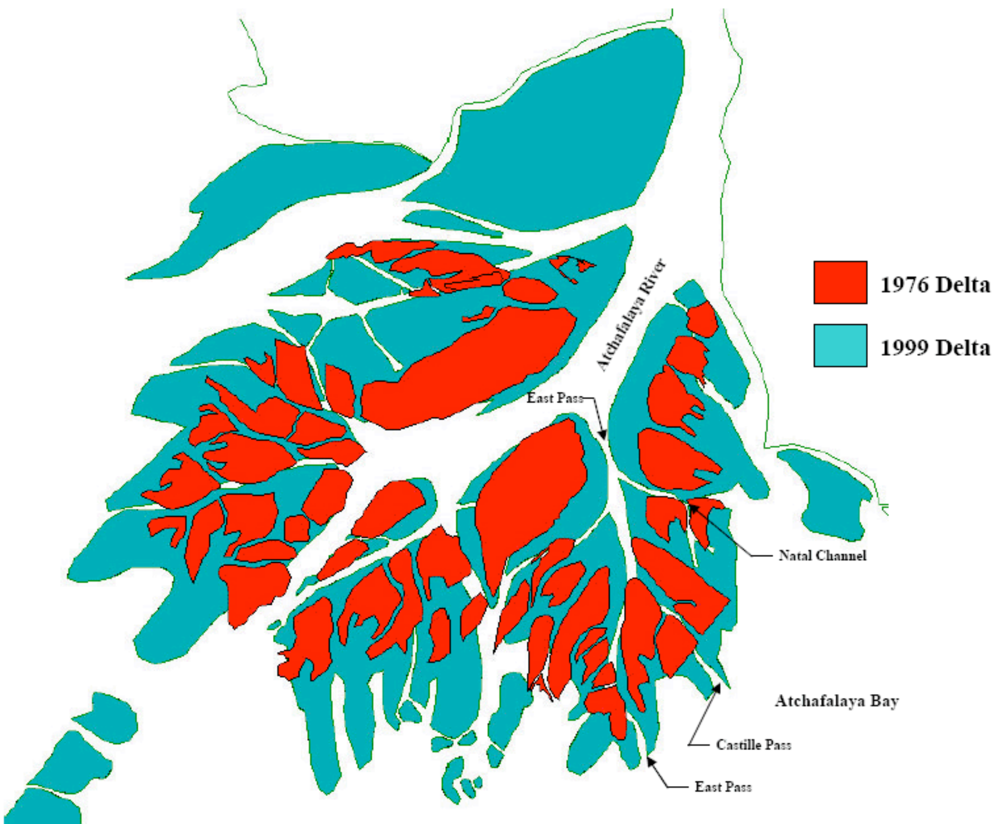

Figure 3 – Delta Comparison (1976 to 1999)
Source: H. Mashriqui Louisiana State University

Between 1978 and 2000, coastal Louisiana continued to lose land at an annual rate of 29.9 square miles per year (Barras and others 2003). While the prograding Atchafalaya Delta represents the most significant area of actual land gain within coastal Louisiana, there are, however, areas of land loss. Previously conducted comparisons of the shapes of islands on aerial photographs from 1978 to 1990 show that the bay or eastern sides of some islands and the submerged aquatic vegetation that surrounded them had decreased. This was substantiated by Barras (as cited in GoTech and C-K Associates 1996) in habitat data from 1978, 1984, and 1988/90 photographs that identified 32, 22, and 50 acres, respectively, of marsh loss in the project vicinity. Some of these changes likely resulted from sediment deprivation due to closure of Natal Pass and Castille/Radcliff Pass. Other losses could be attributed to lack of nourishment during low flood years.

Natural and anthropogenic influences have also decreased delta expansion on the east side of Atchafalaya Bay Channel. Recently formed lobes that face the navigation channel have undergone land loss as a result of erosion. Dredged material was placed at the heads of these lobes beginning in 1987 to mitigate those losses. Unexpectedly, some of this dredged material migrated into secondary channels during seasonal storms and closed these channels (GoTech and C-K Associates 1996). This reduced the easterly (lateral) transport of sediment. Without the transport of sediment and diminished natural riverine flows needed to continue building new marshlands, the area has undergone land loss.

Recognition of reduced potential for delta expansion within Atchafalaya Bay stimulated interest in designed mitigative measures to slow or reverse this trend. As a result, two CWPPRA projects were funded in an effort to improve delta growth, the Big Island Mining Project (AT-03), and the Atchafalaya Sediment Delivery Project (AT-02).

Big Island was constructed on the west side of Atchafalaya Bay Channel by deposition of dredged material. This 1,200-acre island, adjacent to the navigation channel, has elevations of +10 to +12 feet National Geodetic Vertical Datum (NGVD) and no distributary channels. Big Island's size, orientation, elevation, and lack of internal channelization inhibited marsh expansion in the western region of the prograding delta. As a result, the CWPPRA funded construction of a new distributary channel system northwest of Big Island, the Big Island Mining Project (AT-03) in 1994.

The Atchafalaya Sediment Delivery Project (AT-02 project) was completed in 1998. The AT-02 project is located adjacent to and within the proposed project. The purpose of the AT-02 was to promote natural delta development by reopening two silted-in channels and using the dredged sediments to create new wetlands. Approximately 720,000 cubic yards of sediment were dredged from the Natal and Castille

Passes, and strategically placed to create more than 280 acres of new habitat. Over 12,000 feet of channel were reopened, reestablishing water and sediment flow into the eastern part of the Atchafalaya Delta. An additional 1,200 acres of new habitat are expected to be naturally created over the life of the project (Louisiana Coastal Wetlands Conservation and Restoration Task Force 2002). The Castille Pass Sediment Delivery Project shares the purpose of promoting delta development. The proposed project would extend the effort in the AT-02 by including work to Natal Pass, and would extend the area of delta development further eastward and southward of the AT-02 boundary. The Castille Pass Sediment Delivery Project would result in creation of over 577 acres of emergent marshlands directly and increase marsh created through sediment deposition over the 20-year project life (NOAA Fisheries Service 2005).

Observations of subaerial delta expansion within Atchafalaya Bay suggest that placing spoil along the subaqueous mud flat edge at the channel bifurcation could create elevations conducive to establishing wetland vegetation—further enhancing delta lobe development (Day and others 1987). This placement of material would act as a spoil bank. During flood or storm events, water from the channel would flow over this man-made bank and deposit sediment behind the spoil area (due to the reduced velocity of the water). Estimates are that a target spoil-bank elevation of +3.0 feet NGVD would achieve this effect in Atchafalaya Bay (Day and others 1987). Thus, strategic placement of spoil resulting from the proposed dredging activity to create east-west distribution channels could create marsh elevations and enhance delta growth.

1.4 AUTHORIZATION

The NOAA Fisheries Service is the federal sponsor for implementing the Castille Pass Sediment Delivery project that was included on the CWPRRA PPL-9 (see Section 1.0). The sponsor's responsibility includes overseeing the project, conducting this evaluation, and pursuing other activities to comply with the National Environmental Policy Act (NEPA) of 1969.

2.0 PURPOSE AND NEED FOR ACTION

The CWPPRA authorizes federal funds for planning and implementing projects that create, protect, enhance, and restore wetlands in coastal Louisiana. The Castille Pass Sediment Delivery project was proposed and designed to create and nourish marsh in an area of St. Mary Parish.

2.1 PURPOSE

The purpose of this project is to enhance the eastward development of the emerging lower Atchafalaya River Delta and its adjacent coastal wetlands.

2.2 NEED FOR ACTION

The Castille Pass Sediment Delivery project is designed to enhance development of the Atchafalaya Delta. The need to implement the Castille Pass Sediment Delivery project emanates from the project's long-term potential to create and sustain new delta and coastal wetlands in northeastern Atchafalaya Bay. The Atchafalaya River is the primary distributary of the Mississippi River and currently delivers an estimated 46.9 million tons of fine grain sediment annually to the shallow waters and prograding delta of Atchafalaya Bay. This sediment is fundamental for building coastal wetlands and provides the substrate for biological activities.

2.2.1 Evolution of the Mississippi River Delta

The new prograding Atchafalaya Delta marks the beginning of a building process that contributes to a dynamic and productive ecosystem. The proposed sediment delivery project will enhance existing hydrologic influences that continue to build and nourish coastal wetlands.

2.2.2 Mitigation of Dredging Impacts

The proposed project represents a unique opportunity to implement long-term measures that enhance the delta building process, while accommodating maintenance dredging for commercial navigation. Although maintenance dredging has reduced potential for delta expansion, enhancing delta development may minimize the magnitude of these impacts. Unlike the current Mississippi River Delta—where extensive alterations to hydrologic processes were implemented readily and are difficult to alter—mitigative opportunities within the Atchafalaya Delta benefit from its geographic setting and current research that could be implemented during the early phases of delta development.

2.2.3 Protection of Existing Wetlands

Loss of freshwater marshes in coastal Louisiana represents a significant natural resource loss. Implementing the Castille Pass Sediment Delivery project initially would create over 577 acres of freshwater marsh. This new marsh would require approximately 2,100,827 cubic yards of dredged material. The project plan calls for improving four areas of the East Pass Delta Lobe.

The project channel and disposal area design would enhance the hydrologic sediment delivery process so that additional wetlands would continue to evolve during the life of the project (Brown, Cunningham & Gannuch, Inc. [BCG] 2003). The long-term resource benefits of the Castille Pass Sediment Delivery project primarily derive from the natural resource value of the prograding Atchafalaya Delta and its adjacent freshwater marshes.

2.2.4 Protection of Wildlife Habitat

Continued wetland loss in Louisiana reduces habitat availability for many wildlife species. Project area marshes are used heavily by wildlife. Reversing declines in habitat availability for wetland wildlife species requires creating or nourishing existing emergent wetlands, and protecting existing wetlands from erosion.

2.2.5 Protection of Marine Fisheries Habitat

Atchafalaya Bay provides significant habitat for freshwater resident and estuarine dependent fishery species. This estuary provides nursery and foraging habitat that supports production of valuable commercial and recreational fish and shellfish. The prograding delta, with its freshwater influences, represents a source of energy and nutrients that contributes to the productivity of coastal marshes throughout central coastal Louisiana.

2.2.6 Protection of Infrastructure

Protection from hurricanes and storms provided by coastal wetlands and barrier islands off the Louisiana coast is well documented (USACE 1985). Atchafalaya Bay, with its prograding delta, provides critical protection to inland populations by buffering the effects of storm surges and subsequent flooding associated with hurricanes and tropical storms.

No state or parish roads exist within the project area; however, a 22-inch pipeline transects the project area. Oil and gas activity in the project vicinity includes 106 oil and/or natural gas wells (Louisiana Coastal Wetlands Conservation and Restoration Task Force and the Wetlands Conservation and Restoration Authority 1999).

