US Army Corps
of Engineers
New Orleans District
Mississippi Valley Division

Port of Iberia, Louisiana

Final Feasibility Report

OCTOBER 2006

Volume 3:
Appendix B - Environmental

This Report Contains 6 Volumes

You are here

Volume 1:
Main Report
Environmental Impact Statement

Volume 2:
Appendix A - Economics

Volume 3:
Appendix B - Environmental

Volume 4:
Appendix C1 - Engineering Investigations and MCACES
Appendix C2 - Technical Plates

Volume 5:
Appendix D - Real Estate Plan

Volume 6:
Appendix E - Value Engineering Team Study Report
Appendix F - Independent Technical Review Comments and Resolutions
Appendix G - Summary of Public Comments and Review

APPENDIX B
TABLE OF CONTENTS

Section 1 – Fish And Wildlife Resources

Section 2 – Threatened And Endangered Species Consultation

Section 3 – Wetland Value Assessment Methodology

Section 4 – Water And Air Quality

Section 5 – Section 404(b)(1) Evaluation

Section 6 – Louisiana Coastal Zone Management Program Consistency Determination

Section 7 – Farmland Protection Policy Act Coordination

Section 8 – Coastal Barrier Resources Act Consultation

Section 9 – Fish And Wildlife Coordination Act Report

Section 10 – Dredged Material Site Management Plan

Section 11 – Scoping Document

Section 12 – Initial Hazardous, Toxic, And Radioactive Waste Site Assessment

Section 13 – Archeological And Historic Preservation Act Coordination

Section 14 – Agency Coordination Concerning Dredge Material Disposal And Miscellaneous Issues

Section 15– Map Of Preliminary Alternatives Screened During Reconnaissance Study

Section 16 -- Port Of Iberia Salinity Report

Section 17 – List Of Acronyms And Abbreviations

SECTION 1
FISH AND WILDLIFE RESOURCES

SECTION 1
FISH AND WILDLIFE RESOURCES

DESCRIPTION OF MAJOR HABITATS

Marshes of the study area provide habitat and a food source for fish and wildlife species. The study area is comprised primarily of fresh, intermediate, and brackish, marshes. The most common vegetation species of fresh marsh include Alligator weed (*Alternanthera philoxeroides*), Common rush (*Juncus effuses*), Maidencane (*Panicum hemitomon*), Swamp knotweed (*Polygonum* spp.), Pickerelweed (*Pontederia cordata*), Bulltongue (*Sagittaria lancifolia*), Cattail (*Typha* spp.), and Giant Cutgrass (*Zizaniopsis miliacea*). The most common vegetation species of intermediate marsh include of wiregrass (*Spartina patens*), deer pea (*Vigna repens*), bulltongue, wild millet (*Enchinochloa walteri*), bullwhip (*Scirpus californicus*) and sawgrass (*Cladium jamaicense*) The most common vegetation species of brackish marsh include Coastal waterhyssop (*Bacopa monnieri*), Dwarf spikesedge (*Eleocharis parvula)*, Saltmarsh morningglory (*Ipomoea sagittata*), Seashore paspalum (*Paspalum vaginatum*), Common reed (*Phragmites communis*), Olney bulrush (*Scirpus olneyi*), Saltmarsh bulrush (*Scirpus maritimus*), Marshhay cordgrass (*Spartina patens*) (Chabreck, R.H and R.E. Condrey, 1979). The marshes serve as a sediment trap, wildlife habitat and as an estuarine fish and shellfish nursery. Marsh vegetation contributes organic detritus, which forms the basis of the estuaries food chain (Day, J.N., W.G. Smith, P.R. Wagner, W.C. Stone, and C. Wilmer, 1973). The marsh also provides an important wintering and stop over point for migratory waterfowl and neotropical migrants, as well as habitat for wading and shore birds.

Extensive areas of marsh throughout coastal Louisiana have converted to shallow open water as a result of soil subsidence, bank erosion, saltwater intrusion, decreased sediment input, sea-level rise, and herbivory (Linscombe and Kinler. 1997). The average rate of sea-level rise is currently 0.39 feet per century and is expected to continue to increase (Dean 1987). The current rate of sea level rise along the gulf coast is about .72 feet per century (Barnett 1984). Most researchers project that the rate is increasing, and will continue to increase into the 21st century. Some areas of marsh that have been enclosed with levees to control water levels, reduce saltwater intrusion, and delineate property lines, have suffered marsh loss. Marsh loss in these areas can be attributed to anoxia in the marsh soil from constant flooding, as well as herbivory from fur-bearing animals. A more detailed description of the marshes in the study area and the associated fish and wildlife resources is presented in appendix B, section 2, Fish and Wildlife Resources and the main body of the U.S. Fish and Wildlife Service Coordination Act Report.

The predicted change (rise) in global sea level coupled with local subsidence rates does cast some doubt on the viability of the marshes occurring within the study area. However, freshwater inputs from the Vermilion River and the Atchafalaya River should continue to offset much of this phenomenon and continue to assist in maintaining a healthy marsh environment in this region of coastal Louisiana.

<u>Estuarine Water Bodies.</u> The open waters of the study area are highly productive fish and shellfish habitats. These water bodies are characteristically shallow and turbid, with silty and

organic bottoms. The estuarine water bodies of the study area are commonly referred to as occurring within the Vermilion Bay Complex. The Vermilion Bay Complex encompasses Vermilion Bay as the eastern border to and Atchafalaya as the western boundary. The Vermilion Bay complex is bordered on the east by the Penchant subbasin as well as the Timbalier-Terrebonne estuarine system. The Terrebonne estuarine system may be considered one of the most productive estuarine systems in the United States. The GIWW and FWB are manmade waterways but hydrologically connect these systems and may serve as a passageway for the movement of marine organisms into and out of into and out of the estuarine areas at different stages of their life cycles. The importance of the estuaries to Gulf of Mexico fisheries is well recognized. Many commercial and recreational fish and shellfish are dependent on estuaries during part or all of their life cycles. Commercial shrimp species, as well as blue crabs, of the northern Gulf of Mexico are prime examples of temporary utilization of estuaries as nursery areas. In the case of various shrimp species, adults spawn offshore in the gulf. Eggs hatch offshore, the larval shrimp move through several stages, and the post-larva migrate or are carried by currents into the inshore estuaries where they feed and further develop before returning to the gulf. Similar life history patterns are known for blue crabs, menhaden, croakers, and other important species. Other marine organisms, including oysters, bay anchovies, silversides, killifishes, and other species of small fish which are important as food for larger, commercial species are completely estuarine dependent, living out their entire lives within the estuaries.

Intermediate and Brackish marshes are periodically inundated by high tides. The marsh vegetation looses portions of leaves, stems, and other plant parts, which accumulate on the marsh floor. Some of this detrital material is eventually flushed from the marsh by precipitation runoff and tidal action into surrounding lagoons, bayous, and lakes where it is subjected to further decomposition by physical and biological processes. Detrital particles in the water form a substrata for the attachment of various microscopic organisms such as bacteria, fungi, protozoans, nematodes, and rotifers, as well as organic molecules which may adhere to the surface of the particles. Detrital particles, along with the associated microbiota, are consumed by a wide variety of organisms, including zooplankton, benthic invertebrates, and fishes.

Nearshore surf zone habitat also provides important habitat functions for various estuarine and marine fish species. Sediment type, one of the environmental variables thought to affect the distribution of fish, may have a limited affect on surf zone fishes in Louisiana. Beach seining samples from southwest Louisiana have identified fish assemblages similar to eastern Louisiana despite the higher sediment loads. Florida pompano, Atlantic threadfin, bay anchovy, striped mullet, white mullet, Atlantic croaker, southern kingfish, inland silverside, rough silverside, gulf menhaden, white shrimp, hardhead catfish, and blue crab are likely species common to the surf zone habitat in the study area (Bellinger and Avault, 1970; Tarbox 1974; Perry and Carter 1979). Of these, Florida pompano, southern kingfish, white mullet, and rough silverside are often more common in the surf zone than other, more inland habitats.

WILDLIFE RESOURCES

Game and Fur Mammals. Game animals that occur in the study area are white-tailed deer, wild hogs, and swamp rabbits. These species are widely distributed throughout the marshes and

dredged material disposal sites. Furbearing animals that are found in the area include muskrat, nutria, mink, raccoons, and otter. The intermediate and brackish marsh areas occurring in the project area provide ideal habitat for most of these species and may provide some of the best trapping grounds within the United States. Major trapping occurs throughout the project area.

Non-Game Mammals. Terrestrial non-game mammals likely to occur in the study area include the nine-banded armadillo and the marsh rat. Atlantic bottlenose dolphin occur in the study area when seasonal conditions produce higher salinity waters within the bays. During these time periods, they may be seen in the tidal passes, open bays, and near-shore gulf waters.

Game Birds. Waterfowl, various rails, and snipe are the games birds occurring in the study area. These species are heavily sought by hunters within the project boundaries. The various lagoons and open water areas are heavily used by wintering waterfowl and hunter effort in this area is high. Waterfowl occurring in these areas include but are not limited to mallard, pintail, gadwall, widgeon, shovelers, green-winged teal, blue-winged teal, lesser scaup, mottled ducks, coots, and sometimes various goose species. All of these birds are migratory winter residents except for the mottled ducks, rails, snipes, and coots which are year-round residents of the coastal marshes. Hunting pressure on rails and snipe is low however, and most that are harvested are taken incidentally by waterfowl hunters.

Non-Game Birds. Certain non-game bird groups are conspicuous and characteristic of the habitats occurring in the study area. These groups are sea birds, shore birds, wading birds, raptors, and perching birds. Sea birds common in the study area include laughing gulls, herring gulls, ring-billed gulls, Forster's terns, royal terns, least terns, Caspian terns, cormorants, and black skimmers. Other gulls and terns are expected in the study area but are less common. Brown pelicans are year-round residents of the study area, whereas white pelicans occur only as winter migrants. Brown pelicans feed in the open bays and near-shore gulf. Shore birds occurring in the study area include plovers, turnstones, willets, dowitchers, sandpipers, sanderlings, dunlins, killdeer, and avocets. Some of these species are found mainly along the gulf beach, but others are found along marsh shorelines throughout the area. Wading birds are numerous. Great egrets, snowy egrets, cattle egrets, American bitterns, black-crowned night herons, great blue herons, little blue herons, green herons, and white ibises are common year-round residents. Raptors, which would be expected in the study area, include marsh hawks, red-shouldered hawks, American kestrels, and barn owls. Perching birds include a great variety of birds such as swallows, wrens, warblers, vireos, blackbirds, and sparrows. The higher land areas, where shrubs and trees occur, are most commonly used by these species. These areas are particularly important during the spring when northward migration is underway. Most of these species make a nonstop crossing of the Gulf of Mexico, and are in desperate need of suitable resting and feeding habitat when they arrive from South and Central America.

Reptiles and Amphibians. The turtles, alligators and snakes are the most prominent reptilian species within Louisiana's coastal marshes. As a group, 33 of the 36 species are expected to commonly occur in fresh and/or intermediate marshes. The diamondback terrapin (*Malaclymes terrapin*), pygmy rattlesnake (*Sisttrurus miliarus*) and the saltmarsh water snake (*Nerodia clarkii*) occur in brackish and saline marsh types. Most are inclined to be found in proximity to surface geomorphologic features that, depending upon species, provide nest sites, food and/or

relief or escape sites from flooding (Platt et al. 1989). Turtles either frequent the bayous and shallow waters of the marshes (diamondback terrapin) or are migratory marine forms that tend to be found mostly in the larger shallow open waters of the coastal bay sand bayous or nearshore Gulf waters (see also Threatened and Endangered Species). The association between migratory marine turtles and Louisiana's coastal marshes is usually associated with food acquisition during seasonal migratory movements.

Pursuant to Louisiana's Department of Wildlife and Fisheries laws, alligators are classed as furbearers. Alligators can occur in all marsh types. However, breeding and nesting occur much or often in intermediate and fresh marshes. Young alligators in fresh marsh consume crawfish. Their young counterparts in intermediate and brackish marshes consume blue-claw crabs (*Callinectes sappidus*). Adult alligators prey heavily on nutria. The higher levels of salinity in brackish and saline marshes are physiologically stressful. The tidal dynamics and topography of more saline marshes are limiting because of the lack of physiologically palatable water for juveniles, as well as fewer available nesting opportunities.

Of the 12 or so amphibian species likely to occur in Louisiana coastal marshes, approximately seven can occur in fresh, intermediate and brackish marsh types. They commonly associate with surface geomorphologic features where food, water, cover and relief from flooding and salinity occur. Salinity is the apparent limiting factor.

FISHERY RESOURCES.

Finfish Species. The most characteristic fish of the study area are the members of the croaker family. The most important species of this family are spotted seatrout, red drum, black drum, sand seatrout, croaker, and southern kingfish. Other finfish species that have commercial or recreational importance are southern flounder, gulf menhaden, bluefish, Spanish mackerel, pompano, sheepshead, striped mullet, and shark. Some freshwater species also frequent portions of the study area and may also be important to both the commercial and recreational fishery. Various species of catfish, sunfish, and largemouth bass may also be prevalent when seasonal salinity variations allow for a lower saline environment. Other species of finfish play important ecological roles in the estuarine food chain. Small fishes such as bay anchovies, silversides, gobies, and killifishes, are eaten by the larger predator species.

Shellfish Species. Important shellfish species occurring in the area include brown shrimp, white shrimp and blue crabs. Oysters are found on the southside of Marsh Island but only to a minimal extent within the study area. The project area provides less than optimal habitat for oysters due to a consistent low salinity environment given the proximity of the Atchafalaya River. Brown and white shrimp spawn in the Gulf of Mexico and their larvae are carried by currents into the inland estuaries. In estuaries, the shrimp develop into juveniles and sub-adults, then return to the gulf. While in the estuaries and during their gulf-ward migration they are subjected to intense fishing pressure.

Blue crabs are harvested by both commercial and recreational fishermen. Some water bottoms in the study area do contain oysters but the overall habitat is less than optimal. Few leases occur

within the project area with the exception of Weeks Bay, which is designated as a public seed ground even though the habitat rarely supports a healthy oyster population. Oysters are ecologically important since the form a hard substrate for attachment of other marine organisms such as algae, anemones, bryozoans, and mussels. The crevices created by an oyster bed are used by small crabs, shrimp, and fishes. Young oysters and associated fauna form a food source for some predatory fishes.

Many other species of shellfish that are not economically important also occur in the area, including snails, clams, and mussels. These species provide food for shore birds and larger predatory species of fish.

LITERATURE CITED

Chabreck, R.H. and R.E. Condrey. 1979. Common Vascular Plants of the Louisiana Marsh. Center for Wetland Resources, Louisiana State University, Baton Rouge, Louisiana. Publication Number LSU-T-79-003.

Barnett, T.P. 1984. The Estimation of "Global" Sea-level Change: A Problem of Uniqueness. J. Geophysical Res. 89(C5):7980-7988.

Bellinger, J.W. and J.W. Avault, Jr. 1970. Seasonal occurrence, growth, and length-weight relationship of juvenile pompano, *Trachinotus carolinus*, in Louisiana. Trans. Am. Fish. Soc. 99(2):353-358.

Day, J. N., W. G. Smith, P. R. Wagner, W. C. Stone, and C. Wilmer. 1973. Community Structure and Carbon Budget of a Salt Marsh and Shallow Bay Estuarine System in Louisiana. Center for Wetland Resources, Louisiana State University, Baton Rouge, Louisiana. Publication Number LSU-SG-72-04.

Dean, R.G., et. al. 1987. Responding to Changes in Sea Level: Engineering Implications. National Research Council, Committee on Engineering Implications of Changes in Relative Sea Level. National Academy Press, Washington, D.C.148 pages.

Linscombe, G., and N. Kinler. 1997. A survey of vegetative damage caused by nutria herbivory in the Barataria and Terrebonne Basins. Louisiana Department of Wildlife and Fisheries Fur and Refuge Division. Prepared for Barataria-Terrebonne National Estuary Program. BTNEP-31. 18 pp. plus appendices.

Platt, S. G., C. G. Brantley, and L. W. Fontenot. 1989. Herpetofauna of the Manchac Wildlife Management Area, St. John the Baptist Parish, Louisiana. Proc Louisiana Acad. Sci. 52:22-28.

Tarbox, K.E., 1974. Master's Thesis, Louisiana State University, Baton Rouge, Seasonal occurrence, distribution, and relative abundance of juvenile fishes at Marsh Island, Louisiana. Masters Thesis. Louisiana State University, Baton Rouge. 122 pp.

SECTION 2
THREATENED AND ENDANGERED SPECIES CONSULTATION

SECTION 2
THREATENED AND ENDANGERED SPECIES CONSULATION

This section contains letters received from the U.S. Fish and Wildlife Service (USFWS) and the National Marine Fisheries Service (NMFS) concerning endangered and threatened species and species of local concern. Also, contained in this section is the biological assessment prepared for the species listed by the USFWS and NMFS and the agencies' responses.

United States Department of the Interior

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

August 23, 2004

Mr. Michael R. Salyer
Environmental Planning and Compliance Branch
Planning, Programs, and Management Division
U.S. Army Corps of Engineers
Post Office Box 60267
New Orleans, Louisiana 70160-0267

Dear Mr. Salyer:

Please reference your July 19, 2004, biological assessment and July 29, 2004, letter and supplemental documentation regarding a proposal by the New Orleans District Corps of Engineers (Corps) to deepen (via excavation) portions of the Commercial Canal, the Gulf Intracoastal Waterway, and Freshwater Bayou. Spoil disposal areas of concern to the Service include an approximately 343-acre area of marsh lying immediately west of the Commercial Canal and north of the Gulf Intracoastal Waterway, between Avery Island and Weeks Island in Iberia Parish, and the open-water disposal area in the Gulf of Mexico at the mouth of Freshwater Bayou in Vermilion Parish, Louisiana. This report is submitted in accordance with provisions of the Endangered Species Act (ESA) of 1973 (87 Stat. 884, as amended; 16 U.S.C. 1531 et seq.).

Original plans for placement of dredged material from the Commercial Canal would have resulted in impacts to mature bottomland hardwood wetlands that currently provide a forested corridor between Avery Island and Weeks Island. Those "islands" support a relatively high-density of threatened Louisiana black bears (*Ursus americanus luteolus*) that likely use the forested corridor to travel between those areas of higher habitat quality. Following coordination with our office, the Corps revised their plans to completely avoid all bottomland hardwood habitat impacts by proposing to place their dredged material in the marshes that lie immediately north of the forested area. That proposal, including maps of the proposed impact area, was submitted for our review in your July 29, 2004, supplemental document. Because the proposed impact area is primarily used as a travel corridor (providing some foraging habitat) for Louisiana black bears, is not known to support denning female bears, and because the Corps proposes to completely avoid impacts to those forested areas (including all trees that may be greater than 36 inches in diameter at breast height), we concur with your determination that the proposed work is not likely to adversely affect Louisiana black bears.

Dredged material has been deposited in the Gulf of Mexico, west of the Freshwater Bayou Bar Canal, in unconsolidated disposal sites as part of an on-going channel maintenance program. The proposed dredging of that channel would be extended south of the existing maintenance

area. The threatened piping plover (*Charadrius melodus*) is known to winter along the Louisiana coast. Coastal areas east of the mouth of the Freshwater Bayou Canal (that contain primary constituent elements) have been designated by the Service as piping plover critical habitat. The proposed project should have virtually no impact on wintering piping plovers, or their critical habitat, because the Corps proposes to continue disposing of dredged material on only the western side of the Freshwater Bayou Bar Canal. Any displacement of wintering piping plovers would be temporary because of the significant amount of habitat in the vicinity of the project suitable for relocation. Accordingly, the Service concurs with your determination that the proposed work is not likely to adversely affect piping plovers or their critical habitat.

No further endangered species consultation will be required for this project unless there are changes in the scope or location of the work, or if the project has not been initiated within 1 year. If the work has not been initiated within 1 year, follow-up consultation should be accomplished with this office prior to making expenditures for the project.

If you need further assistance, please contact David Soileau, Jr. (337/291-3109), or Robert Dubois (337/291-3127), of this office.

Sincerely,

Russell C. Watson
Supervisor
Louisiana Field Office

cc: USFWS, Bayou Teche NWR, Franklin, LA
LDWF, Baton Rouge, LA

UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL MARINE FISHERIES SERVICE
Southeast Regional Office
9721 Executive Center Dr. N.
St. Petersburg, FL 33702
(727) 570-5317, FAX 570-5317
http://sero.nmfs.noaa.gov

OCT - 1 2004

F/SER3:KPB

Mr. David F. Carney
Chief, Environmental Compliance
New Orleans District Corps of Engineers
P.O. Box 60267
New Orleans, LA 70160-0267

Dear Mr. Carney:

This responds to your July 14, 2004, letter, and Biological Assessment (BA) regarding the Port of Iberia channel deepening and the effects on endangered and threatened species listed under the Endangered Species Act (ESA). In that letter you requested comments on your BA regarding the possible effects on the channel modifications on ESA listed species under the jurisdiction the National Marine Fisheries Service (NOAA Fisheries), pursuant to the interagency consultation requirements of section 7 of the ESA.

The New Orleans District Army Corps of Engineers (COE) is proposing to widen and deepen the existing navigation channel for the Port of Iberia, Iberia Parish, Louisiana. The proposed project would enlarge the existing navigation channels to the Port of Iberia via the Commercial Canal, the Gulf Intracoastal Waterway (GIWW), and Freshwater Bayou to the Gulf of Mexico, via a bypass channel at the existing lock at Freshwater Bayou. The project proposes to deepen the channels from –13 feet mean sea level (MSL) to –20 feet MSL in Commercial Canal, and from –12 feet MSL to –20 feet MSL in the GIWW and Freshwater Bayou. The project proposes to widen the channels from 115 feet to 150 feet in areas of the port that have existing bulkheads, and from 125 feet to 150 feet in Commercial Canal, GIWW, and Freshwater Bayou.

The COE proposes to widen and deepen the Port of Iberia with bucket and cutterhead dredging. The material dredged from construction and maintenance of the channels would be used for bank-line stabilization and wetlands restoration, to the greatest extent practicable. Neither pipeline or bucket dredging are known to take sea turtles. Dredging by hydraulic cutterhead dredge, which is relatively slow-moving, has not been shown to adversely affect sea turtles, but may possibly deter them from the area during the period construction and dredging are occurring. However, such effects would be expected to be short-term behavioral effects that would not result in any significant adverse effects. Additionally, the turbidity effects on existing habitats from the activities of this project would also be expected to be temporary and unlikely to adversely affect listed sea turtle species. Therefore, NOAA Fisheries believes no adverse effects

to sea turtles would be expected from dredging; however, some indirect effects to listed species associated with the proposed action are possible.

The EA states that the channel modifications will result in expansion of the Port of Iberia. The possible indirect effects of the proposed action that may affect threatened and endangered species may include future waterfront development, turbidity from road construction, dock expansion, and increased transportation traffic and emissions. We recommend a more in-depth analysis be performed on the effects of the port expansion on endangered and threatened species. In considering the indirect effects on listed species under the jurisdiction of NOAA Fisheries, we are particularly concerned with effects to habitat, increases in noise resulting from construction activities and vessel operation that may result in effects to listed species, and the increased risk of vessel collisions with listed species resulting from increases in vessel traffic associated with the port.

Impacts to listed species associated with vessel operation may vary, and are dependent on the type of vessel, hull design, area of operation, speed of operation, and number of vessels operating in association with the port. Your BA concludes that increased vessel traffic as a result of this project and concomitant port expansion may affect, but is not likely to adversely affect listed species. However, upon our review we found no supporting description of vessel traffic or effects to listed species that may enable us to concur with that conclusion at this time. It is recommended that vessel routes be described, and impacts associated with vessel traffic, such as noise and vessel strikes be analyzed. Such an analysis should include a description of the effects of all vessel types such as barges, service vessels, and tankers.

Based upon habitat preferences of listed species and differences in vessel traffic patterns of operation, different species may be affected. For example, vessel traffic associated with the port that operates over the continental shelf waters may affect primarily sea turtles, and tankers and container ships have the potential to affect more pelagic listed species (such as leatherback sea turtles, sperm whales, and non-listed marine mammals) than those found primarily over the continental shelf. It is recommended that the increased levels of vessel traffic and operation be compared to the baseline levels in the Gulf of Mexico. Vessel specifications including hull design, length, and width, speeds of operation, and distances traveled should be described for each vessel type to support us in our analysis to determine any possible effects to listed species resulting from the proposed action.

You are reminded that consultation with NOAA Fisheries' Habitat Conservation Division (HCD) pursuant to the Magnuson-Stevens Fishery Conservation and Management Act's requirements for essential fish habitat (EFH) consultation (16 U.S.C. 1855 (b)(2) and 50 CFR 600.905-.930, subpart K) is required. If you have any questions about EFH consultation, please contact Mr. Richard Hartman at (225) 389-0508.

Incidental takes of marine mammals are not authorized through the ESA section 7 process. If you believe that bottlenose dolphins may be present in the area of any significant sources of noise or other actions that may result in injury or harassment, an incidental take authorization under Marine Mammal Protection Act (MMPA) Section 101 (a)(5) may be necessary. Please contact

Kenneth Hollingshead of our Headquarters Protected Resources staff at (301) 713-2055 for additional information regarding an MMPA take authorization.

Upon receipt of the above information, we believe we will be able to initiate section 7 consultation with the COE at that time. We look forward to continued cooperation with the COE, New Orleans District, in conserving our endangered and threatened resources. If you have any questions regarding this letter, please contact Kyle Baker at the number above or via e-mail at Kyle.Baker@noaa.gov.

Sincerely,

David Bernhart
Assistant Regional Administrator
for Protected Resources

cc(e-mail): F/SER44 - R. Hartman
Ref: I/SER/2004/00874
File: 1514-22.f.1 LA

3

Addendum to:
BIOLOGICAL ASSESSMENT
OF THREATENED AND ENDANGERED SPECIES

PORT OF IBERIA ENVIRONMENTAL IMPACT STATEMENT
IBERERIA PARISH, LOUISIANA

March 27, 2006

A clarification of the datums used for measuring vertical heights was required. The following paragraph provides an updated project description.

The reconnaissance report recommended deepening the Commercial Canal, portions of the GIWW and FWB from an average depth of 12 feet MLG to a depth of 20-feet North Atlantic Vertical Datum 1988 (NAVD 88) from the Port of Iberia to the 20-foot contour NAVD 88 in the Gulf of Mexico. In this area, 0.0 NAVD 88 is approximately 1.8 MLG. The average low daily stage (ALDS) measured at the gage on the north side of the FWB lock is 0.0 NAVD 88 based on a six and a half year period of record (1987 to 2003). This means the depth of the channel would be increase by approximately 6.2 feet and there would be approximately 20 feet of water over the bottom based on the ALDS.

BIOLOGICAL ASSESSMENT
OF THREATENED AND ENDANGERED SPECIES

PORT OF IBERIA ENVIRONMENTAL IMPACT STATEMENT
IBERIA PARISH, LOUISIANA

INTRODUCTION

The U.S. Army Corps of Engineers (Corps), New Orleans District, has prepared this Biological Assessment and is submitted to the U.S. Fish and Wildlife Service and to the U.S. National Marine Fisheries Service to fulfill the requirements of Section 7 (50 CFR Part 402) of the Endangered Species Act of 1973, as amended. This Biological Assessment presents a brief summary of pertinent biological, ecological, and behavioral characteristics, followed by a discussion of potential impacts to listed threatened and endangered species that may result from the construction, operation and maintenance of the proposed channel to the Port of Iberia, St. Mary Parish, Louisiana, project.

PROJECT PURPOSE

The New Orleans District (CEMVN) of the U.S. Army Corps of Engineers is conducting a feasibility study of a navigational channel deepening for the Port of Iberia, Iberia Parish, Louisiana (see attached figure). All dredge material disposal is proposed to be used beneficially with the exception of four confined upland disposal areas. The in-channel dredging reach of the project is proposing to rebuild eroding bank lines with a bucket dredge. Some marsh creation and nourishment will also be accomplished in isolated areas. We propose to use a cutter head dredge for the 4-mile reach that extends into the Gulf of Mexico beyond the lock at Freshwater Bayou. The material from the bar channel would be placed in a disposal area designated as beach nourishment which is the existing method of disposal for Freshwater Bayou. The following is a brief description of the entire proposed action.

PROJECT DESCRIPTION

The proposed action would provide for the enlargement of the existing navigation channels to the Port of Iberia via the Commercial Canal, the Gulf Intracoastal Waterway (GIWW), and Freshwater Bayou to the Gulf of Mexico, via a bypass channel at the existing Freshwater Bayou lock. The proposed project bottom depth is to the -20 foot depth Mean Sea Level (MSL) from the current -13 feet depth MSL in Commercial Canal, and to the -20 foot depth MSL from the current -12 foot depth MSL in the GIWW and Freshwater Bayou. The channel alignments and bottom widths would be increased to 150 feet from the current 115 feet in the areas of the Port that have existing bulkheads. The Commercial Canal, GIWW, and Freshwater Bayou widths would be increased to 150 feet from the current 125 feet. It was assumed that the 250-foot width of the Freshwater Bayou Bar Channel into the Gulf of Mexico would remain the same. The Freshwater Bayou Lock By-Pass would be widened to 150 feet from the current 125 feet. A -20-foot project depth was the only depth evaluated for the reconnaissance analysis and is recommended as part of the feasibility study. The material dredged for the construction and maintenance of the channels would be used for bank-line stabilization and wetlands nourishment and construction, to the maximum extent practicable.

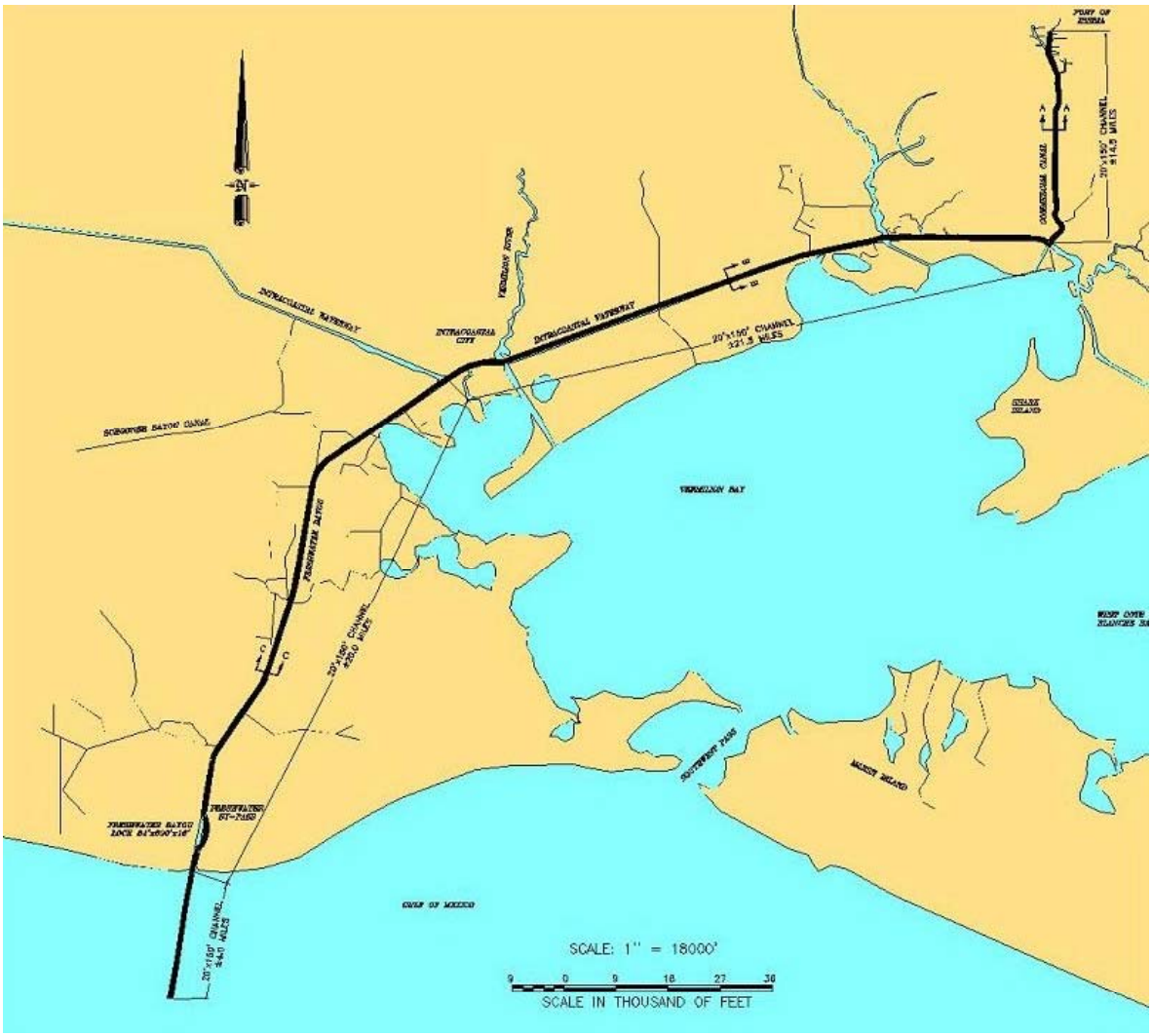


Figure 1. Proposed channel deepening to Port of Iberia, Iberia Parish, Louisiana.

SPECIES ASSESSMENT

MARINE TURTLES

KEMP'S RIDLEY
Lepidochelys kempi

STATUS AND BIOLOGY

The Kemp's ridley was listed as an endangered species in December 1970 (U.S. Fish and Wildlife Service 1991a) and has continued to decline in Louisiana (U.S. Fish and Wildlife Service 1990). This small sea turtle is believed to be the most frequently encountered (Dundee and Rossman 1989), if not the most abundant sea turtle off the Louisiana coast (Gunter 1981; Viosca 1961). The population decline of the Kemp's ridley has been attributed to predation on eggs by humans, other mammals, birds, and crabs, in addition to the capture of diurnal nesting females. Recent causes of mortality are attributable to fishing activities and accidental capture in shrimp trawls (Fuller 1978; Pritchard and Marquez 1973). These sea turtles are commonly captured by shrimpers off the Texas coast, as well as in heavily trawled areas off the coasts and in the bays of Louisiana and Alabama (Dundee and Rossman 1989; Carr 1980; Pritchard and Marquez 1973).

Inshore areas of the Gulf of Mexico appear to be important habitat for ridleys, as they tend to concentrate around the mouths of major rivers (Frazier 1980). Members of this genus are characteristically found in waters of low salinity and high turbidity and organic content, where shrimp are abundant (Hughes 1972, as cited in Frazier 1980; Zwinenberg 1977). Ridleys have been collected in Louisiana from Lake Borgne, Barataria and Terrebonne Bays, and near Calcasieu Pass (Dundee and Rossman 1989).

Occurrence of these sea turtles in bays and estuaries along the Louisiana coast would not be unexpected since many of their primary food items occur there. Stomach analyses of specimens collected in shrimp trawls off Louisiana include crabs, gastropods, and clams (Dobie et al. 1961). Although ridleys are considered primarily carnivorous benthic feeders (Ernst and Barbour 1972), jellyfish have been reported as part of their diet, as well as by-catch off shrimp trawlers (Landry 1986). The possibility of Kemp's ridleys nesting on the Louisiana coast has been suggested (Viosca 1961), but no actual documentation exists. Although this species once nested on beaches from south Texas to southern Mexico, Kemp's ridleys are now known to nest only on the coastline of the Mexican state of Tamaulipas (Pritchard 1979, as cited in Dundee and Rossman 1989).

PROJECT IMPACTS

These turtles have a tendency to follow large shrimp concentrations into estuarine bays and marshes and the possibility of incidental interaction with nearshore dredging activities exists. Construction of the Port of Iberia channel deepening project will take place out to the –20 foot contour in the Gulf of Mexico, in nearshore, shallow water habitat just west of the Atchafalaya

River discharge. Therefore, the actual construction activities may affect, but not likely to adversely affect this species.

In addition, any expansion of port activities as a result of this project will have no effect on Kemp's Ridley in the Gulf of Mexico. However, increased vessel traffic as a result of this project and concomitant port expansion may effect, but not likely to adversely affect this species of sea turtle.

LEATHERBACK
Dermochelys coriacea

STATUS AND BIOLOGY

The leatherback sea turtle was listed as an endangered species in June 1970 (U.S. Fish and Wildlife Service 1991a). Population decline of this turtle has been attributed to exploitation of eggs and juveniles (Ross 1981).

This turtle occurs mostly in continental shelf waters and exhibits seasonal fluctuations to the Gulf Stream and other warm water features (Fritts et al. 1983a, Hirth 1980, Pritchard 1971). Nesting leatherbacks occur along beaches in Florida (USA), Nicaragua, and islands of the West Indies, however no nesting has been reported in Louisiana (Gunter 1981, Dundee and Rossman 1989). Leatherbacks have been collected or sighted in Louisiana from Cameron Parish, Atchafalaya Bay, Timbalier Bay, and Chandeleur Sound (Dundee and Rossman 1989). These turtles feed primarily on jellyfish and other cnidarians. These turtles have been associated with large schools of cabbage head jellyfish *(Stomolophus meleagris).* Ingestion of marine plastic, apparently being mistaken for food, has been reported by Fritts et al. (1983a).

PROJECT IMPACTS

Construction of the Port of Iberia channel deepening project will take place out to the –20 foot contour in the Gulf of Mexico, in nearshore, shallow water habitat just west of the Atchafalaya River discharge. Due to the low incidence of sightings and strandings along the Louisiana coast, there is little possibility that dredging activities will adversely affect leatherback sea turtle populations. Therefore, the actual construction activities may affect, but not likely to adversely affect this species.

In addition, any expansion of port activities as a result of this project will have no effect on loggerhead sea turtles in the Gulf of Mexico. However, increased vessel traffic as a result of this project and concomitant port expansion may effect, but not likely to adversely affect this species of sea turtle.

LOGGERHEAD
Caretta caretta

STATUS AND BIOLOGY

The loggerhead was listed as a threatened species in July 1978 (U.S. Fish and Wildlife Service 1991a) and has continued to decline in Louisiana (U.S. Fish and Wildlife Service 1990). The largest of the hard-shell turtles, the loggerhead is distributed worldwide in temperate and tropical bays and open oceans. Loggerheads probably range all along the Louisiana coast; however, Dundee and Rossman (1989) report specimens only from Chandeleur Sound, Barataria Bay, and Cameron Parish. The population decline of loggerheads can be attributed to egg and nestling predation by mammals and birds (Dundee and Rossman 1989).

Nesting on the Gulf Coast occurs between the months of April and August, with 90% of the nesting effort occurring on the south-central Gulf Coast of Florida (Hildebrand 1981). Although loggerheads have been documented as nesting on the Chandeleurs in 1962 and Grand Isle in the 1930's, it is doubtful whether this species currently nests on the Louisiana coast (Hildebrand 1981, Dundee and Rossman 1989).

The loggerhead's diet includes marine invertebrates such as mollusks, shrimp, crabs, sponges, jellyfish, squid, sea urchins, and basket stars (Caldwell et al. 1955; Hendrickson 1980; Nelson 1986). Landry (1986) suggested that these turtles may also feed on discarded by-catch from shrimp trawling. Adult loggerheads feed in waters less than 50 meters in depth, while primary foraging areas for juveniles appears to be in estuaries and bays (Nelson 1986; Rabalais and Rabalais 1980).

PROJECT IMPACTS

Construction of the Port of Iberia channel deepening project will take place out to the –20 foot contour in the Gulf of Mexico, in nearshore, shallow water habitat just west of the Atchafalaya River discharge. The relatively small number of reports of this turtle from the Gulf of Mexico indicates there is a small likelihood for interaction between this species and construction activities. Therefore, the actual construction activities may affect, but not likely to adversely affect this species.

In addition, any expansion of port activities as a result of this project will have no effect on loggerhead in the Gulf of Mexico. However, increased vessel traffic as a result of this project and concomitant port expansion may effect, but not likely to adversely affect this species of sea turtle in the northern part of the Gulf of Mexico.

GREEN TURTLE
Chelonia mydas

STATUS AND BIOLOGY

Green turtles were listed as a threatened species in October 1970 (U.S. Fish and Wildlife Service 1991a) and this species' current status in Louisiana is unknown (U.S. Fish and Wildlife Service 1990). Although green sea turtles are found world wide in oceans and gulfs with water temperatures greater than 20°C, their distribution can be correlated to grassbed distribution, location of nesting beaches, and associated ocean currents (Hirth 1971). Often long migrations are made between feeding and nesting grounds (Carr and Hirth 1962). Within Louisiana waters, these turtles probably occur all along the coast and may nest on the Chandeleur Islands (Dundee and Rossman 1989).

Population decline has been attributed to heavy fishing pressure and human nest predation (Dundee and Rossman 1989). Historically, green turtles were fished off the Louisiana coast (Rebel 1974); exploitation and incidental drowning in shrimp trawls has contributed to the decline of this species and its eventual listing (King 1981).

During their first year of life, green turtles are primarily carnivorous, feeding mainly on invertebrates. As adults they feed almost exclusively on seagrasses growing in shallow water flats (Fritts et al. 1983a), but also feed on invertebrates and carrion (Dundee and Rossman 1989).

PROJECT IMPACTS

Construction of the Port of Iberia channel deepening project will take place out to the –20 foot contour in the Gulf of Mexico, in nearshore, shallow water habitat just west of the Atchafalaya River discharge. Although there is the possibility of incidental interaction with dredging activities, due to the lack of extensive seagrass beds and the low incidence of sightings and strandings, impacts to the green sea turtle population are not expected. Therefore, the actual construction activities may affect, but not likely to adversely affect this species.

In addition, any expansion of port activities as a result of this project will have no effect on green sea turtle in the Gulf of Mexico. However, increased vessel traffic as a result of this project and concomitant port expansion may effect, but not likely to adversely affect this species of sea turtle.

HAWKSBILL
Eretmochelys imbricata

STATUS AND BIOLOGY

The hawksbill was listed as an endangered species in June 1970 (U.S. Fish and Wildlife Service 1991a) and its current status in Louisiana is unknown (U.S. Fish and Wildlife Service 1990). Only one record of a hawksbill in Louisiana has been reported (Fuller and Tappen 1986).

This species is an omnivore, feeding primarily on invertebrates and marine vegetation (Dundee and Rossman 1989).

PROJECT IMPACTS

Construction of the Port of Iberia channel deepening project will take place out to the –20 foot contour in the Gulf of Mexico, in nearshore, shallow water habitat just west of the Atchafalaya River discharge. Impacts to hawksbill populations are likely to be negligible due to relative rarity along the Louisiana coast. Therefore, the actual construction activities may affect, but not likely to adversely affect this species.

In addition, any expansion of port activities as a result of this project will have no effect on hawksbill populations in the Gulf of Mexico. However, increased vessel traffic as a result of this project and concomitant port expansion may effect, but not likely to adversely affect this species of sea turtle.

MARINE MAMMALS

HUMPBACK WHALE
Megaptera novaeangliae

STATUS AND BIOLOGY

The humpback whale was listed as an endangered species in June 1970 (U.S. Fish and Wildlife Service 1991a). Humpbacks are found in all oceans. They are a coastal migratory species, feeding primarily on krill and schooling fish. Winters are spent in the Caribbean Sea and the remainder of the year in the North Atlantic. An individual sighted off Florida in 1962 is the only recent record for the Gulf of Mexico (Layne 1965 in Schmidly 1981).

PROJECT IMPACTS

Construction of the Port of Iberia channel deepening project will take place out to the –20 foot contour in the Gulf of Mexico. This nearshore, shallow water habitat just west of the Atchafalaya River discharge is unsuitable for whales. Therefore, the actual construction activities will have no effect on this species. In addition, any expansion of port activities is not likely to adversely affect the humpback whale population in the Gulf of Mexico.

FINBACK WHALE
Balaenoptera physalus

STATUS AND BIOLOGY

Finback whales were listed as an endangered species in June 1970 (U.S. Fish and Wildlife Service 1991a) and are found in all oceans. Stranding and sighting records establish their year-round presence in the Gulf of Mexico. Finback whales stranded in Louisiana have been found on Isles Dernieres in 1913, on Breton Sound in 1917, at Sabine Pass in 1924, on the Chandeleur Islands in 1928 and west of Venice in 1968. The possibility of Gulf stock has been suggested (Caldwell and Caldwell 1973, in Schmidly 1981). The diet of finback whales consists mainly of pelagic crustaceans, capelin, and herring (Schmidly 1981).

PROJECT IMPACTS

Construction of the Port of Iberia channel deepening project will take place out to the –20 foot contour in the Gulf of Mexico. This nearshore, shallow water habitat just west of the Atchafalaya River discharge is unsuitable for whales. Therefore, the actual construction activities will have no effect on this species. In addition, any expansion of port activities is not likely to adversely affect the finback whale population in the Gulf of Mexico.

RIGHT WHALE
Eubaleana glacialis

STATUS AND BIOLOGY

The right whale was listed as an endangered species in June 1970 (U.S. Fish and Wildlife Service 1991a). Right whales are cosmopolitan in their distribution throughout the temperate oceans. Only two stranding records exist for the Gulf of Mexico: one at New Pass, Florida in 1963, and the other at Freeport, Texas in 1972 (Schmidly 1981). Their once reduced population may be expanding back into their historical range (Leatherwood et al. 1976), which includes the Gulf of Mexico. Their diet consists primarily of copepods and euphausids (Schmidly 1981).

PROJECT IMPACTS

Construction of the Port of Iberia channel deepening project will take place out to the –20 foot contour in the Gulf of Mexico. This nearshore, shallow water habitat just west of the Atchafalaya River discharge is unsuitable for whales. Therefore, the actual construction activities will have no effect on this species. In addition, any expansion of port activities is not likely to adversely affect the right whale population in the Gulf of Mexico.

SEI WHALE
Balaenoptera borealis

STATUS AND BIOLOGY

Sei whales were listed as an endangered species in June 1970 (U.S. Fish and Wildlife Service 1991a) and occur in nearshore and offshore waters of the western North Atlantic Ocean from the Gulf of Mexico and Caribbean Sea to Nova Scotia and Newfoundland (Leatherwood et al. 1976). Four stranding reports for the entire Gulf of Mexico are all that exist. A stranding occurred in 1928 near Campeche, Mexico, another stranding occurred northeast of Boothville, Louisiana in 1956, in 1973, a whale was stranded in Gulfport Harbor, Mississippi (Schmidly 1981), and in 1992 a whale was stranded in Terrebonne Parish, Louisiana (Henwood 1992). Leatherwood et al. (1976) stated that the sei whale feed mainly on copepods, krill, and small schooling fish.

PROJECT IMPACTS

Construction of the Port of Iberia channel deepening project will take place out to the –20 foot contour in the Gulf of Mexico. This nearshore, shallow water habitat just west of the Atchafalaya River discharge is unsuitable for whales. Therefore, the actual construction activities will have no effect on this species. In addition, any expansion of port activities is not likely to adversely affect the sei whale population in the Gulf of Mexico.

SPERM WHALE
Physeter macrocephalus

STATUS AND BIOLOGY

The sperm whale was listed as an endangered species in June 1970 (U.S. Fish and Wildlife Service 1991a). Sperm whales occur in temperate and tropical oceans throughout the World, staying on the edge of the continental shelf (Lowery 1974b). Lowery (1974b) reported that sperm whales were once numerous enough to support a commercial fishing operation in the Gulf of Mexico. Sperm whales were sighted twice off the Louisiana coast in 1980 (Fritts et al. 1983b). Three strandings have occurred on the Louisiana coast. They consist of an individual stranded near Sabine Pass in 1910, another stranded at Pass A Loutre in 1960, and a third stranded on the central coast of Louisiana, Terrebonne Parish in 1977 (Schmidly 1981).

Recent research by the Minerals Management Service in the Gulf of Mexico indicates that sperm whales appear to favor water depths of about 1000 meters and are concentrated near the Florida Keys, Mississippi River delta and near the Texas-Mexico border.

PROJECT IMPACTS

Construction of the Port of Iberia channel deepening project will take place out to the –20 foot contour in the Gulf of Mexico. This nearshore, shallow water habitat just west of the

Atchafalaya River discharge is unsuitable for whales in general, but especially for sperm whales, that have been shown to congregate in water depths of 1000 m. Therefore, the actual construction activities will have no effect on this species. In addition, any expansion of port activities is not likely to adversely affect the sperm whale population in the Gulf of Mexico.

BIRDS

BROWN PELICAN
Pelecanus occidentalis

STATUS AND BIOLOGY

The brown pelican was listed as an endangered species in October 1970 (U.S. Fish and Wildlife Service 1991a); since that time, these birds have increased in Louisiana (U.S. Fish and Wildlife Service 1990). Brown pelicans were historically abundant across the entire Louisiana coastal region. Population estimates between 1918 and 1933 ranged from 12,000 to 85,000 birds (King et al. 1977). Nesting occurred on Isles Denieres, East Timbalier Island, the mud lumps in the Mississippi Delta, Grand Gosier Island in the Chandeleur Chain, North Island adjacent to the chain, and Isle au Pitre (Lowery 1974a). However, a sharp decline in nesting was observed between 1958 and 1961. By 1962, no brown pelicans were found nesting in the state and by the mid-1960's, brown pelicans had been extirpated from Louisiana (Lowery 1974a; McNease et al. 1984). This sudden and dramatic decline may have been attributable to pesticide poisoning which caused reproductive failure and a direct die-off of adults (Lowery 1974a, King et al. 1977, Blus et al. 1979).

Between 1968 and 1980, the Louisiana Department of Wildlife and Fisheries and the Florida Game and Freshwater Fish Commission released 1,276 brown pelicans from Florida into coastal Louisiana (McNease et al. 1984). A subsequent die-off of pelicans occurred in 1975, resulting in a 40% decline in the new Louisiana population to 250 birds. This die-off was associated with the presence of endrin within the pelican food chain and its direct toxicity to the birds (Blus et al. 1979). Since that time, the numbers of brown pelicans in Louisiana have increased. Martin and Lester (1991) reported six breeding colonies in the state in 1990, representing a total of 2,196 adults. Colonies ranged in size from 1500 adults on North Island in the Chandeleur Island chain to 15 adults on East Timbalier Island. Other colonies were located on Queen Bess Island, Grand Gosier Island in the Chandeleur Island chain, Isles Dernieres, and on the mud lumps in South Pass.

Nesting in Louisiana commences in mid-winter (Lowery 1974a). These birds generally wander along the Gulf Coast during winter months, but often remain in the vicinity of their breeding colonies (Bent 1922). Brown pelicans feed predominately in coastal waters but will feed up to 20 miles offshore (Hingtgen et al. 1985). Their diet consists entirely of fish (Lowery 1974a), primarily menhaden and mullet (Bent 1922).

PROJECT IMPACTS

Based on available data, dredging projects have no direct significant impacts on brown pelicans.

SOUTHERN BALD EAGLE
Haliaeetus leucocephalus leucocephalus

STATUS AND BIOLOGY

The bald eagle was listed as an endangered species in March 1967 (U.S. Fish and Wildlife Service 1991a); since that time, these birds have increased in number in Louisiana (U.S. Fish and Wildlife Service 1991b). The southern bald eagle, which breeds in Louisiana, is a subspecies of the bald eagle *(Haliaeetus leucocephalus).* Two hundred thirty-four active nests, producing 314 fledglings, were reported for the 2003-04 breeding season in Louisiana (Louisiana Department of Wildlife and Fisheries unpubl. data). A steady increase in the number of active nests has occurred over the past 30 years. Only five active nests and four fledglings were reported for the 1973-74 season in Louisiana (U.S. Fish and Wildlife Service 1991b).

Bald eagles suffered a pronounced population decline between the late 1940's and the 1970's, largely due to reproductive failure caused by pesticide accumulation in their food chain (Lowery 1974a). Other factors negatively affecting the bald eagle population include electrocution, severe weather, forested habitat loss, human persecution and disturbance, and lead poisoning.