3.0 ALTERNATIVES

Water and sediment flows for all alternatives were modeled using a hydrodynamic model of the lower Atchafalaya River developed by Louisiana State University (LSU). Maintenance dredging of the Atchafalaya River Navigation Channel is expected for all alternatives, including the no action alternative. Results of the modeling are in Appendix F of the Final Design Report (BCG 2005). The purpose of the model was to determine what design features would provide an increase in fresh water and sediment flow into the project area. The features that resulted in the greatest increase in flow were selected as an alternative to no action. The maximum average flow diversion into East Pass was intuitively determined to be roughly 10%-12% of the Lower Atchafalaya River flow. This flow diversion range was deemed to be the maximum that would not significantly impact the Atchafalaya River Navigational Channel based on previous experience (BCG 2003).

3.1 ALTERNATIVES CONSIDERED BUT REJECTED

Several types of channel improvements, including alterations to the length, width, depth, and alignment of the channels, were modeled. Model predictions of the average diversion flow into East Pass were less than desired the maximum average diversion flow range of 10 to 12 percent when considering features without dams. Other considerations included strategic placement of three dams to cut off flow at selected bifurcations within East Pass, Natal Pass, and Castille Pass.

Dams were considered because they were expected to divert more flow through the improved channels. For example, a closure dam within the southwest bifurcation channel at the existing mouth of East Pass would redirect all channel flow toward the east via the new extension channel. A closure dam could be constructed across the existing outlet channel at Teal Island. This closure dam would redirect the Natal Pass flow towards the southeast alignment of the improved Natal Pass and towards the project target area of Natal Cove. A closure dam could also be constructed across the natural mouth of Castille Pass to redirect all channel flow toward the east via the new extension channel.

Even with the dams, model predictions of the average diversion flow into East Pass were less than the maximum average diversion flow range of 10 to 12 percent. All combinations of channel modifications to width, length, depth, and alignment of Castille and Natal Pass, with or without dams, resulted in inadequate (insignificant) flows, and were eliminated from further consideration (BCG 2003).

3.2 ALTERNATIVES, INCLUDING THE PREFERRED

3.2.1 No-Action Alternative

The no-action alternative considers not constructing the proposed project. It has been estimated that the mouth of East Pass receives 7 percent of the Atchafalaya flow. The no action alternative would not change the current narrow “V” shaped entrance that is approximately 250 ft wide and –9.0 feet NGVD deep. East Pass would continue to shallow from the existing –5 feet depth at the confluence of Castille Pass due to siltation. The lobe areas northeast of East Pass have grown much slower than those lobes to the west side of the river and to the west of East Pass. Slow or diminishing growth would continue with no action.

As previously discussed, maintenance dredging of the Atchafalaya River Navigation Channel has adversely impacted the natural sediment delivery system of the river by channeling suspended sediment away from secondary distributary channels into deeper and more open waters (GoTech and C-K Associates 1996; van Heerden and others 1991). Disposal of dredged material on the east and west sides of the channel has reduced or blocked flow through these channels. Thus, east and west migration of sediment through smaller distributary channels has been reduced, subsequently reducing the delta building potential of the natural sediment delivery system (Louisiana Coastal Wetlands Conservation and Restoration Task Force 1993a).

3.2.2 Preferred Alternative: Channel Improvements with Dams and Deepened East Pass Channel

The Preferred Alternative includes five components: (1) East Pass Entrance Improvements, (2) East Pass Channel Enlargements, (3) East Pass Extension, (4) Natal Pass Channel Improvements, and (5) Castille Pass Channel Improvements. The 95% design report provides details on the design features (BCG 2005). Modeling of the preferred alternative indicated that flow diversion would increase to approximately 10 percent, resulting in a flow increase of approximately 40 percent down East Pass. This is the preferred alternative because it would most efficiently sustain delta building in the project area. Each of the five components of the preferred alternative is described below.

East Pass Entrance Improvements

The existing entrance to East Pass at the Atchafalaya River has a restricted channel cross-section consisting of two point bars and a narrow "V" shaped channel width of approximately 250-feet with a bottom elevation of minus 9.0 feet. The entrance channel would be widened into a ramped transition channel to enhance the capture of sediment transported into East Pass. The transition channel consists of an 800-foot wide bottom beginning at the minus 15-foot contour in the Atchafalaya River and transits to a 400-feet wide bottom at elevation minus 10.0 feet within 2,000 feet along the channel centerline, to Station 20+00 as shown on Drawing No. 6 of the plans included with the final design (BCG 2005). The construction of this entrance channel would require dredging approximately 129,856 cubic yards.

Material dredged from the entrance of the channel would create 48.5 acres of shrub/scrub at elevation +2.5± feet to provide a high bank. The disposal area would concentrate flows into the ramped channel.

East Pass Channel Enlargements

The East Pass improvement plan consists of a channel enlargement to a 400-foot wide bottom width at elevation minus 10.0 feet for approximately 9,670 linear feet between the entrance channel improvement and the existing confluence of Castille Pass. In this reach, it is estimated that approximately 202,030 cubic yards of material would be dredged to enlarge East Pass.

Downstream of the East Pass/Castille Pass confluence, the preferred alternative requires improving East Pass by dredging a channel with a 200-foot wide bottom width at elevation minus 10.0 feet for a distance of approximately 6,400 linear feet. In this reach it is estimated that 268,790 cubic yards of material would be dredged to create the channel design cross section.

Dikes with a top elevation of +4.0 feet would be placed along both banks of East Pass to train the flood flows toward the project extension channel and cove area. Where appropriate, gaps would allow for tidal circulation to prevent stagnation of back marsh areas.

The placed material is expected to subside up to 20 percent as it dries and compacts in the first year. The estimated acreage of marshland to be created in the disposal areas of the enlargement segment of East Pass are as follows:

Disposal Area	Intertidal Marsh Creation	Shrub/Scrub Marsh Creation
DA-E1		48.5 acres
DA-E2	36.4 acres	
DA-E3	21.8 acres	
DA-E4	27.2 acres	
DA-E5	91.0 acres	
Subtotal of Marsh Creation	176.4 acres	48.5 acres

East Pass Channel Extension

The existing mouth of East Pass has a natural bifurcation with an emergent lobe island forming, characteristic of natural delta growth. The project would extend the eastern branch channel approximately 6,400 linear feet to form East Pass Cove; no work is planned for the Southwestern Branch channel. Based upon the project survey, the East Pass thalweg shoals to an elevation of minus 5.0 feet downstream of the confluence with Castille Pass. The East Pass channel between Castille Pass and its existing mouth would be deepened by constructing a 200-foot wide bottom channel at elevation minus 10.0 feet to remove shoaling. A new channel extension, 200 feet wide to elevation minus 10.0 feet, would begin at the east branch channel, curve towards the southeast, then extend approximately 1,930 linear feet into Atchafalaya Bay. The channel width would then be reduced to 150-feet for the 4,400-feet extension.

The East Pass Extension channel is designed to direct East Pass flows towards the east into the northern areas of Atchafalaya Bay. A new cove area, named East Pass Cove, would be created between the extensions of East Pass and Castille Pass. The intent of this overall configuration is to concentrate sediment flows from the East Pass Extension channel into this new cove area to accelerate accretion of the suspended solids into this newly formed area. Over the life of the project it is expected that as much as 50 percent of this bay area will develop into emergent, subaqueous and tidal marsh with the bottom elevations varying from 0.0 foot to minus 1.0 foot within the 20-year project life. The eastern side of the cove is reserved by the USACE for a future dredge disposal site for their navigation channel maintenance dredging program. The estimated volume of required dredging to construct the improvements of the extension reach of the East Pass channel is 363,410 cubic yards.

Along the extension of the East Pass channel, a dike would be constructed on the right descending bank to create a cove to the north of the East Pass Extension channel. This dike would be gapped just north of the disposal area at Ibis Island to prevent stagnation of the area west of the East Pass Extension channel. Details of dike construction using cast fill construction with a geotextile fabric base are depicted on Drawing No. 24 of the plans included with the final design (BCG 2005).

The estimated 565,782 cubic yards of material dredged to construct the improvement of the East Pass channel would be placed in a disposal area to create 126 acres of intertidal marsh acreage. No dikes would be constructed along the left descending bank of the East Pass Extension channel, allowing the water flowing in the East Pass extended channel to sheet flow into the new cove created between the extensions of Castille Pass and East Pass. The hydrodynamic modeling shows low velocity vectors trending to the east across the cove that are expected to accelerate accretion and promote the growth of emergent marsh in the area. For the East Pass Cove, the accretion predictions are 29,935 cubic yards per year, or 598,700 cubic yards over the 20-year project life. The average depth of accretion over the entire East Pass Cove area is predicted to be 3.3 inches at end of the 20-year project life.

Natal Pass Channel Improvements

Project design surveys confirmed extensive shoaling since 1998 in this previously dredged portion of Natal Channel. The shoaling necessitates re-dredging of this segment of Natal Channel to increase sediment delivery to Natal Cove. As such, the proposed project calls for dredging a 150-foot wide bottom channel to elevation minus 10.0 feet for the portion of Natal Channel from East Pass to the 22-inch Trunkline Pipeline.

The proposed project improvement for the Natal Channel consists of a channel with a bottom width of 150-feet at elevation minus 10.0 feet for a distance of 8,680 linear feet, starting at East Pass and ending at the 22-inch pipeline crossing. This same channel section would then be extended beyond the 22-inch Trunkline Pipeline toward the southeast into the bay area for an additional 4,231 linear feet to, where the channel bifurcates into two 75-foot channels, N-1 (1,400 linear feet) and N-2 (1,000 linear feet) at elevation minus 10.0 feet.

The Natal Channel disposal area would function as a closure dam to the open waterway north of Teal Island (see Drawing No. 13 in Appendix A). This closure dam would redirect the Natal Channel flow toward the southeast alignment of the improved Natal Channel and toward the project target area of Natal Cove. The estimated total quantity of dredging to construct the Natal Channel Improvements would be 516,794 cubic yards.

The estimated acreage of marshland that would be created from construction of the five Natal Channel disposal areas is as follows:

Disposal Area	Intertidal Marsh Creation
DA-N1	51.6 acres
DA-N2	18.2 acres
DA-N3	22.4 acres
DA-N4	27.7 acres
DA-N5	31.4 acres
Subtotal of Marsh Creation	151.3 acres

No dike would be constructed along the right descending bank of the channel extension of Natal Channel, allowing water flowing in the Natal Channel Extension to sheet flow into the new cove created between the extensions of Castille Pass and Natal Channel. The hydrodynamic model shows low velocity vectors trending across the cove, which is predicted to accelerate accretion and develop a future emergent marsh area herein.

Accretion predictions for the Natal Channel Cove are 18,412 cubic yards per year, or 368,240 cubic yards over the 20-year project life. The average depth of accretion over the entire Natal Channel Cove area is predicted to be 3.3 inches at end of the 20-year project life.

Castille Pass Channel Extension Improvements

The proposed improvements to Castille Pass consist of a 200-foot wide bottom at elevation minus 10.0 feet from the confluence with East Pass for approximately 5,248 linear feet to the mouth of Castille Pass. At the mouth of Castille Pass, two new bifurcation channels would be created. The eastern bifurcation channel would extend into the open bay to the east approximately 5,278 linear feet at which point two secondary bifurcation channels are proposed: C-6 with a length of 800 linear feet and C-5 with a length of 2,000 linear feet. The southern bifurcation channel would extend into the open bay to the south approximately 5,204 linear feet, at which point two secondary bifurcation channels would be built: C-3 with length of 1,500 linear feet and C-4 with length of 800 linear feet. The two main branch channels, C-1 and C-2, would be constructed with 100-foot wide channel bottoms at elevation minus 10.0 feet. The four secondary branch channels C-3 through C-6 would be constructed with 75-foot wide channel bottoms at elevation minus 10.0 feet (see Drawing 19 in Appendix A of BCG [2005]).

The construction of the branch channels C-1 and C-2 would create Castille Cove. A continuous dike along the right descending bank of the C-2 channel would direct the C-2 channel flow into Castille Cove through a gap between two disposal areas. The C-1 channel would flow into Castille Cove through a gap between two other disposal areas. A 1,000-foot wide gap in the diking of the Channel C portion of Castille Pass would provide water circulation in the northeastern portion of the existing marsh areas on the outside of Castille Cove.

The total estimated quantity of material to be dredged to construct the improvements is 619,947 cubic yards. The estimated acreage of marshland that would be created from construction of the Castille Pass disposal areas are shown below:

Disposal Area	Intertidal Marsh Creation
DA-C1	34.0 acres
DA-C2	9.1 acres
DA-C3	13.6 acres
DA-C4	59.7 acres
Subtotal of Marsh Creation	116.4 acres

If the preferred project were built, low velocity vectors trending across Castille Cove would likely accelerate accretion and promote growth of a future emergent marsh area. For Castille Cove, the accretion predictions are 2,161 cubic yards per year, or 43,220 cubic yards over the 20-year project life. The average depth of accretion over the entire Castille Channel Cove area is predicted to be 0.71 inch at end of the 20-year project life.

4.0 AFFECTED ENVIRONMENT

4.1 PHYSICAL ENVIRONMENT

4.1.1 Geology, Soils and Topography

Atchafalaya Bay, with an average depth of 5 feet, is the predominant feature of the Atchafalaya estuary and contains two young active deltas located at the lower Atchafalaya River and Wax Lake Outlet. The Atchafalaya River is a major distributary of the Mississippi River, carrying about 30 percent of the combined Red River and Mississippi River flow to the coast (USACE 1993). For the past 10 years, approximately 62 percent of the 236,000 ft^3/sec average daily flow has been conveyed by the lower Atchafalaya with the remainder flowing through Wax Lake Outlet (Louisiana Coastal Wetlands Conservation and Restoration Task Force 1993b). The subaqueous delta began to form at the mouth of the lower Atchafalaya River between 1952 and 1962 with introduction of silts and fine sands to the bay. Since that time, sands have been prograding over finer delta clays and silts, and marshlands have expanded rapidly in Atchafalaya Bay (Roberts and van Heerden 1982). Delta growth, however, has been adversely affected by erosive storm events (van Heerden 1983) and the presence of a few large spoil disposal areas. By 1972, the underwater delta front advanced to the Point au Fer shell reef. The spring flood of 1973 produced the first natural subaerial growth in the delta (Louisiana Coastal Wetlands Conservation and Restoration Task Force 1993b). The delta complex includes more than 12.5 sq mi of marshlands that have developed within Atchafalaya Bay since 1972 (van Heerden and others 1991). This prograding delta has affected the regional hydrologic regime by reducing the storage capacity of Atchafalaya Bay and confining water movement over a smaller surface area. Water circulation patterns have been altered, and freshwater influence in the general vicinity has increased. The combined subaerial expression is now some 17,300 acres and represents the largest area of natural wetland growth in Louisiana (van Heerden 1994).

The relatively flat inner continental shelf of the Atchafalaya Delta is conducive to sediment deposition and deltaic expansion unlike the seaward transport of sediments to the deeper continental slope off the Mississippi River (Boesch and others 1994). Approximately 40 percent of the suspended sediment entering the bay is deposited in the delta. Sediments in Atchafalaya Bay are predominantly well-sorted, silty sand, and sandy silt overlying prodelta clays. The delta front and distributary mouth bar deposits are primarily sands. The interior of the subaerial lobes consists of finer silts and clays deposited as a result of an influx of finer sediments (Louisiana Coastal Wetlands Conservation and Restoration Task Force 1993b). Re-suspension by storm waves enhances redistribution in the shallow waters of Atchafalaya Bay. Sediment that bypasses the Atchafalaya and Wax Lake Outlet deltas is deposited on the shelf seaward of the bay or is pushed westward by long-shore currents (van Heerden 1994).

4.1.2 Climate and Weather

The Atchafalaya River Delta area has a hot subtropical climate characterized by long, hot, and humid summers, and short, mild, and humid winters. Average temperatures range from 88° to 90° Fahrenheit (F) from May through October. Temperatures of 90° F or higher occur approximately 100 days between May and October with an average humidity of 62 percent.

Winter temperatures between November and April average 69° F with relative humidity between 30 and 85 percent. Cold spells usually last three days due to the dominance of warm Gulf air moving inland from the coast year round. A winter temperature of 32° F or less is expected 15 days per year with a 20 percent chance of temperatures falling below 20° F during the winter.

Copious rains fall throughout the year as dominant coastal air masses move inland and mix with continental air. Average annual rainfall is 62 inches per year, and heavy thunderstorms occur frequently. Less rainfall usually occurs in the fall months, and snow only occurs at intervals of decades.

4.1.3 Air Quality

Air quality over the delta is good. Air masses are highly unstable in this area due to coastal activity. No industrial or automotive air emissions are in the project area.

4.1.4 Surface-Water Resources

Water Quality

The quality of surface waters within the Atchafalaya Basin is good. Data from 1998 obtained from the Louisiana Department of Environmental Quality (LDEQ) rates the surface waters of Atchafalaya Bay and Delta and Gulf waters to the 3-mile limit as an estuary adequate for primary contact recreation, secondary contact recreation, and oyster propagation. The LDEQ considers these waters as only partially supporting fish and wildlife propagation. Suspected causes of impairment are mercury and metals, with their suspected sources being atmospheric deposition and other unknown sources (Louisiana Department of Environmental Quality 2000). Isolated areas of oil and gas exploration, and agricultural runoff of fertilizer and pesticides in the upper basin, cause some concern for water quality. These influences appear to be isolated and do not affect significantly the overall water quality of the basin.

Atchafalaya Delta Wildlife Management Area personnel reported cases of avian botulism in the vicinity of new spoil areas between November 1993 and March 1994. However, the causal mechanism was not determined. More than 600 dead ducks—mainly green-winged teal (*Anas crecca carolinensis)*—were collected along with 196 other birds, primarily small sandpipers (GoTech and C-K Associates 1996).

Salinity

The Atchafalaya Basin shows markedly little variation in salinity compared to other regions in coastal Louisiana (Boesch and others 1994). Large amounts of fresh water continue to pass through the system. Heavy flows from the Atchafalaya River limit salt water intrusion, except during hurricanes. During most of the year, the salinity is typically below 0.5 parts per thousand (ppt) in the lower Atchafalaya River. Prevailing seasonal winds and entrainment of diluted Gulf waters are secondary modifiers of the salinity isohalines (Orlando and others 1993). When hurricanes hit near the mouth of the Atchafalaya River, as did Hurricane Rita in September 2005, salt water is pushed well into the interior of the Atchafalaya delta. Post-storm reconnaissance surveys of the project site have not been completed at the time of this writing.

From February 1994 through March 1998, average monthly salinity at seven stations throughout the Atchafalaya Basin was 1.15 ppt (Champion 2003). The highest salinity, 10.8 ppt, was recorded on September 19, 1995. Other spikes over 5 ppt occurred in October 1994, September 1995, April 1996, and September 1997. The lowest salinity recorded, 0.04 ppt, occurred on May 24, 1994.

4.1.5 Storm and Flood Protection

The Atchafalaya Delta is the southernmost land area in St. Mary Parish and acts as the first line of defense against seasonal cyclonic storms. On August 26, 1992, Hurricane Andrew made landfall directly over the headquarters of the ADWMA, which is located on an island southwest of Big Island on the western side of Atchafalaya Bay Channel. Hurricane Andrew moved approximately 2 million cubic yards of sediment into the Chene, Boeuf, and Black Navigation Channel in August 1992 (Louisiana Coastal Wetlands Conservation and Restoration Task Force 1993b).

The landscape of Atchafalaya Bay constantly changes due to Atchafalaya River stages, subsidence, cold fronts, waves and currents, and human activities (especially maintenance dredging). During flood years, island growth occurs with channel extension, bifurcation, and initiation of narrow and sinuous overbank channels. Small channels fill with fine-grained sediment and gradually coalesce into small subaerial lobes (van Heerden and others 1991).

Winter storm fronts and hurricanes significantly impact water-surface elevations in Atchafalaya Bay. During these events, winds approach the project area from the south (Gulf). The winds preceding the frontal passage increase water elevation in the bay. As the front passes, winds and water surface gradient push the water out of the bay, causing a decrease in water level that exposes much of the delta front to wave action. Subaerial land in the delta is lost primarily during the winter months as a result of these storm fronts (van Heerden and Roberts 1988). The eroded sediment either remains in the subaqueous portion of the delta and provides a base for future subaerial propagation or is swept from the bay by waves, tides, and riverine currents. In this process, storms rework the delta sediments in Atchafalaya Bay. It is not known to what extent Hurricane Rita altered bathymetry in the project area. A pre-construction survey will confirm water depths in the area.

4.2 BIOLOGICAL ENVIRONMENT

4.2.1 Vegetative Communities

The vegetative community has increased substantially due to disposal off maintenance dredged material and previous restoration projects like AT-02. An additional 1,200 acres of new habitat are expected to be naturally created during the 20-year project life of AT-02 (Louisiana Coastal Wetlands Conservation and Restoration Task Force 2002). In addition, 34 acres of marsh are expected to be created by the USACE in the near future (NOAA Fisheries Service 2005). Material removed from the Lower Atchafalaya River during maintenance dredging in 2005 will be placed to create wetlands or bird islands at an existing, 835-acre upland, confined disposal area to avoid emergent marsh (USACE 2004).

Project area habitat includes freshwater marshes and open water, as well as spoil banks. Vegetative types range from freshwater to upland species on spoil banks, with typical transitional, wetland, and submerged aquatic vegetation in the marsh and open-water areas.

In a developing delta, environmental processes, such as deposition, erosion, sedimentary compaction, subsidence, and levee flank depression, control plant invasion and growth. Sasser and Fuller (1988) noted that physical and biotic characteristics that appear important for establishing plant associations in the Atchafalaya are elevation, sediment deposition rate, sediment grain size, and herbivore activity. Their studies of vegetation in the Atchafalaya Delta reported three general patterns of vegetation:

(1) Species that increased over time and converged on certain elevational zones—water willow (*Justicia ovata*), elephant ear (*Colocasia esculenta*), rice cut grass (*Leersia oryzoides*), smartweed (*Polygonum punctatum*), American bulrush (*Scirpus americanus*), and cowpea (*Vigna luteola*).