Nesting densities of bald eagles have been correlated with adequate prey availability and water body size and productivity. Large shallow open water areas with relatively high rates of fish production are normally located within nesting habitat. The bulky stick nests constructed by these birds are usually located in a stand of trees near water and tend to be found just below the crown of the largest living tree in the stand. Usually a clear flight path to water, a good perching tree, and open view of the surrounding area are factors involved in nest site selection. A typical nest site would be located in second growth baldcypress-tupelogum swamp with marshes, canals, and water bodies nearby (Dugoni 1980). Though the bald eagle is an opportunistic feeder, its primary food source is comprised of fish in shallow water areas (Haywood and Ohmart 1986). Carrion is another common component of the diet of these birds (Lowery 1974a).

Bald eagles in Louisiana generally lay two to three eggs during mid-winter (November/December), while the young hatch during the months of January or February. The young fledge from the nest three months later. The characteristic white head and tail feathers are not obtained until the birds are approximately four to five years of age.

PROJECT IMPACTS

Projects that destroy nest trees or create conditions that would cause birds to abandon nesting efforts would impact this species. Coordination that is typically taken to avoid human

persecution will reduce potential impacts to this species. Dredging disposal activities that convert open water foraging areas to emergent marsh would reduce the availability of these areas for foraging by eagles.

PIPING PLOVER
Charadrius melodus

STATUS AND BIOLOGY

The piping plover was listed as an endangered and threatened species in December 1985 (U.S. Fish and Wildlife Service 1991a); these birds have continued to decline in Louisiana (U.S. Fish and Wildlife Service 1990). The population of piping plovers, which winters on the Gulf of Mexico coast, the same population which nests in the Great Lakes and Northern Great Plains region, is comprised of approximately 1400 pairs (Melvin et al. 1991). The amount of time these birds spend on their nesting grounds is less than one third of the year (U.S. Fish and Wildlife Service 1988).

Lowery (1974a) observed that in Louisiana, piping plovers were commonly seen between early March and late April during spring migration and from early August and early October during fall migration. This species was noted as uncommon in Louisiana during the remaining portions of the year. Sightings of piping plovers on the eastern portion of Isle Dernieres and Timbalier Island have been documented by Nicholls (1989). Unpublished winter survey data from Louisiana Department of Wildlife and Fisheries indicate that the Chandeleur Islands, Timbalier Islands, Isles Dernieres, Atchafalaya Delta, and Fourchon Beach are important as wintering sites for piping plovers in Louisiana.

Hunting of piping plovers in the early 1900s and the destruction of historical nesting sites, have resulted in a dramatic decline in this species' population (U.S. Fish and Wildlife Service 1988). A further detrimental impact to the population is attributed to the reduction of wintering habitat along the Gulf Coast, largely due to recreational and commercial development and dune stabilization (Haig 1985; U.S. Fish and Wildlife Service 1988). Recreational activities in localized areas along the Gulf Coast have been correlated with a decrease in piping plover use of those areas (Nicholls 1989), while dune stabilization projects which result in steep beach slopes, narrow beach widths, or increased vegetation reduce plover habitat (Haig 1985). Additionally, urbanization has led to an increase in predation on the piping plover population (U.S. Fish and Wildlife Service 1988).

The piping plover diet consists mainly of invertebrates. These birds forage predominantly in intertidal areas having a substrate composed primarily of sand (Nicholls 1989). Ideal wintering habitat for piping plovers on the Gulf Coast would contain large sand flats or sandy mud flats adjacent to a tidal pass or tidal inlets (Haig 1985; Nicholls 1989). A thin layer of mud covering the sand appears to attract plovers, due possibly to food or refuge association. Barrier beaches with overwash areas or sections of old marshes also attract plovers. (Nicholls 1989). A gulf-facing beach with a very low gradient, thus an increased intertidal zone, offers an almost equally attractive area (Haig 1985; Nicholls 1989). Preferred sites have a dry sandy area above the wrack line, which is used for roosting, and are large in size, with little or no human activity; although,

piping plovers will occupy habitat that is less than optimal when optimal sites are not available (Nicholls 1989). The quality or quantity of winter habitat may be a factor limiting recovery of the species (U.S. Fish and Wildlife Service 1987). In Texas, there has been a loss of approximately 30 percent of the piping plover wintering habitat over the past 20 years (U.S. Fish and Wildlife Service 1985). With continued erosion of Louisiana's coastline, further reductions in piping plover wintering habitat are anticipated.

PROJECT IMPACTS

The piping plover population is not expected to be impacted by dredging and disposal activities.

MAMMALS

LOUISIANA BLACK BEAR
Ursus americanus luteolus

STATUS AND BIOLOGY

The Louisiana black bear was listed as a threatened species in February 1992 (U.S. Fish and Wildlife Service 1992). A subspecies of the American black bear *(Ursus americanus americanus)*, the Louisiana black bear historically ranged throughout Louisiana, southern Mississippi, and eastern Texas. Present populations exist in the Atchafalaya and Tensas River basins of Louisiana and southwestern Mississippi (Hammond 1989). Currently, a small population of Louisiana black bear exists in southern St. Mary and Iberia Parishes, Louisiana (Hammond 1989, Pace 1992). Cause for decline has been attributed to past and potential habitat losses, the vulnerability to human persecution, and illegal killing (U.S. Fish and Wildlife Service 1992).

Louisiana black bears utilize a variety of terrestrial habitats including marsh, forest, and agricultural areas, and require large areas of relatively undisturbed bottomland habitat (Weaver et al. 1990, Pace 1992). Activity centers around foraging, search for cover, and breeding. Typically, males have larger home ranges than females and ranges may increase during the summer and fall for both sexes in response to food availability and search for mates. Mating generally occurs in the summer months which is the only time adult males and females are in contact with one another.

Bears utilize a variety of foods including hard mast, soft mast, and invertebrates (Weaver et al 1990). Early successional habitats (agricultural areas, cane thickets, clearcuts) seem to be important for feeding during the spring and summer (Weaver et al. 1990), as these areas provide diversified sites for annual and perennial vegetative growth. Mid-to-late successional forest habitat is important during the fall for bears as these areas contribute hard mast, which is heavily used in preparation for winter. Diet exhibits a seasonal shift from succulent, herbaceous growth in the spring, to soft mast in the summer, to hard mast in the fall (Hellgren and Vaughan 1988, Weaver et al. 1990). In preparation of winter, bears exhibit their most rapid weight gain during

the fall primarily in response to acorn consumption. Animal foods supplement plant foods during all seasons (Hellgren and Vaughan 1988, Weaver et al. 1990).

Activity and movements generally decline from November through January as bears den in response to food scarcity and winter weather. Bears may utilize ground dens in thick understory areas of cane, palmetto, and logging slash, or select trees with suitable cavities (Weaver et al. 1990). Cubs are born in the winter den during January and February and remain with the female for fifteen to twenty months.

PROJECT IMPACTS

No significant impacts to the Louisiana black bear population are anticipated from dredging activities.

CONCLUSION

The construction, operation and future maintenance of the channel to the Port of Iberia are not expected to adversely affect the continued existence of the listed threatened and endangered species, including the Louisiana black bear, and critical habitat will not be adversely impacted or destroyed.

Based on available information and general knowledge of the population status of sea turtles, whales, brown pelican, southern bald eagle, piping plover, Louisiana black bear, and in Louisiana, the proposed Port of Iberia channel deepening is considered unlikely to directly impact any population of these endangered and threatened species.

PREPARER

This Biological Assessment was prepared by Mr. Christopher G. Brantley, wildlife biologist with the U.S. Army Corps of Engineers, New Orleans District.

LITERATURE CITED

Bent, A.C. 1922. Life histories of North American petrels and pelicans and their allies. U.S. Nat. Museum Bulletin 121.

Black Bear Conservation Committee. 1996. Black bear management handbook for Louisiana, Mississippi, southern Arkansas, and east Texas (2nd ed.). Black Bear Conservation Committee, Baton Rouge, LA.

Blus, L., E. Cromartie, L. McNease, and T. Joanen. 1979. Brown pelican: Population status, reproductive success, and organochlorine residues in Louisiana, 1971-1976. Bull. Environ. Contam. Toxicol. 22:128-135.

Caldwell, D.K.A., and M.C. Caldwell. 1973. Marine mammals of the eastern Gulf of Mexico. Pages 1-23 in J.I. Jones, R.E. Ring, M.O. Rinkel, and R.E. Smith (eds.) A summary of_ knowledge of the eastern Gulf of Mexico. The State University System of Florida, Institute of Oceanography, St. Petersburg.

Caldwell, D.K.A., A. Carr, and T.R. Heller, Jr. 1955. Natural history notes on the Atlantic loggerhead turtle, *Caretta caretta caretta. Quart. J. Fla. Acad. Sci. 18(4):292-302.*

Carr, A. 1980. Some problems of sea turtle ecology. Amer. Zool. 20:489-498.

Carr, A.F. and H. Hirth. 1962. The ecology and migrations of sea turtles, five comparative features of green turtle nesting colonies. Am. Mus. Noviates. 2091:1-42.

Dobie, J.L., L. H. Ogren, and J.F. Fitzpatrick. 1961. Food notes and records of the Atlantic ridley turtle *(Lepidochelys kempi)* from Louisiana. Copeia 1961:109-110.

Dugoni, J.A. 1980. Habitat utilization, food habits, and productivity of southern bald eagles in Louisiana. M.S. Thesis, Louisiana State Univ., Baton Rouge. 151 pp.

Dundee, H.A. and D.A. Rossman. 1989. The Amphibians and Reptiles of Louisiana. Louisiana State University Press, Baton Rouge.

Ernst, L.H. and R.W. Barbour. 1972. Turtles of the United States. Univ. Kentucky Press, Lexington. 347 pp.

Frazier, J.G. 1980. Marine turtles and problems in coastal management. Pp. 2395-2422 **in** B.L. Edge (ed.). Coastal Zone 80: Proc. of the second symp. on coastal and ocean management, Vol. III. American Society of Civil Engineers, N.Y.

Fritts, T.H., W. Hoffman, and M.A. McGehee. 1983a. The distribution and abundance of marine turtles in the Gulf of Mexico and nearby Atlantic waters. J. Herpetol. 17(4):327-344.

Fritts, T.H., A.B. Irvine, R.D. Jennings, L.A. Collum, W. Hoffman, and M.A. McGehee. 1983b. Turtles, birds, and mammals in the northern Gulf of Mexico and nearby Atlantic waters. U.S. Fish and Wildlife Service, Division of Biological Services, Washington, D.C. FWS/OBS-82/65. 455 pp.

Fuller, D.A. 1978. Appendix A: The habitats, distribution, and incidental capture of sea turtles in the Gulf of Mexico. Prepared as a working paper on sea turtles for the Task Force developing the Draft Shrimp Management Plan of the U.S. Gulf of Mexico. Center for Wetland Resources, Louisiana State University, Baton Rouge. 32 pp. LSU-CFI-86-28.

Fuller, D.A. and A.M. Tappan. 1986. The occurrence of sea turtles in Louisiana coastal waters. LSU Center for Wetland Resources, Coastal Fisheries Institute. LSU-CFI-86-28. 46 pages.

Gunter, G. 1981. Status of turtles on the Mississippi Coast. Gulf Res. Rep. 7:89-92.

Haig, S.M. 1985. The status of the piping plover in Canada. Report to the Committee on the Status of Endangered Wildlife in Canada (COSEWIC), National Museum of Canada, Ottawa, Ontario.

Hammond, A.S. 1989. Status of the black bear in Louisiana in 1988. M.S. Thesis, Louisiana State Univ., Baton Rouge. 97 pp.

Haywood, D.D. and R.D. Ohmart. 1986. Utilization of benthic-feeding fish by inland breeding bald eagles. The Condor 88:35-42.

Hellgren, E.C. and M.R. Vaughan. 1988. Seasonal food habits of black bears in Great Dismal Swamp, Virginia-North Carolina. Proc. Annu. Conf. Southeast Assoc. Fish Wildl._ Agencies 42:295-305.

Hendrickson, J.R. 1980. The ecological strategies of sea turtles. Amer. Zool. 20:597-608.

Henwood, T. 1992. National Marine Fisheries Service. Personal communication with Christopher G. Brantley, U.S. Army Corps of Engineers, New Orleans District.

Hildebrand, H.H. 1981. A historical review of the status of sea turtle populations in the western Gulf of Mexico. Pp. 447-453 *in K.* A. Bjorndal (ed.) Biology and Conservation of Sea Turtles, Washington, D.C.

Hingtgen, T.M., R. Mulholland, and A.V. Zale. 1985. Habitat suitability index models: eastern brown pelican. U.S. Fish Wildl. Serv. Biol. Rep. 82(10.90). 20 pp.

Hirth, H.F. 1971. Synopsis of the biological data on the green sea turtle, *Chelonia mydas* (Linneaus 1758). FAD Fisheries Synopsis No. 85.

Hirth, H.F. 1980. Some aspects of the nesting behavior and reproductive biology of sea turtles. Amer. Zool. 20:507-523.

Hughes, G.R. 1972. The olive ridley sea-turtle *(Lepidochelys olivacea)* in south-east Africa. Biol. Cons. 4(2):128-134.

King, F.W. 1981. Historical review of the decline of the green turtle and the hawksbill. Pp. 183-188 *in K.A.* Bjorndal (ed.) Biology and Conservation of Sea Turtles. Washington, D.C.

King, K.A., E.L. Flickinger, and H.H. Hildebrand. 1977. The decline of brown pelicans on the Louisiana and Texas Gulf Coast. Southwest Nat. 21(4):417-431.

Landry, A. 1986. Stranding and natural history of sea turtles in the northern Gulf of Mexico. Presented at Seventh Annual Minerals Management Service, Gulf of Mexico OCS Region, Infoliuation Transfer Meeting, Session IV. D. Sea turtle problems in the Gulf of Mexico, 5 November, 1986.

Layne, J.N. 1965. Observations on marine mammals in Florida waters. Bull. Fla. State Mus. Biol. Sci. 9:131-181.

Leatherwood, S., D.K. Caldwell, and H.E. Winn. 1976. Whales, dolphins, and porpoises of the western North Atlantic: A guide to their identification. National Oceanic and Atmospheric Administration Tech. Rep. NMFS CIRC-396:1-176.

Lowery, G.H., Jr. 1974a. Louisiana Birds (3rd ed.). Louisiana State University Press, Baton Rouge. 651 pp.

Lowery, G.H., Jr. 1974b. The mammals of Louisiana and its adjacent waters. Louisiana State University Press, Baton Rouge. 565 pp.

Martin, R.P. and G.D. Lester. 1991. Atlas and census of wading bird and seabird nesting colonies in Louisiana: 1990. La. Nat. Heritage Prog., Sp. Pub. No. 3. La. Dept. Wildl. and Fish., Baton Rouge. 182 pp.

McNease, L., T. Joanen, D. Richard, J. Shepard, and S.A. Nesbitt. 1984. The brown pelican restocking program in Louisiana. Proc. Annu. Conf. Southeast. Assoc. Fish and Wildl. Agencies 38:165-173.

Melvin, S.M., C.R. Griffin, and L.H. Maclvor. 1991. Recovery strategies for piping plovers in managed coastal landscapes. Coastal Management 19:21-34.

Nelson, D.A. 1986. Life history and environmental requirements of loggerhead sea turtles. - Technical Report EL-86-2, U.S. Army Corps of Engineers, Waterways Experiment Station, Vicksburg. 40 pp.

Nicholls, J.L. 1989. Distribution and other ecological aspects of piping plovers *(Charadrius melodus)* wintering along the Atlantic and Gulf Coasts. M.S. Thesis. Auburn Univ., Auburn. 164 pp.

Pace, R. 1992. U.S. Fish and Wildlife Service, LSU Cooperative Wildlife Unit. Personal communication with Christopher G. Brantley, U.S. Army Corps of Engineers, New Orleans District.

Pace, R. M. III, R. O. Wagner, and P.D. Nyland. 1993. Final report. Louisiana Cooperative Fish and Wildlife Research Unit, Louisiana State University, Baton Rouge, LA.

Pritchard, P.C.H. 1971. The leatherback or leathery turtle, *Dermochelys coriacea. IUCN* Monograph, Marine Turtle Series (1):1-39.

Pritchard, P.C.H. 1979. Encyclopedia of Turtles. Neptune, New Jersey.

Pritchard, P.C.H. and R. Marquez. 1973. Kemp's ridley turtle or Atlantic ridley. IUCN Monograph No. 2. Marine Turtle Series. 30 pp.

Rabalais, S.C. and N.N. Rabalais. 1980. The occurrence of sea turtles on the south Texas coast. Contrib. Mar. Sci. 23:123-129.

Rebel, T.P. 1974. Sea turtles and the turtle industry of the West Indies, Florida, and the Gulf of Mexico. Univ. Miami Press, Coral Gables, Florida. 250 pp.

Ross, J.P. 1981. Historical decline of loggerhead, ridley, and leatherback sea turtles. Pp. 189-195 in K.A. Bjorndal (ed.) Biology and Conservation of Sea Turtles, Washington, D.C.

Schmidly, D.J. 1981. Marine mammals of the southeastern United States and Gulf of Mexico. U.S. Fish and Wildlife Service, Office of Biological Services, Washington, D.C. FWS/OBS-80/41. 163 pp.

Smith, T. R. 1985. Ecology of black bears in a bottomland hardwood forest in Arkansas. Ph.D. Dissertation, University of Tennessee, Knoxville. 209 pages.

U.S. Fish and Wildlife Service. 1985. Federal Register 50:50727-50734. U.S. Dept. Interior, Washington, D.C.

U.S. Fish and Wildlife Service. 1987. Great Lakes and Northern Great Plains piping plover draft recovery plan. U.S. Dept. Interior, Twin Cities. 161 pp.

U.S. Fish and Wildlife Service. 1988. Great Lakes and Northern Great Plains piping plover recovery plan. U.S. Dept. Interior, Twin Cities. 160 pp.

U.S. Fish and Wildlife Service. 1990. Report to Congress: Endangered and threatened species recovery program. U.S. Dept. Interior. Washington, D.C. 406 pp.

U.S. Fish and Wildlife Service. 1991a. Endangered and threatened wildlife and plants. 50CFR 17.11 and 17.12. U.S. Dept. Interior, Washington, D.C. 37 pp.

U.S. Fish and Wildlife Service. 1991b. Unpublished data. Dept. Interior, Jackson, Mississippi.

U.S. Fish and Wildlife Service. 1992. Federal Register 57(4):588-595. U.S. Dept. Interior, Jackson, Mississippi.

U.S. Fish and Wildlife Service. 1993. Proposed designation of critical habitat for the Louisiana black bear. Federal Register, December 2, 1993. 50 CFR Part 17. 58(230).

Viosca, P., Jr. 1961. Turtles, tame and truculent. La. Conserv. 13:5-8.

Wagner, R.O. 1995. Movement patterns of black bears in south-central Louisiana. Unpublished M.S. Thesis, Louisiana State University, Baton Rouge, LA.

Weaver, K.M., D.K. Tabberer, L.U. Moore, Jr., G.A. Chandler, J.C. Posey, and M.R. Pelton. 1990. Bottomland hardwood forest management for black bears in Louisiana. Proc. Southeast Assoc. Fish and Wildl. Agencies 44: (in press).

Zwinenberg, A.J. 1977. Kemp's ridley, *Lepidochelys kempi* (Garman 1880), undoubtedly the most endangered marine turtle today (with notes on the current status of *Lepidochelys olivacea).* Bull. Maryland Herp. Soc. 13:170-192.

SECTION 3
COASTAL WETLANDS PLANNING, PROTECTION AND RESTORATION ACT

WETLAND VALUE ASSESSMENT METHODOLOGY

NOTE : This section is included to describe the method of habitat analysis used for this study.

SECTION 3

Coastal Wetlands Planning, Protection and Restoration Act

Wetland Value Assessment Methodology

Introduction

Prepared by:

Environmental Work Group

Point of Contact:
Kevin J. Roy
U.S. Fish and Wildlife Service
646 Cajundome Blvd., Suite 400
Lafayette, LA 70506
(337) 291-3120
kevin_roy@fws.gov

August 1, 2002

Wetland Value Assessment Methodology

I. INTRODUCTION

The Wetland Value Assessment (WVA) methodology is a quantitative habitat-based assessment methodology developed for use in prioritizing project proposals submitted for funding under the Coastal Wetlands Planning, Protection, and Restoration Act (CWPPRA). Some aspects of the WVA have been defined by policy and/or functional considerations of the CWPPRA; therefore, user-specific modifications may be necessary if the WVA is used for other purposes.

The WVA quantifies changes in fish and wildlife habitat quality and quantity that are expected to result from a proposed wetland restoration project. The results of the WVA, measured in Average Annual Habitat Units (AAHUs), can be combined with economic data to provide a measure of the effectiveness of a proposed project in terms of annualized cost per AAHU gained.

The WVA was developed by the Environmental Work Group (EnvWG) assembled under the Planning and Evaluation Subcommittee of the CWPPRA Technical Committee; the EnvWG includes members from each agency represented on the CWPPRA Task Force and members of the Academic Assistance Subcommittee. The WVA was designed to be applied, to the greatest extent possible, using only existing or readily obtainable data.

The WVA is a modification of the Habitat Evaluation Procedures (HEP) developed by the U.S. Fish and Wildlife Service (U.S. Fish and Wildlife Service 1980). HEP is widely used by the Fish and Wildlife Service and other Federal and State agencies in evaluating the impacts of development projects on fish and wildlife resources. A notable difference exists between the two methodologies, however, in that HEP generally uses a species-oriented approach, whereas the WVA utilizes a community approach.

The WVA has been developed for application to several habitat types along the Louisiana coast and community models have been developed for; fresh marsh, intermediate marsh, brackish marsh, saline marsh, fresh swamp, barrier islands, and barrier headlands (Attachments 1-4). A WVA Procedural Manual has also been prepared by the EnvWG to provide guidance to project planners in the use of the various community models. Two other habitat assessment models for bottomland hardwoods and coastal chenier/ridge habitat were developed outside of the CWPPRA arena and are periodically used by the EnvWG.

II. WVA CONCEPT

The WVA operates under the assumption that optimal conditions for fish and wildlife habitat within a given coastal wetland habitat type can be characterized, and that existing or predicted conditions can be compared to that optimum to provide an index of habitat quality. Habitat quality is estimated or expressed through the use of community models developed specifically for each habitat type. Each model consists of 1) a list of variables that are considered important

in characterizing fish and wildlife habitat, 2) a Suitability Index graph for each variable, which defines the assumed relationship between habitat quality (Suitability Index) and different variable values, and 3) a mathematical formula that combines the Suitability Index for each variable into a single value for habitat quality; that single value is referred to as the Habitat Suitability Index, or HSI. The output of each model (the HSI) is assumed to have a linear relationship with the suitability of a coastal wetland system in providing fish and wildlife habitat.

The WVA models (Attachments 1-4) have been developed for determining the suitability of Louisiana coastal wetlands in providing resting, foraging, breeding, and nursery habitat to a diverse assemblage of fish and wildlife species. The models have been designed to function at a community level and therefore attempt to define an optimum combination of habitat conditions for all fish and wildlife species utilizing a given habitat type. Earlier attempts to capture other wetland functions and values such as storm-surge protection, flood water storage, water quality functions, and nutrient import/export were abandoned due to the difficulty in defining unified model relationships and meaningful model outputs for such a variety of wetland benefits. However, the ability of a Louisiana coastal wetland to provide those functions and values may be generally assumed to be positively correlated with fish and wildlife habitat quality as predicted through the WVA.

III. COMMUNITY MODEL VARIABLE SELECTION

Habitat variables considered appropriate for describing habitat quality in each wetland type were selected according to the following criteria:

1) the condition described by the variable had to be important in characterizing fish and wildlife habitat quality in the wetland type under consideration;

2) values had to be easily estimated and predicted based on existing or readily obtainable data (e.g., aerial photography, habitat classification data, water quality monitoring stations, interviews with knowledgeable individuals, etc.); and

3) the variable had to be sensitive to the types of changes expected to be brought about by typical wetland restoration projects proposed under the CWPPRA.

IV. SUITABILITY INDEX GRAPHS

A suitability index graph is a graphical representation of how fish and wildlife habitat quality or "suitability" of a given habitat type is predicted to change as values of the given variable change, and allows the model user to numerically describe, through a Suitability Index, the habitat quality of a wetland area for any variable value. Each Suitability Index ranges from 0.1 to 1.0, with 1.0 representing the optimal condition for the variable in question. Suitability Index (SI) graphs were constructed for each variable.

V. HABITAT SUITABILITY INDEX FORMULA

The final step in model development was to construct a mathematical formula that combines all Suitability Indices into a single Habitat Suitability Index value. Because the Suitability Indices range from 0.1 to 1.0, the HSI also ranges from 0.1 to 1.0, and is a numerical representation of the overall or "composite" habitat quality of the particular wetland area being evaluated. The HSI formula defines the aggregation of Suitability Indices in a manner unique to each wetland type depending on how the formula is constructed.

Within an HSI formula, any Suitability Index can be weighted by various means to increase the power or "importance" of that variable relative to the other variables in determining the HSI. Additionally, two or more variables can be grouped together into subgroups to further isolate variables for weighting.

VII. BENEFIT ASSESSMENT

The net benefits of a proposed project are estimated by predicting future habitat conditions under two scenarios: future without-project and future with-project. Specifically, predictions are made as to how the model variables will change through time under the two scenarios. Through that process, HSIs are established for baseline (pre-project) conditions and for future without- and future with-project scenarios for selected "target years" throughout the expected life of the project. Those HSIs are then multiplied by the project area acreage at each target year to arrive at Habitat Units (HUs). Habitat Units represent a numerical combination of quality (HSI) and quantity (acres) existing at any given point in time. The HUs resulting from the future without- and future with-project scenarios are annualized, averaged over the project life, to determine Average Annual Habitat Units (AAHUs). The "benefit" of a project can be quantified by comparing AAHUs between the future without- and future with-project scenarios. The difference in AAHUs between the two scenarios represents the net benefit attributable to the project in terms of habitat quantity <u>and</u> quality.

LITERATURE CITED

U. S. Fish and Wildlife Service. 1980. Habitat evaluation procedures (HEP). Div. Ecol. Serv. ESM 102, U. S. Fish and Wildl. Serv., Washington, DC. 141pp.

SECTION 4
WATER AND AIR QUALITY

SECTION 4
WATER AND AIR QUALITY

PORT OF IBERIA FEASIBILITY STUDY
WATER QUALITY REPORT

INTRODUCTION

The Port of Iberia is a landlocked port that provides a navigation route for numerous offshore production and transportation of products important to the oil and gas industry. It also provides support for the construction and repair of offshore vessels and rigs. The Port of Iberia is an important element to the gas and oil industry of Louisiana. The current depth of this access channel to the Port of Iberia is becoming increasingly inadequate to accommodate the growing local industries that rely on this channel for offshore access. The depth of the channel is too shallow for industries that profit from the new deep-water industry. The purpose of this feasibility study is to provide a deeper and wider navigation channel from the Port of Iberia to the Gulf of Mexico.

The Port of Iberia Feasibility Study Area is composed of three connecting waterways that serve as the access channel to the Port of Iberia. The access channel consists of Commercial Canal in Iberia Parish, which is approximately 12 feet deep and 150 feet wide and extends from the Port of Iberia to the Gulf Intracoastal Waterway (GIWW). The channel continues from the GIWW at Commercial Canal to Freshwater Bayou, which runs southward from the GIWW and empties into the Gulf of Mexico. The Recommended plan consists of deepening and widening this access channel by dredging the Commercial canal, the GIWW and Freshwater Bayou to a uniform size channel with of 150 feet wide by 20 feet deep, that will better accommodate the industry of the area and the port. The placement of dredged material will depend on the section of channel. Material dredged from Commercial Canal will be placed to a maximum height of 5 feet above the existing ground in upland disposal on the West side of the canal. Dredged material will be bounded by a new dike, 26,000 linear feet in length, along the western side of the disposal area. Material will also be placed in the northeastern corner Weeks Bay to a maximum elevation of +5.0 NAVD 88. Material dredged from the GIWW will be placed in bankline restoration (along the banks of the channel) behind earthen dikes. Material dredged from Freshwater Bayou will be placed in several different bankline restoration areas along the channel, along the northern banks of Vermillion Bay, in several designated marshland creation areas on each side of the channel, and in a designated beach nourishment area along the shoreline of the Gulf of Mexico, on the west side of the Freshwater Bayou outlet.

This report describes the existing water quality in the study area. It also identifies the potential impacts of construction activities.

EXISTING CONDITIONS

WATER QUALITY STANDARDS AND CRITERIA

The Louisiana Department of Environmental Quality (LDEQ) and the United States Environmental Protection Agency (EPA) have established ambient water quality standards and criteria applicable to surface waters in the State of Louisiana.

Applicable Louisiana State Criteria. Criteria are elements of the water quality that set general and numerical limitations on the permissible amounts of a substance or other characteristics of State waters. General and numerical criteria are established to promote restoration, maintenance, and protection of State waters. Water quality criteria describe stream uses. A criterion for a substance represents the permissible levels for that substance at which water quality will remain sufficient to support a designated use.

Quality criteria for the waters of Louisiana are based on their present and potential uses, and the existing water quality indicated by data accumulated through LDEQ monitoring programs, and other State and federal agencies as well as other sources.

General Criteria - The LDEQ has established general written criteria that apply to all waters of the State. The general written criteria relate to the condition of the water as affected by waste discharges or human activity as opposed to purely natural phenomena. The general criteria address the following water quality parameters:

Aesthetics
Color
Floating, Suspended, and Settled Solids
Taste and Odor
Toxic Substances
Oil and Grease
Foaming or Frothing Materials
Nutrients
Turbidity
Flow
Radioactive Materials
Biological and Aquatic Community Integrity

Numerical Criteria - Numerical criteria, except for toxic substances criteria, apply to specified waterbodies, and to their tributaries, distributaries, and interconnected streams and waterbodies contained in the water management subsegment if they are not specifically named therein. The water body conditions and their acceptable levels are:

- pH – Shall fall between 6.0 and 9.0.

- Chlorides, Sulfates, and Dissolved Solids – For estuarine and coastal marine waters, criteria is listed as N/A, to be established on a case-by-case basis using field determination of ambient conditions and the designated uses.

- Dissolved Oxygen – A minimum criteria is required depending on the type of water specified. For the majority of the project area, the dissolved oxygen concentration shall not be less than 4.0 mg/l. For coastal marine waters, including Vermillion Bay, the dissolved oxygen concentration shall not be less than 5 mg/L.

- Temperature – Is specified depending on the type of water specified. For the waters of this project area, the temperature shall not exceed 35ºC (95ºF).

- Bacteria – bacterial criteria depends on the use designation for a particular water body.
    - Primary Contact Recreation – The fecal coliform content shall not exceed a log mean of 200/100 mL, for a minimum of 5 samples taken over a 30 day period.
    - Secondary Contact Recreation - The fecal coliform content shall not exceed a log mean of 1,000/100 mL, for a minimum of 5 samples taken over a 30 day period.
    - Drinking Water Supply – The monthly mean of total coliform most probable number (MPN) shall not exceed 10,000/100 mL, nor shall the monthly mean of fecal coliforms exceed 2,000/100 mL.
    - Oyster Propagation – The fecal coliform MPN shall not exceed 14 coliforms per100 mL.

Toxic substances numerical criteria apply to all waters of the State. Numerical criteria for specific toxic substances are mostly derived from EPA water quality criteria publications. Natural background conditions are also considered. These toxic substances are selected for criteria development because of their known or suspected occurrence in Louisiana waters and potential threat to attainment of designated water uses.

For purposes of criteria assessment, the most stringent criteria for each toxic substance applies. Toxicity levels will be characterized as meeting either acute or chronic aquatic criteria. Acute aquatic toxicity refers to immediate aquatic lethality or other deleterious effects caused by passage of migrating fish through a mixing zone. Chronic aquatic toxicity applies immediately outside the mixing zone, and is specified by exceedences of a 7-day average concentration to more than once every ten years. For determination of criteria attainment in ambient water where the criteria are below the detection limit, no detectable concentrations will be allowed.

LDEQ - WATER QUALITY INVENTORY

The Louisiana Department of Environmental Quality prepares a bi-annual water quality inventory of all waters of the State of Louisiana. A summary of the relevant portions of this inventory is included below.

Water Use Designations. LDEQ has established seven water use designations for surface waters in the State. The seven designated water uses follow.

Primary Contact Recreation
Secondary Contact Recreation
Fish and Wildlife Propagation
Outstanding Natural Resource
Drinking Water Supply
Shell Fish Propagation
Agriculture

The Port of Iberia study area is quite large and encompasses many waterbodies. Specifically, LDEQ has designated the primary waters of the Port of Iberia Feasibility Study Area according to the following uses:

Primary Contact Recreation
Secondary Contact Recreation
Fish and Wildlife Propagation

Other waterbodies that may influence the water quality of the study area are also designated by shell fish propagation.

For the primary contact recreation designation, a waterbody should be suitable for activities such as swimming, water skiing, and skin diving. A waterbody designated for Secondary Contact Recreation should be suitable for activities such as boating, fishing, and limited contact incident to shoreline activities. The fish and wildlife propagation designation means the waterbody should also be suitable for preservation and reproduction of aquatic biota such as indigenous species of fish, invertebrates, reptiles, amphibians, and other wildlife associated with the aquatic environment. The outstanding natural resource designation indicates that a waterbody is suitable for preservation, protection, reclamation, or enhancement of wilderness, aesthetic qualities, and ecological regimes, such as those designated under the Louisiana Natural and Scenic Rivers System or those designated by the Department of Natural Resources as waters of ecological significance. Waterbodies designated for drinking water supply should be suitable for human consumption and general household use. Those waterbodies designated for shell fish propagation should be suitable to maintain biological systems that support economically important species of oysters, clams, mussel and other mollusks so that their productivity is preserved and the health of human consumers of those species is protected. Finally the use category, agriculture, indicates that a waterbody should be suitable for the use of water for crop spraying, irrigation, livestock watering, poultry operations, and other farm purposes not related to human consumption.

Water Use Support Classification. LDEQ classifies water use support based upon either an evaluation of land use, citizen complaints, etc., or upon actual monitored data. Both evaluated and monitored assessments are available for the study area, and the results of both are shown in Table 2 below.

Evaluated Assessment. LDEQ has classified the waters of the Port of Iberia Feasibility Study Area as either FULLY or NOT supporting their designated uses based upon an evaluated assessment.

Monitored Assessment. This classification is based on nearby water quality monitoring stations for the year 2002. LDEQ uses a computer driven use-impairment index program described below. Note that metals, toxins and organic/inorganic compound data are not utilized in the program. "F" indicates fully supporting. "P" indicates partially supporting. "N" indicates not supporting.

Support classification for a waterbody segment involves four levels of support classification as follows:

1. Parametric use support - keys on frequency of exceedances of criteria for primary and secondary parameters for each designated use of a waterbody.

2. Designated use support - determined by the least supporting parameter(s) within a designated use.

3. Station use support - determined by averaging all designated use supports at a monitoring station.

4. Waterbody use support - determined by the least supporting station(s) within a waterbody segment where there are multiple stations.

Current support classification criteria are presented in Table 3 below.

TABLE 3
CRITERIA FOR PARAMETRIC SUPPORT CLASSIFICATIONS PER DESIGNATED USE FOR MONITORED ASSESSMENTS

Degree of Support	Primary Determinant Parameters	Secondary Determinant Parameters
FULLY (F)	If the parameter criteria are exceeded in less than 10% of the samples analyzed.	If the parameter criteria are exceeded in less than 30% of the samples analyzed.
PARTIALLY (P)	If the parameter criteria are exceeded in 11% to 25% of the samples analyzed.	If the parameter criteria are exceeded in 31% to 75% of the samples analyzed.
NOT (N)	If the parameter criteria are exceeded in more than 25% of the samples analyzed.	If the parameter criteria are exceeded in more than 75% of the samples analyzed.

Primary and secondary determinant parameters within each designated use category were established in order to maximize the effectiveness of use support classification procedures. The parameters utilized for each use are listed in Table 4, which follows.

TABLE 4
PARAMETERS UTILIZED
FOR USE SUPPORT DETERMINATION BY DESIGNATED USES

Use	Primary Parameter	Secondary Parameter
Primary Contact Recreation (PCR)	Fecal Coliform	Temperature
Secondary Contact Recreation (SCR)	Fecal Coliform	None
Fish and Wildlife Propagation (FWP)	Dissolved Oxygen	Temperature, pH, chlorides, sulfates, total dissolved solids

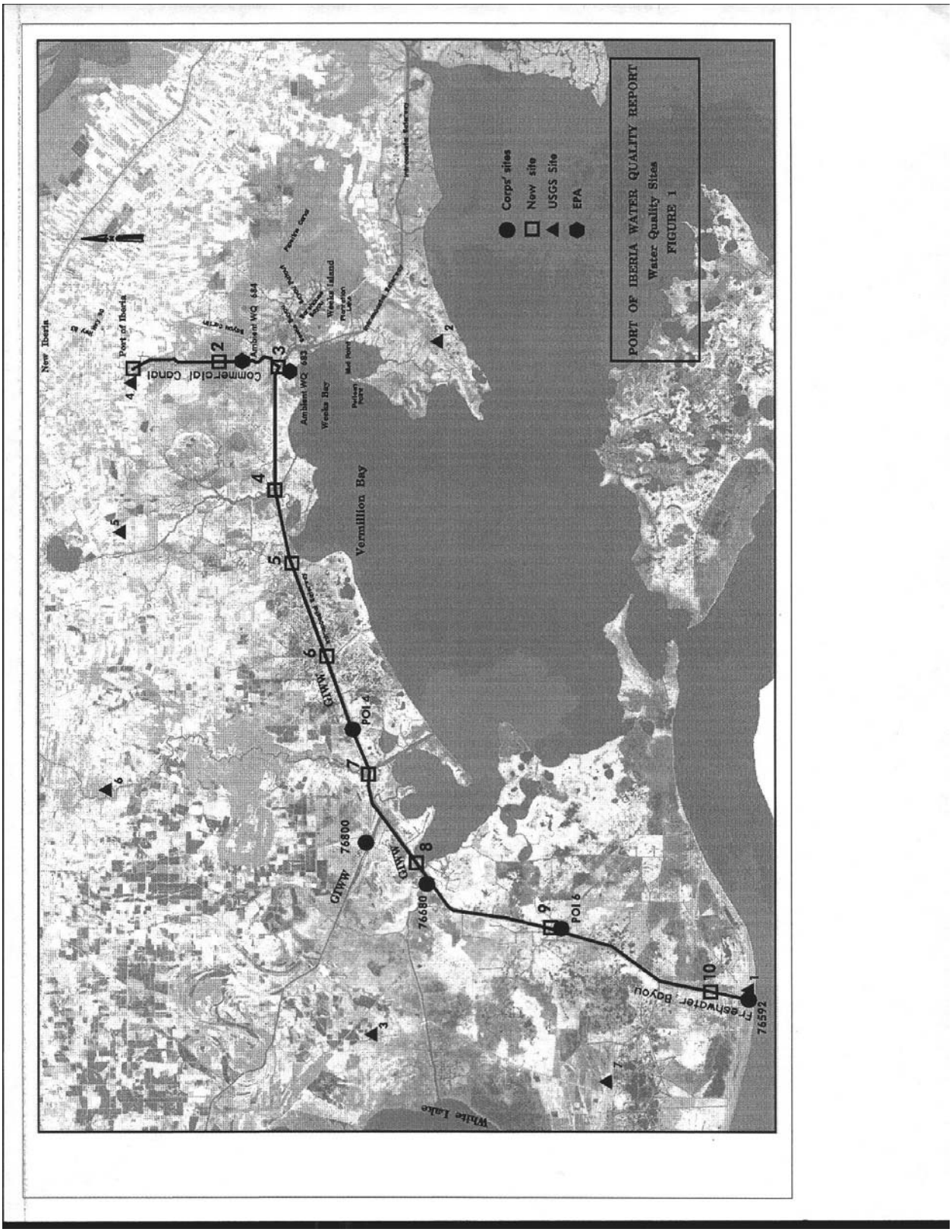
EXISTING WATER QUALITY DATA

Water Quality Data

Water and sediment quality sampling was performed by Corps personnel in March 2003 and analyzed by Corps personnel as well as the Corps of Engineers contractor, Anacon. Water and sediment samples were taken from ten sites along the entire length of channel, from the gulf outlet of Freshwater Bayou to the GIWW, then along the GIWW to Commercial Canal, and then along Commercial Canal from the GIWW to the Port of Iberia. Anacon analyzed water quality based on water samples, sediment samples, and elutriate samples. Sediment and elutriate sample results will be discussed in future with project conditions, below. In addition to water and sediment samples taken by the Corps, existing water quality data was researched from other Corps sites as well as other agencies including, EPA and USGS. Research found that existing water quality data in this area is limited. Water quality data that was found to be relevant to the project is included in this report. All sites used in the analysis of the report are shown on Figure 1.

All water quality data was compared to the Louisiana Water Quality Standards promulgated by the Louisiana Department of Environmental Quality(LDEQ). In some cases, new standards published by the United States Environmental Protection Agency (USEPA) are more stringent than those promulgated by LDEQ. In these cases data was compared to the newer, more stringent standards. Only those sites where exceedences of the stated criteria were found will be discussed further. In some samples, it should be noted that there is a slight gap between the detection limits of our tests and the LDEQ standards.

Water Data.
Water samples from sites 1 through 7 were compared to LDEQ criteria for fresh water, whereas data from sites 8, 9, and 10 were compared to LDEQ marine water criteria because of their


PORT OF IBERIA WATER QUALITY REPORT
Water Quality Sites
FIGURE 1
Corps' sites
New site
USGS Site
EPA
Commercial Canal
Port of Iberia
New Iberia
Ambient WQ 684
Ambient WQ 683
Weeks Bay
Weeks Island
Vermilion Bay
White Lake
Freshwater Bayou
76592
76680
76800
POI 6
POI 4
CIWW
AMIC

proximity to the gulf and their salinity readings. Field readings at the ten Corps sites sampled in March 2003 showed no exceedences to pH, dissolved oxygen, or temperature. Water samples from the ten sites analyzed by Anacon did show small amounts of metals present. Arsenic, barium, copper, lead, nickel, and zinc were detected at most sites. However the levels of these metals were all low and well below the state's criterion. The only metal that might exceed chronic criterion was mercury. Mercury was undetected, however its concentrations at all ten sites were known to be less than the reported method detection limit of 0.2 ug/L, and therefore could possibly be greater than the LDEQ chronic criterion for mercury, which is 0.012 ug/L for fresh water and 0.025 ug/L, for marine water.

PCB's and pesticides were undetected at all ten sites. However a few of the constituents had concentrations that were known to be less than their reported detection limits and could possibly exceed the state's criteria. Endrin, whose reported limit was <0.10ug/L, possibly exceeded both the chronic and acute criteria for fresh water (0.0375ug/L and 0.0864ug/L, respectively) as well as the chronic and acute criteria for salt water (0.037ug/L and 0.0023ug/L, respectively). Endosulfan, whose reported limit was <0.10ug/L, possibly exceeded just the acute criteria for freshwater (0.0560ug/L) as well as the acute and chronic criteria for salt water (0.034ug/L and 0.0087ug/L, respectively). Heptachlor, whose reported limit was <0.10ug/L, possibly exceeded the acute criteria for fresh water (0.0038ug/L) as well as the acute and chronic criteria for salt water (0.053ug/L and 0.0036ug/L, respectively). Chlordane, whose reported limit was <0.03ug/L, possibly exceeded both acute criteria for fresh water (0.0043ug/L) as well as the acute and chronic criteria for salt water (0.09ug/L and 0.004ug/L, respectively). Toxaphene, whose reported limit was <0.5ug/L, possibly exceeded the chronic criteria for both fresh water and salt water (0.0002ug/L and 0.0002ug/L, respectively).

Limited existing water quality data was available from two other Corps sites, POI4 and POI6. POI4 is located on the GIWW and POI6 is located on Freshwater Bayou (see Figure 1 for exact locations). Hourly readings of salinity, DO, pH, temperature, and TDS were taken from 2/8/2003 to 3/7/2003 at these two sites. There were no exceedences at these two sites. Salinity readings at POI4 were all less than 2700 mg/l or 2.7 ppt, indicative of brackish waters (see table 6 for characterization of salinity). The salinity at POI6 was higher with the highest recorded salinity reading at 7750 mg/l or 7.75 ppt indicating moderately saline waters. This can be attributed to the station's location along Freshwater Bayou, in close proximity to the gulf.

Three other stations maintained by the COE were in the study area. However water quality data from these stations is extremely limited. The first, Intracoastal Waterway at Leland Bowman Lock (76800) had temperature and salinity readings from1993 to 2003. These levels were acceptable, only a few temperature readings exceeded 32 deg C in the summer. The salinity readings primarily fell within the brackish range with a few readings indicating moderately saline waters.

The second station is Freshwater Canal at Freshwater Bayou Lock (76592). This station had temperature and salinity readings taken sporadically from 1993 to 2002. There were only two instances of temperatures higher than 32 degrees in August and early September. Salinity

values varied with 6% of the readings indicating brackish water, 83% moderately saline water and 10% severely saline water.

The third existing station is located at Schooner Bayou (Inland Waterway) at Control Structure (76680). This station also had sporadic salinity and temperature readings from 1993-2002. There were no exceedences in temperature readings and the salinities were as follows: 80% of the readings indicated brackish water , 6% moderately saline water, 7% severely saline water, and 5% seawater.

Ambient water quality data was available from LDEQ at two sites along Commercial Canal. The sites were named New Iberia Southern Drainage Canal near Intracoastal Waterway, sites (0683) and (0684). Site 0683 is located at the intersection of Commercial Canal and the GIWW. Site 0684 is north of 0683, on Commercial Canal (see figure 1). Monthly readings were taken from June 1998 to December 1998. Parameters tested included temperature, pH, D.O., and some basic metals. Site 0683 had two low dissolved oxygen readings (3.56 and 3.81 mg/l), which were lower than the state's criterion for D.O. of 4.0 mg/l, minimum. There were no exceedences for any other tested parameters. Site 0684 had one low dissolved oxygen reading (3.25 mg/l). There were no other exceedences for any other tested parameters.

Other Salinity Data Results

Salinities in the area are generally fairly low. Salinities at Cypremort Point (USGS Station Number 07387040) in the eastern portion of Vermilion Bay rarely exceed 4.0 ppt. In the western portion of the bay salinities rarely exceed 10.0 ppt at USGS Station Number 07387050. No long-term salinity monitoring stations are located along the affected waterways. However, during this study, two short-term salinity stations were deployed in the study area. One of these stations was located on the GIWW near its intersection with the Vermilion River. At this location salinities ranged from a high of about 4 ppt to a low near 0 ppt. Salinities at this station (on Freshwater Bayou near Fearman's Bayou) never exceeded 4 ppt and much of the time they were below 1 ppt. Salinities reached highs of about 6 ppt , but dropped to below 1 ppt during the spring flood.

Salinities in this western portion of the study area are largely influenced by flood and drought, and by the yearly hydrograph of the Vermilion River. Salinites are low in the spring, higher in winter and vary between these two extremes. Tidal variations also have some effect upon salinities in the area. Unless there is a drought there is usually sufficient freshwater flowing into the basin through the Vermilion River to keep salinities in check. Schooner Bayou Control Structure and Leland Bowman Lock are often used to drain the Mermentau Basin project, adding more freshwater to the system. With the exception of drought years salinities do not get excessively high in this area.

EXISTING CONDITIONS SUMMARY

Water Quality in the Port of Iberia study area is generally acceptable given the location and current designated uses of the involved waterbodies. The isolated low dissolved oxygen

readings at stations 0683 and 0684 could be attributed to local sewerage discharges or algae blooms. However all other water samples indicate that the dissolved oxygen levels in the study area are generally conducive for propagation of desirable aquatic life. Temperature and pH readings were normal. Toxic substance levels do not pose problems. Metal concentrations from water samples were within acceptable levels (mostly undetected), below the LDEQ acute criteria. PCBs and organic chemical concentrations (i.e. herbicides, pesticides, etc.) were mostly undetected with only a few noted detections, which were still below the state's criteria. Sediments and elutriate sample testing is discussed below, under future with project conditions.

In summary, these waterbodies are in generally acceptable health. Any minor exceedences detected can be attributed to factors such as industrial vessel traffic, municipal and industrial waste point sources, and domestic runoff.

TABLE 2
LDEQ WATER USE SUPPORT CLASSIFICATION
EVALUATED AND MONITORED ASSESSMENT
2002

Waterbody Subsegment Code	Waterbody Description	Type[1]	Size[2]	PCR	SCR	FWP	ONR	DWS	SFP	AGR	Suspected Causes	Suspected Sources
060802	Vermillion River-From New Flanders(Ambassador Caffrey)Bridge, Hwy 3073, to GIWW	RIVER	38	N	N	N				F	Nitrogen, Nitrate, Turbidity, Carbofuran, TSS Total Fecal coliform Sedimentation/Siltation Dissolved oxygen	Non-irrigated crop production and irrigated crop production Municipal Point source discharges and discharges from separate storm sewer systems(MS4) Irrigated and non-irrigated crop production Municipal Point source discharges and discharges from separate storm sewer systems(MS4)
060904	Vermillion River Cutoff-From GIWW to Vermillion Bay(Estuarine)	RIVER	3	F	F	N					Carbofuran	Non-irrigated crop production and irrigated crop production

	New Iberia Southern Drainage Canal-origin to Weeks Bay(Estuarine)	RIVER	8	F	F	N					Carbofuran Dissolved Oxygen	Non-irrigated crop production and irrigated crop production Source unknown
060906	GIWW-New Iberia Southern Drainage Canal to Bayou Sale (Estuarine)	RIVER	28	F	F	N					Carbofuran	Non-irrigated crop production and irrigated crop production
061102	GIWW-Levee at Segment 0611 and 0609 boundary to New Iberia Southern Drainage Canal(Estuarine)	RIVER	18	F	F	N					Carbofuran	Non-irrigated crop production and irrigated crop production
061103	Freshwater Bayou Canal from GIWW to Control Structure	RIVER	18	F	F	N					Dissolved Oxygen	Natural conditions-water quality standards use attainability analyses needed
061104	Vermillion Bay	ESTUARY	198	F	F	F			F			

[1]Type indicates if a waterbody is either a river ®, lake (L), estuary (E), or wetland (W).
[2]Size refers to the total size of a waterbody subsegment, with rivers reported in miles, lakes in acres and estuaries and wetlands in square miles.

PROJECTED WATER QUALITY

INTRODUCTION

This section sets forth the projected impacts to water quality in the study area that might reasonably be expected to result from the implementation of the selected alternative. Impacts due to the no-action alternative or without project condition are also discussed. The selected alternative is to deepen the access channel that connects the Port of Iberia with the Gulf of Mexico. Data for this assessment was obtained from the EPA database STORET, and from LDEQ and USEPA publications and websites. These sources were used to obtain information on the specific aspects of potential water quality impacts.

FUTURE WITHOUT PROJECT CONDITIONS

Projected water quality for the study area is expected to remain similar to current conditions. Access to the Gulf of Mexico from the Port of Iberia will remain limited due to 12-foot average water depths through Freshwater Bayou. Traffic in the channel will increase including larger vessels to accommodate the growing offshore industry. Increased traffic may cause increased discharges in the channel. The port's current activities, which include construction of offshore platforms, supply of products used in oil exploration, and services to maintain offshore activities, will be hampered by the limited size of access channel to gulf. Factors that currently affect water quality in the study area are municipal, industrial and agricultural sources, urban runoff, atmospheric sources and discharge from vessels. These factors are expected to continue to be the major factors affecting water quality in the study area. Recent increased regulation and legislation as well as an increase in public awareness of environmental issues may result in slight reductions in the amount of pollutants released into the study area, which would improve its water quality somewhat.

Provided excessive erosion does not occur along the spit separating opening Freshwater Bayou from Vermilion Bay, no changes would be expected in the future if this project were not built. Salinities would continue to vary based upon the tidal affect from the Gulf of Mexico and the effects of the freshwater inflow from the Vermilion River and the Mermentau Basin.

FUTURE WITH PROJECT CONDITIONS

The dredging activities being proposed would affect the water quality of the study area if the project is constructed. The effects of these projects can be effectively broken down into those due to temporary dredging activities, dike construction, and the deposition of dredged materials. These effects will be discussed in the sections below.