(2) Species that are relatively stable over time with elevational shifts attributable to local erosion or accretion—black willow (*Salix nigra*), sensitive jointvetch (*Aeschynomene indica*), spikerush (*Eleocharis* sp.), maidencane (*Panicum* sp.), bulltongue (*Sagittaria falcata*), softstem bulrush (*Scirpus validus*), and cattail (*Typha domingensis*).

(3) Species present over a wide range initially, but eventually disappearing at low elevations—wapato (*Sagittaria latifolia*), purple ammannia (*Ammannia coccinea*), sedge (*Cyperus difformis*), pennywort (*Hydrocotyle* sp.), climbing hempweed (*Mikania scandens*), delta duckpotato (*Sagittaria platyphylla*), and chicken spike (*Sphenoclea zeylanica*).

Bulltongue, wapato, and delta duckpotato marsh were the most important components of wetland habitat in the Atchafalaya Delta throughout the 1970s (Montz 1978) and early 1980s, but later declined sharply. By 1986, only 20 percent of vegetated land was bulltongue, wapato, and delta duckpotato marsh (Sasser and Fuller 1988). Perennial species, such as, American bulrush, softstem bulrush, water willow, and rice cutgrass replaced the annual bulltongue, wapato, and delta duckpotato marsh species. Black willow on the highest elevations and cattails on intermediate elevations were relatively stable through time. Though Delta duckpotato dominates low intertidal marsh on the protected side of delta islands, wapato replaces it at slightly higher elevations (Johnson and others 1985). American bulrush grows at higher elevations and is generally more abundant on island "flanks" along secondary river channels. Cattails and bulltongue are found in areas with an intermediate percentage of sand and at intermediate elevations.

The LDWF 1993-94 Annual Report states that the ADWMA comprises approximately 137,000 acres of which vegetative communities have colonized nearly 20,000 acres. During times of low water, extensive mud flats are exposed (LDWF 1993). The delta formation on the eastern side of the Atchafalaya River Navigation Channel encompasses approximately 1,900 acres (Figure 3). Vegetative composition depends on the age and general pattern of delta formation, ranging from willows on higher elevations to bulltongue, wapato, and delta duckpotato marsh species in areas above mean low water. Newly created spoil islands often do not become vegetated for about a year and serve as nesting habitat for shore birds.

4.2.2 Essential Fish Habitat

This resource has statutory significance because of the Magnuson-Stevens Fishery Conservation and Management Act (Magnuson-Stevens Act) of 1996 (P.L. 104-297) intended to promote the protection, conservation, and enhancement of Essential Fish Habitat (EFH). The EFH designation is an important component of building and maintaining sustainable marine fisheries through habitat protection. The Magnuson-Stevens Act defines EFH for federally-managed fish species as "those waters and substrate necessary to fish for spawning, breeding, feeding or growth to maturity." A summary of EFH requirements for species managed by the Gulf of Mexico Fishery Management Council (GMFMC) that may occur in the project area is provided in Table 1. Primary categories of EFH that could be impacted as a result of the proposed restoration effort include, but are not limited to, estuarine wetlands (for example, marsh edge, inner marsh, marsh ponds, and tidal creeks); submerged aquatic vegetation; mud, sand, shell, and rock substrates; and estuarine water column.

TABLE 1

SUMMARY OF MAGNUSON-STEVENS FISHERY CONSERVATION AND MANAGEMENT ACT (P.L. 104-297) DESIGNATION OF ESSENTIAL FISH HABITAT FOR THE ATCHAFALAYA BAY

Species	Life Stages	Categories of EFH
Brown shrimp *Farfantepenaeus aztecus*	Postlarvae/Juveniles	Marsh edge, submerged aquatic vegetation (SAV), tidal creeks, inner marsh, shallow open water
	Subadults	Mud bottoms, marsh edge
White shrimp *Litopenaeus setiferus*	Postlarvae/Juveniles, Subadults	Marsh edge, SAV, marsh ponds and channels, inner marsh
Red drum *Sciaenops ocellatus*	Postlarvae/Juveniles	SAV, mud bottoms, marsh-water interface
	Subadults, Adults	Mud bottoms

4.2.3 Fishery Resources

The freshwater marshes of the project area provide nursery and forage habitat for numerous recreationally and commercially important finfish, mollusks, and crustaceans. In addition, thermal, predator, and water quality refugia are provided by sub-delta islands, disposal areas, and breaches in containment dikes of the project area in the cold winter months of the year and during hurricanes. Field studies have shown that the potentially negative effect on fisheries of cold fresh water discharge into the Atchafalaya Bay is mitigated by sub-delta islands that have developed along the main navigation channel (Thompson and Deegan 1983). These naturally emergent islands provide a buffer from cold water, creating thermal refugia for young-of-the-year and juveniles rearing in the delta. Field measurements of water temperature in streamside marshes and backmarsh areas showed a difference of 3degrees Celsius in spring, when cold water discharge into the main navigation channel is high (Castellanos and Rozas 2001). The value of the delta as nursery grounds is directly related to the physical protection offered by the islands (Thompson and Deegan 1983). Several species of abundant forage fish, including sheepshead minnow (*Cyprinodon variegatus*) and rainwater killifish (*Lucania parva*), as well as the commercially important blue crab (*Callinectes sapidus*), are associated with the vegetated backmarsh side of the sub-delta islands near the project area (Castellanos and Rozas 2001). Fishes and crustaceans were shown to be equally common in submerged aquatic vegetation and emergent marsh near sub-delta islands, in contrast to much lower abundances in unvegetated areas nearby (Castellanos and Rozas 2001). The role of vegetation in fostering growth of juvenile and young-of-the-year is complex: vegetation can reduce predation on small fishes, provide substrate for the invertebrate prey of small fishes, reduce flow rates that can displace small fishes, and enhance water quality by decreasing settling time of suspended sediment.

Commercially fished species that use the Atchafalaya Bay near the project area include brown shrimp, white shrimp, and gulf menhaden (*Brevoortia patronus*). These resources are species of national economic importance in accordance with Section 906(e)(l) of PL 99-602, the Water Resources Development Act of 1986. Sport fishes include black drum (*Pogonius cromis*), red drum, southern flounder (*Paralichthys lethostigma*), largemouth bass (*Micropterus salmoides*), and channel catfish (*Ictalurus punctatus*). Nearly all of these species vary in abundance from season to season because of their migratory life cycles, habitat preferences according to life stage, and variation in salinity (Herke 1978; Rogers and others 1993; Louisiana Coastal Wetlands Conservation and Restoration Task Force and the Wetlands Conservation and Restoration Authority 1999).

4.2.4 Wildlife Resources

Wildlife resources in the project area include game and non-game animals and commercially important furbearers and alligators. A great variety of resident and migratory birds, including waterfowl, traverse the Mississippi Flyway.

Brown pelican (*Pelecanus occidentalis*), bald eagle (*Haliaeetus leucocephalus*), wading bird, waterfowl, and American alligator (*Alligator mississippiensis*) populations have increased over the last 10-20 years. Populations of seabirds, nutria (*Myocastor coypus*), muskrat (*Ondatra zibethicus*), and other furbearers have remained stable, and are projected to remain stable through 2050. Brown pelican and American alligator populations are projected to increase.

The fresh to intermediate marshes found in the Atchafalaya Delta provide habitat for nutria, raccoon (*Procyon lotor*), puddle ducks (*Anas* sp.), and alligator. Muskrat, mink (*Mustela vison*), and river otter (*Lutra canadensis*), game such as white-tailed deer (*Odocoileus virginianus*), rabbit (*Sivilagus* sp.), squirrel (*Sciurus* sp.), and snapping turtle (*Macroclemys temminck*) occur in the vicinity of the project area (McNease and Joanen 1978; Palmisano 1973).

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*], American wigeon [*Anas americana*]), 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 15 inches (40 centimeters) deep, and diving ducks feed in deeper water (Condrey and others 1995).

4.2.5 Threatened and Endangered Species

The threatened Louisiana black bear (*Ursus americanus luteolus*) is primarily associated with forested wetland; however, it utilizes a variety of habitat types, including marsh, spoil banks, and upland forests. Within forested wetlands, black bear habitat requirements include soft and hard mast for food, thick vegetation for escape cover, vegetated corridors for dispersal, large trees for den sites, and isolated areas for refuge from human disturbance. Remaining Louisiana black bear populations occur in the Tensas River Basin, the Upper Atchafalaya River Basin, and coastal St. Mary and Iberia Parishes. The primary threats to this species are continued loss of bottomland hardwoods, fragmentation of remaining forested tracts, and human-caused mortality (for example, illegal killing and accidental collisions with motor vehicles).

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. Areas with high numbers of nests include the Lake Verret Basin south to Houma, the southern marshes/ridge from Houma to Bayou Vista, the north shore of Lake Pontchartrain, and the Lake Salvador area. Eagles also winter and infrequently nest near large lakes in central and northern Louisiana. Major threats to this species include habitat alteration, human disturbance, and environmental contaminants (organochlorine pesticides and lead).

Federally listed as endangered, brown pelicans are currently known to nest on Rabbit Island in Calcasieu Lake, Raccoon Point on Isles Dernieres, as well as Queen Bess Island, Plover Island (Baptiste Collette), Wine Island, and islands in the Chandeleur chain. Pelicans change nesting sites as habitat changes occur. Thus, pelicans may also be found nesting on mud lumps at the mouth of South Pass (Mississippi River Delta) and on small islands in St. Bernard Parish. In winter, spring, and summer, nests are built in mangrove trees or other shrubby vegetation, although occasional ground nesting may occur. Brown pelicans feed along the Louisiana coast in shallow estuarine waters, using sand spits and offshore sand bars as rest and roost areas. Major threats to this species include chemical pollutants, colony site erosion, disease, and human disturbance.

Federally listed as threatened, the piping plover (*Charadrius melodus),* as well as its designated critical habitat, occur along the Louisiana coast. Piping plovers winter in Louisiana, and may be present for 8 to 10 months, arriving from the breeding grounds as early as late July and remaining until late March or April. Piping plovers feed extensively on intertidal beaches, mudflats, sand flats, algal flats, and wash-over passes with no or very sparse emergent vegetation; they also require unvegetated or sparsely vegetated areas for roosting. Roosting areas may have debris, detritus, or micro-topographic relief offering refuge to plovers from high winds and cold weather. In most areas, wintering piping plovers depend on a mosaic of sites distributed throughout the landscape, as the suitability of a particular site for foraging or roosting depends on local weather and tidal conditions. Plovers move among sites as environmental conditions change. Their designated critical habitat identifies specific areas essential to the conservation of the species. The primary constituent elements for piping plover wintering habitat are habitat components that support foraging, roosting, and sheltering, and the physical features necessary for maintaining the natural processes that support those habitat components. Constituent elements are found in geologically dynamic coastal areas that contain intertidal beaches and flats (between annual low tide and annual high tide), and associated dune systems and flats above annual high tide. Important components (or primary constituent elements) of intertidal flats include sand and/or mud flats with no or very sparse emergent vegetation. Adjacent unvegetated or sparsely vegetated sand, mud, or algal flats above high tide are also important, especially for roosting plovers. Major threats to this species include loss and degradation of habitat due to development, disturbance by humans and pets, and predation.