Effects of Dredging. Dredging can temporarily cause the mixing of sediments, churning up of bottom material, and increased turbidity at the excavation and disposal site. The disturbance of soil layers, which have been consolidated, may cause pollution, depending upon the nature of the material being disturbed. If the material is largely organic (trees, roots, shrubs, etc.) then decomposition may be present. Pollution from dredging equipment may cause petroleum-based contaminants to enter the water stream. Increased turbidity may cause suspended sediments to block light penetration. This interferes with photosynthetic production of oxygen. Also, sediments absorb solar energy and transfer it into heat, raising the temperature of the water body. Oxygen is less soluble in warm water. This combined with the decreased photosynthetic production of oxygen may decrease oxygen levels in the water body. All of these effects of dredging should be temporary and return to pre-construction conditions shortly after construction.

Long-term effects of dredging would include improved water quality due to deeper channel depths, which would promote a healthier water channel, as there would be less churning up of bottom sediment. Larger vessels would be able to better navigate the channel.

In order to evaluate the effects on salinity of the channel deepening proposed with this project, a numerical modeling study was done. The results of that study indicate relatively minor changes in salinities throughout the project areas. The maximum increase in salinities was 0.5 ppt in Company Canal near the GIWW during the fall/winter run for the 10 percent exceedance flood event. The maximum percentage increase was 39 percent, which corresponded to the 0.5 ppt increase in salinities.

The maximum reduction in salinities was a 2.25 ppt reduction. This occurred at the same location along Company Canal as the maximum increase, also during the spring run for the flood event. This was also the maximum percentage reduction in salinities, a 92 percent reduction.

The Port of Iberia navigation project that calls for the deepening of the Ports access routes to the Gulf of Mexico via the Freshwater Bayou Bypass structure will result in negligible changes in salinities in the project area. There will probably be rare occasions resulting in salinity increases of up to 0.5 ppt. The predominant affect is likely to be an overall freshening of the project area of up to about 20 percent.

Sediment Testing.

Sediment Quality Benchmarks. Since no sediment quality criteria have been established, the results of the sediment quality data were compared to Sediment Quality Benchmarks (SQBs) compiled by NOAA and by the Florida Department of Environmental Protection (FDEP). These benchmarks are shown in Table 5. These benchmarks provide a basis on which to evaluate relative sediment quality. The results of the sediment tests were compared to the following benchmarks:

ER-L: "The ER-L represents the lower 10th percentile of chemical concentrations observed or predicted to be associated with biological effects."

TEL: "The TEL represents the upper limit of sediment contaminant concentration dominated by no effects data."

ER-M: "The ER-M benchmark represents the median of chemical concentrations observed or predicted to be associated with biological effects."

PEL: "The PEL represents the lower limit of the range of contaminant concentrations that are usually or always associated with adverse biological effects."

Results of Sediment Quality Testing.

Sediment was tested from all ten March 2003 sites and analyzed by Anacon. Low levels of the metals arsenic, chromium, copper, lead, nickel, and zinc were detected at most of the sites. However, the FDEP's threshold effects level (TEL) benchmark was the only benchmark exceeded and it was only exceeded four times. These exceedences were:

Metal	Data Result	TEL	Site number
Arsenic	7.71 mg/kg	7.24 mg/kg	4
Lead	35.8 mg/kg	30.2 mg/kg	7
Copper	23.3 mg/kg	18.7 mg/kg	10
Nickel	23.4 mg/kg	15.9	10

PCB's and pesticides were mainly undetected with only a few isolated detections of fluoranthene, chrysene, and Bis (2-ethylhexyl) phthalate. However there was only one exceedence to the sediment quality benchmarks. This was:

Organics			
Bis(2-Ethylhexyl)phthalate	183 ug/kg	182 ug/kg	1

Grain size distribution tests were performed on samples from all 10 sites. The results were as follows:

Site Number	% Gravel	% Sand	% Silt	% Clay
1	0	12.3	51.8	35.9
2	0	20.4	64.9	14.7
3	0	5.9	20.7	73.4
4	0	7.5	73.7	18.8
5	0	6.8	65.6	24.9
6	0.7	26	48.3	25
7	0	22.4	51.6	26
8	0	15.9	51.2	32.9
9	0.4	15.8	51	32.8
10	0.1	37.4	3.6	66.1

Results conclude the following: Sediments in Commercial Canal are primarily silt with clay and some sand. Sediments in the GIWW are primarily silt as well with a good amount of clay and some sand. Sediments in Freshwater Bayou are somewhat different however, with good amounts of sand and clay closer to the Gulf of Mexico, and not as much silt. The variation can be attributed to the proximity of Freshwater Bayou to the Gulf of Mexico. As contaminants are more likely to adhere to clay particles than to silt or sand, it would be expected that the sites with higher clay percentages would have more pollutants. This may be indicative of the exceedences of copper and nickel at site 10 from our sediment data. Site 10 had the second highest amount of clays (66%). However, Site 3 had the most clay (73.4%) yet we have no recorded exceedences of contaminants at site 3.

Elutriate Data. The elutriate test is a short-term, sediment-leaching procedure. It consists of agitating a known volume of sediment/fill material with a known volume of site water. The suspension is then filtered and the filtrate analyzed. Thus, the test provides an indication of the chemical constituents likely to be released to the water column during a disposal/fill operation. Since the sediment-to-liquid ratio used in the test is based on hydraulic redging ratios, results from the elutriate test will probably overestimate the release from less dynamic dredging techniques such as hopper or clamshell dredging.

The purpose of the elutriate test is to provide information on the potential effects of a disposal operation on water quality. Results can either be used to estimate the extent of a resource that will be influenced by the proposed discharge or used to compare the results to appropriate water quality criteria.

Results of the Elutriate Testing. The results were compared to the LDEQ water quality standards and criteria. Some constituents did show an increase in levels from their water sample at the same station. However, results of the elutriate tests showed no exceedences for any of the tested parameters with the exception of mercury, endrin, endosulfan,

heptachlor, chlordane, and toxaphene. These constituents had concentrations that were known to be less than their reported detection limits and could possibly exceed the state's criteria. Endrin, whose reported limit was <0.10ug/L, possibly exceeded both the chronic and acute criteria for freshwater (0.0375ug/L and 0.0864ug/L, respectively) as well as the chronic and acute criteria for saltwater (0.037ug/L and 0.0023ug/L, respectively). Endosulfan, whose reported limit was <0.10ug/L, possibly exceeded the acute criteria for freshwater (0.0560ug/L) as well as the acute and chronic criteria for saltwater (0.034ug/L and 0.0087ug/L, respectively). Heptachlor, whose reported limit was <0.10ug/L, possibly exceeded both acute criteria for freshwater (0.0038ug/L) as well as the acute and chronic criteria for saltwater (0.053ug/L and 0.0036ug/L, respectively). Chlordane, whose reported limit was <0.03ug/L, possibly exceeded both acute criteria for freshwater (0.0043ug/L) as well as the acute and chronic criteria for saltwater (0.09ug/L and 0.004ug/L, respectively). Toxaphene, whose reported limit was <0.5ug/L, possibly exceeded the chronic criteria for both freshwater and saltwater (0.0002ug/L and 0.0002ug/L, respectively).

The elutriate data indicates that the impacts on dredging on contaminant availability would be

minimal. From the results of the elutriate and sediment data we can conclude that placement of dredge material should not cause any negative effects to the designated disposal areas including the marshland creation areas.

Effects of Construction. The effects of construction may include, but are not limited to, increased turbidity and sedimentation, increased temperature, increased oxygen demand and decreased oxygen and contamination from equipment and operations. Again pollution from dredging equipment may cause petroleum-based contaminants to enter the water stream. The effects of construction are considered to be temporary and cease at the end of the construction period

NPDES legislation requires a Pollution Prevention Plan (PPP) for each project in order to reduce contamination in the waterways due to construction process. Often included in the PPP are temporary and permanent controls such as hay bales, silt fences, sand bags, sedimentation ponds, vehicle washing stations, and the seeding and mulching of denuded areas. Even with these measures some effects are still expected. The effects of construction are temporary and will subside once construction ends and denuded areas are restored.

Effects of Dike Construction/Bank line Restoration/Disposal Areas/Marshland Creation. Dredged material from the channel will be used for bank line restoration. Dikes will be constructed along the banks of the channel along the length of Freshwater Bayou and GIWW. Dredged material will be placed behind the dikes. There will be an excess of about 2 million cubic yards of dredged material that will not fit into bank line restoration areas along Freshwater bayou. This excess material will be placed into designated marshland creation areas on each side of Freshwater bayou, on the northern shores of Vermillion bay, and in beach nourishment areas on the gulf. All dredged material from

the GIWW should fit into designated bank line restoration areas. Material dredged from Commercial Canal will not be placed along the banks but in designated disposal areas, either on the northeastern corner of weeks bay, or in upland disposal. Effects of dike construction/bank line restoration will be minimal and may include contamination from equipment and construction activities, increased turbidity, and mixing of sediments. These effects should be temporary and return to pre-construction conditions shortly after construction.

The effects caused by new earthen/riprap dike construction are considered to be permanent. The effects may include, but are not limited to, a slight increase in runoff due to the taller banks and compaction of the dike materials. These effects are considered to be minor and will not be detrimental to the environment. Long-term effects will be positive, as bank line restoration measures will extend the benefits gained by dredging the channel deeper. Also marshlands will be preserved as erosion is decreased due to the deposition in the marshes of dredge material.

The effects due to marsh creation will result in healthier wetlands due to a reduction in nutrients as well as a lesser tendency toward algae blooms, and improved dissolved oxygen levels. There will be less erosion due to the creation of marshland from dredge material.

None of these effects are considered to be significant changes to current organic, metal, nutrient, or pathogen levels. The most significant effects from the construction of new dikes and riprap placement will be positive, as the new channel banks will be stabilized and erosion will be prevented.

SUMMARY OF OVERALL EFFECTS

The effects of construction due to dredging and disposal areas may include (but are not limited to) typical short-term effects including increased turbidity and sedimentation, increased temperature, increased oxygen demand, and decreased oxygen, and contamination from construction equipment and operations. These effects are considered to be temporary and cease with the end of the construction period. Long-term effects include a healthier, deeper channel for access from the Port of Iberia to the gulf, as well new marshland creations areas created from dredged material. Also, the shoreline on the gulf adjacent to Freshwater Bayou as well as the designated shoreline in Weeks Bay that will be used for disposal will gain some protection from tidal influence of the Gulf of Mexico.

TABLE 5
SEDIMENT QUALITY BENCHMARKS

	NOAA[a]		FDEP[b]	
CHEMICAL	ER-L	ER-M	TEL	PEL
Inorganics (mg/kg dry weight)				
Antimony	2	25		
Arsenic	8.2	70	7.24	41.6
Cadmium	1.2	9.6	0.68	4.21
Chromium	81	370	52.3	160
Copper	34	270	18.7	108
Lead	46.7	218	30.2	112
Mercury	0.15	0.71	0.13	0.7
Nickel	20.9	51.6	15.9	42.8
Silver	1.0	3.7	0.73	1.77
Zinc	150	410	124	271
Organics (ug/kg dry weight)				
Acenapthene	16	500	6.71	88.9
Acenaphthylene	44	640	5.87	128
Anthracene	85.3	1100	46.9	245
Benz(a)anthracene	261	1600	74.8	693
Benzo(a)pyrene	430	1600	88.8	763
Bis (2ethylhexyl)-phthalate			182	2647
Chlordane	0.5	6	2.26	4.79
Chrysene	384	2800	108	846
DDD,op’- + pp’-	2	20		
DDD,pp’-			1.19	4.77
DDE,pp’-	2.2	27	2.07	3.74
DDT,op’- + pp’-1	7			
DDT,pp’-			1.19	4.77
DDT,Total	1.58	46.1	3.89	51.7
Dibenzo(a,h)-anthracene	63.4	260	6.22	135
Dieldrin	0.02	8	0.72	4.3
Endrin	0.02	45		
Fluoranthene	600	5100	113	1494
Fluorene	19	540	21.2	144
Lindane			0.32	0.99
2-Methyl napthalene	70	670	20.2	201
Naphthalene	160	2100	34.6	391
PAH, Total LMW	552	3160	312	1442
PAH, Total HMW	1700	9600	655	6676
PAH, Total	4022	44792	1684	16770

PCB, Total	22.7	180	21.6	189
Phenanthrene	240	1500	86.7	544
Pyrene	665	2600	153	1398

[a]NOAA=National Oceanic and Atmospheric Administration; ER-L=effects range low; ER-M=effects range median.
[b]FDEP=Florida Department of Environmental Protection; TEL=threshold effects level; PEL=probable effects level.

TABLE 6

Based on its source and relative salinity concentrations, water is characterized by the following categories ("Water and Wastewater Engineering", John Wiley and Sons, New York, 1968):

1) Brackish: 1,000 to 5,000 mg/l
2) Moderately saline waters: 2,000 to 10,000 mg/l
3) Severly saline waters: 10,000 to 30,000 mg/l
4) Seawater: 30,000 mg/l to 36,000 mg/l

REFERENCES

Salinity write-up and data, existing conditions, future with and without project by David Elmore.

Jones, D.S.; Hull, R.N.; and Suter, G.W. II. Toxicological Benchmarks for Screening Contaminants of Potential Concern for Effects on Sediment Associated Biota: 1996 Revision. USDOE-ES/ER/TM-95/RS, June 1996.

LDEQ Office of Water Resources, State of Louisiana, Water Quality Management Plan, Volume 5, Water Quality Inventory 1998.

LDEQ Office of Water Resources, Water Pollution Control Reference Materials, Rule: Chapter 11, 1991.

LDEQ, Environmental Regulatory Code, Part IX. Water Quality Regulations, February 1997.

The Mitre Corporation prepared for EPA, Impact of Hydrologic Modifications on Water Quality, April 1975.

USACE Waterways Experiment Station, Incorporation of Environmental Features in Flood Control Channel Projects, May 1985.

USEPA, Impacts of Construction Activities in Wetlands of the United States, EPA-600/3-76-045, April 1976.

USEPA. 1999. Ecological Conditions of Estuaries in the Gulf of Mexico. EPA-620-R-98-004. U.S. Environmental Protection Agency, Office of Research and Development, National Health and Environmental Effects Laboratory, Gulf Ecology Division, Gulf Breeze, Florida.

USEPA. 1998. National Recommended Water Quality Criteria (Republication). Federal Register Part IV, 63 FR 68354 – 68364. EPA FRL-OW-6186-6A.

SECTION 5
SECTION 404 (b) (1) EVALUATION

SECTION 5
SECTION 404 (b) (1) EVALUATION

PORT OF IBERIA FEASIBILITY STUDY

I. PROJECT DESCRIPTION

a. Location: The project area is located in coastal south central Louisiana in Iberia and Vermilion Parishes. The area of concern consists of a navigational channel from the Port of Iberia, Commercial Canal, Gulf Intracoastal Waterway (GIWW) - Commercial Canal to Freshwater Bayou, Freshwater Bayou, Freshwater Bayou Lock Bypass Channel, and the Freshwater Bayou Bar Channel out to the -20 foot contour in the Gulf of Mexico.

b. General Description:. The project intends to deepen the existing navigational channel of Commercial Canal, GIWW, Freshwater Bayou, Freshwater Bayou Lock Bypass Channel with new swing gate barge structures, and the Freshwater Bayou Bar Channel to a depth of - 20 feet plus allowable overdraft and advanced maintenance sufficient to allow deep water draft vessels access from the Gulf of Mexico to the Port of Iberia. Dredged material is to be used beneficially to create, enhance, and protect wetlands, reclamation of former shorelines, and for beach placement.

c. Authority and Purpose: This study was authorized by a Section 431 of the Water Resources Development Act (WRDA) of 2000, Public Law 106-541, dated 11 December 2000, which reads as follows:

"SEC. 431. IBERIA PORT, LOUISIANA.

The Secretary shall conduct a study to determine the feasibility of carrying out a project for navigation, Iberia Port, Louisiana."

The purpose of this study was to determine the need for and the feasibility of improving navigation from the Port of Iberia to the Gulf of Mexico. This study has investigated the need for a deeper access channel to Port of Iberia so that semi-submersible drilling rigs and other deep-draft vessels can take advantage of the proximity of the port and its associated facilities and services to mineral exploration, drilling, and production activities in the gulf.

d. General Description of Dredged or Fill Material

(1) General Characteristics of Material. The geologic history of the project area material is directly related to deposits of the deltaic cycles of the Mississippi River, local fluvial sediments, and Quaternary terrace development. The northern reaches of the project area, the POI and Commercial Canal, contain marsh and swamp deposits. The central reaches of

the project area, GIWW and Freshwater Bayou, consist predominantly of marsh deposits. The southern reaches of Freshwater Bayou and Freshwater Bayou Bar Channel consist of marsh and estuarine deposits. Pleistocene deposits underlie marsh, swamp, and estuarine deposits.

Marsh deposits consist of interbedded peat and very soft to medium, organic, fat clay with high moisture content and occasional lenses of very soft to medium lean clay. Swamp deposits consist of interbedded very soft to stiff, organic, fat clay and peat with high moisture content, wood, and occasional lenses of very soft to medium, lean clay and silty sand. Estuarine deposits consist of very soft to medium, fat clay with occasional shells and shell fragments interbedded with occasional layers and lenses of very soft to soft, lean clay and lenses of silty sand and a layer of shell. Pleistocene deposits consist of interbedded, highly oxidized, stiff to very stiff, fat and lean clays, silt, clayey sand, silty sand, and sand.

(2) Quantity of Material. The maximum proposed channel dimensions will generate approximately **2.8** million cubic yards of material from the Commercial Canal portion; approximately **4.8** million cubic yards of material from the GIWW reach; approximately **6.2** million cubic yards from the Freshwater Bayou; and approximately **2.7** million cubic yards from the Freshwater Bayou Bar Channel reach for a total of approximately **16.5** million cubic yards.

(3) Source of Material. The origin of the material will be from the existing channel bottoms and channel walls of the design specifications.

e. Description of the Proposed Discharge Sites

(1) Location: Three disposal areas being considered are Primary, Secondary, and Tertiary. The primary disposal sites are located along the banks of the GIWW and Freshwater Bayou. Secondary disposal sites are located at an upland area in close proximity to the Port of Iberia, nearby degraded interior wetland areas, abandoned oil field access canals, and shallow open water areas along the northern shore of the Vermilion Bay system. Tertiary disposal sites are located at adjacent interior degraded wetland areas, abandoned oil field access canals, and open water areas along the northern shore of the Vermilion Bay system. The Gulf shoreline west of the mouth of Freshwater Bayou will be the site of beach placement.

(2) Size: The sizes of the discharge sites are as follows: Primary disposal sites consist of approximately 1,313 acres. Secondary sites consist of approximately 5,321 acres. Tertiary sites consist of approximately 4,211 acres.

(3) Type of Sites: Primary disposal sites consist of the north and south banks of the GIWW and the east and west banks of Freshwater Bayou. Erosion of the shorelines along the waterways has far exceeded the original banks and threatens the adjoining interior wetlands. These areas will be reclaimed using dredged material. Secondary disposal sites include an upland area near the Port of Iberia, adjacent degraded interior wetland areas, abandoned oil field access canals, and shallow open water areas of the northern shore of the Vermilion Bay system. Interior wetland areas have experienced impacts associated with soil subsidence, bank erosion, saltwater intrusion, decreased sediment input, sea-level rise, and herbivory. Abandoned oil field access canals are present throughout the project area. They were once used to facilitate exploration and development of the oil industry. Many proved to be dry holes or the well is no longer in production, thereby leaving a permanent scar on the landscape ready to be used if and when another well is desired. The Vermilion Bay system provides shallow open water areas along the northern shores. The shorelines of these areas are experiencing erosion, exposing the interior wetlands to the open forces of the bay. Tertiary disposal sites include areas of adjacent degraded interior marsh areas, abandoned oil field access canals, and open water areas along the northern shore of the Vermilion Bay system. Beach placement of material will occur along the Gulf shoreline west of the mouth of Freshwater Bayou. Dredged material will be derived from deepening of the Freshwater Bayou Bar Channel to the -20' contour in the Gulf of Mexico.

(4) Type of Habitat: Habitats include agricultural land now part of the industrial area of the Port of Iberia; fresh, intermediate, brackish, and saline marsh; swamp; near shore bay areas, and Gulf shoreline.

(5) Timing and Duration of Discharge. The Freshwater Bypass Channel and Bar Channel will require 210 calendar days for contract duration. The Freshwater Bayou Interior section will require 5 contracts each with a duration of 120 days.

The GIWW reach will require 3 contracts each with a duration of 207 days. The Commercial Canal reach will require a single contract with a duration of 260 days. The duration of the Bypass Channel Floodgates implementation and associated construction dredging and disposal has yet to be determined.

f. <u>Description of Disposal Method</u>:

(1) Channel Deepening: A bucket dredge will be utilized in areas where the disposal area is attainable by the limitations of the boom of the dredge. Disposal areas located at a distance will be accessed by hydraulic dredging and slurry pipeline. Barging of material may also be utilized where warranted.

(2) Containment: Disposal areas requiring containment will require construction of dikes prior to dredging operations. Dikes will be constructed with material from within the disposal areas and subsequently filled with dredged material.

II. FACTUAL DETERMINATIONS

a. Physical Substrate Determinations

(1) Substrate Elevation and Slope. The three types of disposal areas include primary, secondary, and tertiary. Primary sites will consist of bank reclamation along Freshwater Bayou and the GIWW. Containments dikes will be constructed approximately 150-200 feet from the existing shoreline using material from inside the disposal site. The dikes will be rock armored to prevent wave erosion of the dredged sediments. The rock dike along Freshwater Bayou will be at a +5' NAVD elevation. The rock dike along the GIWW will at a + 3.5' NAVD elevation. Elevations of the Freshwater Bayou and GIWW dikes have been calculated for specific vessel wave attenuation. Material placement will be at a +5' NAVD elevation which through time and compaction, the elevation will be conducive to the natural ambient ecosystem. Approximately 595 acres will be filled along the east and west bank of Freshwater Bayou. Approximately 717 acres will be filled along the north and south bank of the GIWW producing similar conditions. Secondary disposal sites mainly consist of abandoned oil access canals and marsh nourishment/creation. Approximately 1,615 acres along Freshwater Bayou and approximately 3,705 acres along the GIWW comprise of the secondary disposal sites. The existing banks of the abandoned oil access canals will serve as containment to achieve a suitable elevation for wetland development. Unconfined or semi-confined methods of material placement will be utilized for marsh nourishment. Tertiary disposal sites mainly consist of marsh creation in open water areas of Weeks and Vermilion Bays and severely degraded interior marsh areas. Containment dikes will be constructed to an elevation necessary for stacking of material to establish substrate for marsh creation. Beach placement of material from Freshwater Bayou Bar Channel and the southern portions of Freshwater Bayou will be deposited in the surf zone with elevations consistent with the existing gulf shoreline to create additional wildlife habitat and provide a sediment source for redistribution along the shoreline.

In summary, the Commercial Canal Reach will utilize upland confined disposal areas until the sites have reached capacity. The remainder will be transported by barge to the Weeks Bay disposal area for unconfined marsh development. The GIWW Reach will first utilize bank reclamation disposal sites until capacity and then confined marsh creation sites in Vermilion Bay. The Freshwater Bayou Reach is similar to the GIWW Reach. Bank

reclamation sites will be filled to capacity. Marsh creation and nourishment sites, in particular a large degraded interior marsh area located west of the southern reaches of Freshwater Bayou, will be utilized next, and then beach placement along the Gulf shoreline. The Freshwater Bayou Lock Bypass Channel dredged material will be used primarily for the reinforcement of the structures and appurtenance integrity. Excess material will be placed in confined disposal sites in the near vicinity. The Freshwater Bayou Bar Channel will utilize beach placement of dredged material to the west of the mouth of Freshwater Bayou.

(2) Sediment Type. Sediments consist of soft to stiff, organic, fat and lean clays; silty sand, clayey sand, and sand; silt; shell and shell fragments.

(3) Dredged Material Movement. A bucket dredge will be utilized in areas where the disposal area is attainable by the access limitations of the boom of the dredge. Disposal areas located at a distance will be accessed by hydraulic dredging at the navigational channel and transported to the disposal site via slurry pipeline. Best management practices and the least environmentally damaging pipeline routes will be utilized for avoidance and minimization of impacts. Containment dikes will be utilized for management of the material. Barging of material may also be utilized where warranted.

(4) Physical Effects on Benthos. Non-mobile organisms occurring in the sediment of the dredged areas will be placed in the disposal areas and buried along with the other non-mobile organisms located in the disposal areas. Mobile organisms have the ability to depart from the area of imminent impact. Placement of material at the beach nourishment site would bury those benthic organisms incapable of escaping or burrowing through the dredged material.

(5) Other Effects. Dredged material will be used beneficially for the creation, enhancement, and protection of wetlands. Impacts associated with project operations will be temporary in nature and insignificant relative to the potential long term benefits of the beneficial use of the dredged material.

(6) Actions Taken to Minimize Impacts. Best Management Practices and containment will be utilized in the application of the dredged material for the minimization of impacts to the benthic communities located outside of the disposal sites.

b. Water Circulation, Fluctuation, and Salinity Determinations

(1) Water.

(a) Salinity. Salinity in the study area varies dramatically dependant on the different areas of the study. The salinity in Freshwater Bayou is influenced

directly by the Gulf of Mexico and is expected to have the highest salinity concentrations of the three water bodies. The salinity in the GIWW is lower due to the influx of freshwater into the GIWW from smaller channels in the area.

Salinities in the area are generally fairly low. Salinities at Cypremort Point (USGS Station Number 07387040) in the eastern portion of Vermilion Bay rarely exceed 4.0 ppt. In the western portion of the bay salinities rarely exceed 10.0 ppt at USGS Station Number 07387050. No long-term salinity monitoring stations are located along the affected waterways. However, during this study, two short-term salinity stations were deployed in the study area. One of these stations was located on the GIWW near its intersection with the Vermilion River. At this location salinities ranged from a high of about 4 ppt to a low near 0 ppt. Salinities at this station (on Freshwater Bayou near Fearman's Bayou) never exceeded 4 ppt and much of the time they were below 1 ppt. Salinities reached highs of about 6 ppt , but dropped to below 1 ppt during the spring flood.

Salinities in this western portion of the study area are largely influenced by flood and drought, and by the yearly hydrograph of the Vermilion River. Salinities are low in the spring, higher in winter and vary between these two extremes. Tidal variations also have some effect upon salinities in the area. Unless there is a drought there is usually sufficient freshwater flowing into the basin through the Vermilion River to keep salinities in check. Schooner Bayou Control Structure and Leland Bowman Lock are often used to drain the Mermentau Basin project, adding more freshwater to the system. With the exception of drought years salinities do not get excessively high in this area.

In order to evaluate the effects on salinity of the channel deepening proposed with this project, a numerical modeling study was done. The results of that study indicate relatively minor changes in salinities throughout the project areas. The maximum increase in salinities was 0.5 ppt in Company Canal near the GIWW during the fall/winter run for the 10 percent exceedance flood event. The maximum percentage increase was 39 percent, which corresponded to the 0.5 ppt increase in salinities.

The maximum reduction in salinities was a 2.25 ppt reduction. This occurred at the same location along Company Canal as the maximum increase, also during the spring run for the flood event. This was also the maximum percentage reduction in salinities, a 92 percent reduction.

The Port of Iberia navigation project that calls for the deepening of the Ports access routes to the Gulf of Mexico via the Freshwater Bayou Bypass structure will result in negligible changes in salinities in the project area. There will probably be rare occasions resulting in salinity increases of up to 0.5 ppt. The predominant affect is likely to be an overall freshening of the project area of up to about 20 percent.

(b) Water Chemistry. The pH readings at Station POI4, taken in February and March 2003 by Corps personnel, ranged from 6 to 8 su. Station POI4 is located on the GIWW in the Vicinity of Vermillion River Cutoff. The pH readings at station POI6, taken at the same time frame in the southern end of Freshwater Bayou (near the gulf), were in the same range, slightly higher. Corps personnel took Field readings in March 2003 at 10 different sites from the Port of Iberia along Commercial Canal to the GIWW, then along the GIWW, to Freshwater Bayou, then along Freshwater Bayou to the gulf. The pH readings from these sites were all between 6 and 6.8 su, with the exception of one reading of 7.7(still within acceptable range) in Freshwater Bayou close to the gulf, and a low reading of 5.7 at PI-6 in the GIWW. All pH values were very close in range. Temporary dredging activities may cause pH to shift toward more acidic conditions due to increased turbidity, organic enrichment, chemical leaching, reduced dissolved oxygen and elevated carbon dioxide levels. These conditions should be temporary and be limited to the disposal areas. The pH can be expected to return to pre-construction levels after construction ends.

For all discharge sites temporary alteration of the disposal site water chemistry can be expected. Besides pH some typical changes might include the elevation of oxygen demand, dissolved solids, nitrogen, iron, and manganese concentrations. These changes are considered to be minor and temporary and should return to pre-construction levels after construction ends.

(c) Clarity. The surface water clarity may be affected temporarily in all disposal areas during the discharge of dredged material. Dredging and disposal along the banks of the dredged channel can be expected to affect the water clarity in the channel, at a minimum, for the duration of dredging and disposal operations. Dredging and discharge will directly increase turbidity levels. Increased suspended sediments decrease light penetration, which affects oxygen production. The suspended sediments also absorb heat thus raising the temperature of the water. As oxygen is less soluble in warm water and the decrease in oxygen production will result in decreased oxygen levels. This will be especially true in the marsh creation disposal areas. At all discharge sites, increased turbidity and suspended solids can be expected to reduce the clarity during dredging and disposal operations. This effect should be localized and temporary. Water clarity in the channel in all reaches from the Port of Iberia to Freshwater Bayou can be expected to return to pre-construction conditions after dredging and disposal activities subside.

(d) Color. No long-term changes in watercolor should occur. During construction temporary changes may occur in the disposal areas with the release of organic soils from dredging and disposal. Temporary changes in color in the channel from the Port of Iberia to Freshwater Bayou may be experienced during dredging operations due to the churning up of bottom sediments and increased turbidity. The color of the entire channel should return to pre-construction conditions after dredging ceases.

(e) Odor. No significant odor is expected from dredging and disposal operations.

(f) Taste. There are no potable water intakes in the study area. Therefore any alteration in taste caused by dredging and disposal operations is not considered relevant.

(g) Dissolved Gas Levels. Dissolved oxygen is the only dissolved gas that could possibly be affected by construction, dredging, and disposal. However, field readings of dissolved oxygen levels taken along the channel in the study area were all within normal range. Therefore existing dissolved oxygen levels are adequate for aquatic life. When construction and dredging begin, short-term decreases in dissolved oxygen can result from the release of nutrients from organic soils as well as increased turbidity. This can be expected to occur at all discharge sites. However, any modification of dissolved oxygen levels is expected to be localized (at the area of discharge) and short term.

(h) Nutrients. In all discharge sites as well as the main channel, nutrient levels can be expected to temporarily increase as a result of dredging and disposal operations. Existing nutrient water data in the study area is limited. Small amounts of nutrients were found in water samples at all ten sites tested by Corps personnel in March 2003. However these levels were low and would pose no threats to the environment. More detail is listed in following paragraphs. Increases in nutrients as a result of construction, dredging, and disposal, are not expected to be permanent. Some temporary increases may results due to equipment contamination, however the water quality is expected to return to pre-construction conditions after construction is complete.

(i) Eutrophication. Increased nutrient levels that occur during construction, dredging, and disposal are not expected to cause an increase in eutrophic conditions. The same is true after completion of the project as no increase in nutrients is expected.

(2) Current Patterns and Circulation.

a. Current Patterns and Circulation. The access channel from the Port of Iberia to the gulf will be deeper. Additional flow may go down Freshwater Bayou to the Freshwater Bayou Lock and Bypass Structure. However major flow patterns of this channel are not expected to be altered as a result of the project. Marshland disposal areas will experience some changes. These areas will experience less flow and velocity, as they will no longer be open areas. Once vegetation is established, the current patterns, flow, and velocity will be less than existing conditions. Water circulation in shoreline disposal areas located on the north side of the bays and also in the beach nourishment area will be altered once material is deposited in open water areas along the shoreline. Once material is

deposited along the shoreline, tidal influence will be decreased in these areas with the accumulation of material.

b. Velocity. Disposal areas may experience a decrease in velocity, as they will no longer be open areas. No significant changes are expected in the velocities of the channels.

c. Stratification. No significant effects are expected on the water column stratification in the channel or in the disposal areas.

d. Hydrologic Regime. No significant effects are expected on normal hydrologic regime in the channel or in the disposal areas.

(3) Normal Water Level Fluctuations. Normal water fluctuations in the wetland restoration/marshland creation areas and in the access channel will be generally dependant on tidal changes and runoff. However, in general, water level fluctuations should remain the same as current conditions after construction. No significant effects in water level fluctuations are expected in any of the disposal areas or in the channels.

(4) Salinity Gradients. For dredging and discharge sites as well as the channel, no significant effects are expected to affect salinity gradients.

c. Suspended Particulate/Turbidity Determinations

(1) Expected Changes in Suspended Particulates and Turbidity Levels in Vicinity of Disposal Site. Transport and placement of dredged/disposal material, and operation of construction equipment will cause increases in turbidity levels in all disposal areas though these increases should be short term and return to pre-project conditions after construction. Turbidity levels will be increased especially at the marshland creation areas to the west of Freshwater Bayou until new marsh and new vegetation is established. Turbidity will be increased in the channel during dredging operations. This will also be temporary.

(2) Effects on Chemical and Physical Properties of the Water Column.

(a) Light penetration. Decreased light penetration can be expected at the disposal areas and in the dredged channel during construction, dredging, and disposal activities as turbidity levels are increased temporarily. At the marshland creation areas, where turbidity levels are elevated, until new vegetation is established and suspended sediments settle, light penetration will be low. This will result in lower photosynthetic oxygen production. Vegetation should occur within two years and after construction subsides, light penetration is expected to return to pre-construction conditions.

(b) Dissolved oxygen. Dissolved oxygen levels will be affected by construction, dredging, and disposal activities. Existing dissolved oxygen levels in the study area were primarily in the normal range, above 5.0 mg/l (see section II b.g. above). However new releases from nutrients due to construction activities will lower dissolved oxygen levels temporarily. No long-term effects on dissolved oxygen levels are expected. In the marshland creation area, dissolved oxygen levels may decrease, until vegetation is established, about 2-3 years. High turbidity levels and suspended sediments decrease light penetration thus decreasing the photosynthetic production of oxygen.

(c) Toxic metals and organics. In March 2003, Corps personnel collected water and sediment samples from ten sites along Freshwater Bayou from the gulf to the GIWW, then along the GIWW to Commercial Canal, and then along Commercial Canal from the GIWW to the Port of Iberia. An environmental lab then analyzed these samples. Water and sediment samples that were analyzed did show small amounts of arsenic, barium, copper, lead, nickel and zinc at most sites. However all levels of these metals in the water samples were below the state's criteria. Sediment data was compared to Sediments Quality Benchmarks compiled by NOAA and the Florida Department of Environmental Protection (FDEP) as no sediment quality criteria have been established. Sediment samples showed minor exceedences at three of the sites. At site 4, which is located on the GIWW approximately at station 815+00, 7.71 mg/kg of arsenic was detected. This is above the TEL benchmark of 7.24 mg/kg. At site 7, located on the GIWW at Vermillion River Cutoff, 35.8 mg/kg of lead was detected, above the TEL of 30.2 mg/kg. At site 10, located on Freshwater Bayou near the Gulf of Mexico, there were two exceedences, copper concentration was 23.3 mg/kg (TEL is 18.7 mg/kg) and nickel concentration was 23.4 mg/kg (TEL is 15.9 mg/kg). PCB's and pesticides were mainly undetected with only a few isolated detections of fluoranthene, chrysene, and Bis (2-ethylhexyl) phthalate. However there was only one exceedance to the sediment quality benchmarks. This was Bis (2-Ethylhexyl) phthalate. It exceeded the sediment quality benchmark by 1 ug/kg.

Elutriate tests were also performed on samples taken from all ten sites. The purpose of the elutriate test is to provide information on the potential effects of a disposal operation on water quality. Results can either be used to estimate the extent of a resource that will be influenced by the proposed discharge or used to compare the results to appropriate water quality criteria. Trace amounts of zinc, copper, nickel, lead and arsenic were detected at most sites however, and the levels detected did not exceed any of the state criteria. The only exception was mercury, whose reported limit was <0.2 ug/l at each site, could possibly have exceeded the chronic criteria of 0.012 ug/l for freshwater and 0.025 ug/l for salt water, but was below the acute criteria of 2.04 ug/l for freshwater and 2.0 ug/l for salt water. Elutriate tests showed that PCB's and pesticides were undetected at all sites with the same reported detection limits at all ten sites. However a few of the constituents had concentrations that were known to be less than their reported detection limits and could possibly exceed the state's criteria. Endrin, whose

reported limit was <0.10ug/L, possibly exceeded both the chronic and acute criteria for freshwater (0.0375ug/L and 0.0864ug/L, respectively) as well as the chronic and acute criteria for saltwater (0.037ug/L and 0.0023ug/L, respectively). Endosulfan, whose reported limit was <0.10ug/L, possibly exceeded just the acute criteria for freshwater (0.0560ug/L) as well as the acute and chronic criteria for saltwater (0.034ug/L and 0.0087ug/L, respectively). Heptachlor, whose reported limit was <0.10ug/L, possibly exceeded both acute criteria for freshwater (0.0038ug/L) as well as the acute and chronic criteria for saltwater (0.053ug/L and 0.0036ug/L, respectively). Chlordane, whose reported limit was <0.03ug/L, possibly exceeded both acute criteria for freshwater (0.0043ug/L) as well as the acute and chronic criteria for saltwater (0.09ug/L and 0.004ug/L, respectively). Toxaphene, whose reported limit was <0.5ug/L, possibly exceeded the chronic criteria for both freshwater and saltwater (0.0002ug/L and 0.0002ug/L, respectively).

After all constituents were tested an analyzed it is evident that no significant increases in toxic metals or organics are expected at any of the disposal sites.

(d) Pathogens. The waterbodies in this study area fall under the fecal coliform criteria cited for primary contact recreation. The criteria states that based on a minimum of not less than five samples taken over a not more than a 30-day period, the fecal coliform content shall not exceed a log mean of 200/100 mL nor shall more than 10 percent of the total samples collected annually exceed 400/100mL. Not all water data was tested for pathogens. Those samples that were tested did not exceed the state's criteria for fecal coliform. Dredging and disposal activities for this project are not expected to affect the pathogen concentrations in the study area.

(e) Aesthetics. The water in the project area is normally quite turbid due to the very high-suspended sediment load. The turbidity of the dredged material effluent is not expected to cause a significant change in the appearance of area waters. The physical presence of the dredging equipment and other equipment associated with construction will conflict with the generally rural nature of the project area. However this is considered to be temporary. The aesthetics in the disposal areas are expected to improve with the creation of marshland once vegetation is established.

(3) Effects on Biota.

(a) Primary production. Primary production in the project area is subject to normally turbid conditions due to the high-suspended sediment loads within the water column. Increases in turbidity associated with dredging operations will be local in nature and of short duration and should have no long term significant impact. Disposal sites will be directly affected by the placement of dredged material.

The newly created wetlands will replace existing conditions and will contribute to an overall net increase in primary production.

(b) Suspension/filter feeders. Direct impact will be experienced by filter feeders at the dredging operation and at the disposal sites. Filter feeders will be removed from the dredging locations during dredging operations. Existing filter feeders will be buried at the disposal sites where wetlands are to be created. With favorable conditions, filter feeders will quickly reestablish in the new environments.

(c) Sight feeders. Sight feeders in the project area include freshwater and saltwater fish species. Slight visibility decreases will be experienced in the immediate vicinity of the dredging operations. Conditions will return to pre-project levels upon completion of operations. Disposal sites will have material placement to create wetlands eliminating site feeding opportunities but increasing nursery grounds for such species.

(4) Actions Taken To Minimize Impacts. Best management practices will be utilized to the maximum extent practicable. Impacts are considered localized and temporary in nature and will cease upon completion of operations with no expected long term effects.

d. Contaminant Determinations. The dredge and disposal operations of the access channel from the channel from the Port of Iberia through Freshwater Bayou are not expected to increase, relocate, or increase contaminants in the proposed disposal areas. Elutriate data from samples taken by the COE in Commercial Canal, the GIWW, and Freshwater Bayou were compared to LDEQ and EPA water quality criteria and were shown not to contain and significant sources of pollutants or contaminants. The aquatic environments at the various disposal sites will not be adversely affected by contaminants. The aquatic environment of the disposal areas, the marshland creation sites, and beach nourishment areas, should improve as a result of disposal materials from the channels.

e. Aquatic Ecosystem and Organism Determinations

(1) Effects on Plankton. The effects on plankton of the project area will be temporary in nature associated with the actual dredging and disposal operations. Upon completion of the project, conditions for the planktonic community will improve with the creation of additional acreage of wetlands and beach nourishment.

(2) Effects on Benthos. The impacts on benthos will be greatest in the channels with the removal of the existing bottom and on the disposal areas by burial of existing organisms. Upon completion of the project, benthos will reestablish in the new environment and will greatly benefit from the newly created wetlands and beach nourishment.

(3) Effects on Nekton. Nektonic species will be able to move away from the activities associated with the dredging and disposal operations. Aquatic ecosystem conditions will have a long term net improvement increase with the establishment of newly created wetlands which serve as nursery grounds for nektonic species.

(4) Effects on the Aquatic Food Web. The effects on the aquatic food web will be temporary associated with activities of the dredging and disposal operations. Upon completion of the project, the additional wetland acreage created by the beneficial use of dredged material will enhance the existing conditions by adding to the existing nutrient cycle and may increase from the pre-project levels.

(5) Effects on Special Aquatic Sites.

(a) Sanctuaries and Refuges. One (1) State of Louisiana Wildlife Management Area, one (1) State of Louisiana Wildlife Sanctuary, and a federally protected seashore are in the vicinity of the project area. Dredging and disposal operations will not effect or impact these areas.

(b) Wetlands. The effects of the dredging operations will be confined to the navigational channels. The dredge material will be used beneficially in the disposal sites to create, protect and enhance wetland areas, thereby increasing overall acreage, functions, and values of wetlands.

(b) Mud Flats. Mud flats located in the immediate project area were mainly produced by erosion and reworking of the sediments of the existing shorelines. These areas will be used as disposal sites reclaiming past shorelines and creating wetlands. Nearshore sediments will continue to be reworked producing new mudflats adjacent to the disposal areas.

(d) Vegetated Shallows. Vegetated shallows exist in some areas of the degraded wetlands and the northern shore of the Vermilion Bay system. The submerged aquatic vegetation (SAV) is seasonal and occurs infrequently. The disposal sites in these areas will have a slight impact on vegetated shallows. Nearshore sediments will continue to be reworked producing new shallows adjacent to the disposal areas with conditions favorable for SAV colonization.

(e) Coral Reefs. No coral reefs are located within the project area. There will be no impacts associated with the project operations.

(f) Riffle and Pool Complexes. No riffle and pool complexes are located within the study area. There will be no impacts associated with project operations.

(5) Threatened and Endangered Species. In consultation with the U.S. Fish and Wildlife Service (FWS) and the National Marine Fisheries Service (NMFS), portions of the project may impact habitat critical to specific threatened and endangered species in Iberia Parish and Vermilion Parish. These species include the Piping Plover, the Louisiana Black Bear, Green Sea Turtle, Hawksbill Sea Turtle, Kemp's Ridley Sea Turtle, Leatherback Sea Turtle, Loggerhead Sea Turtle. All the listed species have "Known Occurrence" in the parishes of the project area except for the manatee, which may infrequently occur in the coastal waters of Vermilion Parish.

Critical habitat for the Piping Plover is located east of the mouth of Freshwater Bayou along Cheniere Au Tigre and is protected habitat. The beach placement portion of the project will focus to the west of Freshwater Bayou.

Full cooperation and consultation with the FWS and NFMS will be incorporated into the project to minimize any impacts to threatened or endangered species.

(6) Other Wildlife. Dredging and disposal activities will have minimal impact on wildlife at the time of operations and will return to pre-project conditions upon completion. Beneficial use of the dredged material to create, enhance, and protect wetlands as well as beach placement, will significantly increase the benefits to wildlife.

(7) Actions to Minimize Impacts. Cooperation with the various resource agencies as well as the use of best management practices will be incorporated into the construction, dredging, and disposal operations to minimize impacts to the aquatic ecosystem and related organisms.

f. Proposed Disposal Site Determinations

(1) Mixing Zone Determination. The USEPA requires that "mixing zones be free from point and nonpoint source related material in concentrations that will cause acute toxicity to aquatic life". There were no significant exceedences in the acute criteria in any of these water bodies, therefore adverse impacts due to mixing are not expected.

(2) Determination of Compliance with Applicable Water Quality Standards. Existing water quality data as well as new water samples taken for this project were compared to several applicable water quality standards: 2003 LDEQ Numerical Criteria for Toxic Substances, 2003 LDEQ Numerical Criteria and Designated Uses by Basin and Water body, and 2002 EPA National Recommended Water Quality Criteria. Acute and chronic

criteria were used in this assessment. Chronic criteria are intended to protect aquatic organisms from long-term exposure to contaminants while acute criteria protect them from short-term exposure. Since dredging and disposal operations are considered short term acute criteria would most accurately apply. Saltwater criteria were applied to samples taken from Freshwater Bayou, while freshwater criteria was applied to the GIWW and to Commercial Canal.

Elutriate tests were performed on mixtures of water and sediment samples from the samples taken by Corps personnel in March 2003 at ten sites along the channel. Elutriate tests are used to indicate the effects of disposal operations on water quality. Comparisons of elutriate data to water quality criteria are considered conservative. Elutriate results that exceed the water quality criteria do not necessarily mean that adverse water quality impacts will automatically occur.

The elutriate test results indicate that there were only a few constituents that might possibly exceed the criteria during dredging and disposal operations, as there is a slight gap between the level of sensitivity of our tests and the LDEQ standards. These constituents that may have exceeded the acute criteria are: Endrin, Endosulfan, Heptachlor, and Chlordane. For more details see Paragraph (c) Toxic Metals and Organics above.

(3) Potential Effects on Human Use Characteristics.

(a) Municipal and private water supply. There are no municipal or private water supply intakes in the study area that would be impacted by dredging or disposal operations for this project.

(b) Recreational and commercial. Recreational and commercial activities in the project area are based on vessel activity. There would be a minimum impact by the dredging and disposal activities. U.S. Coast Guard regulations, such as marine safety zones would be strictly adhered to for assurance of safe vessel passage. Conditions would return to pre-project conditions upon construction completion. Disposal areas would become a new feature of the landscape.

(c) Water-related recreation. Water related recreation would experience a minimum inconvenience at the time of dredging and disposal operations, but would return to pre-project conditions after project completion.

(d) Aesthetics. The aesthetics of the project area at the time of construction would be characterized by the presence of the dredge and other project associated equipment and exposed mud at the disposal sites. This is considered temporary and local natural vegetation would quickly take root improving the aesthetics within the first and second growing season.

(e) Parks, National and Historical Monuments, National Seashores, Wilderness Areas, Research Sites, and Similar preserves. Two (2) State of Louisiana Wildlife Management Area and a Wildlife Sanctuary along with a federally protected seashore are in the vicinity of the project area. Access to these areas will not be impeded and no impacts are expected to these areas by the dredging and disposal operations.

g. Determination of Cumulative Effects on the Aquatic Ecosystem

The project is expected to result in an increased net benefit to the environment without adding to negative cumulative impacts in the aquatic ecosystem. Beneficial use of dredged material will create, enhance, and protect wetlands and provide beach placement. Reestablishment of former shorelines with rock armoring will aid in reducing saltwater intrusion into the interior marshes and provide increased protection from erosion of the bankline.

h. Determination of Secondary Effects on the Aquatic Ecosystem

No significant secondary effects on the aquatic ecosystem should occur as a result of the project. An increase in beneficial secondary effects is expected when the additional created wetland acreage, enhancement and protection of existing wetlands, shoreline protection, and beach placement by beneficial use of the dredged material becomes a fully functional and valuable part of the aquatic ecosystem.

III. FINDINGS OF COMPLIANCE OR NON-COMPLIANCE WITH THE RESTRICTIONS ON DISCHARGE

a. Adaptation of the Section 404(b)(1) Guidelines to this Evaluation

The Section 404(b)(1) Guidelines have not been adapted for this evaluation. This evaluation has addressed the provisions of the Guidelines that are most applicable to the project.

b. Evaluation of Availability of Practicable Alternatives to the Proposed Discharge Site Which Would Have Less Adverse Impacts on the Aquatic Ecosystem

The three categories of disposal sites, primary, secondary, and tertiary, provide the most practicable alternatives. While all have some degree of impact, the beneficial use of the dredged material will provide an overall net increase to the aquatic ecosystem.

c. Compliance with Applicable State Water Quality Standards

A discussion of the water quality effects of the Tentatively Plan is presented in Section 3 - "Water and Air Quality". In addition, the plan is being coordinated with LDEQ-Office of Environmental Services through the public review process. A Water Quality Certification Number will be obtained at the end of the review process.

d. Compliance with Applicable Toxic Effluent Standard or Prohibition Under Section 307 of the Clean Water Act

Earthen fill materials for the bankline reclamation, marsh creation, marsh nourishment, and intertidal zone material placement disposal areas would be obtained from the construction of the deeper channel providing access to the Port of Iberia from the Gulf of Mexico. The use of such material would not be expected to cause any exceedance of applicable Louisiana Water Quality Standards or U.S. Environmental Protection Agency Water Quality Criteria.

e. Compliance with the Endangered Species Act of 1973

The project will be in full compliance with the Endangered Species Act with consultation with the U.S, Fish and Wildlife Service and National Marine Fisheries Service. Impacts on threatened and endangered species will be minimized to the most practicable extent feasible with full cooperation of both agencies.

f. Compliance with Specified Protection Measures for Marine Sanctuaries Designated by the Marine Protection, Research, and Sanctuaries Act of 1972

The project does not affect any marine sanctuary.

g. Evaluation of Extent of Degradation of the Waters of the United States

(1) Significant Adverse Effects on Human Health and Welfare

(a) Municipal and Private Water Supplies. There are no municipal and private water supply intakes in the study area that would experience impacts from the dredging and disposal operations.

(b) Recreational and Commercial Fisheries. The impact to waters at the immediate project site would be of short duration at the time of project operations, does not represent an overall significant impact, and would return to pre-project conditions after project completion. An overall net increase would be experienced with addition of newly created wetlands.

(c) Plankton. The impacts to the plankton will be temporary and local associated with the actual dredging and disposal operations. Upon completion of the project, conditions for the planktonic community will return to pre-project conditions and will improve with the creation of additional acreage of wetlands.

(d) Fish. Fish species will be able to move away from the activities associated with the dredging and disposal operations. Conditions during project operations will be temporary and localized, and will greatly

improve for the long term with the newly created wetlands providing nursery grounds and adding to the existing nutrient cycle.

(e) Shellfish. Shellfish species will be able to move away from the activities associated with the dredging and disposal operations. Conditions during project operations will be temporary and localized, and will greatly improve for the long term with the newly created wetlands providing nursery grounds and adding to the existing nutrient cycle.

(f) Wildlife. The impact to wildlife at the immediate project site would be of short duration at the time of project operations, does not represent an overall significant impact, and would return to pre-project conditions after project completion. An overall net increase would be experienced with addition of newly created wetlands and the enhancement and protection of existing wetlands.

(g) Special Aquatic Sites. The impact to Special Aquatic Sites would be of short duration at the time of project operations, does not represent an overall significant impact, and would return to pre-project conditions after project completion. An overall net increase would be experienced with addition of newly created wetlands and the enhancement and protection of existing wetlands.

(2) Significant Adverse Effects on Life Stages of Aquatic Life and Other Wildlife Dependent on Aquatic Ecosystems.

The project would not result in significant adverse effects to the life stages of aquatic life and other wildlife dependent on the aquatic ecosystems. Water quality impacts associated with dredging and disposal operations would be localized, temporary, and would return to pre-project conditions upon project completion. An overall net increase would occur with additional created wetland acreage as well as the enhancement and protection of existing wetlands.

(3) Significant Adverse Effects on Aquatic Ecosystem Diversity, Productivity and Stability.

The project would not result in significant adverse effects on the aquatic ecosystem diversity, productivity and stability. Water quality impacts associated with dredging and disposal operations would be localized, temporary, and would return to pre-project conditions upon project completion. An overall net increase would occur with additional created wetland acreage as well as the enhancement and protection of existing wetlands.

(4) Significant Adverse Effects on Recreational, Aesthetic, and Economic Resources.

The project would not result in any significant adverse effects on recreational, aesthetic, and economic resources. Water quality impacts associated with dredging and disposal operations would be localized, temporary, and would return to pre-project conditions upon project completion. An overall net increase would occur with additional created wetland acreage as well as the enhancement and protection of existing wetlands.

h. Appropriate and Practicable Steps Taken to Minimize Potential Adverse Impacts of the Discharge on the Aquatic Ecosystem

Containment and best management practices would be utilized for placement of material at the disposal sites in order to minimize adverse impacts. Impacts associated with dredging activities will be localized and temporary and would return to pre-project conditions upon completion of dredging operations.

i. On the Basis of the Guidelines, the Proposed Disposal Site(s) for the Discharge of Dredged or Fill Material

(1) On the basis of the guidelines, the proposed disposal sites for the discharge of dredged material will be specified as complying with the requirements of these guidelines, with the inclusion of the appropriate and practical conditions to minimize adverse effects on the aquatic ecosystem.

FINDING OF COMPLIANCE
FOR
PORT OF IBERIA FEASIBILITY STUDY

1. No significant adaptations of the guidelines were made relative to this evaluation.

2. In accordance with the U.S. Army Corps of Engineers, Environmental Operating Principles, the dredge material disposal plan was formulated in coordination with Federal and state resource agencies to be the least environmentally damaging, practicable alternative.

3. All unavoidable adverse wetland impacts will be fully offset through compensatory mitigation.

IV. EVALUATION RESPONSIBILITY

a. Water Quality Input Prepared by: Ms. Lauren Hatten Engineer, Hydraulics and Hydrology Branch, Engineering Division, New Orleans District, US Army Corps of Engineers.

b. Project Description and Biological Input Prepared by: , Environmental Planning and Compliance Branch, New Orleans District, US Army Corps of Engineers.

28 Mar 06
Date

Robert J. Martinson
Robert J. Martinson
Acting Chief, Environmental Planning
and Compliance Branch

SECTION 6
LOUISIANA COASTAL ZONE MANAGEMENT PROGRAM CONSISTENCY DETERMINATION

SECTION 6
LOUISIANA COASTAL ZONE MANAGEMENT PROGRAM
CONSISTENCY DETERMINATION

INTRODUCTION

Section 307 of the Coastal Zone Management Act of 1972, 16 U.S.C. 141 et. seq., requires that "each Federal agency conducting or supporting activities directly affecting the coastal zone shall conduct or support those activities in a manner which is, to the maximum extent practicable, consistent with state approved management programs." In compliance with Section 307, a consistency determination has been prepared for the Port of Iberia Channel Deepening Study. Coastal Use Guidelines were written to implement the policies and goals of the Louisiana Coastal Resources Program and to serve as a set of performance standards for evaluating projects. Compliance with the Louisiana Coastal Resources Program and, therefore, Section 307, requires compliance with applicable Coastal Use Guidelines.

PROJECT DESCRIPTION

The Recommended plan is for the Federal Government to provide a 20- by 150 foot channel from the Port of Iberia to the lock on Freshwater Bayou and then a 20- by 250 foot channel from the lock to the 20' contour in the Gulf of Mexico. The current Federal responsibility in the GIWW and FWB is to provide a 12- by 125- foot channel for the inshore reaches and a 12- by 250- foot channel for the offshore reaches. Since 1966, the Port of Iberia has constructed and maintained the Commercial Canal and the port itself at a dimension of 13- 125- foot channel. The Port of Iberia is expanding their port facilities to accommodate the fabrication, repair, and service of semi-submersible offshore drilling rigs and has requested that the Federal government examine the need for channel enlargement. The size and draft of semi-submersible drilling rigs that are projected to be active in the central Gulf of Mexico was used as a basis for developing alternatives. The proximity of Port of Iberia to the central Gulf of Mexico drilling area makes it a likely location for the fabrication, service, and repair of drilling rigs, if an adequate channel is available. The costs and benefits of channels ranging from 16 by 150 feet to 20 by 150 feet have been investigated.

Bucket and hydraulic dredges would be used during dredging operations. Dredge type would be determined by disposal method as agreed upon by the project delivery team (which included the appropriate resource agency representatives). Initial project construction would require removal of about 16.5 million cubic yards (cy) of material from the channel. This includes 13.8 million cubic yards from the inshore reaches and 2.7 million cubic yards (cy) from the offshore reaches to achieve stated project benefits. Of the total amount of material, 6.5 million cubic yards would be used for bankline reclamation creating about 1,313 acres of marsh. Approximately 7.3 million cubic yards would be used for marsh creation in shallow open water. Approximately 2.7 million cy of material excavated from station 850 in FWB to the 20' contour in the Gulf of Mexico, would be deposited next to the gulf shoreline, on the westside of FWB. Material would be deposited in the surf zone and in near shore waters to provide material for natural reshaping of the beach by wind, waves, and currents. Shoreline erosion would be reduced, by preserving saline and brackish marshes behind the shoreline. The remaining 2.4 million cubic yards of material would be placed in three designated confined upland disposal sites. The upland

confined disposal site located on the northern reach of the Commercial Canal was designated in the absence of adequate beneficial use opportunities and will accommodate approximately 1.8 million cubic yards of material. The two smaller confined upland disposal areas located in the southern portion of Freshwater Bayou were used to maintain the integrity of the lock structure and by-pass channel and will accommodate approximately 557,000 cubic yards of dredged material.

GUIDELINES

1. Guidelines Applicable to All Uses

Guideline 1.1: The guidelines must be read in their entirety. Any proposed use may be subject to the requirements of more than one guideline or section of guidelines and all applicable guidelines must be complied with.

Response: Acknowledged.

Guideline 1.2: Conformance with applicable water and air quality laws, standards, and regulations, and with those laws, standards and regulations which have been incorporated into the coastal resources program shall be deemed in conformance with the program except to the extent that these guidelines would impose additional requirements.

Response: Acknowledged.

Guideline 1.3: The guidelines include both general provisions applicable to all uses and specific provisions applicable only to certain types of uses. The general guidelines apply in all situations. The specific guidelines apply only to situations they address. Specific and general guidelines should be interpreted to be consistent with each other. In the event there is an inconsistency, the specific should prevail.

Response: Acknowledged.

Guideline 1.4: These guidelines are not intended to nor shall they be interpreted so as to result in an involuntary acquisition or taking of property.

Response: Acknowledged.

Guideline 1.5: No use or activity shall be carried out or conducted in such a manner as to constitute a violation of the terms of a grant or donation of any lands or water-bottoms to the State or any subdivision thereof. Revocations of such grants and donations shall be avoided.

Response: Acknowledged.

Guideline 1.6: Information regarding the following general factors shall be utilized by the permitting authority in evaluating whether the proposed use is in compliance with the guidelines.

a) type, nature, and location of use.

b) elevation, soil, and water conditions and flood and storm hazard characteristics of site.

c) techniques and materials used in construction, operation, and maintenance or use.

d) existing drainage patterns and water regimes of surrounding area including flow, circulation, quality, quantity, and salinity; and impacts on them.

e) availability of feasible alternative sites or methods for implementing the use.

f) designation of the area for certain uses as part of a local program.

g) economic need for use and extent of impacts of use on economy of locality.

h) extent of resulting public and private benefits.

i) extent of coastal water dependency of the use.

j) existence of necessary infrastructure to support the use and public costs resulting from the use.

k) extent of impacts on existing and traditional uses of the area and on future uses for which the area is suited.

l) proximity to and extent of impacts on important natural features such as beaches, barrier islands, tidal passes, wildlife and aquatic habitats, and forest lands.

m) the extent to which regional, state, and national interests are served including the national interest in resources and the siting of facilities in the coastal zones as identified in the coastal resources program.

n) proximity to, and extent of impacts on, special areas, particular areas, or other areas of particular concern of the state program or local programs.

o) likelihood of, and extent of impacts of, resulting secondary impacts and cumulative impacts.

p) proximity to and extent of impacts on public lands or works, or historic, recreational or cultural resources.

q) extent of impacts on navigation, fishing, public access, and recreational opportunities.

r) extent of compatibility with natural and cultural setting.

s) extent of long-term benefits or adverse impacts.

Response: Acknowledged.

Guideline 1.7: It is the policy of the coastal resources program to avoid the following adverse impacts. To this end, all users and activities shall be planned, sited, designed, constructed, operated, and maintained to avoid to the maximum extent practicable significant:

a) reductions in the natural supply of sediment and nutrients to the coastal system by alterations of freshwater flow.

Response: No alteration of freshwater flows would occur from the proposed project.

b) adverse economic impacts on the locality of the use and affected governmental bodies.

Response: No adverse impacts on the locality of use or governmental bodies would occur. The project is expected to have a positive impact on the local economy.

c) detrimental discharges of inorganic nutrient compounds into coastal waters.

Response: There could be a temporary increase in the concentration of inorganic nutrient compounds near the dredging and disposal sites from re-suspension of bottom sediments during dredging. Effects area not expected to be detrimental.

d) alterations in the natural concentration of oxygen in coastal waters.

Response: Oxygen concentrations at the dredging site and the disposal sites would be reduced during dredging operations and for a short time afterward due to high turbidity levels. Anoxic conditions are not expected to develop and no significant adverse impacts to aquatic species are expected.

e) destruction or adverse alterations of streams, wetlands, tidal passes, inshore waters and waterbottoms, beaches, dunes, barrier islands, and other natural biologically valuable areas or protective coastal features.

Response: Alterations to Commercial Canal, GIWW, FWB, bayside shallow open water areas, interior marshes, and near-shore Gulf of Mexico are expected; however, most of these alterations are considered to be beneficial. The effects of dredging and dredged material deposition are discussed in more detail under Guidelines 4.1 to 4.7.

f) adverse disruption of existing social patterns.

Response: No disruption of existing social patterns is expected.

g) alterations of the natural temperature regime of coastal waters.

Response: Project implementation and maintenance would not alter water temperatures in coastal waters.

h) detrimental changes in existing salinity regimes.

Response: No detrimental change in existing salinity regimes would occur. No new avenues for saltwater intrusion would be created. Tidal flow and resulting salinity regimes in Freshwater Bayou, GIWW, and Commercial Canal would continue to be controlled by the lock on the south end of Freshwater Bayou.

i) detrimental changes in littoral and sediment transport processes.

Response: This plan would not cause detrimental changes in littoral or sediment transport processes. Dredged material would be used to reduce the erosion occurring along the gulf shoreline.

j) adverse effects of cumulative impacts.

Response: Disposal of dredged material from past dredging of the Gulf Intracoastal Waterway (GIWW) and Freshwater Bayou (FWB) by the Federal government converted intermediate and brackish marsh to scrub/shrub habitat. Disposal in this manner took place primarily during the construction of the canals. Since that time, little maintenance dredging has been needed within the GIWW and FWB with the exception of the FWB bar channel. The material dredged in the bar channel has been placed in the near shore disposal area on the Westside of FWB. Disposal of dredged material from past dredging of the Commercial Canal by the Port of Iberia has converted fresh and intermediate marsh into scrub/shrub and Bottomland Hardwood habitats. The cumulative impact of past dredging and port development has been as loss to some fresh marsh but primarily agricultural areas. The proposed project would not further contribute to wetland loss, but rather would utilize dredged material to restore marsh and recreate previous banklines. The proposed project may induce port expansion. Any further expansion, however, should utilize agricultural areas.

k) detrimental discharges of suspended solids into coastal waters, including turbidity resulting from dredging.

Response: Dredging in the Commercial Canal, GIWW, and FWB and disposal of dredged material would temporarily increase turbidity and suspended solids in adjacent waters. The sediments have been determined to be uncontaminated and suitable for wetland development. Little or no detrimental impacts to aquatic species are expected from dredging or disposal operations.

l) reductions or blockage of water flow or natural circulation patterns within or into an estuarine system or wetland forest.

Response: The majority of the material dredged from Commercial Canal, GIWW, and FWB would be used to reclaim the old bankline, as well as build marsh and provide protection from further erosion. The three navigation waterways are not natural and have previously altered natural circulation patterns and increased marsh erosion. Reclaiming the banklines and marsh creation would only serve to help reestablish some of the natural circulation patterns and reduce marsh loss. No natural waterways would be blocked or otherwise restricted.

m) discharges of pathogens or toxic substances into coastal waters.

Response: There is no known toxic or pathogenic substance level that would be significantly increased.

n) adverse alteration or destruction of archaeological, historical, or other cultural resources.

Response: Adverse effects or destruction of these resources is not expected. The CEMVN is consulting with the Louisiana State Historic Preservation Office (LA SHPO) in accordance with Section 106 of the National Historic Preservation Act of 1966, as amended, and has coordinated and completed initial cultural resources investigations in selected project areas. Additional cultural resource investigations are scheduled for dredged material disposal areas and the offshore channel beyond the 16 foot contour. There are significant prehistoric sites present in the study area that could potentially be impacted by proposed construction. However, measures will be taken to ensure that project impacts to significant cultural resources will be avoided or mitigated. Section 106 consultation with the LA SHPO is ongoing and will be concluded prior to any project construction activity.

o) fostering of detrimental secondary impacts in undisturbed or biologically highly productive wetland areas.

Response: Most of the wetlands in the study area have been significantly altered by man, although most areas remain highly productive fish and wildlife habitats. Secondary effects of plan implementation would be an increase in the industrial activity at Port of Iberia, but the proposed project is likely to induce port expansion. Additional areas for port development are available within agricultural lands and existing industrialized boundaries of the port. Impacts to coastal waters could occur from increases in refuse, garbage, and bilge fluids discharged from vessels calling at the port.

p) adverse alteration or destruction of unique or valuable habitats, critical habitat for endangered species, important wildlife or fishery breeding or nursery areas, designated wildlife management or sanctuary areas, or forest lands.

Response: No critical habitats for endangered species, wildlife management areas, sanctuaries, or forest lands would be impacted. The marshes and estuarine waters in the area are highly productive fish and wildlife habitat. Although short-term adverse effects would be expected

during project construction and maintenance, the net effects, as determined by the U.S. Fish and Wildlife Service Habitat Evaluation Procedures, would be positive.

q) adverse alteration or destruction of public parks, shoreline access points, public works, designated recreation areas, scenic rivers, or other areas of public use and concern.

Response: No such items would be adversely altered or destroyed. Dredged material would be deposited periodically next to the beach on west side of Freshwater Bayou to prevent shoreline erosion and to maintain the existing uses of the area, which include recreation.

r) adverse disruptions of coastal wildlife and fishery migratory patterns.

Response: Wintering waterfowl, shore birds, and wading birds, could be temporarily displaced from disposal areas during dredging activities. The adults of various aquatic species, including brown shrimp, white shrimp, blue crab, red drum, and menhaden spawn in the Gulf of Mexico, and the young juveniles of these species use deep tidal passes such as GIWW and Freshwater Bayou for immigration to inland estuarine nursery areas. Increased turbidity resulting from dredging activities could adversely affect the immigration of these organisms.

s) land loss, erosion, and subsidence.

Response: The Recommended plan would not cause land loss, erosion, or subsidence. No increase in bank erosion along the Commercial Canal, GIWW, or FWB is expected from the drilling rigs that would be expected to utilize the port. The banklines of the GIWW and FWB would be armored where the majority of the problems with erosion occur.

t) increases in the potential for flood, hurricane, or other storm damage, or increases in the likelihood that damage will occur from such hazards.

Response: The Recommended plan would not increase potential for flood, hurricane, or other storm damage, or increase likelihood of damage.

u) reductions in the long term biological productivity of the coastal ecosystem.

Response: The Recommended plan would not cause long-term reductions in biological productivity, but rather would be expected to maintain biological productivity above conditions expected without a project.

Guideline 1.8: In those in which the modifier “maximum extent practicable” is used, the proposed use is in compliance with the guideline if the standard modified by the term is complied with. If the modified standard is not complied with, the use will be in compliance with the guideline if the permitting authority finds, after a systematic consideration of all pertinent information regarding the use, the site, and the impacts of the use as set forth in Guideline 1.6, and a balancing of their relative significance, that the benefits resulting from the proposed use would clearly outweigh the adverse impacts resulting from noncompliance with the modified

standard and there are no feasible and practical alternative locations, methods, and practices for the uses that are in compliance with the modified standard and :

a) significant public benefits will result from the use, or;

b) the use would serve important regional, state, or national interests, including the national interest in resources and the siting of facilities in the coastal zone identified in the coastal resources program or the use is coastal water dependent.

The systematic consideration process shall also result in a determination of those conditions necessary for the use to be in compliance with the guideline. Those conditions shall assure that the use is carried out utilizing those locations, methods, and practices which maximize conformance to the modified standard; are technically, economically, environmentally, socially, and legally feasible and practical and minimize or offset those adverse impacts listed in Guideline 1.7 and in the guideline at issue.

Response: Acknowledged.

Guideline 1.9: Uses shall, to the maximum extent practicable, be designed and carried out to permit multiple concurrent uses which are appropriate for the location and to avoid unnecessary conflicts with other uses of the vicinity.

Response: The purpose of the Recommended plan is to improve navigation. Other uses of the channel, such as commercial and recreational fishing and water sports, would be allowed as long as they do not impede navigation.

Guideline 1.10: These guidelines are not intended to be, nor shall they be, interpreted to allow expansion of governmental authority beyond that established by La. R.S. 49:213.1 through 49:213.21, as amended; nor shall these guidelines be interpreted so as to require permits for specific uses legally commenced or established prior to the effective date of the coastal use permit program nor to normal maintenance or repair of such uses.

Response: Acknowledged.

<u>2. Guidelines for Levees</u>

Not applicable.

<u>3. Guidelines for Linear Facilities</u>

Not applicable.

<u>4. Guidelines for Dredged Spoil Deposition</u>

Guideline 4.1: Spoil shall be deposited utilizing the best practical techniques to avoid disruption of water movement, flow, circulation, and quality.

Response: Deposition of dredged material along the existing shelf in shallow open water in a manner to reclaim the once existing bankline would be armored. Existing shallow open water within the channel would then be used to create marsh and thus rebuild the bankline. The effects of reclaiming the banklines within the GIWW and FWB canals would be beneficial. Deposition of dredged material to build marsh in both interior marshes that are breaking up, as well as place material in open water areas on the bayside of existing marshes would not negatively disrupt water flow. Dredged material in the bayside disposal areas would be confined and armored on the confinement dikes in order to protect the disposal areas from the high energy environment and allow the site to vegetate. This method would provide newly created marsh habitat along with protecting the existing marshes which are at the mercy of the bays especially during storm events. The shallow water disposal area adjacent to the gulf shoreline on the eastside of FWB is not expected to disrupt water flow but would continue to introduce material into the littoral zone for the reworking of the coastline thus mimicking a natural process. The disposal of material into upland sites accounts for a small percentage of the overall quantity of material and were only designated as a result of insufficient beneficial use opportunities within this location of the study area. These disposal methods are considered to be the most practical for each situation. The sediments to be excavated are not contaminated and no significant adverse effects on water quality is expected.

Guideline 4.2: Spoil shall be used beneficially to the maximum extent practicable to improve productivity or create new habitat, reduce or compensate for environmental damage done by dredging activities, or prevent environmental damage. Otherwise, existing spoil disposal areas or upland disposal shall be utilized to the maximum extent practicable rather than creating new disposal areas.

Response: The majority of the material dredged from the channels would be disposed of in an environmentally beneficial way, either for bankline reclamation, marsh creation, or shoreline erosion control. However, the northern reach of the Commercial Canal provided little opportunity for beneficial use and thus an upland disposal site was designated. During the study process, however, it was recognized that no immediate practical beneficial use disposal opportunity existed and that other coastal restoration projects may need the material. The project delivery team agreed to taking the appropriate measures required for the disposal material to be transported to the beneficial use site.

Guideline 4.3: Spoil shall not be disposed of in a manner which could result in the impounding or draining of wetlands or the creation of development sites unless spoil deposition is part of an approved levee or land surface alteration project.

Response: A small area of wetlands would be used for upland dredge material disposal and thus would be impounded. However, the majority of the disposal material would be used to create wetlands and reclaim the banklines of severely eroding channels. The reach of Commercial Canal being used for upland disposal did not provide practical beneficial use opportunity after much study. The small areas used for upland disposal on the southern reach of FWB was an

issue of ensuring the integrity of the lock structure. A conclusion was made during plan formulation that the majority of the wetlands would not be impounded or drained as a result of dredged material disposal and marsh creation would not encourage development of the disposal areas.

Guideline 4.4: Spoil shall not be disposed of on marsh, known oyster or clam reefs, or in areas of submerged vegetation to the maximum extent practicable.

Response: To the maximum extent practicable dredged material would not be deposited on marsh or on oyster or clam reefs. Material would, however, be placed in Weeks Bay to create marsh and impede erosion. Weeks Bay is listed as public oyster seed ground. The study process revealed the importance of placing material into Weeks Bay in hopes of restricting freshwater flows from the GIWW to perhaps increase the habitat suitability for the oyster seed grounds that occur in Weeks Bay. Coordination is being accomplished through The Louisiana Department of Wildlife and Fisheries on this issue.

Guideline 4.5: Spoil shall not be disposed of in such a manner as to create a hindrance to navigation or fishing, or hinder timber growth.

Response: Navigation or timber growth would not be hindered. The interior marsh creation sites are used by recreational fishermen but occur on private property and are not unique to the area. The bayside marsh creation sites are also marginally used by recreational fishermen but will likely preserve existing interior marsh and thus provide protection for traditional recreational fishing grounds.

Guideline 4.6: Spoil disposal areas shall be designed and constructed and maintained using the best practicable techniques to retain the spoil at the site, reduce turbidity, and reduce shoreline erosion when appropriate.

Response: Material deposited in along the bankline would be held in place with armor to impede shoreline erosion into the marsh and reestablish the bankline. Material deposited in interior marsh creation sites would be only be temporarily confined as needed to allow for the new material to establish vegetation. Material placed in the bayside disposal sites to create marsh would be confined with the earthen dikes with the armor to protect from wave erosion. The only exception to this disposal method would be the site in Weeks Bay. The material in Weeks Bay would be confined by earthen dikes only as the substrate cannot support the weight of any sort of armor. Dredged material deposition in the near-shore gulf adjacent to the beach would not be confined but would be reworked by wind, waves, and currents helping to reduce shoreline erosion and loss of marsh behind the shoreline. The upland confined disposal sites would be confined with the use of earthen dikes.

Guideline 4.7: The alienation of state-owned property shall not result from spoil deposition activities without the consent of the Department of Natural Resources.

Response: No state lands would be alienated as a result of the proposed action.

5. Guidelines for Shoreline Modification

Guideline 5.1: Non-structural methods of shoreline protection shall be utilized to the maximum extent practicable.

Response: Due to the high-energy environment throughout the project area, the study process revealed the need for rock armor in order to hold the shoreline protection areas in place for the project life.

Guideline 5.2: Shoreline modification structures shall be designed and built using best practical techniques to minimize adverse environmental impacts.

Response: Best practical techniques to minimize adverse environmental impacts when designing the bankline reclamation areas were employed. Openings along the armored bankline were designed to correspond to existing waterways and tributaries to allow ingress and egress of marine organisms.

Guideline 5.3: Shoreline modification structures shall be lighted or marked in accordance with U.S. Coast Guard regulations, not interfere with navigation, and should foster fishing, other recreational opportunities, and public access.

Response: U.S. Coast Guard regulations will be followed. The intent of the recommended plan was to provide a more appropriate navigation route to the gulf without impacts to fishing or other recreational opportunities.

Guideline 5.4: Shoreline modification structures shall be built using best practical materials and techniques to avoid the introduction of pollutants and toxic substances into coastal waters.

Response: Rock material used for the armoring of the bankline and earthern dikes for material retention for marsh creation would come from a commercial source approved by the Federal government. The use of proposed material has a low Hazardous, Toxic, and Radioactive, Waste (HTRW) risk factor.

Guideline 5.5: Piers and docks and other harbor structures shall be designed and built using best practical techniques to avoid obstruction of water circulation.

Response: Not applicable.

Guideline 5.6: Marinas, and similar commercial recreational developments shall to the maximum extent practicable not be located so as to result in adverse impacts on open productive oyster beds, or submersed grass beds.

Response: Not applicable.

Guideline 5.7: Neglected or abandoned shoreline modification structures, piers, docks, mooring and other harbor structures shall be removed at the owner's expense, when appropriate.

Response: Not applicable.

Guideline 5.8: Shoreline stabilization structures shall not be built for the purpose of creating fill areas for development unless part of an approved surface alteration use.

Response: The Recommended plan was designed with the intent of reclaiming the eroded banklines along the GIWW and FWB.

Guideline 5.9: Jetties, groins, breakwaters and similar structures shall be planned, designed and constructed so as to avoid to the maximum extent practicable downstream land loss and erosion.

Response: The Recommended plan was specifically designed with the intent of eliminating or impeding erosion along the banklines of the GIWW and FWB.

6. Guidelines for Surface Alterations

Not Applicable.

7. Guidelines for Hydrologic and Sediment Transport Modifications

Not Applicable.

8. Guidelines for the Disposal of Wastes

Not Applicable.

9. Guidelines for Uses That Result in the Alteration of Waters Draining into Coastal Waters

Not Applicable.

10. Guidelines for Oil, Gas, and Other Mineral Activities

Not Applicable.

CONSISTENCY DETERMINATION

The guidelines of Louisiana's Coastal Resources Program have been applied to the proposed project for the Port of Iberia, Louisiana. The New Orleans District, U.S. Army Corps of Engineers, has determined that implementation of the Tentatively Selected Plan, which provides for a channel with the controlling depth of 20' by 250' offshore of the Gulf of Mexico and 20' by 150' inshore to the Port of Iberia and beneficial use of the majority of all material to be dredged, would be consistent, to the maximum extent practicable, with the State of Louisiana's approved Coastal Resources Program.

SECTION 7
FARMLAND PROTECTION POLICY ACT COORDINATION

This section contains a record of conversation between the U. S. Army Corps of Engineers and the Soil Conservation Service concerning prime and unique farmlands covered under the Farmland Protection Policy Act.

United States Department of Agriculture

Natural Resources Conservation Service
Phone 337-893-5664 Ext.3
Fax 337-893-9225

PO Box 68
Abbeville, LA
70511-0068

To: Department of the Army
New Orleans, Corps of Engineers
PO Box 60267
New Orleans, LA 70160

Date: September 20, 2004

Re: Request for Prime and Unique Farmland Determinatio
Port of Iberia Study Area
Vermilion Parish

Dear Mr. Sayler,

Enclosed you will find a completed Farmland Conversion Impact Rating Form AD-1006 for the above mentioned project. Our findings indicate that the project will not impact prime or unique farmland.

Please call if you have any questions.

Sincerely,

Bart Devillier
District Conservationist

All programs and services of the U.S. Department of Agriculture are available on a nondiscriminatory basis
AN EQUAL OPPORTUNITY PROVIDER AND EMPLOYER

U.S. Department of Agriculture

FARMLAND CONVERSION IMPACT RATING

PART I *(To be completed by Federal Agency)*	Date Of Land Evaluation Request July 29, 2004
Name Of Project Port of Iberia Study Area	Federal Agency Involved US Army Corps of Engineers
Proposed Land Use	County And State Vermilion, LA
PART II *(To be completed by SCS)*	Date Request Received By SCS August 5, 2004

Does the site contain prime, unique, statewide or local important farmland? *(If no, the FPPA does not apply — do not complete additional parts of this form)*	Yes ☐	No ☒	Acres Irrigated / Average Farm Size
Major Crop(s)	Farmable Land In Govt. Jurisdiction Acres: %		Amount Of Farmland As Defined In FPPA Acres: %
Name Of Land Evaluation System Used	Name Of Local Site Assessment System		Date Land Evaluation Returned By SCS

PART III *(To be completed by Federal Agency)*	Alternative Site Rating Site A	Site B	Site C	Site D
A. Total Acres To Be Converted Directly				
B. Total Acres To Be Converted Indirectly				
C. Total Acres In Site				
PART IV *(To be completed by SCS)* Land Evaluation Information				
A. Total Acres Prime And Unique Farmland				
B. Total Acres Statewide And Local Important Farmland				
C. Percentage Of Farmland In County Or Local Govt. Unit To Be Converted				
D. Percentage Of Farmland In Govt. Jurisdiction With Same Or Higher Relative Value				
PART V *(To be completed by SCS)* Land Evaluation Criterion Relative Value Of Farmland To Be Converted *(Scale of 0 to 100 Points)*				

PART VI *(To be completed by Federal Agency)* Site Assessment Criteria *(These criteria are explained in 7 CFR 658.5(b))*	Maximum Points	Site A	Site B	Site C	Site D
1. Area In Nonurban Use					
2. Perimeter In Nonurban Use					
3. Percent Of Site Being Farmed					
4. Protection Provided By State And Local Government					
5. Distance From Urban Builtup Area					
6. Distance To Urban Support Services					
7. Size Of Present Farm Unit Compared To Average					
8. Creation Of Nonfarmable Farmland					
9. Availability Of Farm Support Services					
10. On-Farm Investments					
11. Effects Of Conversion On Farm Support Services					
12. Compatibility With Existing Agricultural Use					
TOTAL SITE ASSESSMENT POINTS	160				
PART VII *(To be completed by Federal Agency)*					
Relative Value Of Farmland *(From Part V)*	100				
Total Site Assessment *(From Part VI above or a local site assessment)*	160				
TOTAL POINTS *(Total of above 2 lines)*	260				

Site Selected:	Date Of Selection	Was A Local Site Assessment Used? Yes ☐ No ☐

Reason For Selection:

[signature] 9/9/04
District Conservationist Date

(See Instructions on reverse side) Form AD-1006 (10-83)

SECTION 8
COASTAL BARRIER RESOURCES ACT COORDINATION

This section contains correspondence between the U.S. Army Corps of Engineers and the U.S. Fish and Wildlife Service concerning the Coastal Barrier Resources Act.

DEPARTMENT OF THE ARMY
NEW ORLEANS DISTRICT, CORPS OF ENGINEERS
P.O. BOX 60267
NEW ORLEANS, LOUISIANA 70160-0267

June 24, 2004

REPLY TO:
Planning, Programs,
and Project Management
Environmental Planning
and Compliance Branch

Mr. Russell C. Watson
Supervisor Louisiana Field Office
Fish and Wildlife Service
646 Cajundome Blvd. – Suite 400
Lafayette, Louisiana 70506

Dear Field Supervisor:

This letter is regarding the Coastal Barrier Resources Act and a potential action impacting Coastal Barrier Resources System. This request for comment is pursuant to Section 6 of the Coastal Barrier Resources Act.

The U.S. Army Corps of Engineers (USACE), New Orleans District, is investigating the feasibility of providing a deeper and wider access route to the Gulf of Mexico for the Port of Iberia through existing channels. At present, the Commercial Canal provides access to the Port and is intersected by the Gulf Intracoastal Waterway (GIWW). Freshwater Bayou (FWB) intersects the GIWW to the southwest of the Commercial Canal. The current Federal responsibility is to maintain the GIWW channel to dimensions of approximately 12 by 125 feet. The FWB channel is maintained to dimensions of approximately 12 by 125 feet for the inshore reach and 12 by 250 feet for the offshore reach.

If the Corps determines that Federal involvement in a deeper channel is justified, appropriate dredge material disposal sites will be necessary. The majority of the proposed disposal areas are inshore. However, one possible dredge material disposal site is located in Gulf of Mexico near shore waters immediately to the west of the of FWB mouth (Enclosure 1). Disposal at this site would reduce the rate of shoreline erosion to the west of the site where erosion is an ongoing problem.

There is no development at this location now and we do not anticipate the proposed project would encourage development. Please provide us your determination whether the dredging and disposal activities described above will require formal consultation. Your prompt attention

to this matter will be appreciated. If you have a need for further information, please call Mr. Michael Salyer at (504) 862-2037.

Sincerely,

Mr. David F. Carney
Chief, Environmental Planning and
Compliance Branch

Enclosure

1-Aug-04 RTM

United States Department of the Interior

FISH AND WILDLIFE SERVICE
1875 Century Boulevard
Atlanta, Georgia 30345

In Reply Refer To:
FWS/R4/ES

JUL 2 8 2004

Mr. David F. Carney
Environmental Planning and Compliance Branch
New Orleans District, Corps of Engineers
PO Box 60267
New Orleans, Louisiana 70160-0267

Dear Mr. Carney:

Thank you for your June 28, 2004, letter regarding the Corps of Engineers' potential action to deepen three access channels servicing the Port of Iberia. The proposed Port of Iberia Channel Deepening Project involves dredging and spoil disposal along Commercial Canal, the Gulf Intracoastal Waterway, and Freshwater Bayou, located in Iberia and Vermilion Parishes, Louisiana. Your letter requested the Fish and Wildlife Service's determination, pursuant to the Coastal Barrier Resource Act (CBRA) of 1982 (96 Stat. 1653, as amended; 16 U.S.C. 3501 et seq.), as to whether those activities would be included within the jurisdiction of the CBRA.

The CBRA authorized the Secretary of the Interior to designate undeveloped coastal barriers (e.g., barrier islands and shorelines with protective barriers) as units of the Coastal Barrier Resource System (CBRS). Activities located within designated CBRS units are typically ineligible for Federal financial assistance if they encourage development within those areas.

We have determined that portions of the proposed Port of Iberia Access Channel Project would encroach within the Coastal Barrier Resource System boundaries. Specifically, the Freshwater Bayou segment of the proposed project is within CBRS Unit LA-07, created in 1990. The Service has, however, concluded that the proposed project is exempt from the CBRA restrictions, based on Section 3505(a)(1) of that Act. That subsection exempts Federal expenditures for, "Any use or facility necessary for the exploration, extraction, or transportation of energy resources which can be carried out only on, in or adjacent to, a coastal water area because the use or facility requires access to the coastal water body." Because the proposed navigation channel improvements will enhance deepwater access to the Port of Iberia, which plays a key role in supporting the exploration, extraction, and transportation of energy resources in, and adjacent to the northern Gulf of Mexico, we have determined that the proposed federal action is exempt from CBRA restrictions.

We appreciate the opportunity to provide this determination. If you have any questions regarding our comments, please contact Mr. Russell Watson, Field Supervisor, Lafayette, Louisiana, at 337/291-3116.

Sincerely yours,

Cynthia K. Dohner
Assistant Regional Director

SECTION 9
U.S. FISH AND WILDLIFE SERVICE COORDINATION ACT REPORT

This section contains the draft Fish and Wildlife Coordination Act Report as required by Section 2(b) of the Fish and Wildlife Coordination Act.

United States Department of the Interior

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

July 9, 2004

Colonel Peter J. Rowan
District Engineer
U.S. Army Corps of Engineers
Post Office Box 60267
New Orleans, Louisiana 70160-0267

Dear Colonel Rowan:

Enclosed is our Draft Fish and Wildlife Coordination Act Report on the selected plan for the Port of Iberia Channel Deepening Project, feasibility study. This draft report is transmitted under the authority of the Fish and Wildlife Coordination Act (48 Stat. 401, as amended; 16 U.S.C. 661 et seq.), and is being coordinated with the Louisiana Department of Wildlife and Fisheries and the National Marine Fisheries Service. Comments by those agencies will be included in our final report. To ensure that the excellent coordination between our staff continues, please advise of your agency's scheduled completion date for the Feasibility Report.

Should your staff have any questions regarding the enclosed report, please have them contact Robert Dubois of this office at 337/291-3127.

Sincerely,

Russell C. Watson
Supervisor
Louisiana Field Office

cc: FWS, Atlanta, GA (ES/HC)
NMFS, Baton Rouge, LA
LA Dept. of Wildlife and Fisheries, Baton Rouge, LA

PORT OF IBERIA CHANNEL DEEPENING FEASIBILITY STUDY

FISH AND WILDLIFE COORDINATION ACT REPORT

U.S. FISH AND WILDLIFE SERVICE

ECOLOGICAL SERVICES

LAFAYETTE, LOUISIANA

October 2005

PORT OF IBERIA CHANNEL DEEPENING FEASIBILITY STUDY

FISH AND WILDLIFE COORDINATION ACT REPORT

PROVIDED TO

NEW ORLEANS DISTRICT

U.S. ARMY CORPS OF ENGINEERS

NEW ORLEANS, LOUISIANA

PREPARED BY

ROBERT DUBOIS

FISH AND WILDLIFE BIOLOGIST

U.S. FISH AND WILDLIFE SERVICE

ECOLOGICAL SERVICES

LAFAYETTE, LOUISIANA

October 2005

U.S. Fish and Wildlife Service – Southeastern Region

EXECUTIVE SUMMARY

The U.S. Fish and Wildlife Service (Service) has prepared the attached Fish and Wildlife Coordination Act Report on the U.S. Army Corps of Engineers' (Corps) proposed Port of Iberia Channel Deepening Project Feasibility Study. The objectives of that study are to evaluate the feasibility of deepening the existing navigation route from Commercial Canal south to the Gulf Intracoastal Waterway (GIWW), west to the Freshwater Bayou Canal (FWB), and south into the Gulf of Mexico to the -20 foot contour.

The project-area comprises coastal wetlands in the Teche/Vermilion hydrological basin and the easternmost portion of the Mermentau hydrological basin. Those wetlands support nationally important fish and wildlife resources, but are experiencing continued loss and degradation. Through the Coastal Wetland Planning, Protection, and Restoration Act (CWPPRA), the Corps, the Service, and other Federal and State agencies have jointly developed strategies to protect and restore Louisiana's diminishing coastal wetlands, including those in the Teche/Vermilion and Mermentau Basins. Four of those strategies may be affected by the proposed project, including maintenance of shoreline integrity-stabilization of critical areas of the Teche-Vermilion Bay system, optimization of GIWW flows into marshes while minimizing direct flows into the bays, maintaining Atchafalaya River water and sediment inflows through the GIWW, and maintaining the Atchafalaya River mudstream in the Gulf of Mexico.

Originally, three routes were considered to provide improved deep-draft vessel access to Commercial Canal from the Gulf of Mexico. Six alternative plans under the Route 3 option were ultimately eliminated from further study due to inherent navigational safety issues related to their narrow channel width. Two shallower channel deepening alternatives were also excluded because they would not produce sufficient dredged material to restore the original GIWW and FWB banklines. The Tentatively Selected Plan (TSP) would consist of deepening 51 miles of navigable waterways (Commercial Canal, GIWW, FWB, and Freshwater Bayou Bar Channel) to -20 feet MLG, with a 150-foot bottom width. Disposal areas (DA) for dredged material would be located along channel banklines, interior marshes, bay open-water DAs, and wetlands that would be sacrificed to create upland disposal areas (SUD). Because of the complexity and scope of this proposed project, including its direct relationship to the Port of West St. Mary and other deep-draft navigation projects, extensive coordination between the Corps and the Service will be required throughout the post-authorization and detailed design phase to ensure that opportunities to protect and restore coastal wetlands and their associated fish and wildlife resource values are fully addressed.

Direct impacts of the recommended plan include the loss of 343 acres of drained and impounded fresh marsh, 118 acres of perched intermediate marsh, and 4,125 acres of fresh, intermediate, and brackish benthic habitats. Project-related direct benefits include the creation of approximately

100 acres of fresh marsh, 3,503 acres of intermediate marsh, and 522 acres of brackish marsh through the deposition of dredged material in bay open-water DAs, interior open-water DAs, and bankline DAs. Direct benefits also include the protection of those DAs through the placement of rock armoring along the bay open-water DA shoreline and the GIWW and FWB bankline DAs. Current estimates of the net impacts of the TSP include the loss of 138.5 Average Annual Habitat Units (AAHUs) for drained and impounded fresh marsh, and the loss of 50.5 AAHUs for perched intermediate marsh. Estimated AAHU gains from beneficial depositing of dredged material into bay open-water, interior open-water, and bankline DAs include 108 AAHUs for fresh marsh, 5,255 AAHUs for intermediate marsh, and 758 AAHUs for brackish marsh.

Based on preliminary structure designs, use of the Wetland Value Assessment methodology revealed that the project (excluding the compensatory mitigation measures) would have net positive impacts on intermediate and brackish marsh. The proposed project would have a net negative impact on fresh marsh, but the mitigation of impounded fresh marshes with non-impounded low-salinity intermediate marshes was determined to be acceptable for this project.

In addition to providing improved deep-draft navigation, implementation of the TSP has the potential to achieve large-scale wetland protection and restoration benefits through protection against wake-induced erosion, reduced saltwater intrusion, creation of fresh, intermediate and brackish marshes, and improved transport of Atchafalaya River water westward through the GIWW and FWB. In support of comprehensive State and Federal efforts to conserve Louisiana's nationally significant coastal wetlands, avoidance and minimization of direct wetland impacts should be pursued to the greatest extent practicable, regardless of whether or not the project would produce net environmental benefits (expressed in AAHUs). The Secretary of the Army in coordination with the Director of the Fish and Wildlife Service and the Administrator of the Environmental Protection Agency must ensure that Corps projects are consistent with the purposes of the restoration plan that was prepared in compliance with Section 303 (d) of CWPPRA. In 1998, the Louisiana Coastal Wetlands Conservation and Restoration Task Force updated and revised that plan; now entitled the Coast 2050 Plan (Louisiana Coastal Wetlands Conservation and Restoration Task Force 1998). As previously noted, the TSP would help to achieve several Coast 2050 strategies.

The Service would not object to further detailed planning and implementation of the proposed project, provided that the following recommendations are incorporated to ensure that fish and wildlife resource conservation receives equal consideration during project planning, design, and implementation:

1. Material dredged from the Commercial Canal, GIWW, and FWB should be used to create or restore emergent wetlands to the greatest extent possible.

    a. Bucket-dredged material should be placed no higher than 5 feet NAVD 88 to restore original banklines along the GIWW and FWB.

b. Bucket-dredged material from Commercial Canal should be placed no higher than 5 feet NAVD 88 to create emergent marsh in Weeks Bay.

c. Hydraulically dredged material from the GIWW, FWB, and Commercial Canal should be used beneficially to create marsh in interior and open-water bay DAs; that material should be placed no higher than 3.5 feet and 5 feet NAVD 88, respectively.

d. Tidal creeks in the bay open-water DAs should be dredged prior to sediment disposal to allow differential settlement and increased habitat variability.

e. All future maintenance dredged material should also be used beneficially to create marsh (i.e., elevation of 1.4 feet NAVD 88 after settlement); primarily in open-water areas within existing DAs, and secondarily, in open-water areas not currently designated as DAs.

2. Rock armoring along the GIWW and FWB should be placed no higher than 3.5 feet and 5 feet NAVD 88, respectively, and rock should be placed no higher than 3 feet NAVD 88 along open-water bay DAs.

3. Between TY-3 and TY-5, “fish dips” or gaps should be created in rock armoring at the mouth of all bayous, trenasses, open water, etc., or at strategic locations recommended by the HET. Design details are provided in Appendix I.

4. Under their Section 7(a) responsibilities of the ESA, the Corps should convert a 100-acre site adjacent to the southern boundary of the 343-acre SUD on the west bank of Commercial Canal (Figure 4) to high quality bottomland hardwoods through a one-time spoil disposal event with a target disposal elevation no higher than 4 feet NAVD 88; appropriate bottomland hardwood species should be planted in consultation with the Service, and a non-developmental easement should be purchased to retain the created habitat value for the life of the project.

5. The Commercial Canal DA should be surveyed for potential Louisiana black bear den trees in coordination with the Service.

6. Material excavated from the FWB Bar Channel should be placed west of that channel and as near to the Gulf shoreline as practical.

7. All dredged material not needed for the structural integrity of the bypass structure should be used beneficially.

8. Periodic monitoring of protective rock and mitigation sites should be conducted in cooperation with the Service and other natural resource agencies.

9. Mitigation lands should be dedicated in perpetuity to fish and wildlife purposes through fee title acquisition or placement of non-developmental easements of those lands.

10. Modification, addition, and/or elimination of project elements during future project planning and construction stages should be fully coordinated with the Service and other natural resource agencies to ensure the continued validity of our impact analysis and mitigation recommendations.

11. The Corps should continue to coordinate with the Service throughout planning and construction to ensure that the proposed project does not impact waterbird nesting colonies, and threatened or endangered species that may be listed in the future.

12. Project features should be implemented and operated consistent with the Louisiana Coastal Restoration Plan, as required by Section 303(d) of CWPPRA.

13. Given the extremely high degree of interdependency between the Port of Iberia project and the recently proposed Port of West St. Mary project, their cumulative impacts and consistency of design, construction, operations, and maintenance should be fully evaluated to ensure that they are implemented in the most environmentally sensitive manner feasible.

TABLE OF CONTENTS

EXECUTIVE SUMMARY……..……....i

INTRODUCTION…….……..……....1

DESCRIPTION OF PROJECT AREA……..…..……1

EXISTING FISH AND WILDLIFE RESOURCES……..….…….3
Description of Habitats……..….…….3
Fishery Resources…….…….….…….4
Essential Fish Habitat…….…....……5
Wildlife Resources……..…....……5
Migratory Birds…….……..…….5
Threatened and Endangered Species……..…….6
Refuges and Wildlife Management Areas…….…….....……7

FUTURE WITHOUT-PROJECT FISH AND WILDLIFE RESOURCES……....…….8

DESCRIPTION OF ALTERNATIVES AND TENTATIVELY SELECTED PLAN…....8
Preliminary Alternatives……..……8
Alternatives……...…….10
Tentatively Selected Plan…….……..……....……10

FISH AND WILDLIFE CONCERNS IN THE PROJECT AREA……..…….13

EVALUATION METHODOLOGY…….....……14

PROJECT IMPACTS…….……...17

EVALUATION OF TENTATIVELY SELECTED PLAN……..18

FISH AND WILDLIFE CONSERVATION MEASURES…….....22

SERVICE POSITION AND RECOMMENDATIONS……...….27

LITERATURE CITED……..…...…….30

APPENDIX I – GENERAL RECOMMENDATIONS FOR FISH DIPS TO MITIGATE PROJECT INDUCED ESTUARINE RESOURCE IMPACTS.....31

LIST OF FIGURES

Figure 1. Project-area map…….....……..2

Figure 2. Project-area CWPPRA and State projects…….....…….....……...9

Figure 3. Disposal area location map.....12

Figure 4. Service-proposed alternative to the Corps' Commercial Canal SUD.....25

LIST OF TABLES

Table 1. Disposal-area impacts (acreage/AAHUs).....….....19

Table 2. U. S. Fish and Wildlife Service resource categories (Federal Register, Vol. 46, pp. 7644-7663, January 23, 1981)…….....23

Table 3. Marsh-creation acreage needed to fully mitigate project impacts on fresh marsh…….....26

Table 4. Marsh-creation acreage needed to fully mitigate project impacts on intermediate marsh…….....26

INTRODUCTION

The Port of Iberia Channel Deepening Feasibility Study was authorized by Section 431 of the Water Resources Development Act of 2000, Public Law 106-541, enacted December 11, 2000. The Port of Iberia is the local cost-sharing sponsor for that study. Seven channel-deepening alternatives were evaluated in addition to the No-action alternative. This report provides an analysis of the impacts of the Tentatively Selected Plan (TSP) on fish and wildlife resources of the project area. The TSP entails the deepening of approximately 51 miles of existing navigation channels including the Commercial Canal, Gulf Intracoastal Waterway (GIWW), and Freshwater Bayou Canal (FWB) to a depth of -20 feet North American Vertical Datum (NAVD) 88 and a bottom width of 150 feet. Spoil would be beneficially placed to create marsh in open water along the banks of the GIWW and FWB, Little Vermilion, Weeks, and Little White Lake Bays, and in open-water portions of interior fragmented marsh or marsh ponds. Some perched and impounded wetlands would be sacrificed by filling them to upland elevations (i.e., sacrificial upland disposal areas). Disposal areas (DA) located along the banks of the GIWW and FWB are referred to as bankline DAs, open-water DAs located in Weeks Bay and Vermilion Bay are bay DAs, interior open-water DAs located in the interior areas on either side of GIWW and FBC are interior DAs, and impounded or perched wetlands that would be sacrificed are referred to as sacrificial upland disposal areas (SUDs).

Our impact analysis relies on a joint assessment conducted by the interagency Habitat Evaluation Team (HET). Where engineering details were unavailable, assumptions by the HET were based on a worst-case scenario. The TSP includes compensatory measures to mitigate unavoidable adverse impacts on fish and wildlife resources. This report is provided in fulfillment of the requirements of the Fish and Wildlife Coordination Act (48 Stat. 401, as amended; 16 U.S.C. 661 et seq.), and constitutes the report of the Secretary of the Interior required by Section 2(b) of that Act.

DESCRIPTION OF PROJECT AREA

The proposed 51-mile channel deepening project (Figure 1) is located in Vermilion and Iberia Parishes, Louisiana, and extends from the Port of Iberia, southward down the Commercial Canal, westward along the GIWW, and southward through the FWB into the Gulf of Mexico, where it terminates at the -20-foot depth contour (i.e., approximately four miles offshore). The project area includes the wetlands flanking the east and west banks of Commercial Canal, wetlands north and south of the GIWW including Vermilion Bay, those wetlands from Vermilion Bay westward to the wetlands on the western bank of FWB, and that area of the Gulf south of the Freshwater Bayou Locks to the -20-foot contour.

The project area includes portions of the Teche-Vermilion and Mermentau hydrologic basins. Waterways to be deepened are located in the Chenier Plain and Deltaic Plain, which comprise the majority of south Louisiana. Marshes surrounding the Commercial Canal and the GIWW are

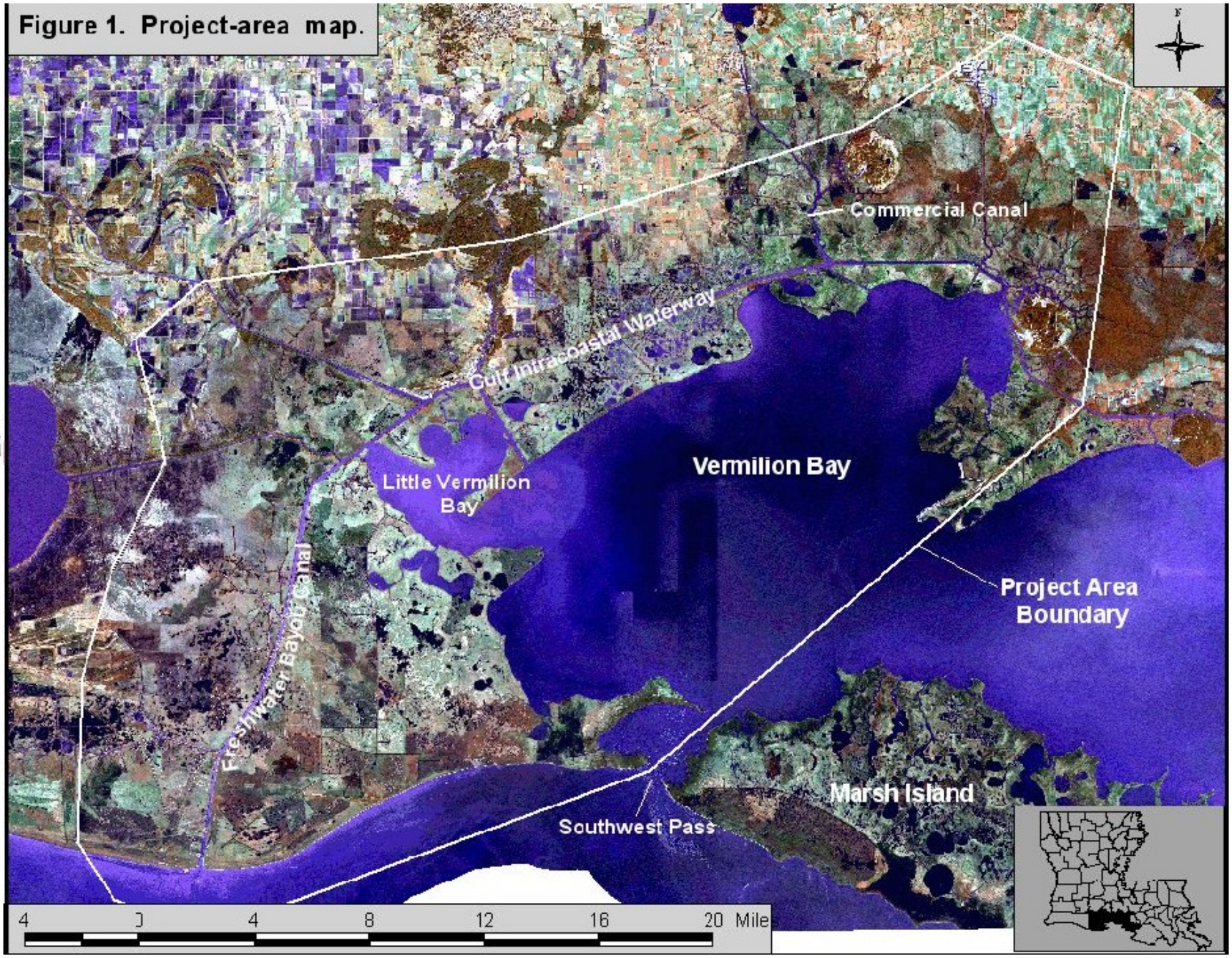


Figure 1. Project-area map.

considered part of the Deltaic plain; whereas the marshes surrounding FWB are within the Chenier Plain.