The pallid sturgeon (*Scaphirhynchus albus*) is an endangered fish found in both the Mississippi and Atchafalaya Rivers (with known concentrations in the vicinity of the Old River Control Structure Complex); it is possibly found in the Red River as well. The pallid sturgeon is adapted to large, free flowing, turbid rivers with a diverse assemblage of constantly changing physical habitats. Detailed habitat requirements of this fish are not known, but it is believed to spawn in Louisiana. Habitat loss through river channelization and dams has adversely affected this species throughout its range.

The project area is located in proximity to several historical waterbird rookery locations. Colonies not currently listed in the database maintained by the LDWF may also be present. That database is updated primarily by monitoring the colony sites previously surveyed during the 1980s. Until a new, comprehensive, coast-wide survey is conducted to determine locations of newly-established nesting colonies, a qualified biologist should inspect the project area for the presence of undocumented nesting colonies during the nesting season. To minimize disturbance to colonial nesting birds, the following restrictions on activity should be observed:

(1) For colonies containing nesting brown pelicans, all activity occurring within 2,000 feet of a rookery should be restricted to the non-nesting period (August 1 through October 31). Nesting periods vary considerably among Louisiana's brown pelican colonies, however, so it is possible that this activity window could be altered based upon the dynamics of the individual colony. The LDWF Fur and Refuge Division should be contacted to obtain the most current information about the nesting chronology of individual brown pelican colonies. Brown pelicans are known to nest on barrier islands and other coastal islands in St. Bernard, Plaquemines, Jefferson, Lafourche, and Terrebonne Parishes, and on Rabbit Island in lower Calcasieu Lake in Cameron Parish.

(2) For colonies containing nesting wading birds (herons, egrets, night-herons, ibis, and roseate spoonbills), anhingas, and/or cormorants, all activity occurring within 1,000 feet of a rookery should be restricted to the non-nesting period (September 1 through February 15, depending on species present).

(3) For colonies containing nesting gulls, terns, and/or black skimmers, all activity occurring within 650 feet of a rookery should be restricted to the non-nesting period (September 16 through April 1, depending on species present).

The Gulf sturgeon (*Acipenser oxyrhynchus desotoi*), federally listed as a threatened species, is an anadromous fish that occurs in many rivers, streams, and estuarine waters along the northern Gulf Coast between the Atchafalaya River and the Suwannee River, Florida. In Louisiana, Gulf sturgeon have been reported at Rigolets Pass, rivers and lakes of the Lake Pontchartrain basin, and adjacent estuarine areas. Spawning occurs in coastal rivers between late winter and early spring (March to May). Adults and sub-adults may be found in those rivers and streams until November, and in estuarine or marine waters during the remainder of the year. Sturgeon less than two years old, appear to remain in riverine habitats and estuarine areas throughout the year, rather than migrate to marine waters. Habitat alterations caused by water control structures that limit and prevent spawning, poor water quality, and over-fishing have negatively affected this species. Although the Gulf sturgeon is not likely to occur within the proposed project area, it is listed as possibly occurring in St. Mary Parish. The proposed project area is not designated as Gulf sturgeon critical habitat.

Sea turtles have been reported along the Louisiana coast (Condrey and others 1995). Dundee and Rossman (1989) report that Kemp's ridley turtles (*Lepidochelys kempi*) occasionally appear along the Louisiana Gulf coast—possibly because relatively shallow-water marine and estuarine habitat with high turbidity levels (due to proximity to the Mississippi River) are available (Frazier 1980). In Florida, Kemp's ridleys routinely are found foraging in very shallow water on shallow oyster reefs with nearby connecting channels (Schmid and others 2002). The shallow depth in the project area, combined with nearby marshes and open-water areas, may attract the Kemp's ridleys as foraging and development sites, though the muddy bottoms and variable salinity may deter them.

Four other species of sea turtles are threatened or endangered. The loggerhead turtle (*Caretta caretta*) and the green turtle (*Chelonia mydas*) are threatened, though 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 primarily consists of marine grasses and macrophytic algae. The hawksbill turtle (*Eretmochelys impricata*) and leatherback turtle (*Dermochelys coriacea*) are endangered. The hawksbill turtle is usually found in seawater less than 49 feet (15 meters) deep and feeds on invertebrates, marine grasses, and macrophytic algae. The leatherback turtle is found in deeper oceanic waters and feeds primarily on jellyfish (Condrey and others 1995). Though all have been reported in Louisiana coastal waters, these four species likely would not be found within the project area because forage or suitable habitat for them is unavailable there.

4.3 CULTURAL ENVIRONMENT

4.3.1 Historical or Archeological Resources

Watercraft have traversed Louisiana coastal waters since earliest European colonization of the region. Dependence on ship travel during the colonization of south Louisiana and the frequency of tropical storms in the area increase the possibility that historical ship remains may lie beneath the sediments that have accumulated during the past four or five decades.

Native American vessel relics possibly could be in Atchafalaya Bay, since the Chitimacha Tribe of Louisiana hunted and fished the entire Atchafalaya Basin. Though the Chitimacha were known to have communities near Grand Lake and the mouth of the Atchafalaya River, no permanent sites have been identified in the project area (GoTech and C-K Associates 1996).

4.3.2 Economics

Wetlands surrounding the Atchafalaya Delta have great value as forage, cover, and nursery habitat for the diverse and abundant assemblage of finfish and invertebrates harvested by Louisiana's commercial and recreational fishermen. Louisiana contains approximately 30 percent of all coastal marshes within the lower 48 states (U.S. Geological Survey 2000; Field and others 1991; Dahl 2000); and supports the largest commercial fishery in the lower 48 states (personal communication from NOAA Fisheries Service, Fisheries Statistics and Economics Division 2004). About 90 percent of the fish harvested from the Gulf of Mexico rely on aquatic habitats such as those found around the Atchafalaya Delta.

The fishing port of Morgan City-Berwick, located north of the Atchafalaya Delta, ranked among the top ports in the United States for both 2001 and 2002 in quantity and value of commercial fishery landings.

In 2002, this area landed 25.6 million pounds (34th) with a value of \$8.3 million (64th). This increased from the previous year of 23.3 million pounds (34th) valued at \$10 million (56th) (personal communication from NOAA Fisheries Service, Fisheries Statistics and Economics Division 2004).

Revenue also derives from recreational wildlife and fisheries activities on or near the Atchafalaya Delta. Other sources of revenue are fur trapping, waterfowl hunting, and alligator harvest in the vicinity of the Atchafalaya Delta, as well as oil and gas production. Likewise, the area is one of the largest fabrication areas in the state, and relies heavily on maintenance dredging of Atchafalaya Bay Channel to support navigation.

4.3.3 Land Use

Present and historical land use in the project area is restricted to fish and wildlife resource management and harvest (GoTech and C-K Associates 1996). The ADWMA (leased and managed by the LDWF, Fur and Refuge Division) is located at the mouth of the Atchafalaya River. This 137,000-acre area of accreted land and shallow open bays was leased from the State of Louisiana in 1979. Exposed land increased from about 10,000 acres in 1981 to about 19,500 acres in 1995 (personal communication from the LDWF, Fur and Refuge Division 2004).

Federally funded research projects have assessed impacts of Hurricane Andrew on wildlife species and habitats. Several cooperative or contracted research projects with state universities are conducted on the area. Though several sites of hydrocarbon exploration and production are west of Big Island, no such site is in the project area.

4.3.4 Recreation

Since the project area is accessible only by boat, recreational activities are limited to fishing, trapping, hunting, and perhaps bird watching. Hunting activity begins in September with dove season and continues through February with rabbit season (LDWF 1990). Habitat conditions on the delta are improving every year, and wintering waterfowl populations are increasing accordingly. These ideal conditions for waterfowl result in peaks of 250,000 ducks and 10,000 geese during the wintering waterfowl period. Mallards, pintails, teal, gadwalls, and canvasbacks are the dominant species of ducks. White-fronted geese, blue and snow geese, and a small population of resident Canada geese are present in the area. Most rabbit hunting occurs on Big Island. Bear tracks have been reported on Big Island; however, a sighting has not been confirmed (GoTech and C-K Associates 1996).

Plantings of several oak species are proceeding to provide mast for the increasing white-tailed deer population in the area. Approximately 17,000 people use the area recreationally each year (personal communication from the LDWF, Fur and Refuge Division 2004).

Fishing

The large size of Atchafalaya Bay provides abundant fishing opportunities. Commercial fishing varies dramatically with species and time of year. Shrimping during open season (May through August) occurs on the eastern side of the river during the spring season and on the western side during the fall (LDWF 1990). Sport fishing generally focuses on red drum but occurs beyond the project area in locations of greater salinity. During periods of decreased river flow and rainfall, fishing improves in the more northerly portions of the bay. Commercial crabbing occurs from March through October. Netters (strike, set, or seine) use the area for different species and seasons. Hoop nets, slat traps, and trotlines are other gear used within the ADWMA (LDWF 1990).

Furbearers and Alligators

Nutria is the most common furbearer in the delta area, though muskrat also occurs there. Trapping probably began soon after emergent vegetation was established in the mid 1970s. Though alligator habitat on the ADWMA is limited, 165 tags were issued for 2003 (personal communication from the LDWF, Edward Mouton 2004).

4.3.5 Noise

The delta is a state-owned, remote area with no industrial presence other than oil and gas production platforms located west of the project area. Ambient noise in the area results from petroleum exploration and production, boats, hunters, or wildlife.

4.3.6 Infrastructure

The Atchafalaya River Navigation Channel, pipelines, and flow lines comprise the only infrastructure in or near the project area. Trunkline Gas Co. (Trunkline) owns a 22-inch, high-pressure, gas pipeline known to exist in the project area. Trunkline was contacted and subsequently performed a survey to determine the elevation of the pipeline. Trunkline submitted survey data confirming the locations and elevations of the three pipeline crossings. A representative of Trunkline indicated that the pipeline crossing the three channels in the project area had sufficient cover, and the proposed project plan is agreeable with the company. Based on this survey data, project construction will not impact the pipeline crossings (BCG 2003). Orange lines on Figure 2 illustrate locations of oil and gas infrastructure in relation to the project area.

5.0 ENVIRONMENTAL CONSEQUENCES

The long-term resource benefits of the project derive primarily from creation of emergent marshlands and potential additional marshland accretion. Without this project, the area east of the Atchafalaya Delta would remain starved of sediments now transported by Atchafalaya Bay channel to more open waters. Construction of the proposed activity would exert short-term localized impacts that long term environmental benefits would offset (GoTech and C-K Associates 1996). An assessment of the environmental consequences of the no-action and preferred alternative is provided below.