Commercial Canal extends from the Port of Iberia facilities south to the GIWW; its depth varies between 12 and 15 feet, and it is 200-feet-wide. This 6-mile-long channel transects fresh and intermediate marsh as well as bottomland hardwoods.

The GIWW was built in the 1900s; it traverses the project area in an east-west direction with an authorized 150-foot bottom width and depth of 16 feet. It is currently maintained at a 150 foot bottom width and a depth of 12 feet. That reach located within the project area (i.e., from FWB to Commercial Canal) is approximately 21 miles in length and transects brackish, intermediate, and fresh marshes within the Deltaic Plain.

The FWB reach is 20-miles-long, and was constructed in 1968 as a Federal project to provide a 12-foot-deep by 125-foot-wide channel from the Gulf of Mexico to the GIWW. This channel terminates near the Gulf with an 84-foot-wide lock and a 12-foot-deep by 125-foot-wide bypass channel which was constructed in 1986. The FWB is near the easternmost boundary of the Chenier Plain and is surrounded by intermediate and brackish marshes, much of which are impounded and under some type of marsh management.

EXISTING FISH AND WILDLIFE RESOURCES

Description of Habitats

Areas north of the GIWW consist primarily of fresh and intermediate marsh habitat. Areas south of the GIWW, and those surrounding FWB, consist primarily of intermediate and brackish marshes. Average annual Vermilion Bay salinity is about 4 parts per thousand (ppt); however, slightly lower salinities (i.e., 2 ppt) occur in the marshes north of the GIWW and slightly higher salinities (i.e., 7 ppt) occur in the central and western portions of the project area near Little Vermilion Bay (LDWF unpublished data). Because of increasing freshwater influence from the Atchafalaya River, the acreage of project-area fresh and intermediate marshes has increased at the expense of brackish and saline marsh [Louisiana Coastal Marsh Vegetation Type Map (Database) 2001, 1997, 1988, 1978, and1968].

During prevailing southeasterly winds, high-salinity Gulf water and fresh water from the Atchafalaya River and Wax Lake Outlet mix to form brackish water that enters Vermilion Bay via Southwest pass. This brackish water mixes with fresh water entering Vermilion Bay from the Atchafalaya River (via the GIWW), local runoff, the Vermilion River, and water from the Mermentau Basin from the Leland Bowman Lock and the Schooner Bayou Control Structure.

Project-area wetlands located east of FWB consist of intermediate marsh in the north and central areas, brackish marsh along the southern FWB banks, and a narrow strip of saline marsh along the Gulf. Intermediate marsh vegetation may include cattail, giant cutgrass, bulltongue, California bulrush, pennywort, spikrush, bacopa, saltmeadow cordgrass, deer pea, millet, fall

panicum, smartweed, and alligatorweed. Open-water habitats in this area often support extensive beds of submerged and floating-leaf aquatic vegetation.

Dominant plant communities in areas of brackish marsh consist of saltmeadow cordgrass and three-cornered grass, but may also includes saltgrass, leafy three-square, and deer pea. Shallow brackish marsh ponds occasionally support abundant beds of widgeongrass. The narrow band of saline marshes along the Gulf shoreline is dominated by saltmarsh cordgrass, but also includes saltgrass, saltmeadow cordgrass, black needle rush, and leafy three-square (Louisiana Coastal Wetlands Conservation and Restoration Task Force 1998).

Wooded wetlands in the project area include bottomland hardwood, swamp, and scrub-shrub habitat. Those habitat types are found north of the GIWW, on the east spoil bank of Commercial Canal, and west of the Commercial Canal in Iberia Parish. The swamp community varies in composition across the upper basin, and includes areas dominated by baldcypress and tupelogum, while other areas more closely resemble scrub-shrub habitat dominated by red maple, green ash, buttonbush, and wax myrtle with bulltongue, alligatorweed, and cattail as dominant understory species. Scrub-shrub habitat typically occurs along the flanks of distributary ridges and is bordered by marsh at lower elevations and by developed areas, cypress-tupelo swamp, or bottomland hardwoods at higher elevations. Scrub-shrub habitat may also occur in isolated pockets surrounded by fresh marsh.

The west bank of the FWB is located in the Mermentau Basin and consists largely of intermediate marsh with some fresh marsh and estuarine open water. Brackish marsh occurs in the southernmost reaches near the Gulf coast, where salinities tend to be higher. For this portion of the Mermentau Basin, habitat mapping data from 1968, 1978, 1988, and 1997 indicate an increase in intermediate marsh at the expense of brackish marshes [Louisiana Coastal Marsh Vegetation Type Map (Database) 2001, 1997, 1988, 1978, and 1968]. Marshes along the west bank of FWB are influenced by fresh water draining from White Lake and brackish water that enters FWB through Vermilion Bay and the Freshwater Bayou Locks.

Fresh and intermediate marsh vegetation found along the upper west bank of the FWB includes marshhay cordgrass, bulltongue, pennywort, cattail, water primrose, giant cutgrass, California bulrush, and dwarf spikesedge. Aquatic species found in open-water areas include duckweed, bladderwort, white water lily, and American lotus.

Fishery Resources

The project-area wetlands and associated shallow waters provide nursery and feeding habitat for recreationally and commercially important estuarine-dependent fishes and shellfishes (e.g., red drum, black drum, Atlantic croaker, spot, sand seatrout, spotted seatrout, southern flounder, Gulf menhaden, striped mullet, blue crab, white shrimp and brown shrimp). The project area also provides habitat for several species of freshwater fishes that can tolerate low-salinity conditions, including largemouth bass, bluegill, warmouth, gars, freshwater drum, blue catfish and channel catfish. Plant detritus from the project-area wetlands is an essential component of the estuarine food web that supports those species.

Much of the existing project area-wetlands are subject to permitted structural management that varies from semi-impounded to completely impounded marsh. The majority of the water control structures within the semi-impounded areas management are supposed to be operated to allow ingress and egress of estuarine fishery organisms, especially brown shrimp and white shrimp, except during drawdowns, periods of high salinity, or waterfowl seasons. Unmanaged coastal wetlands are of particular importance due to their relative scarcity within the Teche/Vermilion Basin.

Essential Fish Habitat

Estuarine wetlands and associated shallow waters within the project area have been identified as Essential Fish Habitat (EFH) for both postlarval, juvenile and sub-adult stages of brown shrimp, white shrimp, and red drum, as well as the adult stages of those species in the nearshore and offshore reaches. EFH has also been designated for various life stages of Spanish mackerel, bluefish, cobia, and mangrove snapper in the nearshore, marine-portion of the project area and in the lower portions of the estuary. EFH requirements vary depending upon species and life stage. Categories of EFH in the project area include estuarine emergent wetlands, estuarine water column, submerged aquatic vegetation, and estuarine water bottoms. Detailed information on Federally managed fisheries and their EFH is provided in the 1998 generic amendment of the Fishery Management Plans for the Gulf of Mexico, prepared by the Gulf of Mexico Fishery Management Council (GMFMC). That generic amendment was prepared in accordance with the Magnuson-Stevens Fishery Conservation and Management Act (MSFCMA); (P.L. 104-297). Estuarine-dependent species such as those listed above also serve as prey for other species managed under the MSFCMA by the GMFMC (e.g., red drum, mackerels, snappers, and groupers) and highly migratory species (e.g., billfishes and sharks) managed by the NOAA-Fisheries.

Wildlife Resources

The project area supports an array of productive coastal habitats, dominated by intermediate and brackish marshes and associated shallow estuarine waters. The project-area wetlands and adjacent shallow waters support numerous Federal-trust wildlife resources, including migratory birds, threatened and endangered species, and various Federal, State, and private land holdings that are held or managed to benefit those species.

Migratory Birds

Migratory birds found in the project area include migratory and resident waterfowl, coots, shorebirds, wading birds, rails, gallinules, neotropical migratory songbirds, and raptors. Migratory waterfowl that commonly use the project-area wetlands as overwintering habitat include mallard, gadwall, northern pintail, American widgeon, northern shoveler, green-winged teal, blue-winged teal, ring-necked duck, and lesser scaup. Non-game bird species of management concern that are believed to occur in the project area include little blue heron, yellow rail, black rail, long-billed curlew, stilt sandpiper, Nelson short-tailed sparrow, sea-side sparrow, and peregrine falcon. Other representative wildlife species found in those wetlands

include American alligator, Gulf salt marsh snake, rice rat, nutria, muskrat, river otter, raccoon, swamp rabbit, and white-tailed deer.

Threatened and Endangered Species

On July 10, 2001, the U.S. Fish and Wildlife Service (Service) published the final rule designating Critical Habitat for the wintering population of the piping plover (*Charadrius melodus*), itself Federally listed as a threatened species. Piping plovers and their designated Critical Habitat occur within that portion of the project area located along the Gulf shoreline east of FWB. Piping plovers winter in Louisiana, and may be present there for 8 to10 months; they arrive from the breeding grounds as early as late July and remain until late March or April. Piping plovers feed extensively on intertidal beaches, mudflats, sandflats, 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 are dependant on a mosaic of sites distributed throughout the landscape, as the suitability of a particular site for foraging or roosting is dependent on local weather and tidal conditions.

Plovers move among sites as environmental conditions change; their designated Critical Habitat identifies specific areas that are essential to the conservation of that species. The primary constituent elements for piping plover wintering habitat are those habitat components which support foraging, roosting, and sheltering and the physical features necessary for maintaining the natural processes that support those 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 piping plovers. Major threats to this species include the loss and degradation of habitat due to development, disturbance by humans and pets, and predation.

Federally listed as endangered, brown pelicans (*Pelecanus occidentalis*) feed along the Louisiana coast in shallow estuarine waters and up to 25 miles offshore. Brown pelicans also use sand spits and offshore sandbars as rest and roost areas. Major threats to that species include chemical pollutants, colony site erosion, disease, and human disturbance. Although brown pelicans can be found feeding and roosting within the project area, there are no known nesting sites within the project-area boundaries.

The threatened Louisiana black bear (*Ursus americanus luteolus*) is primarily associated with forested wetlands; 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 the species are continued loss of bottomland hardwoods, fragmentation of remaining forested tracts, and human-caused mortality (e.g., illegal killing and accidental collisions with motor vehicles).

Louisiana black bears, particularly pregnant females, normally den from December through April. The Service, in the final listing rule (published on January 7, 1992, in Volume 57, No. 4 of the Federal Register) has extended legal protection to candidate or actual den trees. These are defined in the final rule as bald cypress (*Taxodium distichum*) and tupelo gum (*Nyssa* sp.) with visible cavities, having a diameter at breast height of 36 inches or greater, and occurring in or along rivers, lakes, streams, bayous, sloughs, or other water bodies. Occupied Louisiana black bear habitat occurs within the project area.

The American alligator, which is listed as threatened solely due to its similarity of appearance with other listed crocodilians, is commercially harvested in Louisiana. Alligators are found in waterbodies throughout fresh to brackish portions of the project area.

Authorization and implementation of any plan recommended at the conclusion of this feasibility study would constitute a significant Federal action. In accordance with the Section 7(c) consultation requirements of the Endangered Species Act, the Corps must prepare a biological assessment to determine whether the proposed project is "likely/not likely to adversely affect" each of the above-listed species and/or their designated critical habitat. That biological assessment should be completed and submitted to this office with the draft Environmental Impact Statement (EIS) for the project. Should the Corps determine that the proposed project is not likely to adversely affect those species and/or their critical habitat, and the Service concurs with that finding, this consultation will be complete. If, however, the Corps determines that the proposed work "may affect" any listed species or their designated critical habitat, a written request to initiate formal consultation should be submitted to the Service's Lafayette, Louisiana, Field Office pursuant to Section 7(a) of the Endangered Species Act. A request to initiate formal consultation can accompany submission of the biological assessment to the Service; however, formal consultation must be completed prior to executing the Record of Decision (ROD) in the formal EIS or EA.

Refuges and Wildlife Management Areas

The LDWF (Mr. Edmond Mouton 337/373-0032) operates two wildlife refuges in the project area: Marsh Island Wildlife Refuge (70,000 acres), and State Wildlife Refuge (13,000 acres). Those refuges winter a combined total of about 150,000 ducks and geese, and support many other species of wetland-associated fish and wildlife. Shell Keys National Wildlife Refuge (NWR) is located just south of Marsh Island Wildlife Refuge and is administered by the Service's Southeast Louisiana NWRs (Mr. Kenneth Litzenberger 985/882-2000); it was established in 1907. That NWR encompasses 5 to 7 acres of intertidal shell spits located south of Marsh Island and provides feeding habitat for a variety of seabirds and shorebirds. The National Audubon Society (Mr. Timmy Vincent 337/299-8881) operates the 26,000-acre Paul J. Rainey Wildlife Refuge, located along the western side of Vermilion Bay and adjacent to State Wildlife

Refuge. That refuge annually provides wintering habitat for over 100,000 lesser snow geese, and a variety of puddle ducks and diving ducks.

The Corps should closely coordinate with the managers of these institutionally significant, publicly and privately owned lands to ensure that project implementation will neither directly, or indirectly, affect them. Depending on the project ultimately implemented, Special-use permits and consistency determinations may be required to ensure that project uses are compatible with either federally owned lands (i.e., NWRs) or those that were acquired and/or operated with federal aid funding administered by the Service.

As discussed later in this report, there are approximately 13 restoration projects (Figure 2) funded either by the State or through the Coastal Wetlands Planning, Protection and Restoration Act (CWPPRA). Any plans ultimately authorized for improving deep-draft vessel access in the project area should be designed to be fully consistent with those vitally important projects, as is required by Section 303(d) of CWPPRA.

FUTURE WITHOUT-PROJECT FISH AND WILDLIFE RESOURCES

As the Atchafalaya River delta matures, project-area wetlands along the GIWW will likely receive increasing amounts of fresh water, nutrients, and sediments; thus, interior marsh loss rates in this area will likely remain at or slightly below the 1978-1990 average. Shoreline erosion rates along the GIWW and FWB are also expected to remain at, or slightly below, the current rates. The fresh marsh zone will likely increase at the expense of intermediate and brackish marsh zones as the area influenced by the riverine water expands. Because of continued freshwater input, habitat quality for freshwater fishes, waterfowl, alligators, and more freshwater-tolerant estuarine species (i.e., Gulf menhaden, white shrimp) will increase throughout most of this area, while habitat quantity and quality for species which prefer brackish and saline conditions (i.e., brown shrimp, spotted seatrout, and black drum) will decrease. (CWWPRA: Coast 2050 Appendices E and F 1999).

DESCRIPTION OF ALTERNATIVES AND TENTATIVELY SELECTED PLAN

Preliminary Alternatives

Originally, three routes were considered to provide improved deep-draft vessel access to Commercial Canal from the Gulf of Mexico. Alternative Route 1 would have required deepening of Commercial Canal, and dredging a channel through Vermilion Bay into the Gulf of Mexico. Alternative Route 2 would have entailed deepening the GIWW from Commercial Canal to the 4-Mile Cut across Vermilion Bay, through Southwest Pass and into the Gulf of Mexico. Both of those options would have facilitated intrusion of high-salinity Gulf waters into Vermilion

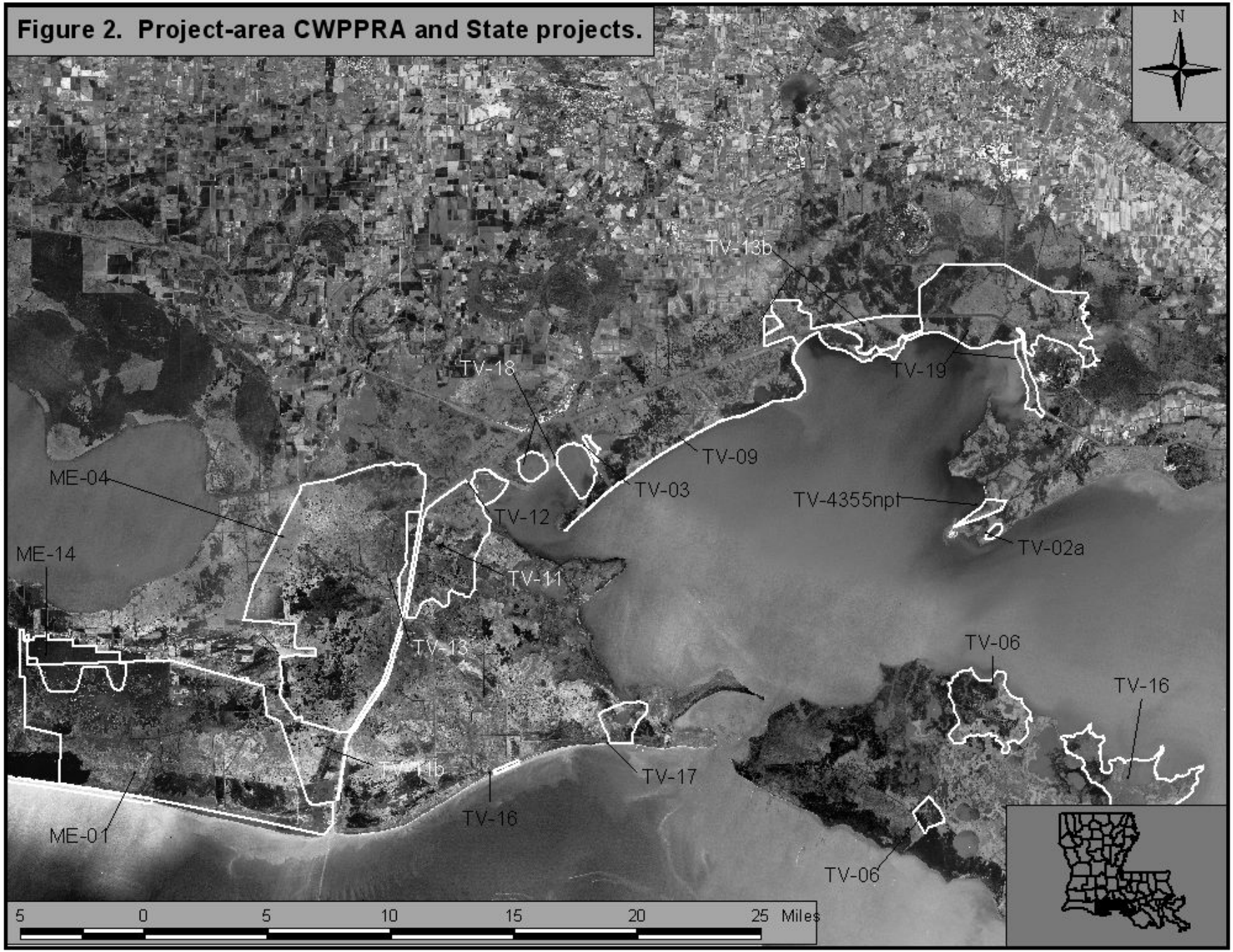


Figure 2. Project-area CWPPRA and State projects.

Bay, with corresponding adverse affects (i.e., increased wetland loss and the conversion of intermediate and freshwater marshes to brackish marsh) on project-area wetlands.

Alternative Route 3 would improve deep-draft vessel access to Commercial Canal while minimizing the possible adverse impacts of saltwater intrusion by incorporating use of the locks at the mouth of FWB. The original plan for Route 3 also included the creation of levees by depositing dredged material on either side of FWB, GIWW, and Commercial Canal. Due to unacceptable adverse wetland impacts and disruption of estuarine fishery migration (including access to, and utilization of, foraging and nursery fishery habitats), the levee-creation feature was screened from further alternative formulation efforts, along with Alternative Routes 1 and 2.

Alternatives

Six alternative plans under the Route 3 option (16-foot-deep by 125-feet-wide, 16-feet-deep by 135-feet-wide, 18-feet-deep by 125-feet-wide, 18-feet-deep by 135-feet-wide, 20-feet-deep by 125-feet-wide, and 20-feet-deep by 135-feet-wide) were ultimately eliminated from further study due to inherent navigational safety issues related to their narrow channel width. Two shallower channel deepening alternatives were excluded because they would not produce sufficient dredged material to restore the original GIWW and FWB banklines. The 18-foot-deep and 16-foot-deep alternatives would have respectively restored only 70 and 48 percent of the GIWW and FWB bankline that would be achieved by implementing the 20-foot-deep by 150-foot-wide alternative. Analysis of pre-project salinity trends and hydraulic modeling by the Corps indicate that no salinity differences would result from implementing the 16-, 18-, and 20-foot-deep by 150-foot-wide alternatives, due to the operation of the FWB Locks.

Tentatively Selected Plan

The TSP would consist of deepening the Commercial Canal, GIWW, FWB, and Freshwater Bayou Bar Channel. Those channels would be dredged to -20 feet MLG, with a 150-foot bottom width; dredging would be accomplished by a combination of hydraulic cutterhead dredge and mechanical bucket dredge. As noted earlier, dredged material would be disposed of in bankline, interior, and bay DAs as well as SUDs.

Bankline Disposal Areas

Lack of existing open-water acreage and slow interior wetland loss rates in the project area limit the options to beneficially use dredged material. To minimize the direct and indirect spoil deposition impacts to marshes along the GIWW and FWB, the TSP would place dredged material in open-water areas along the original banklines of those two navigation canals. The re-establishment of the original banklines is a major beneficial aspect of the TSP. Bankline DAs would consist of that area between the existing bankline and the originally authorized bankline in the GIWW and FWB. Where channel banklines were previously armored with rock, that rock would be removed and used to armor the newly restored banklines. Certain water exchange points (i.e., intersecting navigable waterways, canals, cuts, trenasses, etc.) would be left open to maintain navigation and estuarine fishery access to foraging and nursery habitat. Bucket-dredged material would be initially stacked to an elevation of 5 feet NAVD 88. Based on

geotechnical analyses, the construction grade should settle to the final target elevation of 1.4 feet NAVD 88 (average marsh elevation in the project area) within five years.

Bankline DAs along the GIWW and FWB would be armored with rock (i.e., revetment). Because the predominant vessel size and speed differs along these two channels, different rock sizes and foreshore dike designs would be necessary. The predominant commercial vessels that navigate the GIWW are slow-moving barges, which produces a smaller (i.e., 3 feet) wake. The revetment in this reach would be composed of a 28-inch grade stone and built to a height of 3.5 feet NAVD 88. The predominant vessel types that navigate the FWB reach are large, fast-moving crew boats that produce a larger (i.e., 5 feet) wake, so bankline revetments in this reach would be composed of a 36-inch grade stone and built to a height of 5 feet NAVD 88.

Bay Disposal Areas

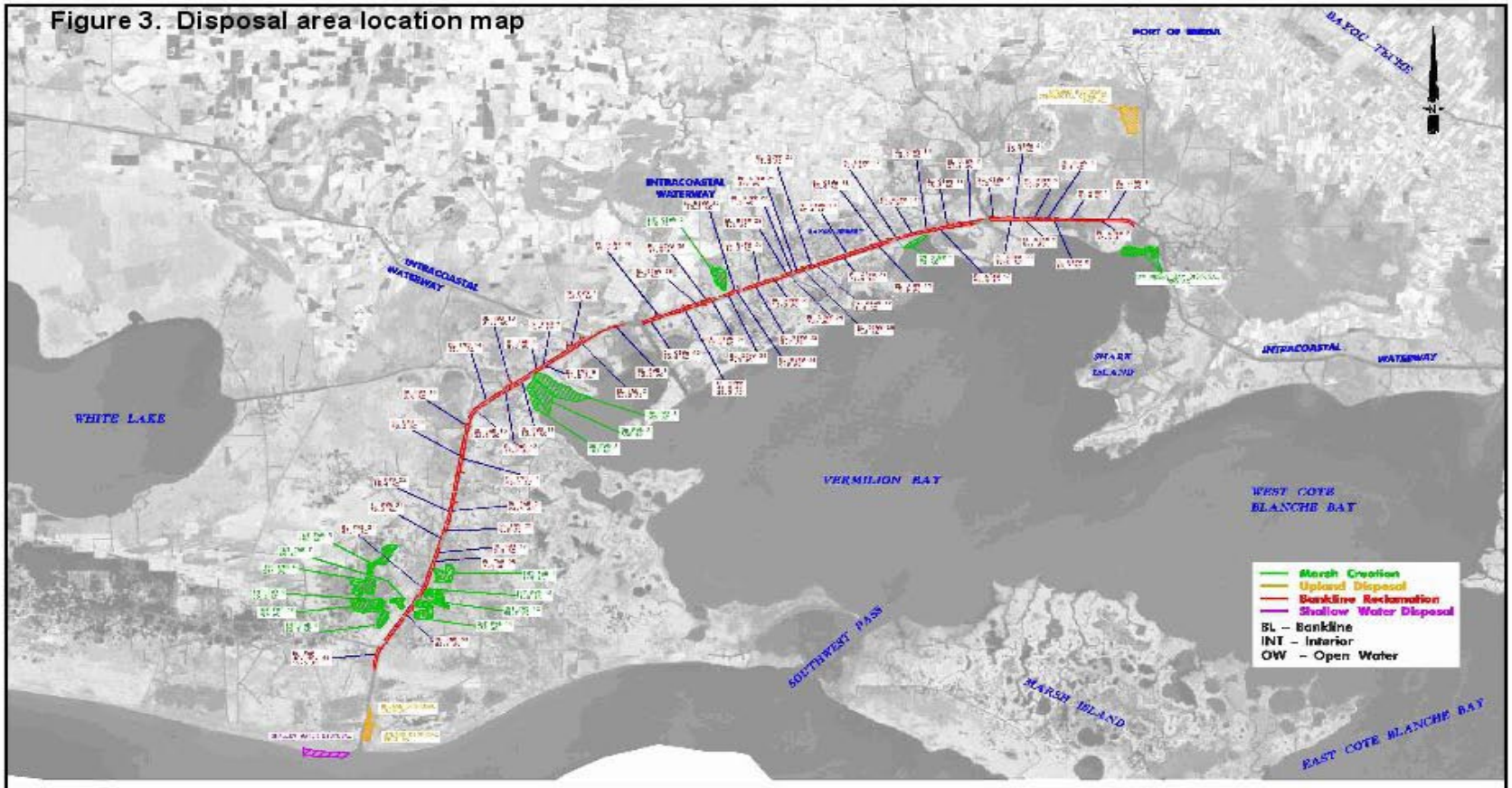
Excluding the Weeks Bay DA, five of the six open-water DAs located within Little Vermilion Bay and Little White Lake (GIWW-open water- 5, and 6, and FWB-open water-1, 2, and 3) will encompass all or part of two existing CWPPRA terracing projects (TV-18, 12). Earthen containment dikes would be constructed with sediment excavated from within the DA (i.e., *in-situ* borrow). Tidal creeks would be pre-dredged within the DAs prior to disposal of the sediment from the channel. Dredged sediment would be pumped to a height of 5 feet NAVD 88. The containment dikes would be capped with rock for stability and shoreline protection. One other open-water bay DA, located along the north shore of Vermilion Bay west of Tigre Lagoon (GIWW-open water-1), would also be constructed in a similar manner. Fish dips should be constructed in all bay disposal sites as specified in Appendix I.

Upland Disposal Areas

Commercial Canal is currently maintained by the Port of Iberia at a depth of -13 feet, and a bottom width of 125 feet. The upper portion of that canal would be dredged with a hydraulic cutterhead dredge. Material from the Commercial Canal would be pumped to upland elevations within a 343-acre SUD on the west bank of Commercial Canal (Commercial Canal SUD), which consists of marsh, shrub/scrub, and bottomland hardwoods. The two SUDs on the east side of the FWB at the bypass structure (bypass-45 and 46) are required to maintain the structural integrity of that lock. According to the Corps, SUD to be located along Commercial Canal would be justified based on the high cost that would be required to move that material to a beneficial-use site. Once that SUD is filled, the remainder of the channel would be bucket dredged and the resulting spoil material would be barged to an open-water DA in Weeks Bay where it would be stacked (unconfined) to a height of 5 feet NAVD 88 for marsh creation. Poor soil conditions in Weeks Bay make rock armoring along the perimeter of that DA for shoreline protection infeasible. No SUDs would be located along the GIWW (Figure 3).

Interior Disposal Areas

Material remaining after bank reclamation and filling of the open-water DAs located in Vermilion Bay and Little Vermilion Bay would be hydraulically pumped into any one of the interior marsh-nourishment or interior marsh-creation DAs. One interior open-water marsh-



NOTE: 2001 USGS AERIAL PHOTOGRAPHY
BACKGROUND – SATELITE IMAGERY

SCALE IN FEET

PROJECT AREA – BASE MAP
ACADIANA GULF OF MEXICO ACCESS CHANNEL (AGMAC)
PORT OF IBERIA

creation site is located along the GIWW (GIWW-interior-3) and several more lie along the FWB (FWB-interior-4 through 10, 12, 13, and 14). Fish dips should be constructed in all bay disposal sites as specified in Appendix I.

Gulf Shoreline Disposal Area

The Freshwater Bayou Bar Channel is currently maintained at -12 feet MLG with a 250-foot bottom width. The TSP would increase depth of the bar channel to -20 feet MLG and maintain the existing 250-foot bottom width. The bar channel is the only reach of the FWB that requires regularly scheduled maintenance using a cutterhead dredge. Dredged material from that reach is currently being released in the open-water unconfined DA along the west bank of the bar channel. That sediment then becomes part of the Atchafalaya River mud stream which is a key factor in maintaining or prograding the Gulf shoreline west of the project.

FISH AND WILDLIFE CONCERNS IN THE PROJECT AREA

Although, coastal wetland loss is a coast-wide problem, the project-area wetlands include some of the most stable coastal marshes in coastal Louisiana. Subsidence rates for marshes surrounding the FWB and GIWW are estimated to be between 0 to -1-feet per century, and -1.1 to -2-feet per century, respectively (Coast 2050: Appendices E and F). The most significant losses of those marshes surrounding the FWB have been attributed to the dredging of that canal and subsequent wake-induced erosion and altered landscape hydrology. Project-area wetlands surrounding the GIWW have experienced land loss mainly from the effects of storms and altered hydrology due to the dredging of oil field canals, as well as wake-induced erosion.

Given the adverse impacts of continued coastal wetland loss, the Service strongly supports strategies and projects designed to address those losses. To comply with Section 303 (d) of CWPPRA, the Corps must implement and operate project features consistent with the Louisiana Coastal Wetlands Restoration Plan. That plan, developed by the Corps, the Service, and other Federal and State agencies, identified strategies to protect and restore Louisiana's coastal wetlands. Regional Strategies 10 and 13 (Region 3) call for the maintenance of shoreline integrity, stabilization of critical areas of the Teche-Vermilion Bay system, and the optimization of GIWW flows into marshes, while minimizing direct flows into the bays. In Region 4 (the Chenier Plain), Strategies 7 and 17 call for maintaining Atchafalaya River water and sediment inflows through the GIWW, and maintaining the Atchafalaya River mudstream in the Gulf of Mexico.

Approximately 11 wetland restoration projects funded by the State and CWPPRA are located along the GIWW and FWB. Those projects are designed to benefit approximately 50,000 acres of low-salinity brackish, intermediate, and fresh wetlands through the protection of shorelines from wake-induced erosion, through improved use of Atchafalaya River sediment that flows down the GIWW and FWB, and through restoration of altered hydrology.

The Service is concerned about wake-induced bank erosion along the proposed enlarged channels. Although, the FWB and GIWW originally authorized to be approximately 300-feet-wide, those channels widths currently exceed 1,000 feet in some areas. The Corps is responsible for maintaining the depths of those navigation channels, but is not currently responsible for preventing the enlargement of those channels as long as navigation is not directly affected (LIT. CITE). Although maintenance of channel widths is typically the responsibility of the local sponsor (in this case the Port of Iberia), the uncontrolled erosion of those channels has resulted in the unmitigated loss of significant wetland acreage. Accordingly, wetlands adjacent to the channel should be protected as an authorized project feature to avoid long-term wetland losses and reduce future channel maintenance costs.

The Service is also concerned about potential contaminants that may be contained within the material to be dredged, particularly within the Commercial Canal. The proposed dredging and disposal activities could result in resuspension of those contaminants, increasing their bioavailability. Consequently, we believe that a priority pollutant analysis of the material to be dredged within that reach should be conducted during further detailed project planning. If priority pollutants are detected, the Service should be consulted to coordinate measures to ensure that those contaminants do not adversely affect project-area fish and wildlife resources.

Finally, we are also concerned that the Port of Iberia Project is integral to a much larger program to provide deep-draft navigation to interior portions of coastal wetlands throughout Louisiana wetlands. While we area aware of several such proposals (largely driven by current efforts to explore and provide deep-water energy resources in the Gulf of Mexico), Public Notice MVN 2003-3952 WDD, dated June 29, 2004, has just been issued which would extend deep draft access (to the identical dimensions of the TSP) from the Commercial Canal to the Port of West St. Mary. Although that project would apparently be funded by State and local interests, it will not be feasible without implementing the TSP. Our specific concerns include: 1) cumulative effects, 2) shared maintenance, 3) effects on fresher wetland areas to the east, and 4) design and maintenance consistency between the Federal project and the Port of West St. Mary Project.

EVALUATION METHODOLOGY

The Service and other natural resource agencies have jointly categorized the preliminary dredged material DAs according to their preferred sequence-of-use. General guidelines (applicable only to this project) used by the HET to rank potential DAs in order of decreasing preference are as follows:

1A) uplands/agricultural land;

1B) pipeline or oil-field access canals for which permission to backfill has been obtained;

2) open-water sites recently formed by other than natural processes, (e.g., saltwater intrusion into marshes, excessive marsh impoundments, etc);

3) bays or Vermilion River oxbows

4) CWPPRA- funded terracing sites that are expected to build marsh and/or shallow-water areas suitable for submerged aquatic vegetation (SAV) over the 20-year project life; deeper portions of those sites can be backfilled to accelerate marsh establishment;
5) naturally occurring marsh ponds or lakes that do not currently support SAV;
6) naturally occurring marsh ponds or lakes that currently support SAV;
7) marsh that is currently experiencing high interior land loss;
8) marsh that has been impounded by levees; and
9) healthy marsh that shows no accelerated subsidence or erosion rates.

Evaluation of project-related impacts on fish and wildlife resources was conducted using the Wetland Value Assessment (WVA) methodology, which was developed to evaluate proposed CWPPRA projects. The WVA is similar to the Service's Habitat Evaluation Procedures (HEP), in that habitat quality and quantity (acreage) are measured for baseline conditions, and predicted for future without-project and future with-project conditions. Instead of the species-based approach of HEP, each WVA model utilizes an assemblage of variables considered important to the suitability of that habitat type to support a diversity of fish and wildlife species. As with HEP, the WVA provides a quantitative estimate of project-related impacts to fish and wildlife resources; however, the WVA is based on separate models for bottomland hardwoods, fresh/intermediate marsh, brackish marsh, and saline marsh. Although, the WVA may not include every environmental or behavioral variable that could limit populations below their habitat potential, it is widely acknowledged to provide a cost-effective means of assessing restoration measures in coastal wetland communities.

The WVA models operate under the assumption that optimal conditions for fish and wildlife habitat within a given coastal wetland type can be characterized, and that existing or predicted conditions can be compared to that optimum to provide an index of habitat quality. Habitat quality is estimated and expressed through the use of a mathematical model developed specifically for each wetland type. Each model consists of: 1) a list of variables that are considered important in characterizing community-level fish and wildlife habitat values; 2) a Suitability Index graph for each variable, which defines the assumed relationship between habitat quality (Suitability Index) and different variable values; and, 3) a mathematical formula that combines the Suitability Indices for each variable into a single value for wetland habitat quality, termed the Habitat Suitability Index (HSI).

Field data were used to compute baseline HSI values and to predict HSIs for each target year (TY). Target years were established when future significant changes in habitat quality or quantity were expected, under future with-project and future without-project conditions. Records of the field data and projected habitat changes are on file in the Service's Lafayette, Louisiana, Field Office.

The product of an HSI value and the acreage of available habitat for a given target year is known as the Habitat Unit (HU) and is the basic unit for measuring project effects on fish and wildlife

habitat. HUs are annualized over the project life to determine the Average Annual Habitat Units (AAHUs) available for each habitat type.
The change (increase or decrease) in AAHUs for each future with-project scenario, compared to future without-project conditions, provides a measure of anticipated impacts. A net gain in AAHUs indicates that the project is beneficial to the fish and wildlife community within that habitat type; a net loss of AAHUs indicates that the project would adversely impact fish and wildlife resources. In determining future with-project conditions, all project-related direct (construction) impacts were assumed to occur in TY-1.

The WVA models for fresh/intermediate, brackish, and saline marsh consist of six variables: 1) percent of wetland covered by emergent vegetation; 2) percent open water dominated by submerged aquatic vegetation (SAV); 3) degree of marsh edge and interspersion; 4) percent of open water less than or equal to 1.5 feet deep; 5) salinity; and, 6) aquatic organism access. The WVA model for bottomland hardwoods consists of seven variables: 1) tree species composition; 2) stand maturity; 3) understory/midstory; 4) hydrology; 5) size of contiguous forested area; 6) suitability/traversability of surrounding habitat; and, 7) disturbance. By incorporating variables for SAV and shallow, open water into each of the marsh models, impacts to those habitat components are combined with impacts to emergent marshes. Because emergent marsh is of higher overall fish and wildlife value than SAV, and because SAV is of higher value than shallow open waters, those latter components receive proportionally less weight when combined into one AAHU value. The bottomland hardwood model does not include SAV or shallow open water variables; hence, impacts to those habitats are not included in the WVA analysis for that habitat type.

WVA projections were made by members of the HET, which included representatives of the Natural Resources Conservation Service (NRCS), NOAA-Fisheries, Corps, Service, Louisiana Department of Natural Resources (LDNR), Louisiana Department of Wildlife and Fisheries (LDWF). Prior to making those projections, HET members inspected aerial video tape recorded during August 2003, participate in a January 2004 helicopter flight over project area, and attended onsite field inspections during the summer of 2003 and spring of 2004. The HET then grouped 83 potential DAs into 24 areas based on the following criteria: 1) the reach in which the site was located (i.e., FWB, GIWW, or Commercial Canal); 2) site characteristics (i.e., bay, interior marsh, or within navigation channel bankline; 3) side of navigation channel (i.e., north, south, east, and west); and, 4) predicted shoreline erosion rates. Project-area wetland loss rates were provided by the U.S. Geological Survey (1978-2000), Corps (1974-1983, 1983-1990, 1974-1990), and the Coast 2050 Plan (Region 3 and 4 mapping units).

In summary, impact assessments were conducted by the HET using the WVA methodology as well as field inspections, wetland-loss data, knowledge of the area, and experience with other projects located within the project area. Because the Corps' hydrologic and salinity change projection model were derived from insufficient data, future salinity projections were made by the HET based upon existing data (i.e., salinity data from LDWF, salinity data from GIWW locks, and various CWPPRA projects within the project area) as well as their combined best professional judgment.

PROJECT IMPACTS

To calculate project-area shoreline erosion along the GIWW and FWB, the Corps surveyed 40 transects within those channels. The average shoreline erosion rate for the north and south banks of the GIWW are 3.0 and 4.0-feet per year, respectively. Shoreline erosion rates for the east and west banks of FWB were calculated to be 5.6 and 3.7-feet per year respectively. Because of those high erosion rates (and the corresponding loss of valuable coastal wetlands), the Corps agreed to restore much of the original GIWW and FWB banklines with material dredged from those channels (Figure 3). Furthermore, the Corps has agreed to armor each side of the restored banklines with rock, and the local sponsor has agreed to maintain that rock armoring throughout the 50-year project life.

Due to limited space available in the bankline DAs, and the need to avoid and minimize adverse project impacts on the adjacent wetlands, eight open-water DAs were established; two in Weeks Bay and six in Vermilion Bay (Figure 3). The deposition of dredged material in open-water DAs would, however, result in a temporal loss of estuarine fisheries habitat until settlement and compaction reduce the fill elevation to marsh level within approximately five years. The shorelines of those DAs would also be protected by rock, with the exception of the Weeks Bay DA, where the soil foundation characteristics are not adequate to support placement of rock. There are also three SUDs, two near the FWB Baypass Structure on the east bank (intermediate marshes perched within existing confined upland DAs) and one impounded and drained wetland on the west bank of Commercial Canal. The two intermediate marsh SUDs (118 acres) near the bypass structure (Bypass-45 and 46) have previously been used for spoil disposed and are of marginal habitat value. The Corps has stated that these SUDs near the bypass are needed to maintain functional integrity of that bypass channel and associated FWB Lock.

The Commercial Canal SUD encompasses 343 acres of impounded and drained fresh marsh. Plans for this SUD include the repeated deposition of material during routine maintenance events; thus, trees growing in this SUD are not expected to grow into a mature bottomland hardwood forest. As discussed later, those impacts could be reduced by stacking a portion of that dredged material (via a one-time dredge event) to a height suitable for the growth of bottomland hardwood species in an area south of the 343 acre SUD.

Stacking dredged material in open water or on healthy marsh along the GIWW or FWB to a height above 5 feet NAVD 88 could potentially impound too much water in healthy marshes. Therefore, it is essential that the spoil settle and consolidate to a height of 1.4 feet NAVD 88 within 3 to 5 years, in order to maintain aquatic organism ingress and egress, and to preclude stressing otherwise healthy marsh. Similarly, if saline storm surges are entrapped by dredged material stacked along the channels, the impounded fresh or low-salinity marsh vegetation could be damaged or destroyed. Accordingly, any target spoil design elevations, changes should be fully coordinated with the HET as advanced data becomes available. If these DAs do not

achieve the predicted benefits to fish and wildlife, additional remedial actions (e.g., shaping, drainage) would become necessary to offset those impacts.
Deepening the GIWW and FWB from -12 feet MLG to -20 feet MLG would allow an increased number of larger, deeper-draft vessels to utilize those channels. Such vessels have the potential to produce larger wakes that would exacerbate the shoreline erosion problems that have already occurred in project-area navigational channels. Increased boat traffic could also induce increased commercial development near the Port of Iberia, which could increase the possible conversion of Port-area wetlands to commercial uses.

As noted previously, there is strong potential for widespread development of deep draft navigation throughout coastal Louisiana. Accordingly, we believe that the impacts of the Port of Iberia Channel Deepening Project should be cumulatively evaluated with those that will result from other such projects, especially the interdependent proposal for the Port of West St. Mary Project. Such evaluations would also help to ensure that those navigation improvement projects are implemented in the most environmentally sensitive manner possible.

EVALUATION OF TENTATIVELY SELECTED PLAN

Project-related wetland impacts are expected to occur either directly through construction, or indirectly through hydrologic alterations. By using turbid, low-quality, open-water areas on either side of the GIWW and FWB for DAs, the TSP would avoid most direct spoil disposal impacts to marsh habitat. After the spoil material settles to marsh height, emergent marsh habitat would be created and enhanced.

Historically, the banklines of the GIWW and FWB have experienced high erosion rates. Without some form of shoreline protection, much of the benefits gained from the open-water and bankline DAs would be lost within the 50-year project life. Hence, the TSP includes rock armoring of bankline DAs. The total intermediate and brackish marsh area to be created via bankline restoration and protection in the GIWW and FWB is 699 and 646 acres, respectively, and would account for 1,775 and 1,415 AAHUs, respectively (Table 1).

A potential indirect project impact associated with increased shoreline erosion would be increased hydraulic connection between the GIWW/FWB and the more brackish bays. Such a connection would not only be more hazardous to navigation, but it may also result in increased saltwater intrusion impacts to fresh and intermediate project-area marshes. Accordingly, eight open-water DAs were strategically located to reduce water exchange between those bays and the GIWW/ FWB. The newly created marshes located within the bay DAs would also have high erosion rates without some type of protection and much of the resulting benefits would be lost within the 50-year project life. Accordingly, the TSP will incorporate protection of all but one of those DAs with rock armor. The total intermediate and brackish marsh area to be created via the features of the TSP in open bays is 1,099 and 244 acres, resulting in gains of 1,067 and 279 AAHU's, respectively.

The other open-water bay DAs located in Vermilion Bay near Tigre Lagoon should help prevent erosion of the Vermilion Bay shoreline into the GIWW. Two DAs are located at Weeks Bay and

Table 1. Disposal-area impacts (acreage/AAHUs).

PORT OF IBERIA DISPOSAL AREA WVA								
Freshwater Bayou-Gulf Intracoastal Waterway-Commercial Canal								
Disposal Area Location	Acres of Fresh Marsh Created	Acres of Intermediate Marsh Created	Acres of Brackish Marsh Created	Acres of Marsh Converted to Bottomland Hardwood/ Scrub-Shrub (SUD)	Fresh Marsh AAHUs	Intermediate Marsh AAHUs	Brackish Marsh AAHUs	Marsh Converted to Bottomland Hardwood/ Scrub-Shrub AAHUs
GIWW-OW- 5			145				165	
GIWW-OW- 6			99				115	
GIWW-BL-31, 32, 34, 35			29				72	
GIWW-BL-30, 33			32				53	
GIWW-BL-18		33				62		
GIWW-BL-14, 17, 20, 23, 25, 27, 28, 36, 38, 40		177				389		
GIWW-BL-2, 8, 9, 10, 12, 19 21, 22, 26, 29, 37, 41, 43		259				812		
GIWW-BL-1, 3 through 7, 11, 13		163				388		
GIWW-Interior-3	99				108			

Table 1(cont.). Disposal-area impacts (acreage/AAHUs).

PORT OF IBERIA DISPOSAL AREA WVA								
Freshwater Bayou-Gulf Intracoastal Waterway-Commercial Canal								
Disposal Area Location	Acres of Fresh Marsh Created	Acres of Intermediate Marsh Created	Acres of Brackish Marsh Created	Acres of Marsh Converted to Bottomland Hardwood/ Scrub-Shrub (SUD)	Fresh Marsh AAHUs	Intermediate Marsh AAHUs	Brackish Marsh AAHUs	Marsh Converted to Bottomland Hardwood/ Scrub-Shrub AAHUs
GIWW -OW-1		78				128		
FWB-BL-1, 2, 6, 11, 12, 25, 27, 28, 60% of 15		156				376		
FWB-BL-17, 21, 40% of 15		64				178		
FWB-BL-30			79				224	
FWB-BL-16, 18, 22, 24, 31		150				219		
FWB-BL-3, 5, 8, 10, 14, 40		148				417		
FWB-Interior-5 through 11		838				1,111		
FWB-interior-4, 12, 13		203				171		
FWB-Interior-14			133				130	
FWB-OW-3		107				87		

Table 1(cont.). Disposal-area impacts (acreage/AAHUs).

PORT OF IBERIA DISPOSAL AREA WVA								
Freshwater Bayou-Gulf Intracoastal Waterway-Commercial Canal								
Disposal Area Location	Acres of Fresh Marsh Created	Acres of Intermediate Marsh Created	Acres of Brackish Marsh Created	Acres of Marsh Converted to Bottomland Hardwood/ Scrub-Shrub (SUD)	Fresh Marsh AAHUs	Intermediate Marsh AAHUs	Brackish Marsh AAHUs	Marsh Converted to Bottomland Hardwood/ Scrub-Shrub AAHUs
FWB-OW-2		328				275		
FWB-OW-1		523				527		
FWB-Bypass 45, 46				118		-50		
Commercial Canal-SUD				343	-138			
Weeks Island 20x150		220				111		

WVA-Wetland Value Assessment
AAHU-Average Annual Habitat Unit
FWB-Freshwater Bayou Canal
OW-Open Water Disposal Areas
SUD-Sacrificial Upland Disposal Area
BL-Bankline Restoration/Disposal Area
GIWW-Gulf Intracoastal Waterway

both will reduce water exchange between the GIWW and Vermilion Bay. Because of poor soils and excessive water depths, those two open-water bay DAs would not be armored, hence, the hydraulic and marsh creation benefits of those DAs would be gradually lost over time.

The most significant adverse project-related wetland impact would occur through the disposal of dredged material on 343 acres of fresh marsh located on the west bank of Commercial Canal (Commercial Canal DA), as shown in Figure 3. Because that fresh marsh is impounded and drained, the compensatory mitigation obligation would be met through the creation of 100 acres of impounded fresh marsh on the north side of the GIWW at DA GIWW-interior-3, plus the creation of 31 acres of intermediate marsh at DA GIWW-BL-18. Additionally, spoil placement in two DAs adjacent to the Freshwater Bayou Bypass Structure would be limited to 118 acres (50.5 AAHUs) of intermediate marsh. Mitigation of that impact would be fulfilled by creating 98 acres (50.7 AAHUs) of intermediate marsh at DA FWB-open water-3.

There are no anticipated significant or long-term adverse impacts associated with continuing the current practice of depositing unconsolidated dredged material from the Freshwater Bayou Bar Channel on the west side of that channel. Localized increased turbidity during disposal would be avoided by motile fisheries organisms, but it could be temporarily lethal to some benthic or sessile species. USGS maps indicate that section of Gulf shoreline west of the bar channel has been accreting, which may, in part, be due to the aforementioned practice. The TSP would continue this practice and the increased quantity of bar channel spoil material should increase or maintain accretion rates along that shoreline.

FISH AND WILDLIFE CONSERVATION MEASURES

The President's Council on Environmental Quality defined the term mitigation in the National Environmental Policy Act regulations to include:

a) avoiding the impacts altogether by not taking a certain action or parts of an action;

b) minimizing impacts by limiting the degree or magnitude of the action and its implementation;

c) rectifying the impacts by repairing, rehabilitating, or restoring the affected environment;

d) reducing or eliminating the impacts over time by preservation and maintenance operations during the life of the action; and

e) compensation for the impacts by replacing or providing substitute resources or environments.

The Service's mitigation policy (Federal Register, Volume 46, Number 15, pages 7656-7663, January 23, 1991) provides guidance to help ensure that the level of mitigation recommended by the Service is consistent with the value and scarcity of the fish and wildlife resources involved. In keeping with that policy, the Service usually recommends that losses of high-value habitats

which are becoming scarce be avoided or minimized to the greatest extent possible. Unavoidable losses of such habitats should be fully compensated by replacement of the same kind of habitat value; this is called ■in-kind• mitigation. The mitigation planning goals and associated Service recommendations should be based on those four categories, as shown in Table 2.

Table: 2. U. S. Fish and Wildlife Service resource categories (Federal Register, Vol. 46, pp. 7644-7663, January 23, 1981).

FWS Resource Categories
Resource Category 1 - Habitat to be impacted is of high value for evaluation species and is unique and irreplaceable on a national basis or in the ecoregion section. The mitigation goal for this Resource Category is that there should be no loss of existing habitat value. Resource Category 2 - Habitat to be impacted is of high value for evaluation species and is relatively scarce or becoming scarce on a national basis or in the ecoregion section. The mitigation goal for habitat placed in this category is that there should be no net loss of in-kind habitat value. Resource Category 3 - Habitat to be impacted is of high to medium value for evaluation species and is relatively abundant on a national basis. FWSs mitigation goal here is that there be no net loss of habitat value while minimizing loss of in-kind habitat value. Resource Category 4 - Habitat to be impacted is of medium to low value for evaluation species. The mitigation goal is to minimize loss of habitat value.

Coastal marshes are considered by the Service to be aquatic resources of national importance due to their increasing scarcity and high habitat value for fish and wildlife within Federal trusteeship (i.e., migratory waterfowl, wading birds, other migratory birds, threatened and endangered species, interjurisdictional fisheries, and public lands). Therefore, the Service recommends that unavoidable losses of those habitats should be compensated via in-kind replacement. Because some low-salinity intermediate marshes in the Atchafalaya and Teche-Vermilion Basins can provide habitat for an assemblage of fish and wildlife resources similar to that of fresh marshes, and because those basins have been and will continue to undergo a freshening trend, the Service believes the mitigation of impounded fresh marshes with non-impounded low-salinity intermediate marshes may be acceptable on a limited basis for this project. Thus, project-area wetlands are generally categorized as a Resource Category 2; however, perched or impounded/drained wetlands, such as those on existing spoil DAs and those on Commercial Canal are considered to fall within Resource Category 3.

With implementation of the TSP, much of the direct impacts to project-area marshes and EFH would be compensated by creating intertidal emergent marsh habitat in shallow, turbid, open-water DAs located within the original banklines of the GIWW and FWB, and in the Vermilion

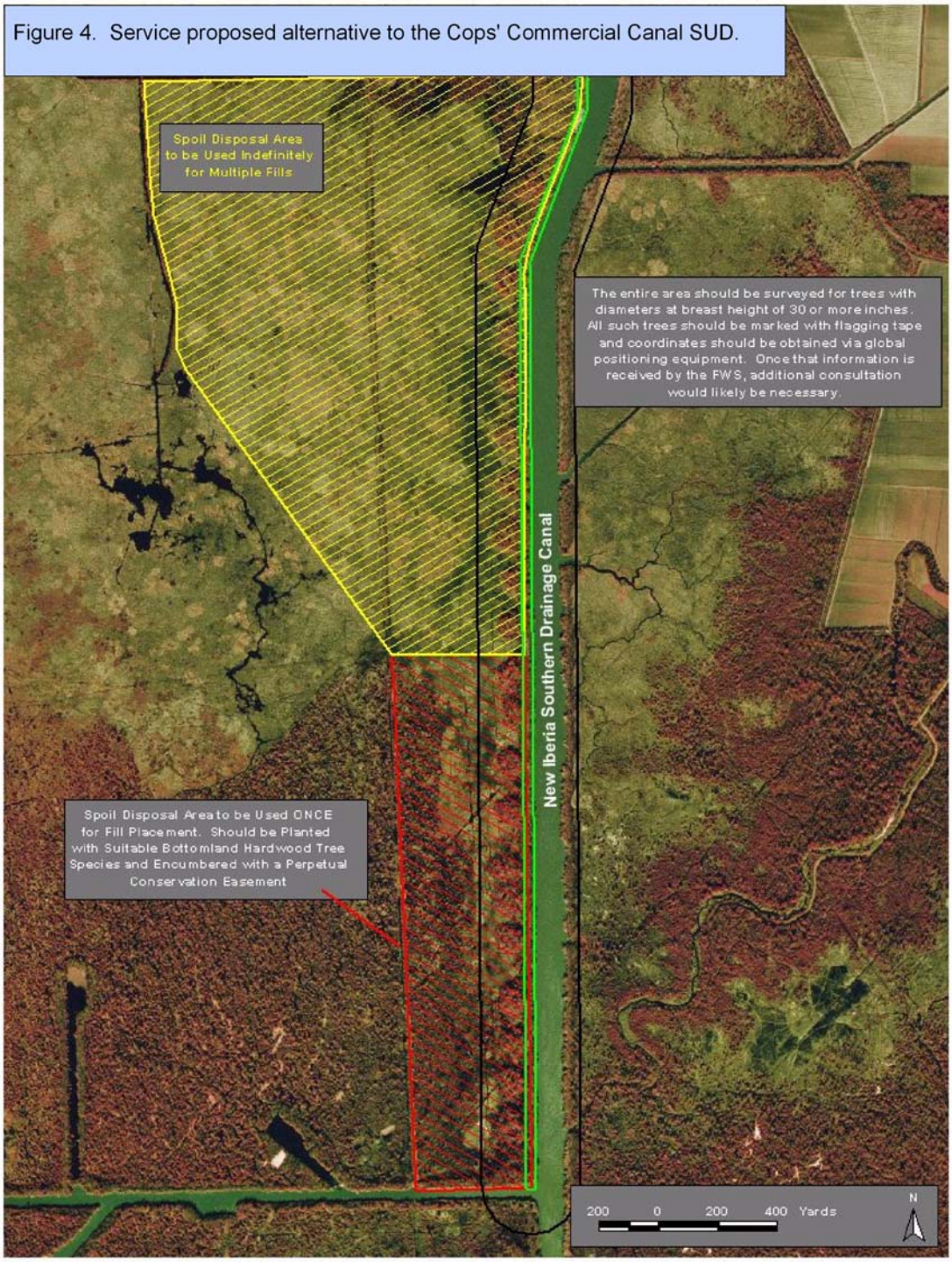
and Little Vermilion Bays. Furthermore, armoring of much of the restored project banklines with rock would reduce or halt shoreline erosion and the re-deposition of that material within the channels, thus reducing or eliminating future maintenance events. If maintenance dredging is necessary along those channels, the Corps has agreed to consult with the HET, and use the dredged material beneficially within the existing DAs or, if necessary, other open-water sites.

Much of the potential indirect impacts to hydrology and estuarine fisheries (i.e., from stacking dredged material higher than 5 feet NAVD 88 within bankline, would be avoided via implementation of the TSP. In addition, “fish dips” or gaps in the rock dike would be located at tidal creeks and marsh openings along the restored bankline and open-water bay DAs to facilitate water exchange and fish/shellfish access. “Fish dips” would also be constructed at similar locations in the armored face of the bankline DAs within five years of initial construction. If no opening exists in the present shoreline, fish dips should be constructed according to specifications in Appendix I. These bankline DA "fish dips" should have rock armoring on the sides and bottom to minimize scour. Wake-induced erosion of the bankline DAs through these dips is also a potential concern so alternative designs should be considered by the HET during detailed project planning to reduce erosion while maintaining fisheries access.

Originally, 4 of the 82 confined DAs selected by the Corps were to be SUDs. Two were to be located on the east bank of FWB near the bypass structure, and two along Commercial Canal on either side of the channel. The SUD on the eastern side of Commercial Canal consists of undisturbed tidally influenced fresh marsh while the SUD on the western side of Commercial Canal consists of impounded fresh marsh. After consulting with the HET, impacts to fresh marshes were minimized by combining those two SUDs into a single 343-acre site located on the western bank. That DA would be converted from impounded fresh marsh to scrub-shrub habitat. Based on the AAHUs (Table 3 and 4) derived through the proposed creation of 100 acres of impounded fresh marsh (GIWW-Interior-3) and 31 acres of unimpounded intermediate marsh (GIWW-BL-18), project impacts to the 343 acres of impounded fresh marsh would be fully mitigated.

Moreover, the Service believes that creation of the Commercial Canal SUD would benefit the threatened Louisiana black bear. Those benefits could be greatly increased if the 100-acre area of impounded fresh marsh located just south of the Commercial Canal SUD between the south impoundment levee and a section of marginal bottomland hardwoods (Figure 4) is incorporated into the project disposal plans. That section of bottomland hardwood is part of occupied black

Figure 4. Service proposed alternative to the Cops' Commercial Canal SUD.



bear habitat. Thus, the Corps has an opportunity to create high quality bottomland hardwood within the SUD through a one time deposition of dredged material to a height that would support bottomland hardwoods to benefit the Louisiana black bear.

Table 3. Marsh creation acreage needed to fully mitigate project impacts on fresh marsh.

Marsh Type	**Adversely Impacted Site**			**Compensatory Mitigation Site**		
	Site Number	AAHUs	Acreage	Site Number	AAHUs	Acreage
Impounded Fresh Marsh	Commercial Canal (SUD)	-138.5	343	GIWW-interior-3	108	100
Un-Impounded Intermediate Marsh				GIWW-BL-18	31	31

Table 4. Marsh creation acreage needed to fully mitigate project impacts on intermediate marsh.

Marsh Type	**Adversely Impacted Site**			**Compensatory Mitigation Site**		
	Site Number	AAHUs	Acreage	Site Number	AAHUs	Acreage
Impounded Intermediate Marsh (SUD)	Bypass Structure-45&46 (SUD)	-50.5	118			
Un-Impounded Intermediate Marsh				FWB-Open Water-3	50.7	98

To reduce the direct impacts of placing dredged material on fresh marsh, material dredged from the lower portion of Commercial Canal would be barged to 2 open-water DAs in Weeks Bay to create a total of 220 acres of marsh. As with all these open-water DAs, dredged material would be placed no higher than 5 feet NAVD 88. Because this area cannot support the weight of rock for erosion protection, an earthen containment dike would be constructed prior to deposition of dredged material. The earthen dike should give the dredged material adequate time to dewater, stabilize, and vegetate before erosion due to wave action begins. No “fish dips” or gaps would be necessary in those disposal areas, because of the expected high erosion rate.

Two other SUDs (i.e., Bypass 45 & 46) encompassing 118 acres of intermediate marsh would be located on the eastern bank of FWB near the Freshwater Bayou Lock Bypass structure (Bypass structure). Creation of 98 acres of marsh at FWB-Open Water-3 would provide full compensation for project-related impacts (50.5 AAHUs) to that intermediate marsh habitat.

Dredging and disposal activities could potentially result in resuspension and increased bioavailability of contaminants, particularly within the Port of Iberia and Commercial Canal. Many of the freshwater fishes expected to occur in that portion of the project area also provide an important food source for wading birds and other migratory birds. Should the results of future priority pollutants analyses indicate contamination that exceeds NOAA screening levels, special

procedures (e.g., use sediment curtains, etc.) should be implemented to reduce or prevent contaminant resuspension and dispersal into important downstream fish and wildlife habitats. If contaminant levels warrant, the Cops should ensure that such highly contaminated dredged material be deposited in a suitable upland waste disposal facility.

SERVICE POSITION AND RECOMMENDATIONS

In addition to providing improved deep-draft navigation, implementation of the TSP has the potential to achieve large-scale wetland protection and restoration benefits through protection against wake-induced erosion, reduced saltwater intrusion, creation of fresh, intermediate and brackish marshes, and improved transport of Atchafalaya River water westward through the GIWW and FWB. In support of comprehensive State and Federal efforts to conserve Louisiana's nationally significant coastal wetlands, avoidance and minimization of direct wetland impacts should be pursued to the greatest extent practicable, regardless of whether or not the project would produce net environmental benefits (expressed in AAHUs). The Secretary of the Army in coordination with the Director of the Fish and Wildlife Service and the Administrator of the Environmental Protection Agency must ensure that Corps projects are consistent with the purposes of the restoration plan that was prepared in compliance with Section 303 (d) of CWPPRA. In 1998, the Louisiana Coastal Wetlands Conservation and Restoration Task Force updated and revised that plan; now entitled the Coast 2050 Plan (Louisiana Coastal Wetlands Conservation and Restoration Task Force 1998). As previously noted, the TSP would help to achieve several Coast 2050 strategies.

The Service would not object to further detailed planning and implementation of the proposed project, provided that the following recommendations are incorporated to ensure that fish and wildlife resource conservation receives equal consideration during project planning, design, and implementation:

1. Material dredged from the Commercial Canal, GIWW, and FWB should be used to create or restore emergent wetlands to the greatest extent possible.

    a. Bucket-dredged material should be placed no higher than 5 feet NAVD 88 to restore original banklines along the GIWW and FWB.

    b. Bucket-dredged material from Commercial Canal should be placed no higher than 5 feet NAVD 88 to create emergent marsh in Weeks Bay.

    c. Hydraulically dredged material from the GIWW, FWB, and Commercial Canal should be used beneficially to create marsh in interior and open-water bay DAs; that material should be placed no higher than 3.5 feet and 5 feet NAVD 88, respectively.

    d. Tidal creeks in the bay open-water DAs should be dredged prior to sediment disposal to allow differential settlement and increased habitat variability.

e. All future maintenance dredged material should also be used beneficially to create marsh (i.e., elevation of 1.4 feet NAVD 88 after settlement); primarily in open-water areas within existing DAs, and secondarily, in open-water areas not currently designated as DAs.

2. Rock armoring along the GIWW and FWB should be placed no higher than 3.5 feet and 5 feet NAVD 88, respectively, and rock should be placed no higher than 3 feet NAVD 88 along open-water bay DAs.

3. Between TY-3 and TY-5, “fish dips” or gaps should be created in rock armoring at the mouth of all bayous, trenasses, open water, etc., or at strategic locations recommended by the HET. Design details are provided in Appendix I.

4. Under their Section 7(a) responsibilities of the ESA, the Corps should convert a 100-acre site adjacent to the southern boundary of the 343-acre SUD on the west bank of Commercial Canal (Figure 4) to high quality bottomland hardwoods through a one-time spoil disposal event with a target disposal elevation no higher than 4 feet NAVD 88; appropriate bottomland hardwood species should be planted in consultation with the Service, and a non-developmental easement should be purchased to retain the created habitat value for the life of the project.

5. The Commercial Canal DA should be surveyed for potential Louisiana black bear den trees in coordination with the Service.

6. Material excavated from the FWB Bar Channel should be placed west of that channel and as near to the Gulf shoreline as practical.

7. All dredged material not needed for the structural integrity of the bypass structure should be used beneficially.

8. Periodic monitoring of protective rock and mitigation sites should be conducted in cooperation with the Service and other natural resource agencies.

9. Mitigation lands should be dedicated in perpetuity to fish and wildlife purposes through fee title acquisition or placement of non-developmental easements of those lands.

14. Modification, addition, and/or elimination of project elements during future project planning and construction stages should be fully coordinated with the Service and other natural resource agencies to ensure the continued validity of our impact analysis and mitigation recommendations.

15. The Corps should continue to coordinate with the Service throughout planning and construction to ensure that the proposed project does not impact waterbird nesting colonies, and threatened or endangered species that may be listed in the future.

16. Project features should be implemented and operated consistent with the Louisiana Coastal Restoration Plan, as required by Section 303(d) of CWPPRA.

17. Given the extremely high degree of interdependency between the Port of Iberia project and the recently proposed Port of West St. Mary project, their cumulative impacts and consistency of design, construction, operations, and maintenance should be fully evaluated to ensure that they are implemented in the most environmentally sensitive manner feasible.

LITERATURE CITED

Chabreck, R. and G. Linscombe 1968. Vegetative Type Map of the Louisiana Coastal Marshes. Louisiana Department of Wildlife and Fisheries, New Orleans.

Chabreck, R. and G. Linscombe 1978. Vegetative Type Map of the Louisiana Coastal Marshes. Louisiana Department of Wildlife and Fisheries, New Orleans.

Chabreck, R. and G. Linscombe 1988. Vegetative Type Map of the Louisiana Coastal Marshes. Louisiana Department of Wildlife and Fisheries, Baton Rouge.

Chabreck, R. and G. Linscombe 1997. Vegetative Type Map of the Louisiana Coastal Marshes. Louisiana Department of Wildlife and Fisheries, Baton Rouge.

Chabreck, R. and G. Linscombe 2001. Vegetative Type Map of the Louisiana Coastal Marshes. Louisiana Department of Wildlife and Fisheries, New Orleans.

Louisiana Coastal Wetlands Conservation and Restoration Task Force. 1998. Coast 2050: Toward a Sustainable Coastal Louisiana. Louisiana Department of Natural Resources. Baton Rouge, Louisiana. 161pp.

Louisiana Coastal Wetlands Conservation and Restoration Task Force. 1999. Louisiana Coastal Wetlands Restoration Plan, Appendix E. 173 pp.

Louisiana Coastal Wetlands Conservation and Restoration Task Force. 1999. Louisiana Coastal Wetlands Restoration Plan, Appendix F. 224 pp.

Louisiana Department of Wildlife and Fisheries. Compilation of salinity data. Marine Fisheries Division. Unpublished Data.

U.S. Army Corps of Engineers. 2004. Shoreline erosion rates along the Gulf Intracoastal Waterway and Freshwater Bayou Canal. New Orleans District. Unpublished Data.

APPENDIX I

GENERAL RECOMMENDATIONS FOR FISH DIPS TO MITIGATE PROJECT INDUCED ESTUARINE RESOURCE IMPACTS

Recommendations for Bank Line Disposal Areas

1. Fish dips should be constructed at 1,000 feet intervals along bank-line disposal areas. Constructed dips should have a bottom width no less than 20 feet and should not be higher in elevation than +1 foot North American Vertical Datum (NAVD).

2. Fish dips should be constructed as soon as dredged material has dewatered and marsh vegetation is established (approximately 3 years), but no later than 5 years following dredged material placement.

3. Five-year post construction surveys should determine if the cross-section and elevation of the fish dips are sufficient to provide drainage and fishery access. If cross-sections are determined to be insufficient then original cross-section dimensions should be re-established.

4. Additional site specific fish dips are recommended where existing tidal creeks, trenasses, flowline crossings could provide additional fishery access and water exchange (See attached map).

Recommendations for Interior and Bay Disposal Areas

1. Fish dips should be constructed in both earthen containment dikes and rock armoring at 1,000 feet intervals. Constructed dips should have a bottom width no less than 20 feet and should not be higher in elevation than -2-feet NAVD or the pre-project depth, whichever is shallower.

2. Fish dips should be constructed as soon as dredged material has dewatered and marsh vegetation is established (approximately 3 years), but no later than 5 years following dredged material placement.

3. An alternative to constructing gaps within the earthen containment dikes would be the degrading those dikes to the settled height of the dredged material within the disposal area.

4. Five-year post construction surveys should determine if the cross-section and elevation of the fish dips/degraded dikes are sufficient to provide drainage and fishery access. If cross-sections are determined to be insufficient then original cross-section dimensions should be re-established.

Port of Iberia Channel Deepening Feasibility Study,
Proposed Fish Dip Locations

N
W E
S

Proposed Fish Dips

0 1.25 2.5 5 Miles

SECTION 10
DREDGED MATERIAL SITE MANAGEMENT PLAN/ LONG-TERM MANAGEMENT PLAN

SECTION 10
DREDGED MATERIAL SITE MANAGEMENT PLAN/
LONG TERM MANAGEMENT PLAN

1.0 INTRODUCTION

Draft U.S Army Corps of Engineers' planning guidance requires the preparation of a Long Term Management Plan (LTMP) and a Dredged Material Site Management Plan (DMSMP) for all new projects. The DMSMP guidance focuses on maximization of disposal sites as well as beneficial use of dredged material for marsh creation and nourishment. The U.S. Army Corps of Engineers' policy is t to consider all practicable alternatives for dredge material disposal on an equal basin and the U.S. Army Corps of Engineers has a responsibility for developing all the technical aspects of the LTMP and the DMSMP.

2.0 PLAN DEVELOPMENT

In conjunction with the completion of the Port of Iberia, Feasibility Study, a LTMP and a DMSMP were developed. The plan provides for maximization of the disposal sites and considers beneficial use of dredged material from the project. Parties involved in the Feasibility Study have agreed that beneficial use of dredged material is preferred over other dredged material disposal options. This approach is also in accordance with the U.S. Army Corps of Engineers' Environmental Operating Principles, which include:

- • Strive to achieve environmental sustainability;
- • Recognize the interdependence of life and the physical environment;
- • Seek balance and synergy among human development activities and natural systems by designing economic and environmental solutions that support and reinforce one another;
- • Continue to accept responsibility and accountability under the law for activities and decisions under our control and that impact human health and welfare and continued viability of natural systems;
- • Seeks ways and means to assess and mitigate cumulative impacts to the environment;
- • Build and share an integrated scientific, economic, and social knowledge base that supports a greater understanding of the environment and impacts of our work; and,
- • Respect the views of individuals and groups interested in U.S. Army Corps of Engineers' activities, listen to them actively, and learn from their perspective in the search to find innovative win-win solutions to the nation's problems that also protect and enhance the environment

.

3.0 PLAN DEVELOPMENT

In consideration of the above listed principles, the initial project construction disposal plan, the LTMP, and the DMSMP have been developed to almost exclusively use dredged material from the project in a beneficial manor.

3.1 Commercial Canal

One exception to the overall dredged material disposal strategy of beneficial use is along Commercial Canal. The only disposal site where beneficial use has not been employed is the upland confined site for a portion of the construction material from Commercial Canal. Although alternatives for disposal of this material were investigated, the overall stability of the surrounding marsh and the economics of transporting the dredged material relatively long distances limited disposal alternatives for this material. Note that a portion of material dredged during the construction of Commercial Canal will also be used beneficially in Weeks Bay for marsh creation.

Considering the impact the upland confined area will have on the surrounding marsh, and in order to maximize the use of this area while minimizing the impact its overall impact, the upland confined area will be used for disposal of maintenance dredged material as well. Substantial settlement and consolidation of this material at this site is expected over the project life and is expected to be sufficient for disposal of the maintenance dredged material.

3.2 Gulf Intracoastal Waterway and Freshwater Bayou

During the development of the disposal plan for the GIWW and FWB, consideration was given to the considerable bank erosion, which has taken place along these two waterways since initial construction. Additionally, consideration was given to the generally stable marsh and coastal areas of the project area, the central Louisiana Gulf Coast. Consequently, the disposal plan was developed to beneficially use the dredged material for reconstruction of the channel bank lines and provide for marsh nourishment and creation. In order to maintain the reconstructed bank lines, rock will be placed to protect the dredged material from passing vessels and to allow the dredged material to consolidate and strengthen. It is anticipated that all of the construction material will be disposed in these sites as well as maintenance dredged material. Substantial settlement and consolidation of the dredged material within the disposal sites is expected over the project life, and as such, it is expected that these sites will be available in the future for disposal of maintenance dredged material.

Throughout the project life there may be marsh sites, other than those designated, which will require nourishment or re-construction. These sites will be investigated on an individual basis during the preparation of contract documents

for maintenance dredging events.

3.3 Freshwater Bayou Bar Channel

Disposal of dredged material disposal for the Freshwater Bayou Bar will include disposal in the inter-tidal zone on the west of channel below the Freshwater Bayou Lock. This area is currently used for disposal of maintenance dredged material from the current project and will be used for the proposed project as well. This disposal area has almost unlimited capacity using an unconfined disposal operation. Material will be transported away from the channel by the littoral processes and should nourish the shoreline west of the proposed project.

4.0 SITE MANAGEMENT REQUIREMENTS

Management Requirements by Site

	Upland Confined	Marsh/Open Water Disposal Sites	Bank Line Reconstruction	Inter-Tidal Disposal
Site Use	Dredged material disposal	Marsh Creation & Nourishment	Marsh Creation & Nourishment	Shoreline Erosion Control
Est. Volume Construction	1.4 million cu. yds	5,526,000 cu. yds	13,000,000 cu. yds.	Unlimited
Est. Volume Maintenance	732,000 cu. yds.	6,536,000 cu. yds.	2,149,000 cu. yds.	Unlimited
Frequency of Use	Initial Construction & Maintenance	Initial Construction & Maintenance	Initial Construction & Maintenance	Initial Construction & Maintenance
Material Type	Silts & Clays	Silts & Clays	Silts & Clays	Silts & Clays

5.0 USEFUL LIFE OF SITES

The useful life of the dredged material disposal sites is expected to meet with the needs of the project life of 50 years.

6.0 CONTROL OF CONTAMINANTS

Dredged material is expected to be uncontaminated due to the nature and use of the waterways, consequently specific contaminate control measures will not be required.

Closures at specific marsh nourishment sites and marsh creation sites will require closures for turbidity control in adjacent waters.

7.0 BENEFICIAL USE OF DREDGED MATERIAL

The majority of the dredged material will be used beneficially for bank line reconstruction, marsh nourishment and creation, and shoreline nourishment.

8.0 MONITORING PLAN

8-1. General. Aerial photographic analysis shall consist of the following: 1) photo interpretation and digitization; 2) habitat classification; and 3) ground-truthing.

8-2. Photo Interpretation and Digitization. The study sites shall be interpreted and mapped from the base year photography and the color infrared aerial photography using a Bausch and Lomb Zoom Transfer Scope or equivalent. U.S. Geological Survey 1:24,000 quadrangle maps shall be used for the initial ground control to set the interpretations in the state plane coordinate system. The absolute accuracy shall be ±50 feet and the relative accuracy shall be ±10 feet. The shoreline shall be interpreted according to the location of the wet/dry beach contact visible on the aerial photography, the outer edge of well-established marsh, or the outer edge of organic beaches.

8-3. Habitat Classification. Habitat types shall be interpreted from the photography by discernible and recognizable differences in infrared color and texture. The habitats interpreted shall be broken into simple classes and subclasses as follows. All habitat classes and sub-classes, except Open water and Intertidal, shall be included in the statistics.

8.4. General. Field monitoring shall consist of site visits to determine changes in elevation, habitat type and surface morphology at select study sites on the navigation channels.

8-5. Permanent benchmarks placed by the USACE, NOD or USACE, NOD contractors and/or temporary benchmarks placed by the Contractor shall be established within select study sites on each of the navigation channels to provide monitoring baseline. Elevation of benchmarks shall be determined using either an existing datum, tide gage data combined with shoreline morphology, or a global positioning system (GPS).

1) When existing datums occur within range of a study site, a laser-driven Total Station survey instrument shall be used to level between the known datum and the new benchmark.

2) Where no existing datums occur within range of a study site, an elevation shall be inferred from tide gage data or measured directly by a GPS.

a) Inferred method - A tide gage in close proximity to the study site is used as a calibration for elevation. During establishment of the benchmark, a measurement between the water level and the benchmark elevation is made. The tide gage record is reviewed to determine the water level elevation at that moment in time. The elevational difference between the measured water level and the benchmark height is correlated back to the known datum for the

tide gage to determine the actual benchmark elevation.

8-6. Once benchmarks have been established, one or more transects shall be surveyed at each selected study site to record elevation, habitat types, vegetative cover, and surface morphology. A vegetative species list shall be maintained for each site to typify dominant vegetative species colonizing each site. Transects should be monitored as requested to record changes in elevation, habitat type, vegetative cover, and surface morphology.

3) Field Monitoring

a) Data table and/or graphs generated from elevation surveys along established transects, establishing the elevational profile along each transect.

b) Data tables and graphs generated from vegetation surveys along established transects, establishing the dominant vegetation along each transect.

SECTION 11
SCOPING DOCUMENT

This section contains a copy of the Notice of Intent published in the Federal Register/Vol. 67, No. 211/Thursday, October 31, 2002/Notices. Also included are copies of comments from scoping meetings held on December 3rd and December 10th of 2004.

Dated: October 15, 2002.

Peter J. Rowan,

Colonel, U.S. Army, District Engineer.

[FR Doc. 02–27721 Filed 10–30–02; 8:45 am]

BILLING CODE 3710–84–P

DEPARTMENT OF DEFENSE

Department of Army; Corps of Engineers

Intent To Prepare a Draft Environmental Impact Statement for the Millstone River Basin, New Jersey Flood Control and Ecosystem Restoration Feasibility Study

AGENCY: Department of the Army, U.S. Army Corps of Engineers, DoD.

ACTION: Notice of intent.

SUMMARY: The U.S. Army Corps of Engineers (USACE), New York District, announces its intent to prepare a Draft Environmental Impact Statement (DEIS) pursuant to the National Environmental Policy Act (NEPA), in accordance with the Council on Environmental Quality (CEQ) Regulations for Implementing the Procedural Provisions of NEPA and the Department of the Army, USACE Procedures for Implementing NEPA, to assess the environmental impacts of a proposed flood control and ecosystem restoration study in the Millstone River Basin in New Jersey. This study is authorized by a resolution of the Committee on Transportation and Infrastructure, U.S. House of Representatives, adopted August 5, 1999. The purpose of this study is to identify and evaluate possible solutions for flood control and ecosystem restoration and to determine the extent of Federal interest.

DATES: Public scoping meeting on November 14, 2002, 7:30 PM —9:00 PM, to be held at the Borough of Manville Courtroom, 325 North Main Street, Manville, New Jersey, 08835.

FOR FURTHER INFORMATION CONTACT: Questions about the proposed action and DEIS can be answered by: Ms. Megan B. Grubb, (212) 264–5759, U.S. Army Engineer District, New York, Planning Division, Attn: CENAN–PL–EA, 26 Federal Plaza, New York, NY 10278–0090.

SUPPLEMENTARY INFORMATION:

1. Project Location

This notice announces the initiation of a feasibility phase study for flood control and ecosystem restoration purposes at Millstone River Basin, New Jersey. This study area is located in parts of the New Jersey counties of Mercer, Middlesex, Monmouth, Hunterdom, and Somerset, and is bounded on the north by Morris County, on the east by Middlesex County, on the west by Hunterdon County and on the south by Mercer County. The study area is located in north-central New Jersey halfway between Philadelphia and New York City. The project study area consists of approximately 238 square miles of developed commercial and residential buildings as well as natural habitat.

2. Project Authorization and History

The Millstone River Basin Study is authorized by a resolution of the Committee on Transportation and Infrastructure, U.S. House of Representatives, adopted August 5, 1999. The USACE completed an initial Reconnaissance report entitled "Millstone River Basin, New Jersey—Reconnaissance Study For Flood Control & Ecosystem Restoration" in September 2000. This report determined that there may be potential Federal interest in flood control and ecosystem restoration measures for the Millstone River Basin. Additional investigations have demonstrated Federal interest and the need for further study of the Millstone River Basin area, in the nature of a detailed feasibility study. The non-Federal sponsor, the New Jersey Department of Environmental Protection (NJDEP) signed an agreement on 14 March 2002 to equally share the cost of the feasibility study with the USACE. The NJDEP in turn will act on behalf of all other local municipalities and jurisdictions as the primary non-Federal sponsor.

3. Project Need

The Millstone River Basin has a history of severe flood damages. Low-lying residential and commercial structures in the area are experiencing flooding caused by intense thunderstorms, northeasters, and hurricanes. Evaluation of flooding problems in the Millstone River basin has identified the Borough of Manville as the most significant problem area in the Basin. Manville was selected for detailed consideration in this feasibility investigation. A number of improvement measures would be evaluated during the feasibility study. These may include such measures as: floodwalls, levees, pump stations, gates and ecological enhancement. Non-structural measures such as flood proofing, ring walls, raising or acquisitions will also be considered.

The Millstone River Basin has a significant problem with ecosystem degradation. The structure and function of the natural systems in the Basin and the Millstone River's ability to perform critical local and regional ecological functions have been greatly reduced due to change in land use patterns and practices. A number of improvement measures would be evaluated during the feasibility study. The types of ecosystem restoration projects to be formulated could include: Lake Restoration and Watershed Management, Comprehensive Riparian System Restoration, Disturbed Land Restoration, and Ecological Enhancement in association with a Flood Control Project.

4. DEIS Scope

The intended DEIS will evaluate the potential environmental and cultural resources impacts associated with the proposed alternatives for flood control and ecosystem restoration.

5. Public Involvement

The USACE has scheduled a public environmental scoping meeting for November 14, 2002 (*see* **DATES**) to discuss the scope of the DEIS and data gaps. The public scoping meeting place, date and time will be advertised in advance in local newspapers, and meeting announcement letters will be sent to interested parties. The public will have an opportunity to provide written and oral comments at the public scoping meeting. Written comments may also be submitted via mail and should be directed to Ms. Megan B. Grubb at the address listed above. The USACE plans to issue the DEIS in the spring of 2005. The USACE will announce availability of the draft in the Federal Register and other media, and will provide the public, organizations, and agencies with an opportunity to submit comments, which will be addressed in the final EIS.

Luz D. Ortiz,

Army Federal Register Liaison Officer.

[FR Doc. 02–27719 Filed 10–30–02; 8:45 am]

BILLING CODE 3710–06–M

DEPARTMENT OF DEFENSE

Department of the Army; Corps of Engineers

Intent To Prepare a Draft Environmental Impact Statement for Providing a Deeper and Wider Navigation Channel to the Port of Iberia Through the Enlargement of Existing Access Channels, in Vermilion and Iberia Parishes in the Vicinity of New Iberia and Intracoastal City, LA

AGENCY: Department of the Army, U.S. Army Corps of Engineers, DoD.

ACTION: Notice of intent.

SUMMARY: The U.S. Army Corps of Engineers (Corps), New Orleans District, is initiating this study under the authority of section 431 of the Water Resources Development Act of 2000 (Pub. L. 106–541), dated December 11, 2000, to determine the feasibility of deepening and widening the navigation channel to the Port of Iberia (hereafter referred to as "the Port") through the enlargement of existing access channels. Deepwater oil and gas exploration and development in the Gulf of Mexico and other deepwater areas has increased because of growth in demand; depletion of existing oil and gas fields, including those in the shallower areas of the gulf; and advancements in deepwater drilling technologies that include larger platforms. The Port was constructed by Iberia Parish to provide a navigation outlet for trade and transportation of offshore fabrication modules. South Louisiana and the Port have a long association with the development of offshore oil and gas industry worldwide. The Port is primarily a landlocked port with connections to the Gulf of Mexico through the Commercial Canal and the Acadiana Navigation Channel. Additionally, the current project provides a "Harbor of Refuge" during storms and hurricanes. Five major waterways service the Port: the Gulf Intracoastal Waterway, the Atchafalaya River, the Acadiana Navigation Channel, the Vermilion River Cutoff, and the Freshwater Bayou. The Port's access channel, the Commercial Canal is essentially the northernmost portion of the Acadiana Navigation Channel.

FOR FURTHER INFORMATION CONTACT: Questions concerning the Environmental Impact Statement (EIS) should be addressed to Mr. Michael Salyer at U.S. Army Corps of Engineers, PM–RS, PO Box 60267, New Orleans, LA 70160–0267, phone (504) 862–2037, fax number (504) 862–2572 or by E-mail at *michael.r.salyer@mvn02.usace.army.mil.*

SUPPLEMENTARY INFORMATION:

1. Proposed Action. The proposed action would provide for the enlargement of the existing navigation channels to the Port via the Commercial Canal to the Gulf Intracoastal Waterway (GIWW) to Freshwater Bayou to the Gulf of Mexico via a bypass channel at the existing Freshwater Bayou lock. The proposed project bottom depth is to 20 foot MSL from the current 13 feet MSL in Commercial Canal, and to 20 foot MSL from the current 12 foot MSL in the GIWW and Freshwater Bayou. The channel alignments and bottom widths would be increased to 150 feet from the current 115 feet where necessary in the areas of the Port as a result of existing bulkheads. The Commercial Canal, GIWW, and Freshwater Bayou widths would be increased to 200 feet from the current 125 feet. It was assumed that the 250-foot width of the Freshwater Bayou Bar Channel into the Gulf of Mexico would remain the same. The Freshwater By-Pass would be widened to 150 feet from the current 125 feet. A 20-foot project depth was the only depth evaluated for the reconnaissance analysis. The material dredged for the construction and maintenance of the channels would be used for bank-line stabilization and wetlands restoration and construction, to the maximum extent practicable. Economic and environmental analysis would be used to determine the most practical plan, which would provide for the greatest overall public benefit.

2. Alternatives. Alternatives recommended for consideration presently include the construction of deeper and wider channels in the Commercial Canal, GIWW, and Freshwater Bayou. Incremental reaches of those channels with separable benefits and cost would be investigated. Various project depths for navigation channels would also be investigated.

3. Scoping. Scoping is the process for determining the scope of alternatives and significant resources and issues to be addressed in the Environmental Impact Statement. For this process, a letter will be sent to all parties believed to have an interest in the analysis, requesting their input on alternatives and issues to be evaluated. The letter will also notify interested parties of public scoping meetings that will be held in the local area. Notices will also be sent to local news media. All interested parties are invited to comment at this time, and anyone interested in this study should request to be included in the study mailing list.

A public scoping meeting will be held in November of 2002. The meeting will be held in the vicinity of Abbeville, LA. Additional meetings could be held, depending upon interest and if it is determined that further public coordination is warranted.

4. Significant Resources. The tentative list of resources and issues to be evaluated in the EIS includes tidal wetlands (marshes and swamps), aquatic resources, commercial and recreational fisheries, wildlife resources, essential fish habitat, water quality, air quality, threatened and endangered species, recreation resources, and cultural resources. Socioeconomic items to be evaluated in the EIS include navigation, flood protection, business and industrial activity, employment, land use, property values, public/community facilities and services, tax revenues, population, community and regional growth, transportation, housing, community cohesion, and noise.

5. Environmental Consultation and Review. The U.S. Fish and Wildlife Service (USFWS) will be assisting in the documentation of existing conditions and assessment of effects of project alternatives through Fish and Wildlife Coordination Act consultation procedures. The USFWS will provide a Fish and Wildlife Coordination Act report. Coordination will be accomplished with the USFWS and the National Marine Fisheries Service (NMFS) concerning threatened and endangered species and their critical habitat. The NMFS will be consulted on the effects of this proposed action on Essential Fish Habitat. The draft EIS (DEIS) or a notice of its availability will be distributed to all interested agencies, organizations, and individuals.

6. Estimated Date of Availability. Funding levels will dictate the date when the DEIS is available. The earliest that the DEIS is expected to be available is in the spring of 2004.

Dated: October 15, 2002.

Peter J. Rowan,

Colonel, U.S. Army District Engineer.

[FR Doc. 02–27722 Filed 10–30–02; 8:45 am]

BILLING CODE 3710–84–U

DEPARTMENT OF DEFENSE

Department of the Navy

Notice of Proposed Information Collection; Commander, Naval Sea Systems Command; Correction

AGENCY: Department of the Navy, DOD.

ACTION: Notice; correction.

SUMMARY: The Naval Sea Systems Command published a document in the **Federal Register** of October 11, 2002, concerning request for comments on a list of facilities available for the construction or repair of ships. The document contained incorrect telephone numbers and an incorrect address.

FOR FURTHER INFORMATION CONTACT: Sherrell Smith, (202) 781–1819.

Correction

In the **Federal Register** of October 11, 2002, in FR Doc. 02–25935, on page 63388, in the second column, correct the **ADDRESS** and **FOR FURTHER INFORMATION CONTACT** captions to read:

Port of Iberia (AGMAC) Channel Deepening Study
SCOPING MEETING NOTES
DECEMBER 3, 2002 7:00pm
Vermilion Parish Courthouse

1. We need to look at the and consider the historical hydrology of the project area.
2. Need to consider "Venetian Blinds" which are an alternative concrete structure which has been researched by Dr. Christianson of University of Florida.
3. Need to look at economic benefit ----Cost and Benefits
4. Need to consider the archeological issues especially in the northwest corner of the GIWW and Vermilion River near Four Mile Cut.
5. Make sure we look at fish and wildlife impacts.
6. How does LCA fit in with this project. How does it work that we're trying to have a multi-billion dollar effort to restore coastal Louisiana and now we're proposing a project that could potentially be devastating to the wetlands.
7. Exposed pipelines need to be addressed.
8. Increased economic opportunity for the region/state.
9. The east bank of Freshwater Bayou needs to be rocked. Must consider there is approximately 8 miles left to rock after CWPPRA projects.
10. How will enlargement of the channels affect tidal amplitude. If it increases, how will it impact landowners at Pecan Island.
11. At present, boats are traveling at 3 knots in 12-13' of water. How fast will they go in the deep channel and how will the size and force of the wake be different in relation to bankline erosion.
12. Will sediment load increase or decrease and by what degree should the channel be enlarged?
13. A hurricane protection levee could reduce storm surge in Erath, Delcambre, Henry, and Abbeville.
14. Maintenance = levee integrity.

Port of Iberia (AGMAC) Channel Deepening Study
Scoping Meeting Notes cont'd

15. Study should identify how far material can be moved (other parameters as well), keep sponsor, locals, agencies involved and informed.

16. Is WRDA 2004 too fast? What if it is 2006 - (this gives the parish more time to look at everything and meld it with other restoration efforts. The general perception is that the study is moving too fast and Vermilion Parish is very concerned.

17. Is there some sort of management authority to oversee or maintain channels, banks, etc...?

18. Carefully define maintenance---i.e. depth, width, etc...

19. Can we allow maintenance as a CWPPRA project?

20. Must consider some kind of monitoring for maintenance/channel conditions.

21. Port of MRC project --should report maintenance concerns.

22. Existing authorities are not addressing maintenance issues adequately.

23. Consider control structure on Exxon Canal (lowest canal off of Freshwater Bayou) for saltwater intrusion.

Port of Iberia (AGMAC) Channel Deepening Study

SCOPING MEETING NOTES
DECEMBER 10, 2002 7:00pm
Iberia Parish Courthouse

1. Project will provide more jobs.

2. Without channel millions of dollars lost annually to overseas interests.

3. Depleting oil in shallow waters, deeper channel needed to produce equipment to access deeper reserves.

4. National security ---deeper channel

5. No wake zone on larger vessels using Commercial Canal.

6. Concerns for saltwater intrusion into nearby crawfish ponds.

7. Environmental impacts --- project will address erosion, as well as, preventing additional erosion while providing economic benefits to the region.

8. Project will provide local jobs.

9. Project will keep environmental impacts in mind and try to minimize.

10. Project will provide economic benefits while beneficially impacting quality of life (hunting, fishing, aesthetics)

11. Vessels carrying introduced species may be a concern. i.e. zebra mussels

12. Recommend that the study look at impacts upon neighboring ports.

13. Maintenance of channel banks must be a component of the study.

14. Current erosion is related to material dredged to deepen channel. This material should be used to return areas of bankline erosion to original dimensions. In other words, rebuild banklines and stop erosion.

15. Why aren't the GICA reps present? Need to have a governing body to ensure adequate project maintenance is necessary.

16. Project will prevent "braindrain" (people leaving Louisiana for better jobs).

17. Design should create banks that can withstand boat wakes and subsequent tidal surges into interior marsh areas.

SECTION 12
INITIAL HAZARDOUS, TOXIC, AND RADIOACTIVE WASTE SITE ASSESSMENT

SECTION 12
INITIAL HAZARDOUS, TOXIC AND RADIOACTIVE WASTE
SITE ASSESSMENT

EXECUTIVE SUMMARY

A Hazardous, Toxic, and Radioactive Waste (HTRW) Initial Site Assessment (ISA) has been completed for this project. The ISA has been prepared under the authority of U.S. Army Corps of Engineers (USACE) Regulation ER 1165-2-132, Water Resource Policies and Authorities, Hazardous, Toxic, and Radioactive Waste (HTRW) Guidance for Civil Works Projects, dated 26 June 1992, and USACE Regulation DIVR 1165-2-9, Water Resource Policies and Authorities, HTRW Policy for Civil Works Projects, dated 14 June 1996. The purpose of the ISA is to gather and evaluate data regarding the existence or potential for encountering HTRW located in the vicinity of USACE Civil Works projects, to ensure that HTRW and contaminant issues are properly considered in project planning and implementation. A land use history evaluation, regulatory agency records research, site reconnaissance inspections, and correspondence and/or interview consultations with relevant federal, state, and local individuals have been accomplished. A copy of the entire Phase I ISA is on file and available for review at the MVN office in New Orleans, Louisiana.

The project site for the proposed improvements is composed of the waterways being enlarged, the dredged material placement areas, and equipment access areas. The project corridor includes the adjacent properties within a 1-mile radius of these features.

LAND USE

Undeveloped wetlands, waterways, and the Gulf of Mexico are the dominant features in the project area, occupying approximately 49 linear miles of the 54-mile project corridor. The wetland environments currently include large areas of fresh, brackish and intermediate marsh, and small areas of forested wetlands, saline marsh, and chenier deposits. Oil and gas extraction infrastructure (wells, pipelines, non-hazardous oilfield waste pits, etc.) are the only significant industrial features located within these habitats. Historical use records indicate that the oil and gas extraction activity has been ongoing since approximately 1936.

The Port of Iberia and Intracoastal City are the only portions of the project corridor with significant degrees of development. These developed areas are adjacent to the proposed project waterway and occupy approximately 5 miles of the 54-mile corridor.

The Port of Iberia contains an extensive network of canals and slips that provide docking and navigational access to the project site. Land usage in this area is heavily industrialized, although a moderate amount of agricultural and limited residential properties do exist on the fringes of the corridor. The heavy industries are primarily involved in metal fabrication (pipe and structural welding, sandblasting, painting) and marine transportation (vessel dry-docking, repair, towing, fueling) in support

of the offshore petroleum industry. Hazardous and toxic materials are likely to be handled, stored, and used at the facilities in this land-use classification.

Historical records indicate that the Port of Iberia area was subject to agricultural use between 1900 and approximately 1945. Commercial Canal was dug for drainage purposes in approximately 1910. Industrial and commercial activities appear to have initiated in 1945 when the canal was made navigable. Documents indicate that ten businesses were located at the port by 1958. These businesses appeared to perform operations similar to current uses. Since 1958, industrial use has expanded relatively steadily. At present, there are an estimated 45 to 50 industrial and commercial facilities at the port. Many of these businesses are located directly adjacent to the project site.

Intracoastal City is developed linearly along the north bank of the Gulf Intracoastal Waterway (GIWW), just west of its intersection with the Vermilion River. The only significant structural development in this area is located directly adjacent to the GIWW, on the north and south sides of LA Highway 333. The current land use within the developed area is highly industrialized, with very limited residential and commercial use. Nearly all of the Intracoastal City businesses are associated with either oil and gas extraction or commercial fishing. Activities associated with these businesses typically include drilling fluid storage and supply, marine vessel provisioning, docking, transportation (marine and helicopter), fuel storage and delivery, and pipe fabrication. Hazardous and toxic materials are likely to be handled, stored, and used at the facilities in this land-use classification.

Based on historical documents, the initial establishment of Intracoastal City appears to date to the early 1930s, when the current alignment of the GIWW was constructed. In 1935, LA Highway 333 terminated on the eastern side of the city, where several agricultural tracts and two properties with water access were apparent. By 1955, the highway had been extended to its present-day location. At this time, a few industrial facilities were evident on the east side of the city, and oil and gas well sites were appearing to the north of the city. Between 1955 and the mid-1960s, only a slight eastward expansion of industrial facilities was noted; however, oil and gas well sites expanded greatly. From 1965 to present, the number of industrial facilities has steadily increased through westward development, whereas new oil well site development has declined.

REGULATORY AGENCY RECORDS RESEARCH

Numerous governmental environmental and oil and gas well database records have been reviewed to evaluate potential HTRW risks within the Acadiana Gulf of Mexico Access Channel (AGMAC) project corridor. Direct agency consultations and/or additional detailed investigations have supplemented this research, when appropriate. The database records have been used to locate facilities or sites which generate, transport, store, or dispose of municipal, industrial, radioactive, or hazardous wastes. The records also identify facilities with compliance violations, reported spills, discharge permits, and documented site contamination.

A total of 32 environmental databases, as reported by Environmental Data Resources, Inc., have been reviewed in the course of this study. Twenty-six of the databases contained no listings of any project corridor sites. The absence of entries in these databases indicates that there are no confirmed or suspected hazardous waste (state or federal Superfund) sites in or adjacent to the project site. Additionally, the

corridor has no radioactive material handlers, toxic substance or pesticide manufacturers, PCB handlers, landfills, or hazardous waste treatment, storage, or disposal facilities. The databases that listed one or more facilities or sites within the project corridor are summarized below. All of the facilities or sites are located at either the Port of Iberia or Intracoastal City, with the exception of two oilfield-related petroleum releases.

The Resource Conservation and Recovery Information System (RCRIS) listings identified 6 large quantity generators and 30 small quantity generators of hazardous waste adjacent to the project site. Of the 36 generators, 13 facilities were determined to have had compliance violations. The reported violations typically involved administrative violations, such as poor record keeping, improper waste codification, failures to comply with required written planning and training, and failures to file for permit coverage. Several of the violations were issued for waste management concerns including storage area deficiencies, accumulation time-frame exceedances, and poor containment clean-up practices. The database results did not indicate hazardous waste contaminant concerns at any of the adjacent facilities. Accordingly, the RCRIS facilities would not be expected to pose a significant HTRW risk to the proposed project.

The Emergency Response Notification System (ERNS) report contained 33 entries. Due to reporting duplication, only 26 of the incident notifications were found to be valid. Twenty-four of these incidents occurred at either the Port of Iberia or Intracoastal City. The remaining 2 incidents occurred in oilfield locations. The majority of the incidents consisted of small quantities of oil or diesel fuels, which were released to project site waterways. These small releases to water, even without appropriate response, would not be expected to have long-term localized environmental impact due to hydrological exchange and biological degradation. The only incident affecting land was a 200-gallon diesel release that occurred on November 10, 1998, at Parker Technology in the Port of Iberia. A National Response Center (NRC) incident report indicates that remedial actions were implemented for this spill. As such, this spill is considered unlikely to pose an HTRW risk to the proposed project.

The Louisiana Department of Environmental Quality's (LDEQ) Underground Storage Tank (UST) database listed 5 UST sites within the project corridor: 3 at the Port of Iberia; and 2 at Intracoastal City. However, the USTs at four of these sites have been removed. The only remaining active UST site is the Port Quick Stop located within the Port of Iberia. According to LDEQ databases, none of the UST sites within the project area have experienced any petroleum releases and, therefore, are unlikely to have affected the proposed project.

The Environmental Protection Agency's (EPA) Facility Index System (FINDS) database provides "pointers" that identify other information sources and programs that pertain to a listed facility. A total of 45 listings are contained in the FINDS database for facilities adjacent to the project site in the Port of Iberia and Intracoastal City. The most prominent pointers for the listed facilities are associated with air and water discharge permit activity. Since these activities are authorized and regulated, they would not be considered an HTRW risk to the proposed project. Other pointers found within the database have been reviewed and determined to be redundant.

The Toxic Release Inventory (TRI) identifies facilities, which release toxic chemicals to the air, water, or land in reportable quantities under SARA Title III, Section 313. The TRI listed 3 facilities within the project corridor. All of the facilities are located adjacent to the project site at the Port of Iberia. Through additional research of EPA's online database, it has been determined that the toxic releases from the listed

facilities are associated with air emissions. Database records indicate that all of the facilities have obtained valid permit authorizations for these releases. Such authorized and regulated activities would not be considered an HTRW risk to the proposed project.

Individual oil and gas wells within the project area have been identified through research of the Louisiana Department of Natural Resources' (DNR) online SONRIS database. The database search identified approximately 578 recorded wells within the project corridor. The wells identified in the database search have been evaluated for potential HTRW concerns. Those wells categorized as "orphan wells" and "unable to locate-not plugged and abandoned" have been deemed the most likely to pose an elevated HTRW risk. A total of 21 wells are classified in these categories. Through additional review, 12 of these wells have been considered potential HTRW concerns based upon their siting within, or in close proximity to, proposed dredged material placement sites. Additional analysis of these wells has been accomplished through coordination with DNR representatives. Based upon the findings of this investigation, it is considered unlikely that any of the oil and gas well sites in the project corridor are HTRW concerns at the present time. Only one of the intensely investigated orphan wells (Serial Number 214409) is considered a potential HTRW concern, since it has not been plugged and a release could occur if the well tree or casing is damaged during construction. To minimize potential HTRW risks during construction, it is recommended that the DNR be contacted prior to project construction to ensure that orphaned well (214409) has been properly plugged and abandoned. If project construction activities precede the plugging and abandonment of this well, it is recommended that construction activities at the well site be avoided, and any adjacent activities be controlled to preclude well site damage or disturbance.

Records obtained from the DNR indicate that a multitude of pipelines, primarily carrying gas and crude oil, traverse the project corridor. Releases from these pipelines in the vicinity of the project corridor have been investigated through the review of NRC pipeline incident reports. There have been 9 pipeline releases within the vicinity of the project corridor since 1994. Two of these incidents affected the Freshwater Bayou Oilfield area, 6 affected the Boston Bayou Oilfield area, and 1 affected the GIWW near Intracoastal City. The substances released during these incidents included oil, condensate, and saltwater. Quantities released ranged from a maximum of 42 gallons to a minimum of 0.52 gallons. The incident reports indicate that each of the release events were controlled and remediated. A number of the pipeline releases in the corridor have likely entered and affected the waters of the project site. However, due to the small quantities released, no significant long-term environmental impairment would be expected from the reviewed pipeline incidents.