5.1 PHYSICAL ENVIRONMENT

5.1.1 Geology, Soils and Topography

No-action

Without the project, the supply of freshwater sediments needed to continue natural construction of new marshlands in the northeastern area of Atchafalaya Bay would continue to decrease due to shoaling in of delivery channels.

Preferred Alternative

The proposed activity would simulate natural river-delta building patterns by diking to restore distributary channels—thus extending the delta lobes configured to help maintain flow patterns during high stage conditions of the Atchafalaya River. Dredge spoil disposal areas would be located at the entrance of East Pass and along the banks of the restored distributary channels. These diked disposal areas would be positioned to create banks for the channels to allow flows to reach the mouths of the channels before depositing sediments (BCG 2005).

Implementing the Castille Pass Sediment Delivery project would initially create over 577 acres in the vicinity of the project area. Construction of the containment dikes and new marsh would require movement of approximately 2,100,827 cubic yards of dredged material, which would be placed strategically to simulate delta development (BCG 2005, Table 1). The hydrologic sediment delivery process would be enhanced so that additional wetlands would continue to emerge east of the delta during the life of the project (BCG 2005).

The sources of the material for delta lobe and dike construction would be sediment dredged from the channels. Use of these sediments is not expected to increase potential for contamination, since the dredging area hosts little or no industrial activity. Sediment was evaluated for clay type and other physical characteristics. If any indications of sediment contamination were evident they would be noted in the soil report, and they were not (BCG 2003). There are no known sources of contamination in this area. Similar restoration projects in this area have not specifically tested for contaminants. The Atchafalaya River delta is a geologically young delta created from fresh sediments carried from the Mississippi River well north of the Mississippi River industrial corridor from Baton Rouge south to New Orleans. In consultation with the Louisiana Department of Environmental Quality the requirements for a Water Quality Certificate were met, the project was determined to not violate water quality standards and a certificate was issued (see Appendix A).

5.1.2 Climate and Weather

No-action

No change in climate and weather would occur.

Preferred Alternative

The proposed channels and wetlands are designed to maintain their structural integrity for a minimum of 20 years under standard weather conditions. Wetlands could be damaged by hurricane conditions. Storms would redistribute sediments to the Atchafalaya Basin or the Bay, depending on the direction and force of the winds and currents. Inclement weather could delay the proposed activity temporarily. Areas filled with dredged material should vegetate and remain relatively unaffected by weather after compaction.

5.1.3 Air Quality

No-action

No change in air quality would occur without the project.

Preferred Alternative

With the project, minor temporary adverse impacts would result from construction activities. Exhaust emissions with airborne pollutants from dredging equipment or service boats should dissipate quickly due to action of prevailing winds. These emissions would be limited to the construction phase of the project. No long-term adverse impacts on air quality are anticipated.

5.1.4 Surface-Water Resources

No-action

No change in surface-water resources would occur without the project.

Preferred Alternative

Short-term adverse impacts to surface-water resources, such as increased turbidity, would be limited to channels being dredged and discharge areas during dike construction. These impacts would be limited to the construction phase of the project. Minor and temporary impacts are anticipated since Atchafalaya Bay is a turbid system.

5.2 BIOLOGICAL ENVIRONMENT

5.2.1 Vegetative Communities

No-action

The 20-year acreage gain under the no-action alternative is estimated at 403 acres from accretion that would support vegetative communities (NOAA Fisheries Service 2005). The supply of freshwater sediments needed to continue natural construction of new marshlands in the northeastern area of Atchafalaya Bay would continue to decrease due to shoaling in of delivery channels.

Preferred Alternative

The proposed activity would exert positive long-term impacts on vegetative communities within the project area. Approximately 20 acres of existing marsh would be filled during the initial construction; however 577 acres of marshland would be created during the initial construction and maintenance dredging. The project would not limit the accretion acres expected with no action. In addition, 106 acres would be created by future dredging events that would maintain the channels. The preferred alternative would provide a net gain of 330 acres over no action. No planting is proposed; based on previous experience; because the Atchafalaya Delta is fresh marsh, a high rate of colonization is expected. The preferred alternative would likely have synergistic effects on other disposal and restoration projects like

AT-02. The preferred alternative would not inhibit future USACE disposal events and therefore, vegetative growth on future disposal areas can be expected with or without the project.

5.2.2 Essential Fish Habitat

No-action

SAV tends to exhibit a substantial amount of variability in the project area. Current estimates suggest that 20% or approximately 330 acres of the project area are covered by SAV. SAV should increase as the delta progrades, but some areas of SAV will be filled during future USACE disposal events (NOAA Fisheries Service 2005). Habitat mapping data obtained for AT-02 indicates that SAV habitat had increased from 1997 to 1998; however the increase was similar to increases reported in the project area pre-construction. In addition, satellite imagery has indicated significant increases in emergent SAV acreage from 1998 to 2000 (Louisiana Coastal Wetlands Conservation and Restoration Task Force 2002).

Preferred Alternative

Dredge and fill activities of the preferred alternative would impact approximately 54 acres of SAV, and 523 acres of shallow water that will be converted to marsh. However, SAV is anticipated to increase to a maximum of 40% during the 20-year project life (NOAA Fisheries Service 2005). The proposed activities would improve EFH by creating emergent marsh areas and enhancing accretion of marsh within the northeastern area of Atchafalaya Bay. Over 577 acres of marsh habitat would be constructed directly by the project. Continued existence of marsh vegetation and accretion of additional marshlands up to and after target year 20 would ensure more beneficial habitat than open water. Marsh edge, resulting from natural marsh creation, has been shown to support higher densities of transient species such as penaeid shrimps and blue crabs (Minello and Rozas 2002). Marsh vegetation supports higher standing crops of most fishery species compared with shallow marsh ponds of similar size (Rozas and Minello 2001). With completion of the project, vegetated marsh would replace less productive forms of EFH in Atchafalaya Bay area. Improved hydrologic conditions (increased water flows with accompanying sediments and nutrients) should enhance delta development, which would provide shallow resting areas for juvenile aquatic species. An added benefit would be sedimentation that shallows water bottoms and encourages growth of submerged aquatic vegetation. Detrital material formed by breakdown of emergent or submerged vegetation would contribute to the aquatic food web of Atchafalaya Bay.

Short-term, unavoidable, adverse impacts would occur during the construction phase of the project because of increased turbidity. However, post-construction increases in quality and quantity of marsh would offset these impacts. Turbidity would return to ambient conditions following construction.

Implementation of the preferred alternative will result in adverse fill impacts to mud bottoms and estuarine water column. However, project implementation should result in the conversion of less productive forms of EFH (water bottom and water column) to more productive forms (SAV and marsh habitat).

Other potential short-term impacts to EFH include movement of prey species away from the construction area, interruption of feeding or spawning by some species, and other effects on behavioral patterns. Other activities that would exert potential adverse impacts on EFH include dredging benthic habitat and converting marsh or shallow open water to upland (dikes). But because organisms have access to an abundance of these habitats outside the small areas that would be impacted, significant effects on EFH are not expected. Agency coordination letters concerning impacts to EFH are in Appendix A.

5.2.3 Fishery Resources

No-action

Without the project, habitat for fishery resources likely would remain stable, since the Atchafalaya Delta represents the most significant area of actual land gain within coastal Louisiana. However, the rate of natural construction of new marshlands in the northeastern area of Atchafalaya Bay will continue to decrease.

Preferred Alternative

Short-term adverse impacts to fish would occur during the construction phase of the project. These impacts would include localized destruction of non-mobile benthic organisms and their habitat, possible entrainment by the cutterhead dredge, and increased turbidity and suspended solids in waters near the designated dredge and fill sites. Dike construction would convert approximately 75 acres of water bottom to uplands not supportive of fishery habitat temporarily over the life of the project; however, any dikes creating an impoundment would be breached after completion of the project to allow fisheries ingress and egress. The dikes would be breached a minimum of 500 feet apart. Location of the gaps would be determined by disposal area topography in order to maximize fisheries access. The gap location would be determined after disposal has had an initial settlement period. The location of lowest elevation per disposal area would be the preferred selected location for a gap to maximize water exchange and fisheries access. The gaps would be constructed to -3 feet NAVD 88 with a 10 foot bottom width. Spoil would be placed in the channel or adjacent to each cut to a height not to exceed +2 feet. Experience in the area (AT-03) indicates new gaps would be needed 5 years after the initial gap construction due to natural shoaling in the area of immediate water exchange. Where it is possible, initial gaps would be placed off-center from each disposal area.

Fishery species are expected to vacate the areas directly impacted by dredge and fill activities. The channels that would be dredged to obtain material for dike and marshland construction, and to provide for sediment delivery, would impact the shallow bay habitats now occupying Natal Pass and Castille Pass.

However, the proposed project would improve long-term fishery resources by creating emergent wetlands and establishing island lobes that would provide shallow resting areas for juvenile aquatic organisms. Moreover, establishing a more natural (bifurcated) channel system would enhance delta development on the eastern side of the Atchafalaya River Delta.

5.2.4 Wildlife Resources

No-action

Without the project, habitat for wildlife resources likely will remain stable, since the Atchafalaya Delta represents the most significant area of actual land gain within coastal Louisiana; however, the supply of freshwater sediments needed to continue natural construction of new marshlands in the northeastern area of Atchafalaya Bay will continue to decrease.

Preferred Alternative

Implementing the proposed project will permit more natural delta building and nourishment in the project area. New marshland will be created, and potential for additional emergent marshland will be enhanced. The project area will increase its ability to provide suitable habitat for the wildlife resources presently using the area. The project area will still have extensive habitat diversity with exchange of energy and materials between the wetlands and the estuary, and will in turn attract a greater number of species (Louisiana Coastal Wetlands Conservation and Restoration Task Force and the Wetlands Conservation and Restoration Authority 1998). Short-term adverse impacts in the area of construction will affect slow moving or sedentary organisms. Resident or migratory populations should return to normal after construction is completed; therefore, no long-term adverse impacts are anticipated.

5.2.5 Threatened and Endangered Species

No-action

Without the project, habitat for threatened and endangered species likely would remain stable, since the Atchafalaya Delta represents the most significant area of actual land gain within coastal Louisiana; however, the supply of freshwater sediments needed to continue natural construction of new marshlands in the northeastern area of Atchafalaya Bay would continue to decrease.

Preferred Alternative

The proposed project likely would not adversely affect listed threatened and endangered species or their critical habitats. Direct impacts to threatened and endangered species would be confined to the short-term, unavoidable disruption and displacement of species during construction activities, and would provide a net increase of coastal wetland habitats used by these species. By this threatened mammal with Louisiana black bear habitat, construction of the proposed project could increase some habitats utilized by this threatened mammal, including marshland and spoil banks. Bald eagles may use the project area for hunting and feeding, but any displacement of bald eagles would be insignificant due to the large amount of suitable foraging habitat in the vicinity of the project area.

Piping plover and brown pelican would likely depart the project area during construction activities (direct impact) and return following completion of the project. Temporary unfavorable impacts on mud flats and beaches would occur during construction; however long-term, favorable impacts would include creation of new habitat and enhancement of existing habitat. The area surrounding the project area is designated critical habitat for piping plover. According to the Federal Register, the primary constituent elements for the piping plover wintering habitat are those habitat components essential for the primary biological needs of foraging, sheltering, and roosting, and only those areas containing these primary constituent elements within the designated boundaries are considered critical habitat. The primary constituent elements are found in coastal areas that support intertidal beaches and flats (between annual low tide and annual high tide) and associated dune systems and flats above annual high tide (U.S. Department of the Interior 2001). The description of the critical habitat unit is as follows:

Unit LA-2: Atchafalaya River Delta. 921 hectares (2,276 acres) in St. Mary Parish, LA. This unit is located in the eastern portion of the State-owned Atchafalaya Wildlife Management Area (WMA) and includes all exposed land and islands where primary constituent elements occur east and southeast of the main navigation channel of the Atchafalaya River to the mean low water (MLLW). The islands located south and southeast of the deltaic splay, Donna, T-Pat, and Skimmer Islands and the unnamed bird island, are also included in this unit. This unit includes the entire islands where primary constituent elements occur to the MLLW (U.S. Department of the Interior 2001).

Based on project planning documents, an estimated 20 acres of marsh (non mud flat) would be impacted and 724 acres of open water. Because the area is not receiving sediment, the area is presumed all vegetated with either emergent or submerged vegetation. Because the water level is very shallow in the area, it is likely that during cold front passages a significant amount of the 724 acres of open water would be exposed and possible critical habitat for the piping plover. With the project, a net gain of 330 acre at marsh elevation would be constructed over the initial and subsequent maintenance events. These acres would be mud flat and thus critical habitat for piping plover until the area naturally vegetates. It is anticipated that mud flats would naturally vegetate 3 years after construction.

Indirect impacts such as sedimentation and altered vegetation patterns would benefit the piping plover and brown pelican by increasing their coastal wetland habitats. Cumulative impacts would significantly enhance and create critical habitat for the piping plover.

The pallid sturgeon is not likely to occur within the project area. Pallid sturgeon require large, turbid, free flowing riverine habitat with rocky or sandy substrate, and inhabit areas of swifter water (U.S. Department of the Interior 1990). Critical habitat has not been designated for the pallid sturgeon. Likewise, the Gulf sturgeon is not likely to occur within the project area, nor is there designated critical habitat for the species in the project area.

Kemp's ridley sea turtles are not likely to occur within the project area due to the muddy water bottoms and variable low salinity. The loggerhead, green, hawksbill, and leatherback sea turtles are also not likely to occur within the project area since forage or suitable habitat is unavailable. Agency coordination letters concerning threatened and endangered species are in Appendix A.

5.3 CULTURAL ENVIRONMENT

5.3.1 Historical or Archeological Resources

No-action

Without the project, adverse environmental consequences are not anticipated, due to the non-existence of known historical or archeological resources in the project area.

Preferred Alternative

No National Register properties or other cultural resources are recorded in the area of the proposed work. No impacts are anticipated to historical or archeological resources within the project area. Agency coordination letters concerning cultural resources are in Appendix A.

5.3.2 Economics

No-action

Without the project, no change in economics would occur.

Preferred Alternative

No adverse impacts on economic resources would result from the proposed activity. Project construction would provide temporary employment. The continued productivity of the area would contribute to sustaining the seafood industry and fur production, as well as provide limited protection to oil and gas infrastructure.

5.3.3 Land Use

No-action

Without the project, land use likely would not change, since the Atchafalaya Delta represents the most significant area of actual land gain within coastal Louisiana; however, the supply of freshwater sediments needed to continue natural construction of new marshlands in the northeastern area of Atchafalaya Bay would continue to decrease.

Preferred Alternative

No negative impacts on current land use would result from the proposed activity in the marshes around the Atchafalaya Delta. An increase in the harvest of furbearers and alligators may result from the increase in supporting habitat. Positive impacts would be creation of over 577 acres and potential for accretion of additional marshlands.

5.3.4 Recreation

No-action

Without the project, recreation likely would remain stable, since the Atchafalaya Delta represents the most significant area of actual land gain within coastal Louisiana; however, the supply of freshwater sediments needed to continue natural construction of new marshlands in the northeastern area of Atchafalaya Bay would continue to decrease. As sedimentation occurs within the channels surrounding the project area, recreational navigation could be hindered.

Preferred Alternative

Some temporary, adverse, short-term impacts on recreation would occur as a result of dredging activity—increased turbidity of surface water and possible interferences with access. However, the long-term impact of additional wetlands, such as an increase in marsh habitat for fish and wildlife species, would outweigh any negative impacts. These long-term impacts would provide continued opportunities for hunting, fishing, and/or wildlife observation.

5.3.5 Noise

No-action

Without the project, no change in noise would occur.

Preferred Alternative

Short-term adverse impacts, limited to the construction phase, include increased noise associated with supply boats and dredging machinery. No long-term adverse impacts are anticipated.

5.3.6 Infrastructure

No-action

Without the project, adverse environmental consequences are not anticipated, since the Atchafalaya Delta represents the most significant area of actual land gain within coastal Louisiana; however, the supply of freshwater sediments needed to continue natural construction of new marshlands in the northeastern area of Atchafalaya Bay would continue to decrease. As sedimentation occurs within the channels surrounding the project area, access to the area's infrastructure could be hindered.

Preferred Alternative

Creating emergent marshlands would benefit infrastructure in the project area by providing protection for the buried, 22-inch, gas pipeline. Modeling the three alternatives has demonstrated that the project would not impact the Atchafalaya River Navigation Channel significantly. Dredging these channels would benefit navigation by re-establishing additional pathways for access. No long-term adverse impacts to infrastructure are expected.

5.4 ENVIRONMENTAL JUSTICE

Executive Order (EO) 12898 requires that each federal agency evaluating impacts of a preferred action identify and address, as appropriate, disproportionately high and adverse human health or environmental effects of its programs, policies, and activities on minority and low-income populations. The preferred action would include deepening the existing natural channels and strategically locating new distributary channel extensions, along with construction of dikes and disposal areas through placement of dredged disposal material from channel construction. Impacts to human health are minor and include increased noise and exhaust emissions during the construction phase of the project. In the long term, positive economic impacts would result, as discussed in Section 5.3.2. Significant adverse impacts on the environment would not occur as a result of the preferred project. Therefore, no disproportionately high impacts to minority or low-income populations would occur.

5.5 CUMULATIVE IMPACTS

The Council on Environmental Quality (CEQ) regulations (40 Code of Federal Regulations [CFR] § 1500-1508) implementing the procedural provisions of the NEPA, as amended (42 USC § 4321 and following sections) define cumulative effects as follows: “The impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (Federal or non-Federal) or person undertakes such other actions” (40 CFR § 1508.7).

The preferred project was conceived under the CWPPRA to meet immediate needs of the project area. However, the value of Louisiana’s coastal wetland ecosystem derives in part from the physical expanse of interconnected habitats. Though the CWPPRA projects are nominated and implemented one at a time, and must have individual merit, the cumulative value of all wetland restoration and protection projects in an area can far exceed the summed values of the individual projects. Other sediment delivery projects in the vicinity, such as the Atchafalaya Sediment Delivery project, would be enhanced by the Castille Pass Sediment Delivery project.

The preferred alternative is expected to produce significant wetlands benefits as well as benefits to fisheries resources. The preferred project would not lead to any impacts that would change current land use or pose significant adverse environmental effects on the quality of the human environment or resources identified and discussed in this EA.

6.0 CONCLUSIONS

This EA finds that no significant long-term adverse environmental impacts are anticipated from implementing the Castille Pass Sediment Delivery project. Short-term impacts related to construction activities are considered reversible. This CWPPRA wetland restoration project would use dedicated dredged materials to create over 577 acres of marsh with additional accretion of acres expected after twenty years. The project will improve the quality of EFH by conversion of 523 acres of water bottom and 54 acres of submersed aquatic vegetation to marsh to 577 acres of marsh. This conclusion is based on a comprehensive review of relevant literature, site-specific data, and project-specific engineering reports related to biological, physical, and cultural resources. This finding supports the recommendation of the CWPPRA Task Force, including the NOAA Fisheries Service, the sponsoring agency. Anticipated natural-resource benefits from implementing the Castille Pass Sediment Delivery project are expected to protect, enhance, and sustain the diverse ecosystem of the east sub-delta area of East Pass in the lower Atchafalaya River Delta.

7.0 PREPARERS

This EA was prepared by Tetra Tech under contract to the Central Administrative Support Center (CASC) of the NOAA. The EA was written by Wade Weidman and June Mire, Ph.D. of Tetra Tech, under the guidance of John Foret, Ph.D., Joy Merino, and Erik Zobrist, Ph.D. of the NOAA Fisheries Service.

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APPENDIX A

AGENCY COORDINATION LETTERS

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

December 15, 2005 F/SER46/PW:jk
225/389-0508

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

Dear Dr. Foret:

NOAA's National Marine Fisheries Service (NMFS) Habitat Conservation Division (HCD) has received the unsigned Finding of No Significant Impact (FONSI) "**Castille Pass Sediment Delivery Project, Coastal Wetlands Planning, Protection and Restoration Act Project AT-04 Draft Environmental Assessment (EA), St. Mary Parish, Louisiana**" transmitted by your letter dated November 16, 2005. NMFS proposes to construct improvements, enlargements, and extensions to East Pass and channel improvements to Natal and Castille Passes in the Atchafalaya River delta in St. Mary Parish, Louisiana. The project has been funded for engineering and design under the auspices of the Coastal Wetlands Planning, Protection and Restoration Act (CWPPRA). The transmittal letter indicates these documents are intended to initiate essential fish habitat (EFH) consultation pursuant to the Magnuson-Stevens Fishery Conservation and Management Act (Magnuson-Stevens Act).

The preferred alternative consists of many features. East Pass would be widened and a ramped transition constructed with a high bank disposal area for stabilization. The East Pass channel would be dredged and extended and training dikes constructed to direct flood waters into northern areas of Atchafalaya Bay. Cove areas in the bay would be designated for accretion and creation of 126 acres of marsh elevations with disposal of dredged material from this project. Additional area has been reserved for future Corps of Engineers disposal with maintenance of the navigation channel. The Natal channel would be dredged and 151 acres of marsh elevations created that also would function as a closure dam to redirect that channel flow to the southeast. Castille Pass would be dredged with two new channel bifurcations leading into two main and four secondary branch channels and 116 acres of marsh elevations would be created.

Based on our review of the unsigned FONSI and draft EA, and our knowledge of the project through previous coordination with your office, participation in the CWPPRA process, and of impacts from similar projects in the Atchafalaya River delta, NMFS HCD finds that, while some adverse environmental impacts would occur, the proposed action would have net positive environmental benefits. We offer the following comments on the unsigned FONSI and draft EA:

DRAFT FINDING OF NO SIGNICANT IMPACT FOR IMPLEMENTATION OF THE CASTILLE PASS SEDIMENT DELIVERY PROJECT

Page 2. 7) We concur the project would increase the quantity of wetlands. However, we recommend this item state some existing submerged aquatic vegetation, marsh, and water bottom habitats designated as EFH would be dredged or filled with the proposed action. We recognize that impacts to EFH are expected to be more than offset by the increase in acreage of those categories of EFH most supportive of marine fishery resources.