SITE RECONNAISSANCE INSPECTIONS

Site reconnaissance inspections of the project site and adjacent areas of the corridor have been conducted as a component of this study. The inspections, consisting of visual and other qualitative observations, have been conducted for the purpose of determining the presence or absence of HTRW problems. The initial site inspection was conducted by helicopter over-flight on March 19, 2004. A follow-up windshield survey of the Port of Iberia and Intracoastal City was accomplished on April 20, 2004. During these inspections, the entire project corridor was viewed for hazardous and petroleum substances, toxic and radioactive materials, solid and hazardous wastes, derelict tanks and containers,

migrating substances, and indicators of environmental impairment (stained soils, stained or stressed vegetation, surface water sheen, dead or disturbed biota).

The undeveloped portions of the project corridor, including material placement areas, agricultural fields, and oil and gas locations, all appeared to be free of obvious environmental concerns with no visible evidence of foreign matter or other indicators of HTRW problems. One non-hazardous oilfield waste pit was discovered at a proposed dredged material placement site (Tertiary Disposal Site D012) located adjacent to the eastern terminus of a Freshwater Bayou oilfield canal. The pit is considered a potential concern, since a release of non-hazardous oilfield waste could occur if the pit's integrity were to be breached. As such, it is recommended that appropriate precautions be implemented during any planned construction in this area to prevent pit disturbances.

The Port of Iberia and Intracoastal City portions of the project corridor, which are adjacent to the project site, were found to be occupied by a large number of highly industrialized facilities. Industrial features noted during the reconnaissance included fuel storage tanks, drilling fluid tanks, metal materials, fabricated structures, pipe, drums, abrasive materials, heavy equipment, aircraft and marine vessels, scrap metals, painting facilities, fuel depots, asphalt manufacturing stockpiles. Additional materials that could be expected in significant volumes, but have not been visually confirmed, would likely include welding supplies, paints, thinners/solvents, petroleum-based lubricants and hydraulic fluids, engine coolants, and cement manufacturing compounds. In general, no obvious signs of any contaminated media, ongoing releases, or material threats of a release were observed within the industrial areas at the Port of Iberia or Intracoastal City during either investigation. Similarly, there were no visible indications, such as surface water sheen, that these adjacent properties were adversely affecting the project site. The potential for hazardous and toxic substance migration into the project site does exist in these industrial areas, but no such migration was apparent and nothing in the database research indicated a strong potential for the release of these substances.

CONCLUSIONS AND RECOMMENDATIONS

From data reviewed and observations noted during the site reconnaissance, numerous users of hazardous materials and generators of hazardous wastes have been identified within developed portions of the project corridor. The existence of HTRW concerns at these sites was not indicated in any of the research conducted. The possibility exists that metal and hydrocarbon constituents, in excess of native concentrations, are found within the bottom sediments of Commercial Canal at the Port of Iberia and the GIWW near Intracoastal City. However, according to ER 1165-2-132 and DIVR 1165-2-9, dredged material and sediments beneath navigable waters proposed for dredging qualify as HTRW only if they are within the boundaries of a site designated by EPA or the State of Louisiana for a response action under CERCLA, or if conditions are indicated as hazardous. In view of the fact that no areas meeting these criteria have been identified, the bottom sediments in these two reaches do not qualify as HTRW. The materials to be dredged from these two reaches of the project shall be evaluated for their suitability for disposal in accordance with the appropriate guidelines and criteria adopted pursuant to Section 404 of the Clean Water Act.

Oil wells, gas wells, and pipelines are located throughout the undeveloped portions of the project corridor. While these facilities always represent potential hazardous waste disposal sites, these

portions of the project corridor seem to be free of indicators of environmental concern. However, the non-hazardous oilfield waste pit at Tertiary Disposal Site D012 is considered a potential concern. Appropriate precautions during construction are recommended to prevent pit disturbances. Orphan well 214409 is also considered a potential HTRW concern. It is recommended that the DNR be contacted prior to project construction to determine if the well has been plugged and abandoned. Construction controls are recommended to prevent well disturbances if construction is initiated prior to the plugging and abandonment of this well. Finally, pipelines represent a potential HTRW concern, since they routinely contain hydrocarbon products and a release could occur if ruptured during construction. To minimize potential HTRW risk, all pipelines crossing project waterways or located adjacent to or within dredged material disposal areas should be surveyed and clearly marked prior to initiation of construction activities.

Based upon the information gathered during the preparation of this ISA, it is reasonable to assume that, other than those areas of concern described above, no significant hazardous, toxic, or radioactive wastes would be encountered during the course of project-related activities. There is a low-risk of encountering HTRW within the proposed dredged material placement areas. Any relocation or enlargement of the proposed dredged material placement areas will require a reevaluation for potential HTRW areas of concern.

SECTION 13
ARCHEOLOGICAL AND HISTORIC PRESERVATION ACT OF 1974

SECTION 13
ARCHEOLOGICAL AND HISTORIC PRESERVATION ACT OF 1974

The referenced draft report entitled "Phase I Cultural Resources Investigations Acadiana Gulf of Mexico Access Channel (AGMAC) Study, Iberia and Vermilion Parishes, Louisiana" is on file at the New Orleans District office. The reader may request a copy of the report by contacting Mr. Michael Swanda, Natural and Cultural Resources Analysis Section, at (504) 862-2036.

This resource is institutionally significant because of: the National Historic Preservation Act of 1966, as amended; the Native American Graves Protection and Repatriation Act of 1990; and the Archeological Resources Protection Act of 1979; as well as other statutes. Cultural resources are technically significant because of: their association or linkage to past events, to historically important persons, and to design and/or construction values; and for their ability to yield important information about prehistory and history. Cultural resources are publicly significant because preservation groups and private individuals support their protection, restoration, enhancement, or recovery.

The following will present a brief historical overview and discuss the results of a recently completed documentary records review and sample cultural resource survey of the project area. The historical overview was taken directly from the draft report prepared by Lee et. al., (2004) and summarized. The reader may wish to refer to the draft report for more detailed information.

Cultural resource investigations in Iberia and Vermilion Parishes have resulted in the identification of prehistoric cultural resources dating between 1,500 B.C. and A.D.1,500. The Chenier Plain, within which most of the project area is located, does not seem to be more than 3,500 years old. Earlier prehistoric cultural remains assigned to both the Paleo-Indian and Archaic time periods (10,000 B.C. to 1,500 B.C.) have not been identified.

The Poverty Point Cultural (1500 B.C. – 500 B.C.) represents the earliest prehistoric culture to inhabit the region. Poverty Point related sites are spread throughout Louisiana and adjacent states, but appear to have been centered along Bayou Macon in northeastern Louisiana. Sites are generally located on natural levees, terrace edges, stream-lake junctions, and coastal environments. In the Atchafalaya Basin, Tchefuncte period sites (500 B.C. – A.D. 1) are commonly composed of shell middens and often contain intact organic remains. The faunal assemblage from Morton Shell Mound (16IB3), located in Iberia Parish, indicates that deer, alligator, raccoon, goose, and catfish were utilized as the primary source of protein. Tchefuncte settlements tend to be located along slow, secondary streams that drain bottomlands, in littoral settings, or near floodplain lakes. Tchefuncte components have been identified at three sites located in the project area and include Morton Shell Mound (16IB3), LA Fur Company Canal site (16VM12), and the Bayou Herbert site (16VM26).

Archaeological material excavated from Marksville period sites (A.D. 1 - 400) indicates trade with various societies inhabiting the Ohio and Illinois River valleys. Exotic raw materials such as copper, marine shell, mica, obsidian, and shark's teeth were exchanged. Marksville multi-mound settlements tend to be located at the junction of tributary/distributary streams and main trunk stream

channels. Single mound sites are located on natural levee ridges between stream junctions. Sites or site components dating to the Marksville period have been identified at four sites in the project area. These include Morton Shell Mound (16IB3), LA Fur Company Canal site (16VM12, the Bayou Herbert site (16VM 26) and the Vermilion River GIWW 2 site (16VM36).

The majority of the prehistoric sites located in the study area are associated with either the Coles Creek (A.D.700 - A.D.1200) or Plaquemine (A.D.1200 - A.D.1700) cultural periods. Typically, Coles Creek peoples were widely dispersed in small hamlets and based their subsistence on the exploitation of marsh resources. Within the study area, small shell middens represent the typical Coles Creek site. The later Plaquemine culture continues to exploit marsh resources in the same manner; however, agricultural dependence increased. Larger villages are more permanent and ceremonial centers developed.

In the period of initial contact between the French and the Native Americans, Vermilion Bay was at the border of the areas occupied by the Chitimacha Indians to the east and the Atakapas Indians to the west. The Chitimacha numbered approximately 3,000 individuals in 1650. Several Chitimacha villages were established in the Atchafalaya Basin and along lower Bayou Teche, but by 1900, nearly all of the Chitimacha had moved to their village on Bayou Teche near Charenton. Several bands of the Atakapa tribe ranged west of the Atchafalaya Basin and their population may have totaled 2,500 by the second half of the 17th century. The arrival of the Acadians and other groups of European and American descent marked an increase in population. By 1765, 231 immigrants had settled in the Attakapas District. Following the Louisiana Purchase in 1803, American settlers started immigrating to the area in greater numbers.

Among the earliest documented settlers within the current project area was Juan de Lion, who in 1790 sought a land concession "at the mouth of Bayou Vermilion on the right bank descending and the last high land on the bayou to form a Vacherie and to make oak timber for the construction of boats". Robert Perry, who founded the village of Pont Perry below Abbeville, operated a store on each side of Bayou Vermilion and a tanyard in 1827. In addition, he owned cotton, corn, and sugar plantations. Perry owned two keelboats and a schooner by 1830. By 1838, he also owned the schooners *Augustus*, *Lady of the Lake*, and *Kosciusko*. Bayou Teche and the lower Atchafalaya River remained the main interior transportation routes throughout the first half of the nineteenth century. Regular steamboat service between New Orleans and New Iberia began in 1819. Regular steamship packet service developed out of Franklin in 1835. Steamships were ascending the Teche to New Iberia by 1840. Throughout the antebellum period, settlement expanded into areas of St. Martin, Lafayette, and Vermilion parishes that had previously been vacant.

The cattle industry became an important resource during the second half of the nineteenth century. Initially, ranchers were required to swim their stock across the bayous and marshes to get to New Orleans markets. When the railroad was completed through Lake Charles to Houston, larger markets opened in St. Louis, Chicago, Fort Worth, and Kansas City. In addition to the cattle industry, Vermilion Parish was actively involved in rice production. With the advent of technology, planters were able to convert marshland into vast rice fields. By the early twentieth century, Vermilion Parish produced 12 percent of all rice grown in the United States. The southern portions of Vermilion and Iberia parishes provided a variety of sources of income, specifically in fishing and trapping. While oystering became a more significant industry in the region with the completion of

spur lines to Avery Island, Weeks Island and Gordy, marine fishing particularly accelerated with the invention of the shrimp trawl in 1917.

Historically, navigation in the project area consisted of a network of bayous, rivers, and canals that were utilized by vernacular watercraft to travel between various ports and settlements. Bayou Vermilion, Bayou Petit Anse and other waterways in the region were important throughout most of the historic period. In this portion of the coastal zone, the inside route connected the local ports of Attakapas, Opelousas Post, Franklin, and subsequently, Morgan City, as major ports of call shifted throughout first part of the nineteenth century. At a later date, Abbeville and points westward assumed greater importance. Traffic on the inland routes was constrained by vessel drafts and tides. Most inland routes would not accommodated vessel drafts deeper than five feet.

In 1924 an improved inside route, the Inland Waterway, was completed from Franklin to the Mermentau River. The Louisiana portion of the GIWW, incorporating portions of the older Inland Waterway, was first open from New Orleans to Houston in 1934. Another man-made inland waterway located within the project area includes the Southern New Iberia Drainage Canal. Inhabitants of Pecan Island traveled Fresh Water Bayou, another important waterway, to the Gulf of Mexico, thence to Vermilion Bay via Southwest Pass, and finally navigated the Vermilion River to reach Abbeville, a trip that took eight hours.

The CE-MVN recently completed a limited Phase 1 cultural resources investigation of the project area. In the draft report of this investigation (Lee et. al. 2004), researchers reviewed cultural resources reports, consulted state archaeological site files and standing structure surveys, mapped known cultural resources within the study area, conducted geomorphic analysis to identify potential site locations, developed a predictive model of both terrestrial and submerged cultural resources site occurrence, surveyed selected sites initially identified during the records review, conducted a 10 percent sample survey of the terrestrial portion of the project area in order to test the predictive model, and prepared recommendations for further archaeological investigations. The results of the sample survey confirmed the predictive model for terrestrial site occurrence. Twenty-four previously identified cultural resources were located within the current project area. Nine new cultural resources were identified as a result of the sample survey. Researchers conclude that additional significant prehistoric and historic cultural resource sites will likely be found within the remaining high probability project areas. High probability areas for the presence of submerged cultural resources were identified and marked on project maps. These areas have not been surveyed.

DEPARTMENT OF THE ARMY

NEW ORLEANS DISTRICT, CORPS OF ENGINEERS

P.O. BOX 60267

NEW ORLEANS, LOUISIANA 70160-0267

May 21, 2004

REPLY TO
ATTENTION OF:

Planning, Programs, and
Project Management Division
Environmental Planning
and Compliance Branch
Attn: CEMVN-PM-RN

Ms. Pam Breaux
State Historic Preservation Officer
Office of Cultural Development
Department of Culture, Recreation, and Tourism
P.O. Box 44247
Baton Rouge, Louisiana 70804

Dear Ms. Breaux:

The U.S. Army Corps of Engineers, Mississippi Valley Division, New Orleans District (CEMVN), is conducting a study to determine if improvements to navigation along the Acadiana Gulf of Mexico Access Channel (AGMAC) are justified. Improvements include selectively deepening and widening the existing navigation channels from the Port of Iberia via Commercial Canal to the Gulf Intracoastal Waterway (GIWW) to Freshwater Bayou to the Gulf of Mexico via a bypass channel at the existing Freshwater Bayou Lock for a distance of approximately 45 miles. The project continues from the Freshwater Bayou Lock out into the Gulf of Mexico along the existing Freshwater Bayou Bar Channel for a distance of approximately 5 miles.

Several proposed disposal areas for the placement of dredged material have been identified adjacent to, or within the vicinity of the channel and include upland and underwater near-channel and near-shore placement areas. Proposed design alternatives call for project bottom channel depths from –16 to -18 feet MSL and channel bottom widths from 125 to 150 feet.

Proposed construction will include the linear placement of a rock dike along the submerged shelf adjacent to the channel side-slope. During channel deepening, dredged material with be placed behind the new dike into the area between the dike and the existing shoreline. Proposed alternative dredged material placement areas include a near-shore disposal area along the Gulf of Mexico shoreline west of Freshwater Bayou Bar Channel, various in-land marsh creation locations within two miles of the channel, and upland areas near New Iberia.

The U.S. Army Corps of Engineers, New Orleans District, recently completed an initial Phase 1 cultural resources investigation of the project area (Lee et. al. 2004). In the enclosed draft report of this investigation, researchers reviewed pertinent cultural resources reports, consulted state archaeological site files and standing structure surveys, mapped known cultural resources within the study area, conducted geomorphic analysis, developed a predictive model of both terrestrial and submerged cultural resources site occurrence, surveyed selected sites initially identified during the records review, conducted a 10 percent sample survey of the terrestrial portion of the project area to test the predictive model, and prepared recommendations for further archaeological investigations.

The results of the sample survey confirmed the predictive model for terrestrial site occurrence. Twenty-four previously recorded cultural resources were located within the current project area. Nine new cultural resources were identified as a result of the sample survey. Researchers conclude that additional significant prehistoric and historic cultural resource sites will likely be found within additional high probability project areas. High probability areas for the presence of submerged cultural resources were also identified and marked on project maps. The New Orleans District concurs with the report recommendations and plans to incorporate them into the next phase of cultural resources investigations.

Please review the enclosed draft report and provide this office with your opinion regarding the recommendations for additional cultural resource investigations in the project area. In addition, any comments you may have on the draft report will be appreciated. If you have any questions and/or concerns, please contact Mr. Michael Swanda at (504) 862-2036.

Sincerely,

David F. Carney
Chief, Environmental Planning
and Compliance Branch

Enclosure

SECTION 14
AGENCY COORDINATION CONCERNING DREDGE MATERIAL DISPOSAL AND MISCELLANEOUS ISSUES

This section contains correspondence between various resource agencies and the U.S. Army Corps of Engineers concerning the use of dredge material disposal.

Coastal Management Division

Office of Coastal Restoration and Management
Department of Natural Resources

LaSalle Office Building
617 North Third Street, 10th Floor
Baton Rouge, LA 70802
OR: P. O. Box 44487
Baton Rouge, LA 70804-4487
Phone: 1-800-267-4019 or 225-342-7591
Fax: 225-342-9439

TO: Mike Salyer

LOCATION: COE-NOD

FAX NO: (504) 862-2572

DATE: November 7, 2003

***NUMBER OF PAGES** (including cover sheet):* 2

COMMENTS:

Mike,

Here is the disposal area we approved for 1,000,000 CY on October 8, 2003. However, as advised from a Coast 2050 standpoint, we are going to request a riprap structure be constructed to better contain the initial 4,000,000 CY and the long-term maintenance dredge material produced. Therefore, this disposal area may not be deemed consistent for this large scale project.

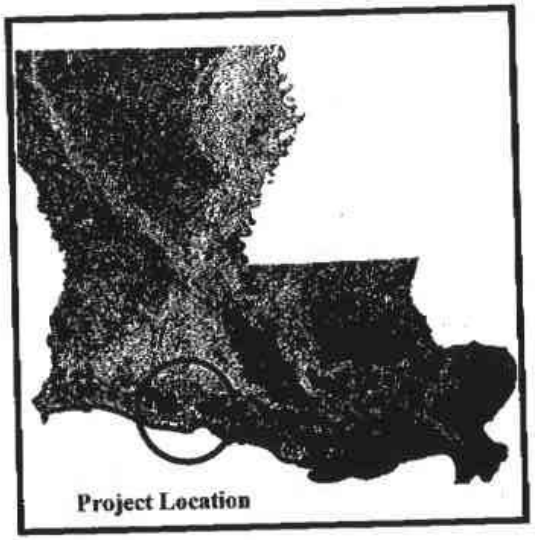
Let me know if you need anything else. Perhaps the State will have to do some partnering with you guys.

Have a great weekend!

FROM: Kimberly Arcement

TELEPHONE: 225-342-8738

Freshwater Bayou



Beach Nourishment Disposal Area

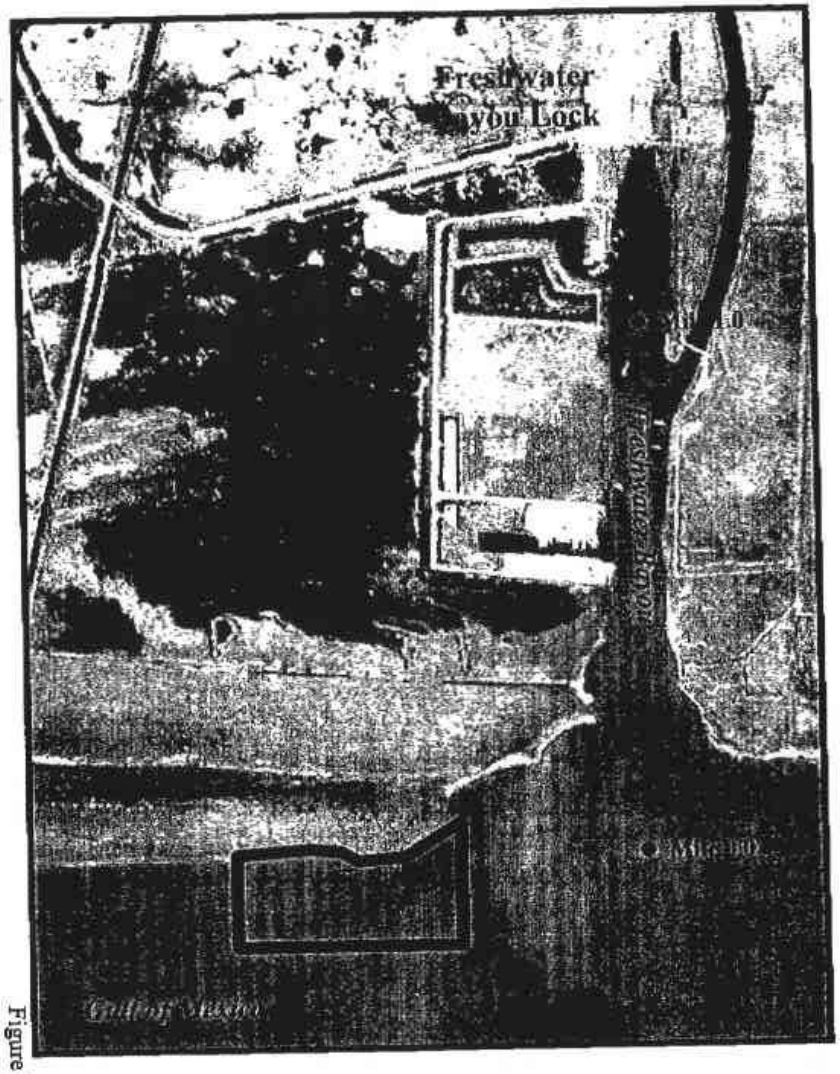


Figure 2

Dark Carney

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 6
1445 ROSS AVENUE, SUITE 1200
DALLAS, TX 75202-2733

OCT 02 2003

Colonel Peter J. Rowan
New Orleans District
U.S. Army Corps of Engineers
P.O. Box 60267
New Orleans, LA 70160-0267

Dear Colonel Rowan:

The Environmental Protection Agency (EPA) has reviewed the September 9, 2003, Joint Public Notice (JPN) for the Port of West St. Mary channel deepening project in St. Mary and Iberia Parishes, Louisiana. According to the JPN, the proposed project involves the deepening of approximately ten miles of channel (primarily the Gulf Intracoastal Waterway), with placement of the spoil material adjacent to the dredged areas. As currently proposed, the project would result in direct impacts to approximately 953 acres of wetlands. Following are EPA's comments on the proposed project. Please note that some of our comments on this project are also applicable to the environmental impact statement (EIS) the Corps of Engineers (Corps) is currently developing for the Port of Iberia deepening project.

The construction and deepening of navigation channels are significant causes of wetland loss in coastal Louisiana. In addition to the direct wetland impacts of the channels and the associated dredged material disposal areas, such projects can also result in adverse indirect effects on wetlands due to saltwater intrusion, hydrologic alteration, and wake-induced erosion. Indeed, a number of restoration measures currently under consideration in the Corps' ongoing Louisiana Coastal Area Comprehensive Coastwide Ecosystem Restoration Study (LCA Comprehensive Study) are designed specifically to help address the impacts of existing navigation projects.

We fully understand that efficient and effective navigation is critical to the economy of coastal Louisiana. We also recognize, however, that the ongoing loss of Louisiana's valuable coastal wetlands threatens to undermine the economy and safety of coastal Louisiana. In reviewing the proposed project, the Corps must find the balance between meeting economic needs and preventing further coastal wetland loss. In so doing, the Corps must ensure the proposed navigation project is consistent with ongoing Federal and State coastal restoration efforts.

We recommend that an EIS be prepared for the proposed project based on the potential for significant direct, indirect, and cumulative impacts to coastal wetlands. As noted above, the proposed project would result in direct impacts to approximately 953 acres of coastal wetlands. At this point, the extent of potential indirect impacts has not been evaluated. Given the potential for hydrologic disruptions, wake-induced erosion, and increased salinities, it is possible that the indirect impacts could be substantial. With respect to cumulative effects, the potential wetland losses associated with the proposed project are inseparable from the potentially significant impacts of the proposed Port of Iberia deepening project.

The utility of the proposed Port of West St. Mary project is dependent upon the outcome of the Corps' ongoing Port of Iberia deepening project. The access route from the Gulf of Mexico to the Port of Iberia (i.e., Freshwater Bayou to the Gulf Intracoastal Waterway) is also the access route for the Port of West St. Mary. The additional vessel capacity that would result from the Port of West St. Mary project would not be of use unless the Port of Iberia deepening project excavated the Gulf Intracoastal Waterway and Freshwater Bayou to equal or greater depths.

Although the utility of the Port of Iberia project does not necessarily depend on the Port of West St. Mary project, the impacts of the latter are, as evidenced by the subject JPN, a reasonably foreseeable result of the Port of Iberia project. It should be made clear to the public and decision-makers that the Port of Iberia project would enable the Port of West St. Mary project, along with the wetland impacts it entails. Accordingly, the assessment of indirect and cumulative impacts in the EIS for the Port of Iberia project should include the potential impacts of the Port of West St. Mary proposal.

Similarly, the EIS for the Port of West St. Mary proposal would need to make clear to the public and decision-makers that the proposed project is viable only if the Port of Iberia project is implemented. Because of this lack of independent utility, the Port of West St. Mary EIS should include an assessment of the impacts of the Port of Iberia project. Including assessment of these effects in the Port of West St. Mary EIS would provide full disclosure of the overall wetland losses necessary for increased navigation access from the Gulf of Mexico to the Port of West St. Mary.

In reviewing the need for this project, the Corps should evaluate how it relates to the other major navigation improvement projects being considered in coastal Louisiana, particularly the proposed deepening of the Port of Iberia access channel; Houma Navigation Canal; and the Lower Atchafalaya River and Bayous Chene, Boeuf, and Black. As with the subject proposal, the success of these other navigation projects

appears to depend on whether the proposed channel improvements will attract new business. The Corps should determine whether the increased business opportunities anticipated in association with the subject project are consistent with the economic projections associated with the other deepening efforts. The Corps should review the extent to which any of these proposed projects might be anticipating the same business opportunities and, if so, the extent to which implementation of such projects might result in redundancy and unused navigation capacity. This analysis is needed to ensure that legitimate navigation needs in coastal Louisiana are met, while not developing excess capacity at the expense of coastal wetlands.

The Corps must ensure that adverse impacts to coastal wetlands have been avoided to the maximum extent practicable, while also taking advantage of every opportunity for beneficial use of dredged material. As noted above, an adequate evaluation of environmental impacts must include potential direct wetland impacts and indirect impacts from hydrologic changes due to spoil banks, wake-induced erosion from increased vessel traffic, and possible salinity increases. In addition to minimizing direct impacts, the Corps must evaluate how the indirect impacts can also be minimized (e.g., by including mitigation measures for potential wake-induced erosion). All unavoidable direct and indirect impacts would need to be fully compensated. Finally, as part of the EIS process, the Corps should review all opportunities for beneficial use of any material that would be dredged as part of the proposed project.

As you know, EPA has been working closely with the Corps, State, and others in developing the LCA Comprehensive Study, which will provide a blueprint for addressing the ongoing rapid loss of Louisiana's coastal wetlands. The Corps' commendable work on the LCA Comprehensive Study is founded on the recognition that protection of Louisiana's coastal wetlands is important not just for the State, but also the Nation. Louisiana's coastal wetlands, including those that would be affected by the proposed project, help sustain the second largest fishery in the U.S. and provide critical habitat for a variety of important avian and terrestrial species. These wetlands help protect people and nationally-important energy and navigation infrastructure from tropical storms and hurricanes, while also enhancing water quality by removing nutrients and other potential pollutants. Based on these wetland functions and values and the potential impacts discussed above, EPA finds that the project, as currently proposed, may result in substantial and unacceptable impacts on aquatic resources of national importance (pursuant to the 1992 Memorandum of Agreement between EPA and the Department of the Army regarding Section 404(q) of the Clean Water Act).

Thank you in advance for your consideration of these comments. We look forward to working with you to address these issues as expeditiously as possible. If you have any questions or wish to discuss this matter further, please contact me at (214) 665-7135 or ask your staff to call John Ettinger at (504) 862-1119.

Sincerely yours,

Paul W. McDaniel

for Jane B. Watson, Ph.D.
Chief
Ecosystems Protection Branch (6WQ-E)

cc: U.S. FWS, Lafayette, LA
NMFS, Baton Rouge, LA

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

December 17, 2002 F/SER44/PW:jk
225/389-0508

Mr. Michael Salyer
Environmental Planning and Compliance Branch
Planning, Programs, and Management Division
Department of the Army, Corps of Engineers
Post Office Box 60267
New Orleans, Louisiana 70160-0267

Dear Mr. Salyer:

The National Marine Fisheries Service (NOAA Fisheries) has received the November 18, 2002, Notice of Study Initiation and Environmental Impact Statement (EIS) Scoping Meetings for the Port of Iberia Channel Deepening in Iberia and Vermilion Parishes, Louisiana. The EIS will analyze the potential impacts of deepening navigation channels from the Port of Iberia to the Gulf of Mexico through Commercial Canal, the Gulf Intracoastal Waterway (GIWW), and Freshwater Bayou Canal (FWBC).

The proposed project is located in an area identified as Essential Fish Habitat (EFH) for postlarval, juvenile, and sub-adult life stages of red drum, brown shrimp, and white shrimp. Categories of EFH in the project vicinity include estuarine emergent wetlands, submerged aquatic vegetation, mud substrate, and estuarine water column. Detailed information on Federally-managed fisheries and their EFH is provided in the 1998 generic amendment of the Fishery Management Plans for the Gulf of Mexico prepared by the Gulf of Mexico Fishery Management Council (GMFMC). The generic amendment was prepared as required by the Magnuson-Stevens Fishery Conservation and Management Act (MSFCMA) (P.L. 104-297).

Wetlands in the project area consist of fresh, intermediate, brackish, and saline marsh. In addition to being designated as EFH for red drum, brown shrimp, and white shrimp, these wetlands provide nursery, foraging, and predator refugia habitats that support numerous economically-important marine fishery species such as spotted seatrout, black drum, southern flounder, gulf menhaden, striped mullet, Atlantic croaker, and blue crab. Some of these species also serve as prey for other fish species managed under the MSFCMA by the GMFMC (e.g., mackerels, snappers, and groupers) and highly migratory species managed by NOAA Fisheries (e.g., billfishes and sharks). The importance of fishery resources in the study area is exemplified by Intracoastal City ranking fifth in the nation in commercial fishery landings during 2001, with 303.6 million pounds at a dockside value of $24.5 million. Additionally, Delcambre had $30.8 million in commercial landings in 2001.

Due to the potential adverse impacts to EFH and related marine fishery resources, NOAA Fisheries recommends the following issues, impacts, and alternatives be addressed in the EIS for this project:

NOAA Fisheries is very concerned with the magnitude of unacceptable impacts to tidal wetlands that could result from the disposal of sediment dredged to deepen Commercial Canal, the GIWW, and the FWBC. A consultant for the local sponsor estimated 15 million cubic yards of sediment would be

dredged by deepening the navigation channels to 20 feet. Under that channel deepening alternative, disposal alternatives previously proposed in the Joint Public Notice for this project would result in the direct impact from fill placement on up to 4,200 acres of marsh and 7,400 acres of shallow water bottoms. NOAA Fisheries recommends the EIS fully describe direct, indirect, and cumulative impacts from disposal of dredged sediment on habitat supportive of marine fishery resources. The EIS should quantify acreages and describe the functions and values of all habitats to be impacted by fill placement.

Extensive secondary impacts to wetlands and fishery productivity also could result from project implementation. Potential secondary impacts include vehicular damage within construction rights-of-way (ROW), impoundment or semi-impoundment of aquatic habitats, reduction in fishery migratory and freshwater and sediment introduction pathways, and wake induced erosion of shoreline wetlands. If the channels are hydraulically dredged, impacts from the passage of tracked vehicles would occur along discharge pipeline ROW. Without incorporating measures to backfill tracking impacts prior to each demobilization, erosive hydrologic connections could occur between the channels and interior wetlands. We recommend the EIS evaluate the potential impacts caused by tracked vehicles and describe mitigative measures to avoid or compensate for such impacts.

Construction of containment dikes to create confined disposal areas would impound or semi-impound wetlands and or shallow water bottoms. If containment for a disposal area is constructed larger than that needed for a single construction or maintenance event, a temporal loss of fishery habitat would result. We are supportive of marsh creation in open water areas that do not have submerged aquatic vegetation, but recommend containment be built only to enclose those areas that may be filled during one mobilization. Alternatively, an adequate number of gaps could be incorporated in the project design to allow fishery migration if larger areas are contained. The EIS should describe how the disposal areas would be constructed and fully discuss all potential impacts to EFH and associated fishery resources.

We urge the Corps of Engineers (COE) to include disposal alternatives that would adhere to the avoidance and minimization sequencing emphasized in the Council on Environmental Quality's regulations. Specifically, disposal of dredged material in open water to create wetlands should be given the highest priority rather than conversion of wetlands and estuarine water bottoms to uplands. Features that maximize the fishery productivity of created wetlands (e.g., construction of tidal creeks and ponds) should be included in the design of all marsh creation areas. The EIS for this project should evaluate disposal alternatives for the initial construction that would not preclude, based on cost issues, the future creation of marsh elevations during maintenance dredging cycles due to the cost of pumping longer distances. We also recommend the EIS discuss and incorporate design recommendations that would maximize fishery productivity of the marsh creation areas.

NOAA Fisheries understands this study was authorized by the Water Resources Development Act (WRDA) for navigation purposes only. Furthermore, it is our understanding that authorized navigation projects traditionally have not been required to protect wetland shorelines from vessel-generated wakes if those shorelines are located outside the authorized channel limits. We recommend the EIS for this project evaluate alternatives to protect existing wetland shorelines adjacent to the channels proposed for deepening to minimize adverse environmental impacts and reduce future maintenance dredging requirements.

During the December 2, 2002, public scoping meeting, local stakeholders requested earthen armored dikes be constructed along the western and eastern shorelines of the FWBC and along the northern shoreline of the GIWW. If these dikes are evaluated as alternatives, measures to avoid, minimize, and mitigate any impacts to marine fishery migration and access to tidal habitat behind the dikes should be included in the EIS. Also, adequate mitigation should be developed for any loss of wetlands resulting from the construction of structural features to maintain wetland shorelines if those losses are not offset by the shoreline protection.

NOAA Fisheries is unclear when mitigation necessary to offset impacts to EFH and associated marine fishery species would be constructed, who would be responsible for the mitigation, and how the mitigation would be funded. Specifically, we are concerned the COE may intend to use beneficial use activities during operations and maintenance phases to mitigate for project induced impacts. If so, this would be problematic because beneficial use activities for other Federally maintained navigation channels have been contingent upon award of competitive Federal funding and cost sharing with the local sponsor through Section 204 of the WRDA. Although the New Orleans District often has been successful in receiving such funding, adequate timely mitigation is of paramount importance and should not be based on future potential receipt of competitive funds. The EIS should describe alternatives for authorization that include funding of acceptable mitigation, developed through coordination with NOAA Fisheries and other natural resource agencies, to minimize and fully offset all losses of wetland functions.

Please be advised that numerous restoration projects funded under the auspices of the Coastal Wetlands Planning, Protection and Restoration Act (CWPPRA) have been constructed along the channels proposed for deepening and in potential disposal areas (see enclosed). The Little Vermilion Bay (LVB) Sediment Trapping project and the Four Mile Canal Sediment Trapping and Terracing project are sponsored by NOAA Fisheries. The Four Mile Canal project is expected to be constructed in the summer of 2003 and should be considered in any impact analyses under this study. Recent bathymetry and topography survey data for these two projects can be made available to the COE upon request to assist in hydraulic modeling or other assessments. Analytical methods should be used to demonstrate and justify any channel deepening and disposal alternatives selected that would adversely impact these projects. For example, modeling should be undertaken to determine the impacts to freshwater and sediment introduction from the GIWW into LVB if the connection between those waterbodies is constricted with a sediment disposal area. Adequate mitigation alternatives should be developed to offset all direct and indirect impacts to Federally-funded CWPPRA projects.

Adequate hydraulic modeling should be undertaken by the COE and should be discussed in the EIS to demonstrate the effects of each alternative action. If levees along the western shoreline of FWBC and the northern shoreline of the GIWW are included as alternatives, boundary conditions established for hydraulic modeling should include wetlands west of FWBC and north of the GIWW. We recommend eastern boundary limits overlap with previous modeling efforts undertaken during the Lower Atchafalaya Re-evaluation Study. Also, data should be incorporated into the model from interior wetlands and not just from the channels proposed for deepening and the bays. Please note that opportunities exist for sharing data collected by CWPPRA to assist in modeling.

Finally, NOAA Fisheries is concerned that the need for the channel deepening has not been clearly demonstrated. Market economic analyses should be undertaken and incorporated into the EIS to determine if services provided by the Port of Iberia with a deeper navigation channel are available from

other ports within the United States. National economic benefits, rather than local demand, should be determined to demonstrate the need for additional deepwater fabrication facilities and whether those needs outweigh the cost of offsetting environmental impacts.

NOAA Fisheries is committed to working cooperatively with the Federal and local sponsors, as well as other stakeholders, to ensure adverse impacts to habitat supportive of marine and estuarine fishery species are avoided, minimized, and mitigated. Thank you for the opportunity to provide these initial comments for consideration in preparing this EIS.

Sincerely,

Rachel Hartman

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

Enclosures

c:
FWS, Lafayette
EPA, Dallas
LA DWF
LA DNR-CMD
Roy Pontiff, Port of Iberia
F/SER4
Files

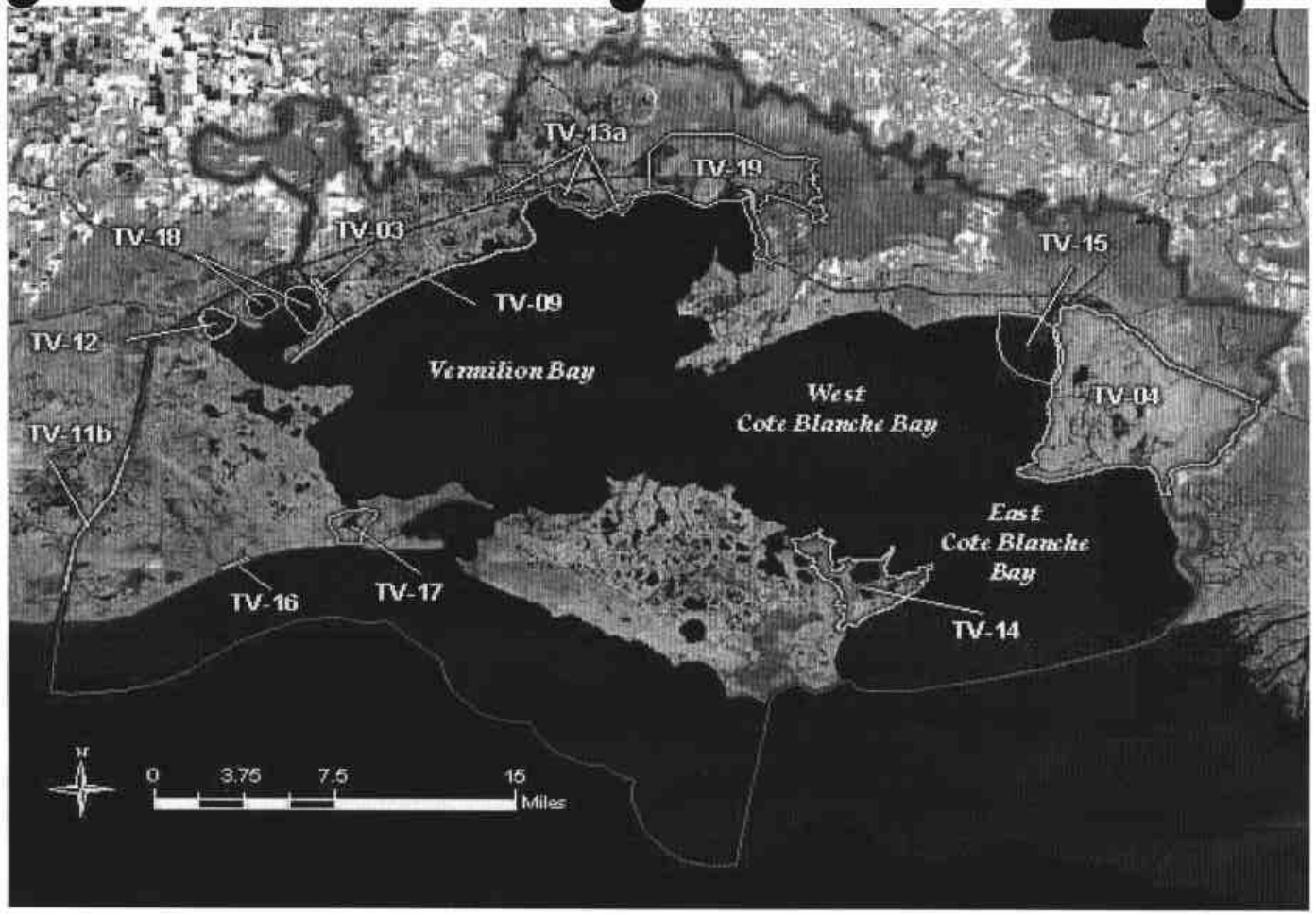


Figure1. CWPPRA Restoration Projects in the Teche/Vermilion Basin.

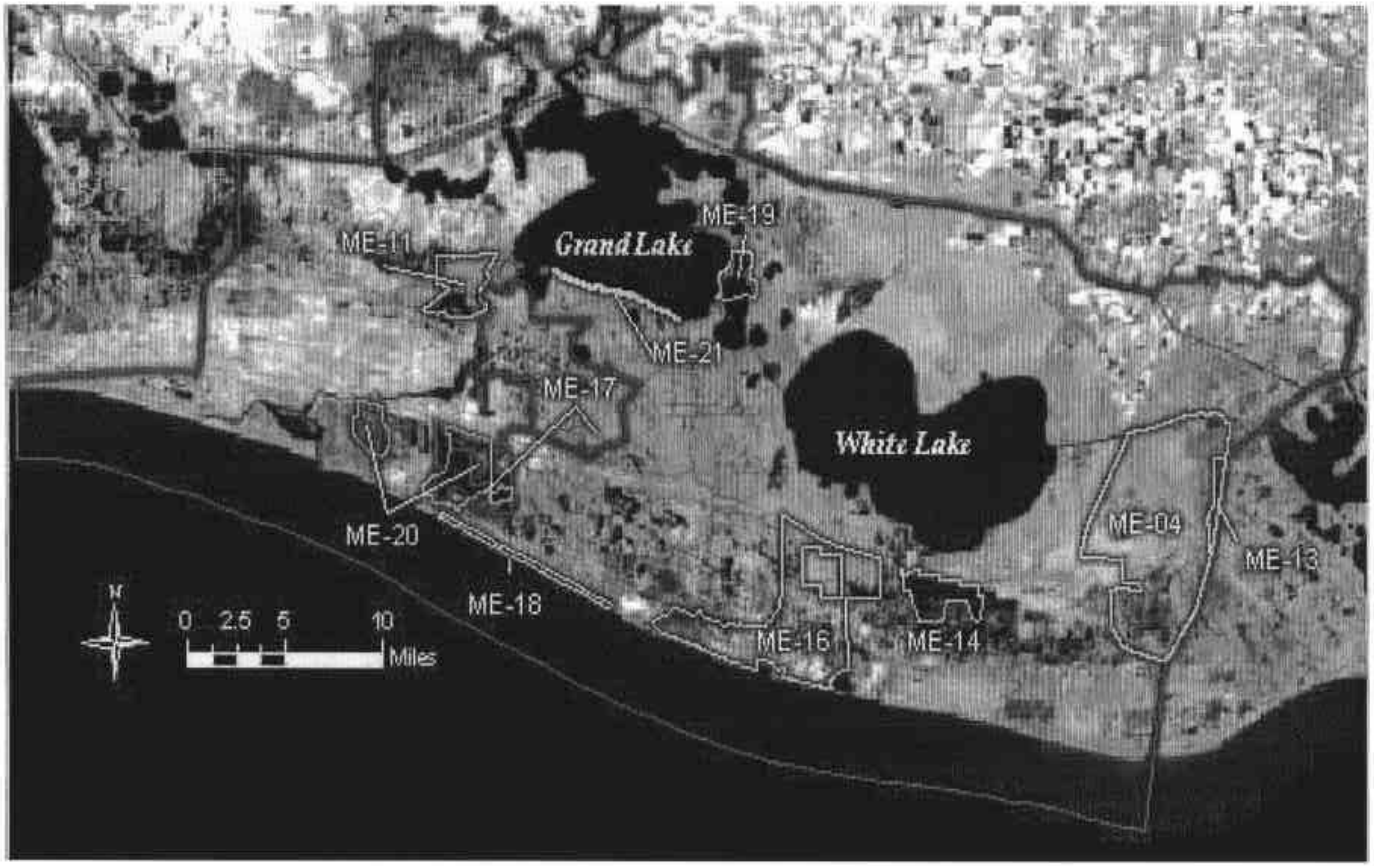


Figure 2. CWPPRA Restoration Projects in the Mermentau Basin.

Table 1. Constructed CWPPRA projects within the study area that may be affected by the proposed action.

Teche/Vermilion Basin

TV-3, FTV-3	Vermilion River Cutoff Bank Protection
TV-4	Cote Blanche Marsh Management
TV-9, PTV-18	Boston Canal/Vermilion Bay Bank Protection
TV-11b, XTV-27	Freshwater Bayou Bank Stabilization and Hydrologic Restoration
TV-12, PTV-19	Little Vermilion Bay Sediment Trapping
TV-13a, XTV-25i	Oaks/Avery Canal Hydrologic Restoration
TV-18, XTV-30	Four Mile Canal Terracing and Sediment Trapping
TV-19, PTV-13	Weeks Bay Marsh Creation and Shore Protection/Commercial Canal Freshwater Re-direction

Mermentau Basin

ME-4, XME-21	Freshwater Bayou Wetland Protection
ME-13, XME-29	Freshwater Bayou Bank Stabilization

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

July 9, 2003 F/SER44/PW:jk
225/389-0508

Ms. Tawanda Wilson-Prater
Project Manager, New Orleans District
Department of the Army, Corps of Engineers
Post Office Box 60267
New Orleans, Louisiana 70160-0267

Dear Ms. Wilson-Prater:

The National Marine Fisheries Service (NOAA Fisheries) has been requested by the Port of Iberia to provide comments on the proposed disposal alternatives for the Port Iberia Channel Deepening project. The project includes deepening the Commercial Canal, Gulf Intracoastal Waterway, (GIWW) and Freshwater Bayou Ship Channel (FBSC) for deeper draft vessel access to the Port of Iberia. Differing disposal alternatives have been proposed by staff of the New Orleans District, natural resource agencies, landowners and local government (i.e., locally-preferred plan), and the Port of Iberia. On April 3, 2003, we received revised plan views and acreage data for these alternatives from Coastal Engineers and Environmental Consultants, Inc. (CEEC) representing the Port of Iberia.

Please be advised that NOAA Fisheries provided comments by letters dated November 27 and December 12, 2001, on a Joint Public Notice describing a proposal to deepen the project channels and to place dredged material along the route. NOAA Fisheries also provided scoping comments, by letter dated November 17, 2002, in response to a notice of the intent to undertake an Environmental Impact Statement for this project. In all letters, we indicated that the project area consists of Essential Fish Habitat (EFH) for various life stages of white shrimp, brown shrimp, and red drum. We also indicated substantial concern related to the potential impacts of spoil placement on wetlands and water bottoms in the project area. The resources and concerns identified in those letters remain unchanged.

NOAA Fisheries continues to have a high level of concern regarding the impacts of the placement of dredged material on EFH supportive of marine fishery resources. Our review of the locally-preferred plan and similar plans offered by the Port indicate that a substantial amount of marsh would be destroyed by the deposition of fill. Major components of those plans consist of constructing a levee along the western shore of the FBSC and most of the northern shoreline of the GIWW. Such a levee would pond water on marsh and impede fishery access to tidally-influenced wetlands behind the levee, thereby adversely affecting marsh health and marine fishery production in the northwest portion of Vermilion Bay.

Since receipt of the revised data from CEEC, the natural resource agencies met to further evaluate potential disposal areas that would minimize adverse impacts to resources of concern and maximize the potential to create wetland habitat supportive of wildlife and fishery species. The letter dated May 29, 2003, from the U.S. Fish and Wildlife Service adequately summarized the results of those evaluations in the rankings described in the text and assigned in Table 1 of that letter. NOAA Fisheries continues to recommend wetlands and water bottoms not be filled to upland elevations. Additionally we recommend the highest priority be given for beneficial placement of dredged material to create marsh in the sites ranked in Table 1 as a "1B, 2, or 3" to avoid, minimize, and conserve EFH and associated marine fishery resources. We request continued coordination including quarterly updates (e.g., electronic mail) with all natural resource agencies to ensure all issues of concern are being adequately addressed.

We appreciate your consideration of our comments. If you wish to discuss our comments and recommendations further, please contact Patrick Williams at (225) 389-0508.

Sincerely,

Richard Hartman
Chief, Baton Rouge Office

c:
Roy Pontiff, Port of Iberia
Mohan Menon, CEEC
Ken Derickson, COE, Environmental Planning and Compliance
Robert Dubois, FWS, Lafayette
John Ettinger, EPA, Dallas
Heather Finley, LA DWF
LA DNR
Files

United States Department of Agriculture

NRCS

Natural Resources Conservation Service
3737 Government Street
Alexandria, Louisiana 71302

December 23, 2003

Mr. Mike Salyer
Senior Biologist
U.S. Army Corps of Engineers
P.O. Box 60267
New Orleans, Louisiana 70160-0267

Dear Mr. Salyer:

The USDA Natural Resources Conservation Service (NRCS), according to our mission, provides leadership in a partnership effort to help people conserve, maintain, and improve our natural resources and environment. In accordance with our mission, we contacted and met with landowners who would be affected by the proposed Acadiana Gulf of Mexico Access Channel (AGMAC) disposal plan. We also met with Iberia and Vermilion Parish Government officials to discuss this plan. Through this letter, we are submitting our comments to the plan as currently proposed and reserve final comments until such plan is released for public review. We plan to review the final plan and provide official agency comments at that time. These comments are provided to assist you and the Port of Iberia in the development of the disposal plan which will be issued in the future for public review and comment.

Our agency understands that the proposed channel would promote economic development through improved shipping abilities for the Port of Iberia. We are concerned that this channel may impact cropland and coastal marshes adjacent to the proposed channel. Some of our concerns are as follows:

- **Disposal to reclaim eroded bank lines:** The Gulf Intracoastal Waterway (GIWW) and Freshwater Bayou (FWB) Channel have always been economically important to Louisiana as well as the nation. However, their significance has been at the expense of losing valuable wetlands along the channels. The channels continue to get wider and deeper as landowners continue to lose land daily to wave and wake erosion created by marine traffic. Working with landowners and the Parish Government officials, we feel the most critical area of need is to re-establish channel bank lines to an adequate elevation to provide long-term marsh erosion protection and hydrologic control. In areas with suitable soils, NRCS suggests that dredged material be placed in existing water bottoms to rebuild a spoil bank to a determined settled height and sloped to meet the existing marsh elevation. This type of spoil disposal will allow for the hydrologic protection once provided by the initially constructed embankment and provide diverse wildlife habitat along the channels. NRCS also proposes that armored protection be constructed along as much of the reach as possible of newly created spoil banks to reduce the need for future maintenance and to reduce land loss. Many of the state and federal agencies involved in coastal erosion have recognized that the GIWW and FWB are major causes of land loss and wetland loss in our state. We are concerned that the lack of maintenance will continue the aggressive land and wetland loss at the expense of the landowners and the state.