DRAFT ENVIRONMENTAL ASSESSMENT

4.0 Affected Environment
4.2 Biological Environment
4.2.2 Essential Fish Habitat

Table 1
Page 22. The correct spelling of the genus name for brown shrimp is *Farfantepenaeus*.

4.2.3 Fishery Resources

Page 22, paragraph 1. Although this section provides a general discussion of fishery resources for the project area, we believe published fishery related site specific research, especially if recently done, should best be used to describe this resource. As such, we suggest the inclusion of fish species and functionality of natural and created habitats in the delta identified with research published by Castellanos and Rozas (2001), and Thompson and Peterson (2003). This section of the draft EA should identify that in addition to nursery habitat, thermal, predator, and water quality refugia is provided during colder months, throughout the year, and following hurricanes, respectively by sub-delta islands, disposal areas and breaches in containment dikes (Thompson pers. comm.; Thompson and Peterson 2003; Thompson and Deegan 1983).

5.0 Environmental Consequences
5.2.2 Essential Fish Habitat

Preferred Alternative

Page 32, paragraph 2. In the first sentence, 55 acres should be changed to 54 acres. Additionally, the origin of 20 acres of impact to marsh and 724 acres of impact to open water is unclear. These numbers were not used in the cited final project information sheet for the Wetland Value Assessment modeling. Please verify these numbers and make any necessary changes.

5.2.3 Fishery Resources
Preferred Alternative

Page 33. We recommend the description of the dike impacts on fishery resources in the draft EA be revised to state that dike construction would convert approximately 75 acres of water bottom to uplands or supratidal elevations not supportive of fishery habitat. Although the EA states that dikes creating an impoundment would be breached to allow fishery ingress and egress, we recommend the EA be revised to include details of the gapping plan, such as frequency, timing of construction, and width and depth. All practicable measures, including new opportunities that may arise during construction or maintenance events, should be undertaken to maximize the number and distribution of breaches to enhance fishery access and provide thermal, predator, and dissolved oxygen refugia as demonstrated by ongoing research in the Atchafalaya River delta (Thompson and Peterson 2003, Thompson pers. comm).

6.0 CONCLUSIONS

Page 39. To satisfy the mandatory contents of an EFH Assessment as stipulated by the regulations implementing the EFH provisions of the Magnuson-Stevens Act under 50 CFR 600.920(e)(3)(iii), a statement of the federal action agency's conclusions regarding effects of the action on EFH should be provided. We suggest summary and concluding sentences be included in this section of the EA listing the acres of impact to the various categories of EFH designated in the project area and that the net creation of 577 acres of marsh resulting from the project after 20 years would offset those direct impacts to EFH.

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

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

Sincerely,

Rull Hartman

for Miles M. Croom
Assistant Regional Administrator
Habitat Conservation Division

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

Literature Cited

Castellanos, D.L. and L.P. Rozas. 2001. Nekton use of submerged aquatic vegetation, marsh, and shallow unvegetated bottom in the Atchafalaya River delta, a Louisiana tidal freshwater ecosystem. Estuaries 24(2): 184-197.

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UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL MARINE FISHERIES SERVICE
SEFC/Estuarine Habitats & Coastal Fisheries Center
646 Cajundome Boulevard
Lafayette, Lousiana 70506

11/18/05

Date: 12-12-05
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.
Pam Breaux: Pam Breaux
State Historic Preservation Officer

Laurel Wyckoff
State Historic Preservation Office
P.O. Box 44247, Capitol Station
Baton Rouge, LA 70804

Dear Mrs. Wyckoff,

Please find enclosed an environmental assessment concerning the Castille Pass Sediment Dellivery Project (AT-04), funded under the Coastal Wetlands Planning, Protection and Restoration Act.

This letter initiates cultural resource consultation, as required by NEPA. The project is anticipated to enhance delta habitat/marsh creation.

Please have comments submitted to my office no later than December 30, 2005.

Sincerely,

John Foret

John Foret, PhD.
Project Manager

Enclosure

DEPARTMENT OF ENVIRONMENTAL QUALITY

KATHLEEN BABINEAUX BLANCO
GOVERNOR

MIKE D. McDANIEL, Ph.D.
SECRETARY

September 21, 2006

Louisiana Department of Natural Resources
617 North 3rd St., 10th Floor
Baton Rouge, LA 70802

Attention: Mr. Maury Chatellier, Agent for the Louisiana Department of Wildlife and Fisheries

Re: Corps of Engineers Permit Number (MVN-2005-4324-WDD)
Water Quality Certificate Number (WW 060410-01/AI 136257/CER20060003)
St. Mary Parish

Dear Mr. Chatellier:

We have received your application on behalf of the Louisiana Department of Wildlife and Fisheries for a Corps of Engineers permit to dredge and deposit spoils to improve marsh land building and improve channels in the lower Atchafalaya Basin near Morgan City in St. Mary Parish.

The requirements for Water Quality Certification have been met in accordance with LAC 33:IX.1507.A-E. Based on the information provided in your application, we have determined that the placement of the fill material will not violate the water quality standards of Louisiana provided for under LAC 33:IX.Chapter 11. Therefore, the Department has issued a Water Quality Certification.

Sincerely,

Thomas R. Griggs
Engineer Manager

TRG/cww

c: Corps of Engineers, New Orleans, LA

ENVIRONMENTAL SERVICES
P.O. BOX 4313 BATON ROUGE, LA [illegible]
P:225-219-3181 F:22[illegible]
WWW.DEQ.LOUISIANA.[illegible]

4-7-04-1330

United States Department of the Interior

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

August 26, 2004

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

Dear Dr. Foret:

Please reference your August 5, 2004, letter requesting our review of the draft Environmental Assessment (EA) of the Castille Pass Sediment Delivery Project, which is authorized by the Coastal Wetlands Planning, Protection and Restoration Act (CWPPRA). The proposed action would involve dredging and extending three distributaries in the East Pass Delta Lobe of the Atchafalaya Delta to promote sub-delta development by improving conveyance of sediments into the northeastern area of Atchafalaya Bay, in St. Mary Parish, Louisiana. The U.S. Fish and Wildlife Service (Service) has reviewed the information you provided, and offers the following comments in accordance with the Endangered Species Act (ESA) of 1973 (87 Stat. 884, as amended; 16 U.S.C. 1531 et seq.), and the Migratory Bird Treaty Act (40 Stat. 755, as amended; 16 U.S.C. 703 et seq.).

The draft EA is generally well written and well organized. It also provides an adequate description of fish and wildlife resources in the project area, the purpose and need for the proposed action, and potential impacts associated with each alternative. Initially, the proposed project would create over 520 acres of freshwater marsh. In the long-term, the proposed action would augment the delta building process in the Atchafalaya Bay (while accommodating maintenance dredging for commercial navigation) by enhancing the hydrologic sediment delivery process so that additional wetlands would evolve.

As you know, the threatened bald eagle (*Haliaeetus leucocephalus*), the endangered brown pelican (*Pelecanus occidentalis*), the threatened piping plover (*Charadrius melodus*) and its designated critical habitat, the endangered pallid sturgeon (*Scaphirhynchus albus*), the threatened Gulf sturgeon (*Acipenser oxyrhynchus desotoi*), and five species of threatened and endangered sea turtles may occur within the proposed project area. No designated critical habitat for the Gulf sturgeon occurs within the proposed project area; therefore, none will be affected. Consultation responsibilities for the Gulf sturgeon are shared by the Fish and Wildlife Service and the National Marine Fisheries Service (NMFS). Agencies are to consult with themselves for any action they undertake. Therefore, the NMFS should respond to determinations of project-related effects on the Gulf sturgeon and its critical habitat.

According to our records, there are no bald eagle nests or brown pelican rookeries in the vicinity of the proposed project area. According to the draft EA, any displacement of bald eagles or brown pelicans that may be foraging in the area would only be temporary, and there is an abundance of suitable foraging habitat in surrounding areas. Based on the above information, the Service concurs with the NMFS' determination that the proposed action is not likely to adversely affect the bald eagle or the brown pelican.

According to the draft EA, any piping plovers that would be foraging in the area would be temporarily displaced to nearby suitable habitat during construction activities, but they should return to the area following project completion. Temporary, unfavorable impacts such as increased turbidity and disturbance of prey populations would occur on designated critical habitat (e.g., mud flats and beaches) during project construction; however, those minimal and temporary disturbances would not likely affect the ability of the critical habitat to provide for the survival and recovery of the species. According to the draft EA, long-term favorable impacts would include creation of new habitat and enhancement of existing designated critical habitat. Indirect impacts such as sedimentation and altered vegetation patterns would benefit the piping plover by increasing its total coastal wetland habitat. Cumulative impacts would also significantly enhance and create critical habitat. Based on the above information, the Service also concurs with the NMFS' determination that the proposed action is not likely to adversely affect the piping plover or its designated critical habitat.

According to the draft EA, the pallid sturgeon is not likely to occur within the proposed project area because the proposed project area does not contain suitable habitat for that species. Based on that information, the Service also concurs with the NMFS' determination that the proposed action is not likely to adversely affect the pallid sturgeon.

The proposed project area would also contain suitable nesting habitat for colonial nesting water birds. According to the draft EA, project modifications to avoid impacts to colonial nesting birds during the nesting season would be implemented as necessary. Those modifications would ensure that construction activities within 1,000 feet of nesting colonies containing herons, egrets, night-herons, ibis, and roseate spoonbills and within 650 feet of nesting colonies containing gulls, terns, and/or black skimmers would be conducted during the non-nesting periods (September 1 through February 15, and September 16 through April 1, respectively, depending on species present).

We appreciate the NMFS' cooperation in the conservation of threatened and endangered species, and colonial nesting water birds. If you have further questions or require additional information, please contact Brigette Firmin (337/291-3108) of this office.

Sincerely,

Russell C. Watson
Supervisor
Louisiana Field Office

cc: LDWF, Natural Heritage Program, Baton Rouge, LA

UNITED STATES DEPARTMENT OF COMMERCE
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John D. Foret, Ph.D.
SEFC/Estuarine Habitats
and Coastal Fisheries Center
846 Cajundome Boulevard
Lafayette, LA 70506

Dear Dr. Foret:

This correspondence responds to your November 28, 2005, letter and enclosed draft environmental assessment (EA) dated November 22, 2005, for the Castille Pass Sediment Delivery Project (AT-04), funded under the Coastal Wetlands Planning, Protection, and Restoration Act. You requested our review and comments of the EA.

We believe the EA for the Castille Pass Sediment Delivery Project (AT-04) adequately addresses the issues associated with threatened and endangered species under the National Marine Fisheries Service's purview. We have no additional comments.

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

Sincerely,

David Bernhart
Assistant Regional Administrator
for Protected Resources

File: 1514-22.E.
Ref: T/SER/2004/06320 Castille Pass Sediment Delivery Project