- **Saltwater Intrusion.** These proposed channel improvements may contribute to increased salinities to the adjacent coastal wetlands which will ultimately cause saltwater intrusion to move northward into the channels that drain and border cropland and pastureland. Recent droughts have caused concern to area farmers and ranchers with the increase in salinities in the freshwater sources. The New Iberia field office documented the salinity in the channels in the southern portion of Iberia Parish and recorded levels that ranged from a high at Avery Island of 10.0 ppt. to 6.0 ppt. at La 14 on Bayou Petite Anse. These documented salinities are 7 to 8 miles inland in Iberia Parish and up to 15 miles inland in Vermilion Parish. These high salinity levels prevent farmers and ranchers from using surface water for irrigation purposes in cropland and drinking purposes for livestock. This salinity increase in surface water makes cropland areas depend on ground water for irrigation purposes. Currently, this dependence on the Chicot Aquifer, our only source of dependable drinking water in the area, is a potential major concern. This could put farmers and landowners in competition with towns and municipalities for freshwater supplies. The dredging of this channel should ensure that the surface water quality will not be adversely affected, especially during droughts.

- **Increased Tidal Amplitudes:** It has been well documented that deep ship channels such as the Calcasieu Ship Channel and the Houma Navigation Channel have increased the tidal amplitudes in the Lake Charles and Houma areas. The tidal amplitudes within the project area have already been changed due to man-made activities such as the removal of the reef systems that once occurred from Marsh Island to Point Chevreuil. The existing Commercial Canal that leads to the Port of Iberia has caused a change in the tidal amplitude in some areas. In discussions with some of our cooperators, it has been noted that in the drainage area of Commercial Canal and the drainage area of Bayou Petite Anse, there can be as much as a 2-foot elevation difference between each system. We believe that the dredging of this channel will further amplify the already high tidal fluctuations that occur. The historic gauge data in Delcambre Canal indicates that the highest recorded tide was 6.9 ft NGVD and the lowest recorded tide was –2.8 ft. NGVD. That calculates to be a total fluctuation of 9.7ft. We know that these fluctuations are extremes associated with storm events, but the data also indicates that it is not uncommon for the southern portion of Iberia Parish to experience a 4.0 ft tidal change in less than 12 hours. These extreme tidal fluctuations cause erosional scouring of fragile marsh soils. We are currently working with landowners who are adjacent to the proposed channel to install water control structures in the marsh to reduce this tidal fluctuation which is substantially eroding the marsh interior. We feel that in the channel plan these smaller bayous that enter this channel should be addressed to prevent further degradation of the marsh interior. These tidal fluctuations also cause erosion of channel banks and levees in the upland areas which is vital to protecting the landowners from flooding.

- **Channel Bank Line, Marsh Interior Scour & Upland Gully Erosion:** Working with farmers, ranchers, and landowners, we are aware of the direct benefits of well-maintained drainage channels. We also know that if we increase the depth of a drainage channel, we must take precautions to stabilize the bottom of any smaller drainage channel that intersects or drains into a deeper channel. We assist our cooperators with the installation of grade stabilization structures in these channel bottoms that prevent the smaller channels from getting deeper. The proposed dredged elevation of the channel (–20 ft. NGVD) will increase the erosion of all intersecting channels in the adjacent

marshes, many of which lead directly into cropland areas. This increased channel depth will lead to the destabilization of the existing channel side slopes and top banks and will lead to increased bank and levee failures. As mentioned previously, we feel that the channel plan should address the tributaries that enter this channel to prevent further possible degradation. This potential situation will ultimately lead to increased land loss and subsequent erosion in fragile organic soils in the marshes as well as the upland cropland and urban areas.

- **Increased tidal flooding**: The southern portions of Iberia and Vermilion Parishes are very vulnerable to tidal flooding. This situation is a major concern to many with the approach of hurricanes and tropical storms in the Gulf of Mexico. We believe that this proposed project would make this area more vulnerable to tidal flooding and storm surges. Much of the area in question is valuable farmland and residential land which are also important to the economy of Louisiana.

As an agency of the federal government, we do not want to object to this project which could provide economic benefit to the state. However, we feel that we would not be fulfilling our obligation to our cooperators without providing comments that could help address the issues of soil and water conservation. We feel that the issues expressed above should be addressed.

Thank you for the opportunity to assist you in the development of the proposed plan and I hope that this project will allow us to provide benefits to the coast as well as economic benefits to the state.

If you have any questions, please give me a call at (318) 473-7751.

Sincerely,

Acting For
Donald W. Gohmert
State Conservationist

cc: Britt Paul, Assistant State Conservationist/Water Resources, NRCS, Alexandria
Bruce Lehto, Area Conservationist, NRCS, Leesville
Randolph Joseph, Area Conservationist, NRCS, Lafayette
Charles Stemmans, District Conservationist, NRCS, New Iberia
Bart Devillier, District Conservationist, NRCS, Abbeville

Rec'd 27 Feb04 TM-E

Vermilion Soil and Water Conservation District
P.O. Box 68 - Abbeville, LA 70511-0068
Phone (337) 893-5664, Ext. 3

Mike, please provide a response/justification.
Thx.
SWP
27 Feb04

January 13, 2004

AYR 26 Feb04

Colonel Peter Rowan
US Army Corps of Engineers
New Orleans Division
P.O. Box 60267
New Orleans, LA 70160

Dear Colonel Rowan,

During our board meeting held on January 12, 2004, the Vermilion Soil and Water Conservation District Board of Supervisors reviewed the proposed dredging from the Port of Iberia to the Gulf of Mexico. The proposal is called the Acadiana Gulf of Mexico Access Channel (AGMAC). We in Vermilion Parish have experienced substantial wetland loss due to shoreline erosion caused by the Gulf Intracoastal Waterway (GIWW) and Freshwater Bayou Channel (FWB). The spoil banks no longer exist and erosion continues. Deepening of this channel to allow larger vessels to travel along this waterway creating greater and stronger wave energy, and greater shoreline erosion and wetland loss. We are asking that the proposed channel dredging project address the problem by armoring the existing channel and rebuilding the western levee. The US Corp of Engineers operates multiple structures to maintain the basin as authorized by Congress. Without the construction and armoring of this levee, the integrity of the Mermentau Basin is at risk. Without question, the channel dredging would aid navigation and improve the economies of Iberia and Vermilion Parishes. But this economic development should not come at the expense of both Parishes' environment. The proposed channel dredging should address the existing channel impact and build and maintain the levee along the channel to avoid further impacts.

Our concern is with the position that the US Fish and Wildlife Service and National Marine Fisheries are taking on spoil placement. We contend that if this project is authorized, it must allow for the re-establishment of the spoil bank that was built when the GIWW and FWB were originally constructed. We don't believe that the economic development created by this navigation channel should come at the expense of private landowners' marshlands. The west spoil bank of the Freshwater Bayou Channel was (when it existed) the east protection levee of the Mermentau Basin. Without that protection that that levee used to provide, the integrity of the Mermentau Basin is at risk along with the operation of four (4) multi-million dollar structures that maintain the Mermentau Basin as it was authorized by Congress. Without the protection of that levee, saltwater intrusion has been detrimental to the economy and environment of Iberia, Vermilion, Cameron and Calcasieu Parishes.

We respectfully ask the US Army Corps of Engineers, the US Fish and Wildlife Service, and the National Marine Fisheries Service reconsider their decision on the placement of the spoil. We ask that they allow the spoil to be used to build the levee on the north bank of the GIWW and build a

levee on the west bank of the FWB. We have also been working closely with the Vermilion Parish Police Jury and the Vermilion Coastal Coalition. And we support their view of the following:

If for any reason the spoil banks cannot be built to the 8 foot elevation as requested, the Vermilion Soil and Water Conservation District opposes the AGMAC project. Additionally if the spoil banks cannot be built to the 8 foot elevation this board respectfully requests that the US Army Corps of Engineers and other resources and regulatory agencies provide sound engineering, environmental and federal or state legislative or regulatory reasons why this cannot be done. This information is necessary to explain to the Vermilion Parish residents who have urged this District to assist in preserving and protecting our lives, homes, businesses and our valuable coastal wetlands.

Thank you for your consideration.

Sincerely,

Ernest Girouard
Chairman

ab

cc: Governor Katheline Blanco
Senator John Breaux
Senator Mary Landrieu
Senator Nick Gautreaux
Representative Chris John
Representative Mickey Frith
Secretary Jack Caldwell (LDNR)
Dave Fruge (LDNR)
Rick Hartman (NMFS)
Ronnie Paille (FWS)
John Saia (COE)

SECTION 15
MAP OF PRELIMINARY ALTERNATIVES SCREENED DURING RECONNAISSANCE STUDY

Port of Iberia Alternative Alignment

SECTION 16
PORT OF IBERIA SALINITY REPORT

PORT OF IBERIA, LOUISIANA

FEASIBILITY STUDY

CHANNEL DEEPENING MODEL STUDY REPORT

U.S. ARMY CORPS OF ENGINEERS
NEW ORLEANS DISTRICT

JULY 2005

PORT OF IBERIA, LOUISIANA
FEASIBILITY PHASE
CHANNEL DEEPENING MODEL STUDY REPORT

TABLE OF CONTENTS

SECTION	PAGE #
INTRODUCTION	1
SCOPE OF STUDY	1
EXISTING CONDITIONS	1
MODEL GEOMETRY	2
MODEL BOUNDARY CONDITIONS	2
MODEL VERIFICATION	3
METHODOLOGY	4
PORT OF IBERIA MODEL VERIFICATION	6
RESULTS	7
CONCLUSIONS	13

PORT OF IBERIA, LOUISIANA
FEASIBILITY PHASE
CHANNEL DEEPENING MODEL STUDY REPORT

INTRODUCTION

The Port of Iberia is located in south-central Louisiana south of New Iberia. The port itself is located at the north end of Commercial Canal. The Port of Iberia has access to the Gulf of Mexico by proceeding south down Commercial Canal to the GIWW and numerous routes thereafter. This study is concerned with the route via taking the GIWW westward to Freshwater Bayou and proceeding south out Freshwater Bayou Lock or Bypass channel. The Port of Iberia and model study area is shown on Plate 1.

The draft of vessels into and out of the Port of Iberia is currently limited to about 12 feet by the current depth of the GIWW and Freshwater Bayou. This study evaluates the effect of deepening this channel to -20-feet NAVD 88, with 1-foot of overdepth and 2-feet of advance maintenance yielding a –23-feet NAVD 88 channel.

SCOPE OF STUDY

The scope of work for this study was primarily concerned with creating a 2-dimensional numerical model of the Port of Iberia access channels and the surrounding areas to evaluate the effects of deepening those access channels on salinities. These salinity effects are to be evaluated both seasonally and by water levels.

In addition to model development, data had to be collected and analyzed. This work included collecting and analyzing existing stage, flow, and salinity data; computing additional flows based on stage data; performing flood frequency analysis of this data, and deploying monitoring stations to collect additional stage and salinity data to be used for model verification.

EXISTING CONDITIONS

As mentioned in the introduction the Port of Iberia's primary access to the Gulf of Mexico is by proceeding south down Commercial Canal to the GIWW, proceeding west on the GIWW to Freshwater Bayou and south on Freshwater Bayou to the Gulf of Mexico through either the Freshwater Bayou Lock or Bypass Channel. The Freshwater Bayou Lock, the Schooner Bayou Control Structure, and the Leland Bowman Lock on the GIWW all form western boundary conditions of the modeled area. These structures are all part of the western boundary of the Mermentau River Basin System and are managed to provide an agricultural fresh water supply in the Mermentau Basin. Many crops, most particularly rice, grown in the Mermentau Basin have a very low tolerance for salt. There is a concern that deepening these channels will increase salinity levels along the western boundary of the study area and within the Mermentau River basin. In addition, the marsh along this boundary is stressed and additional salinity might cause

it to change from fresh marsh to brackish marsh. This model study was undertaken to address these concerns.

MODEL GEOMETRY

This model provides coverage of the area roughly bounded by the Wax Lake Outlet on the east and the Mermentau Basin Project on the east form the upland areas to the north to the Gulf of Mexico on the south. Major waterways and waterbodies included in the model are the GIWW, Freshwater Bayou, Commercial Canal, Bayou Petit Anse, Vermilion River, Vermilion Bay, East Cote Blanche Bay, and the Gulf of Mexico. The model area is shown in Plate 1. Plate 2 shows the TABS-MD mesh developed for this study.

The model mesh was created using the Surface Water Modeling System developed for ERDC-CHL under contract to the Engineering Modeling and Research Lab (EMRL) at Brigham Young University (BYU). The primary x- and y- control for mesh development was from Landsat TM image with 25 m pixel size geo-referenced to the NAD 1983 Louisiana South State-Plane coordinate system. While a smaller pixel size may have been desirable, it was unmanageable due to the large area for which coverage was needed. For bathymetry, the primary data source were surveys furnished by the local sponsor. These surveys were supplemented by USGS Quad Maps and NOAA Navigation Charts where additional information was needed. Offshore (Gulf of Mexico) bathymetry was taken from NOAA Navigation Charts for the Gulf of Mexico.

MODEL BOUNDARY CONDITIONS

Data from locations on the periphery of the model mesh is usually used to create boundary conditions for the model. Conversely, data from locations in the interior of the model mesh is usually used for model verification (How this is used will be discussed in model verification). Data sources used in the creation of the boundary conditions for the watersheds flowing into the modeled area shown in Table 1. In addition to the known boundary inflows, there are several ungaged watersheds that flow into the model area. For the model verification runs, actual measured data was available. For the production runs, values were prorated from Vermilion River Flows based on basin area. Areas used for this proration are shown in Table 2. In addition to hydrologic data collected in the study area, tide tables are used for the Gulf of Mexico tidal boundary. The high and low tides shown in the tide table are then fitted to a sine curve and applied at the Gulf of Mexico boundary.

Boundary Conditions were handled differently for the verification runs than from the production runs. For the verification runs, boundary data was used for boundary condition input at the interval it was collected unless that data was collected more often than the time step of the model. Wind data from the Lafayette Airport was used for the verification run, even though its impact was minimal. The actual tide based upon the procedure described above was used as the Gulf of Mexico Boundary. The tidal boundary range was adjusted to achieve proper tide propagation into the model.

For production runs, an idealized boundary was used. For those basins that had continuous monitoring, the 10 percent, 50 percent, and 90 percent flood events were calculated (Table 3). In some instances the short period of record yielded excessive values for the 10 percent event; so in those cases, the 10 percent event was made equal to the largest value in the record. These events were calculated on a monthly basis. Each month these inflows were constant. For those basins that are ungaged, these monthly flows were prorated. The monthly average tide range was used on a 24-hour period as the Gulf of Mexico boundary.

TABLE 1
BOUNDARY CONDITION DATA

LOCATION	AGENCY[1]	ID NUMBER	PARAMETERS[2]	FREQUENCY
Vermilion River at Perry, LA	USGS	07386980	Q, S	Daily
Vermilion Bay near Cypremort Point, LA	USGS	07387040	S	15 min
Leland Bowman Lock	USACE	Multiple	w	Daily
Schooner Bayou Control Structure	USACE	Multiple	w	Daily
Atchafalaya Bay: Rabbit Island, 5 mi. S.	USACE	Multiple	w	Daily

[1]USGS = United States Geologic Survey, USACE = U. S. Army Corps of Engineers
[2]Q = measured flow in cubic feet per second (cfs), w = stage in feet, and S = salinity in parts per thousand

TABLE 2
UNGAGED BASINS AREA

RIVER	AREA (SQUARE MILES)	AREA RATIO
Vermilion River	561	1.00
Bayou Petit Anse	74	0.13
Bayou Carlin/Wilkins Canal	16	0.03
Commercial Canal	40	0.07
New Iberia – St. Mary Canal, Stumpy Bayou, Etc.	107	0.19

MODEL VERIFICATION

Verification is perhaps the most important step in constructing a hydrodynamic model. Verification is the process of running the model using measured boundary conditions and comparing the results of the model from the areas of concern to measured data in the same area. The purpose of doing this is to insure that the model accurately represents the natural system. Verification is done by running the model using with a known data set and comparing model results to that data set. Various parameters are adjusted until the model adequately represents the natural system. Whether or not the model adequately represents the natural system is a judgment call of the modeler. This judgment is based upon a comparison of the model results to measured data at the same location from the same time period modeled. If this model does adequately

represent the system, there are several parameters within the model that can be changed. These parameters include Eddy Viscosity or Peclet Number (usually one or the other), the Mannings n value (a channel roughness coefficient), and marsh porosity values for wetting and drying by marsh porosity. However, if the model is not anywhere close to representing the actual system, it is unlikely changing these values will have any effect since the geometry of the model accounts for about 60 percent of achieving the correct simulation of the system, as shown in Figure 1. Once the model is properly simulating the system, we say that the model is verified. During this whole process, it must be understood that the model will not perfectly duplicate the results of the natural system as the model is only a numerical representation of the system to be used to assess impacts of changes and to aid in the decision making process. The goal is to accurately represent the processes, not perfect duplication of that system.

TABLE 3
MONTHLY FLOWS (CFS)[4]

RIVER	MARCH	APRIL	JULY	AUGUST	NOVEMBER	DECEMBER
VERMILION RIVER AT PERRY (10 %)[1]	8600	2896	5462	5346	8830	8131
VERMILION RIVER AT PERRY (50 %)[2]	432	823	663	257	151	286
VERMILION RIVER AT PERRY (90 %)[3]	2.4	12	4.1	1.0	1.4	0.9
FRESHWATER BAYOU (10 %)[1]	31	229	0	0.4	19600	141
FRESHWATER BAYOU (50 %)[2]	0	0.3	0	0	301	0.2
FRESHWATER BAYOU (90 %)[3]	0	0	0	0	0	0
LELAND BOWMAN LOCK (10 %)[1]	1390	1101	1609	206	1931	1458
LELAND BOWMAN LOCK (50 %)[2]	4.4	4.5	8.7	0.7	4.8	11
LELAND BOWMAN LOCK (90 %)[3]	0	0	0	0	0	0
SCHOONER BAYOU (10 %)[1]	6778	6088	11538	1630	8220	8292
SCHOONER BAYOU (50 %)[2]	6.3	7.9	74	1.7	17	43
SCHOONER BAYOU (90 %)[3]	0	0	0	0	0	0

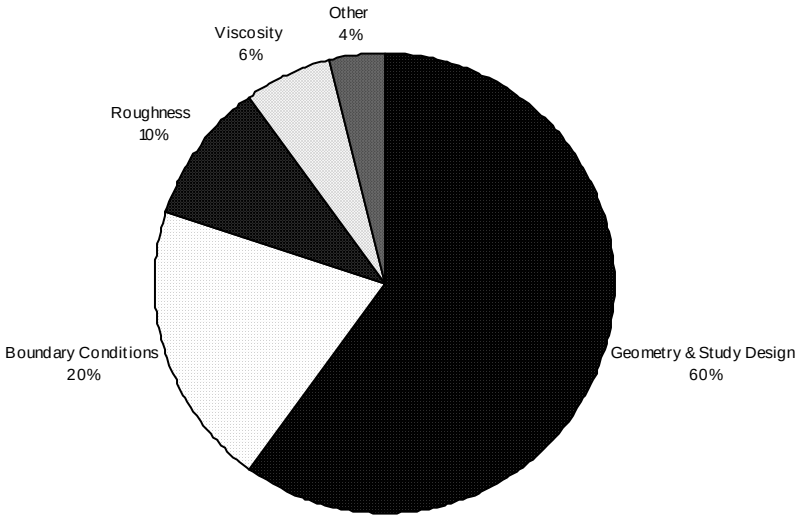
[1] 10 percent probability exceedance flood event [2] 50 percent probability exceedance flood event [3]90 percent probability exceedance flood event [4]Only for months used for production runs

For this process, 1 45-day time period was chosen to use for hydrodynamic verification. The time period used for this verification was March 16 – April 30, 2003. This was the period that had the most data available for both hydrodynamics and salinity transport. Normally if the hydrodynamics are properly verified, verification of salinity transport is relatively simple. However, the model is quite sensitive to diffusion coefficients so verification of the salinity transport cannot be taken for granted. It was much quicker though since the transport routines run much faster than the hydrodynamic routines.

METHODOLOGY

As mentioned in previous sections, the geometry for this model was created using the SMS software package written for ERDC-CHL. This package was used to create a finite element model mesh that is geo-referenced to the NAD 1983 Louisiana South State-Plane Coordinate Projection. Wind was also neglected during the production runs as effects were minimal during verification. Once the model appeared to be a reasonable representation of the actual system efforts to make it a more accurate representation of the system ceased.

FIGURE 1
RELATIVE IMPORTANCE TO VERIFICATION



From Users Guide for RMA2 WES Version 4.5

As is customary with model studies, a numerical model of the existing conditions within the system was constructed. This model is a 2-d depth averaged finite element model. The model chosen for this effort is the TABS-MD package of models, or just TABS for short. The modules used for this study include GFGEN (geometry file generator), RMA2 (hydrodynamics), and RMA4 (constituent transport). This model was verified to data collected throughout the system. Once the model was verified, the model was run again, except that the geometry was modified to show the with project conditions. This with project model was then compared to the existing condition model to determine the affects of the project.

This modeling effort addresses routine events. It does not account for Hurricane Surge affects or the effects of a severe (greater than the 10 year) drought. To adequately represent the full range of events, 9 different scenarios were run for both with (only 1 alternative) and without project conditions. To represent the range of seasons, we ran scenarios from spring, summer, and fall/winter. March and April were used to represent spring, July and August summer, and November and December fall/winter. In addition to representing the seasons, one of the requirements of this effort was to represent a range of flows. To pursue this a flood event, an average event, and a drought event were run. For the flood event the 10% exceedance probability event was used; for the average event the 50% probability exceedance event. For the drought event the 90% probability exceedance event was used, which would correspond to the 10% drought or 10% probability non-exceedance event. Each of these events was run for the periods previously discussed. This resulted in 9 different scenarios, for a total of 18 runs as

shown in Table 4. In addition to these 18 runs, the verification event was run for the with project geometry.

TABLE 4
Modeled Scenarios

- Without-Project Conditions
  - Spring (Months of March and April)
    - 10% probability exceedence event (10 year flood)
    - 50% probability exceedence event (average year)
    - 90% probability exceedence event (10 year drought)
  - Summer (Months of July and August)
    - 10% probability exceedence event (10 year flood)
    - 50% probability exceedence event (average year)
    - 90% probability exceedence event (10 year drought)
  - Winter/Fall (Months of November and December)
    - 10% probability exceedence event (10 year flood)
    - 50% probability exceedence event (average year)
    - 90% probability exceedence event (10 year drought)
- With-Project Conditions
  - Spring (Months of March and April)
    - 10% probability exceedence event (10 year flood)
    - 50% probability exceedence event (average year)
    - 90% probability exceedence event (10 year drought)
  - Summer (Months of July and August)
    - 10% probability exceedence event (10 year flood)
    - 50% probability exceedence event (average year)
    - 90% probability exceedence event (10 year drought)
  - Winter/Fall (Months of November and December)
    - 10% probability exceedence event (10 year flood)
    - 50% probability exceedence event (average year)
    - 90% probability exceedence event (10 year drought)

PORT OF IBERIA MODEL VERIFICATION

In order to gain confidence in our models, we ran these models against a historical event and evaluated its performance in reproducing that event as previously described in this report. The results of this model verification are shown in figures 2 through 8 below. Locations of these results are shown in Plate 1.

As can be seen in these figures the model does a reasonable adequate job of duplicating the range and period of stages in the basin during the verification, even if it doesn't reproduce the exact result. There are brief periods during the verification event during which the model results deviate substantially from the actual data. The cause of these deviations has been identified; these deviations are likely due to frontal passages or other significant meteorological events that

are not captured in the model input. The barometric pressures are shown in figure 9. The periods of deviation shown in figures 2 through 8 coincide with frontal systems indicated by high or low pressures in figure 9. Overall, the hydrodynamics are adequate for the model goals.

Salinity verification is also shown in figures 10 through 12. The one area in the available data where there was less than the desired amount of data was for salinity. This is in spite of the fact we instituted our own monitoring program as part of this effort. The combination of short schedule, equipment problems, and funds shortage prevented the collection of sufficient data. However the verification to the available data was quite good. The verification indicates that the model sufficiently reproduces the naturals system so that it may be used to evaluate the effects of the channel deepening.

RESULTS

The results of the numerical modeling effort are shown below in tables 4 through 7. These tables indicate the maximum, minimum, mean and median change in salinities at the seven locations shown on Plate 2. These results are shown in two forms: actual change in salinity, and the percent change in the salinity. One must be careful in interpreting the percent results as in some cases a very small numerical change may produce a large percentage change.

The results indicate relatively minor changes in salinities throughout the project areas. The maximum increase in salinities was 0.7 ppt. This occurred at Station 2 (Company Canal) during the spring run for the 10 percent exceedance flood event. The maximum percentage increase was 34 percent, which corresponded to the 0.7 ppt increase.

The maximum reduction in salinities was a 2.3 ppt reduction. This occurred at station 4 during the spring run for the flood event. This was also the maximum percentage reduction in salinities, a 94 percent reduction.

Figure 2
March 15 - April 30, 2003
Station 1

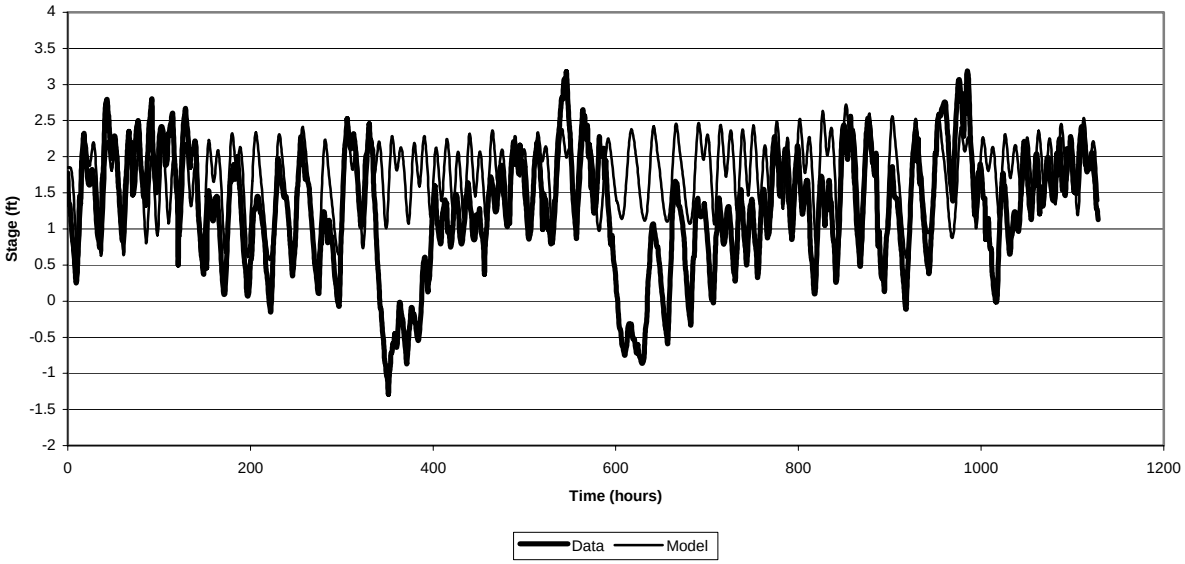


Figure 3
March 15 - April 30, 2003
Station 2

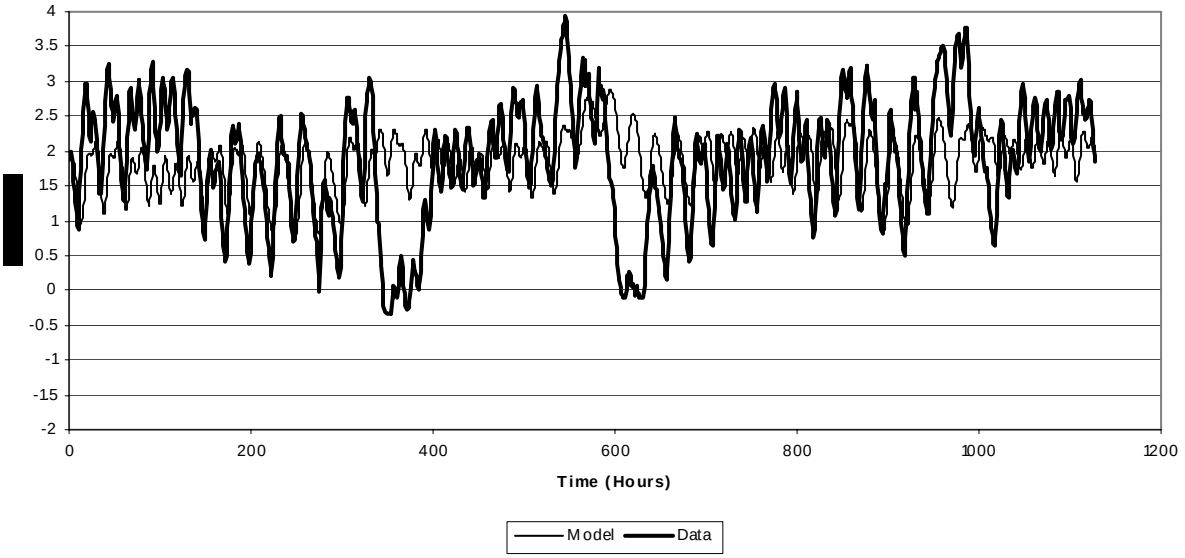


Figure 4
March 15 - April 30, 2003
Station 3

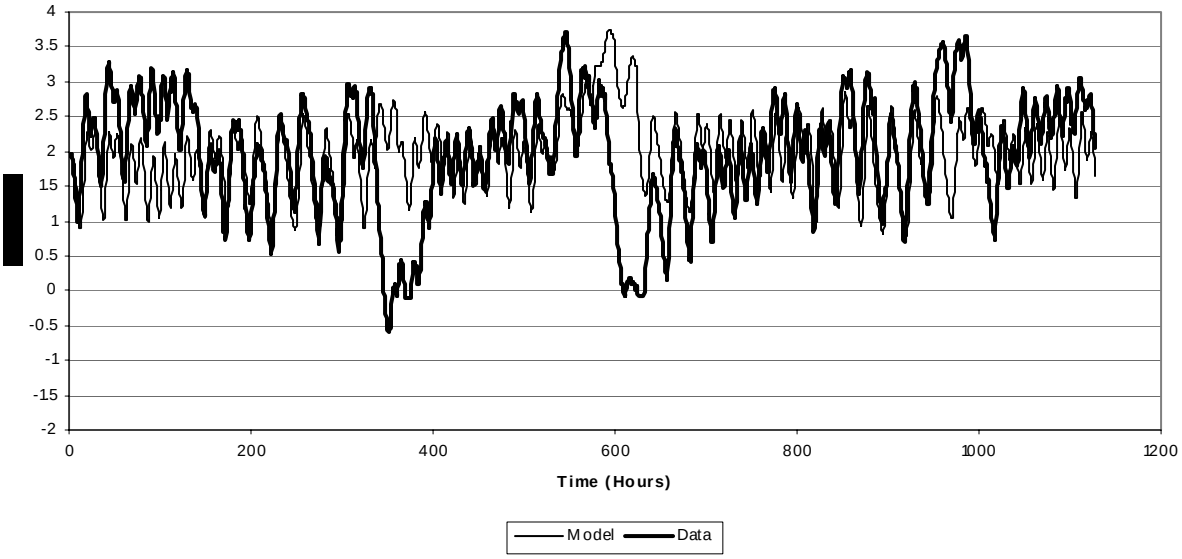


Figure 5
March 15 -April 30, 2003
Station4

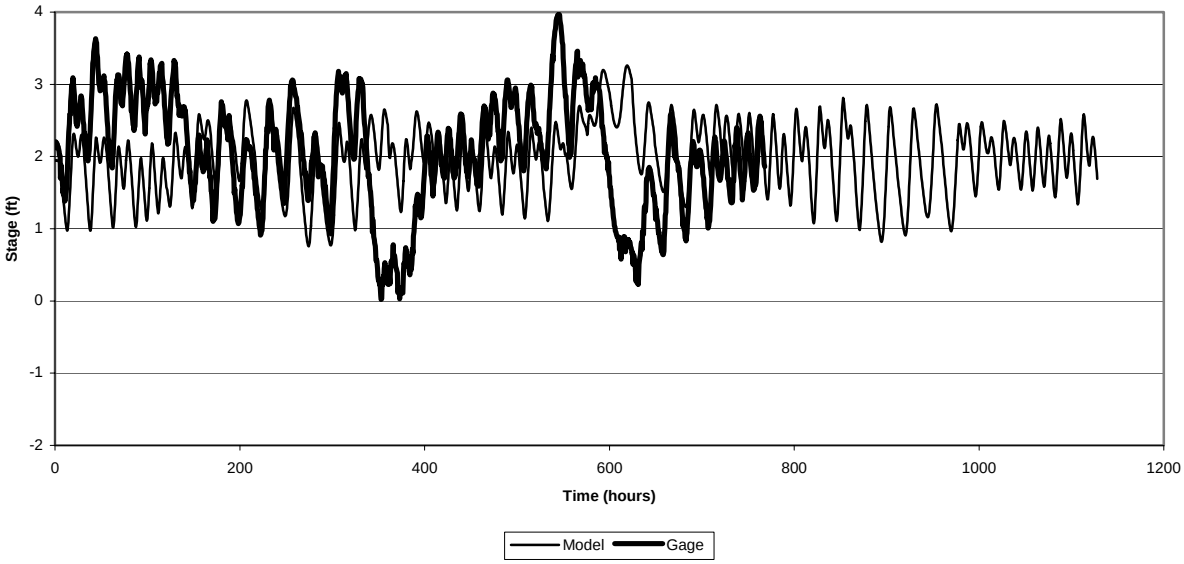


Figure 6
March 15 - April 30, 2003
Station 5

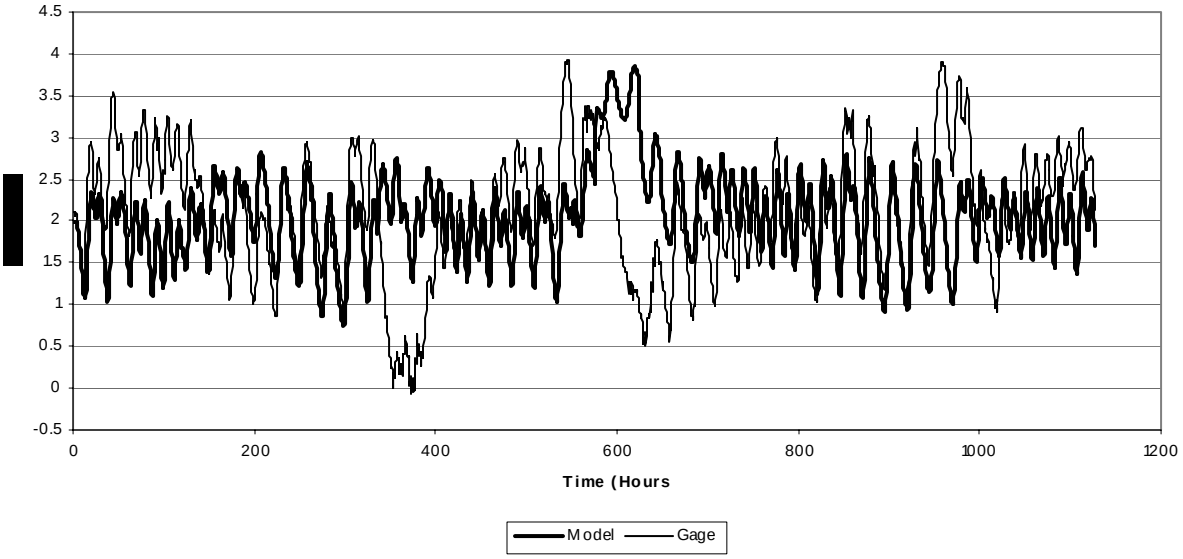


Figure 7
March 15 - April 30, 2003
Station 6

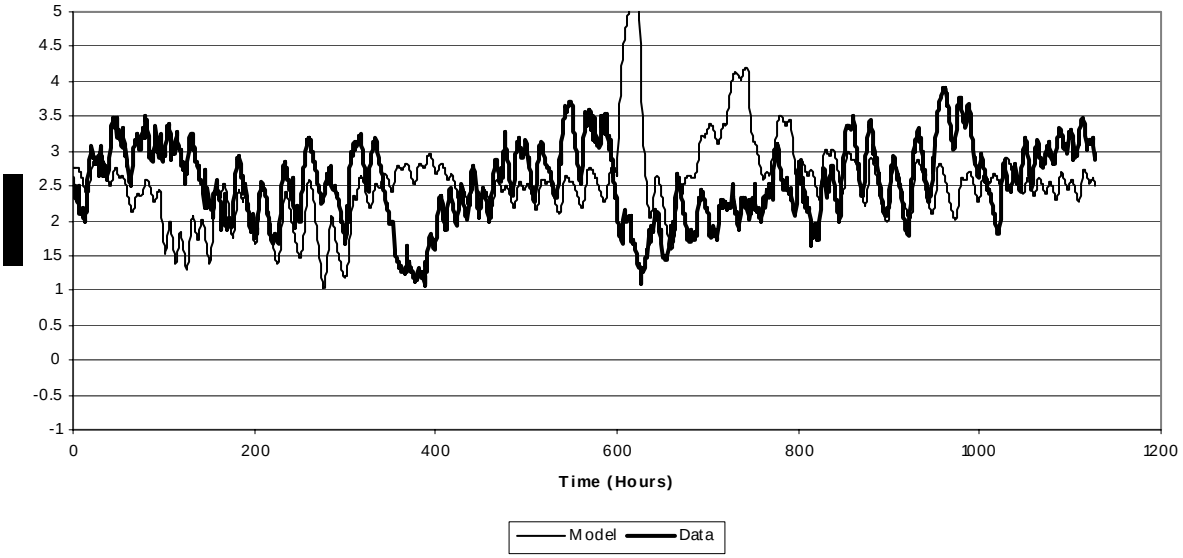


Figure 8
March 15 - April 30, 2003
Station 7

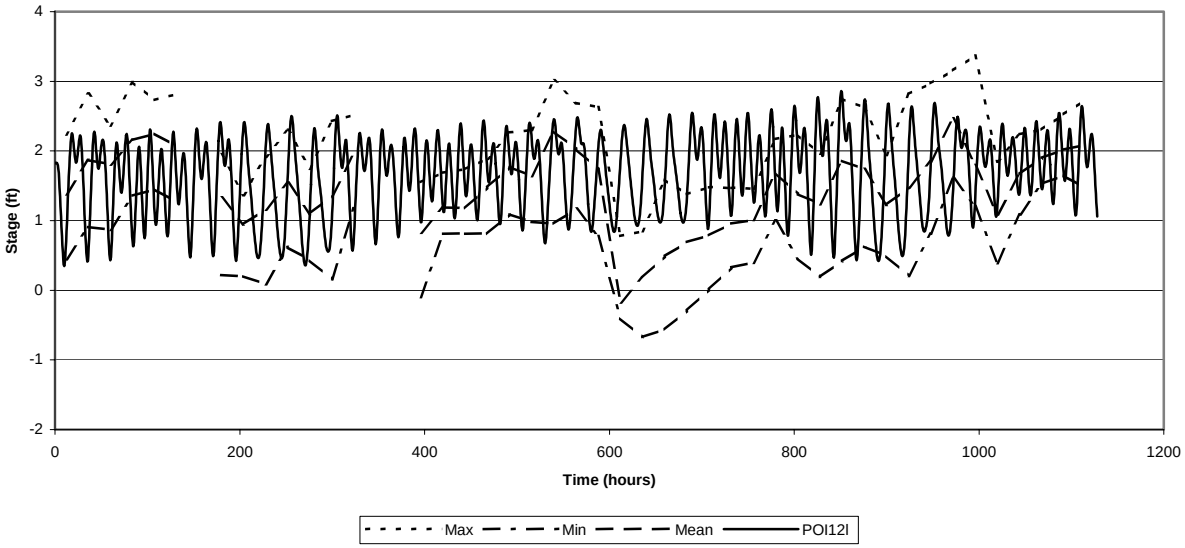


Figure 9
Lafayette Airport Barometric Pressure

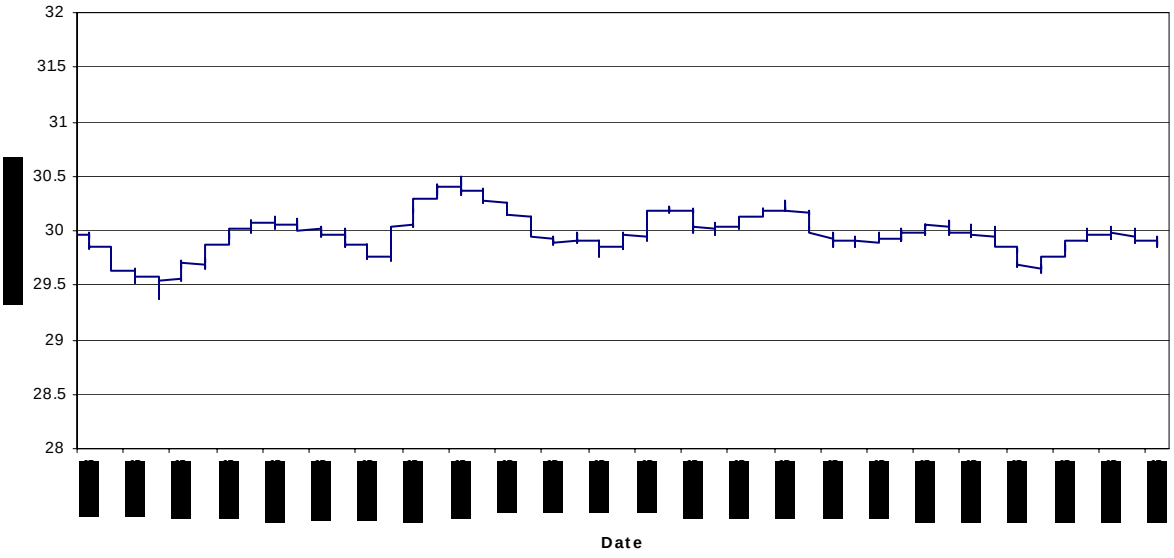


Figure 10
March 15 - April 30, 2003
Station 4

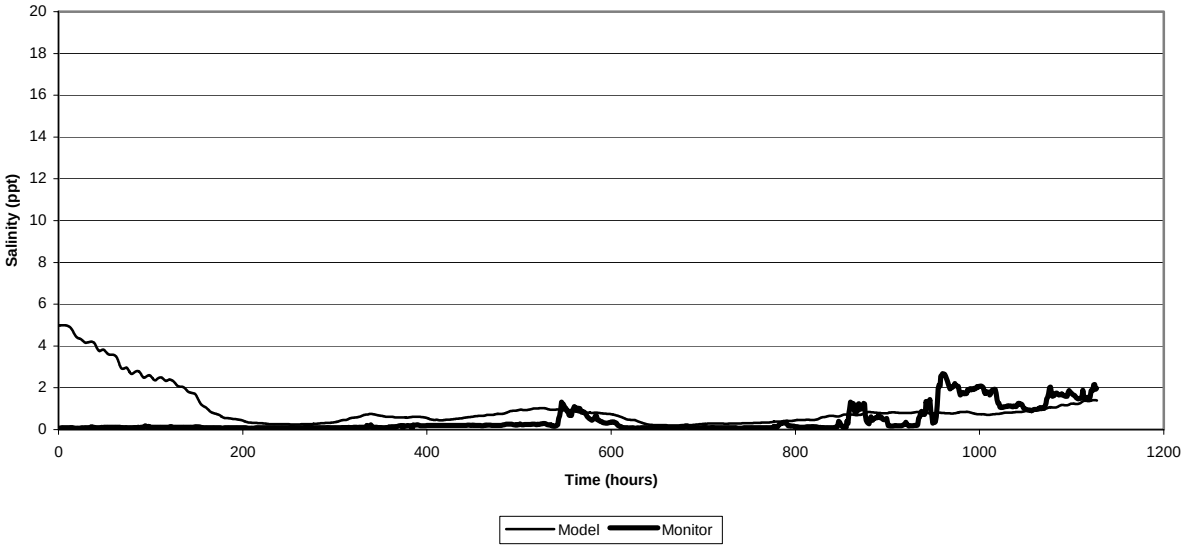
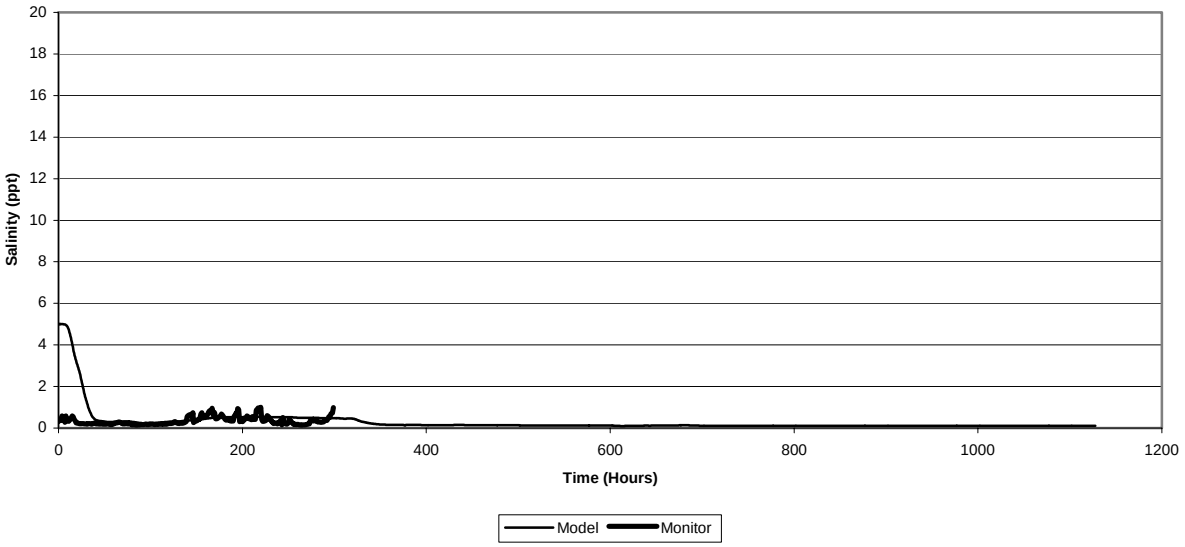


Figure 11
March 15 - April 30, 2003
Station 6



CONCLUSIONS

The Port of Iberia navigation project that calls for the deepening of the Ports access routes to the Gulf of Mexico via the Freshwater Bayou Bypass structure will result in negligible changes in salinities in the project area during routine events. There will probably be rare occasions resulting in salinity increases of up to 0.5 ppt. The predominant affect is likely to be an overall freshening of the project area of up to about 20 percent.

TABLE 4
VERIFICATION RUN SALINITY CHANGES

Numerical Change

Verification	Station 1	Station 2	Station 3	Station 4	Station 5	Station 6	Station 7
Max	0.01	0.50	0.12	0.33	0.01	0.08	0.02
Min	-0.04	-0.14	-0.01	-0.08	-0.01	-0.02	0.00
Mean	-0.04	0.08	0.02	0.03	0.00	0.01	0.01
Median	-0.04	0.04	0.01	0.01	0.00	0.00	0.01

Percent Change

Verification	Station 1	Station 2	Station 3	Station 4	Station 5	Station 6	Station 7
Max	0.62	25.98	29.08	31.80	5.59	37.20	0.45
Min	-1.45	-11.52	-4.72	-16.86	-3.48	-14.39	-0.02
Mean	-1.45	4.09	8.40	4.12	0.45	1.84	0.16
Median	-1.45	2.84	5.77	3.02	0.00	0.00	0.13

TABLE 5
FLOOD EVENT[1] SALINITY CHANGES

Numerical Change

	Station 1	Station 2	Station 3	Station 4	Station 5	Station 6	Station 7
March-April							
Max	-0.11	-0.08	0.00	0.02	0.00	-0.01	-0.04
Min	-1.33	-2.25	-0.45	-2.30	-0.02	-0.17	-0.87
Mean	-1.33	-0.91	-0.13	-0.36	0.00	-0.07	-0.37
Median	-1.33	-0.45	-0.04	-0.01	0.00	-0.05	-0.32
July-August							
Max	0.02	0.66	0.09	0.04	0.00	0.18	0.02
Min	-0.05	-0.04	-0.01	0.00	0.00	-0.03	0.00
Mean	-0.03	0.04	0.00	0.01	0.00	0.03	0.01
Median	-0.03	-0.01	0.00	0.00	0.00	0.00	0.00
November-December							
Max	0.00	0.51	0.00	0.02	0.00	0.01	0.04
Min	-0.05	-0.01	-0.03	0.00	0.00	-0.17	-0.02
Mean	-0.03	0.02	0.00	0.00	0.00	-0.03	0.02
Median	-0.03	0.00	0.00	0.00	0.00	-0.02	0.01

Percent Change

	Station 1	Station 2	Station 3	Station 4	Station 5	Station 6	Station 7
March-April							
Max	-3.75	-8.32	-2.74	8.89	0.00	-1.79	-0.76
Min	-44.96	-92.12	-80.30	-94.41	-15.25	-17.39	-17.35
Mean	-44.96	-47.27	-35.61	-31.64	-1.97	-11.18	-7.30
Median	-44.96	-40.55	-25.75	-4.05	0.00	-12.02	-6.10
July-August							
Max	12.76	34.35	17.14	20.63	0.00	12.76	0.49
Min	-12.63	-10.56	-3.42	1.79	0.00	-12.63	-0.02
Mean	1.02	1.27	-0.37	5.69	0.00	1.02	0.15
Median	0.81	-2.46	-0.93	3.57	0.00	0.81	0.09
November-December							
Max	4.90	38.74	0.00	14.84	0.00	4.90	1.03
Min	-56.12	-3.98	-11.36	0.00	0.00	-56.12	-0.76
Mean	-15.69	1.65	-0.82	1.24	0.00	-15.69	0.38
Median	-11.85	-2.34	-0.96	0.96	0.00	-11.85	0.36

[1]Flood Event denotes 10-Percent Probability Exceedance Event

TABLE 6
AVERAGE EVENT[1] SALINITY CHANGES

Numerical Change

	Station 1	Station 2	Station 3	Station 4	Station 5	Station 6	Station 7
March-April							
Max	0.01	0.42	0.09	0.22	0.02	-0.01	0.04
Min	-0.01	0.05	0.01	0.06	0.00	-0.29	0.01
Mean	-0.01	0.15	0.04	0.11	0.01	-0.18	0.03
Median	-0.01	0.13	0.03	0.10	0.00	-0.19	0.03
July-August							
Max	0.01	0.47	0.11	0.30	0.01	-0.01	0.00
Min	-0.01	0.03	0.02	-0.13	0.00	-0.33	-0.01
Mean	0.00	0.16	0.05	0.06	0.00	-0.18	0.00
Median	0.00	0.13	0.04	0.08	0.00	-0.18	0.00
November-December							
Max	0.01	0.39	0.10	0.14	0.05	-0.03	-0.02
Min	-0.01	0.02	0.02	-0.08	0.01	-0.97	-0.08
Mean	0.00	0.13	0.05	0.02	0.02	-0.50	-0.05
Median	0.00	0.11	0.05	0.02	0.02	-0.52	-0.05

Percent Change

	Station 1	Station 2	Station 3	Station 4	Station 5	Station 6	Station 7
March-April							
Max	0.44	11.72	14.36	6.93	6.07	-0.23	0.62
Min	-0.19	1.68	1.13	1.69	0.71	-11.08	0.25
Mean	-0.19	5.23	7.15	3.82	2.89	-7.36	0.49
Median	-0.19	4.57	6.70	3.70	2.61	-7.79	0.49
July-August							
Max	-0.20	13.73	18.15	8.72	3.47	-0.20	0.06
Min	-10.80	0.96	2.98	-3.36	-1.37	-10.80	-0.13
Mean	-6.71	5.58	9.66	2.40	0.73	-6.71	-0.03
Median	-7.10	4.69	8.93	2.86	0.80	-7.10	-0.03
November-December							
Max	-2.15	10.66	16.76	3.24	5.56	-2.15	-0.38
Min	-28.20	0.52	3.89	-1.93	1.55	-28.20	-1.24
Mean	-18.40	4.03	9.63	0.55	3.34	-18.40	-0.88
Median	-21.97	3.34	9.34	0.55	3.12	-21.97	-0.88

[1]Average Event denotes 50-Percent Probability Exceedance Event

TABLE 7
DROUGHT EVENT[1] SALINITY CHANGES

Numerical Change

	Station 1	Station 2	Station 3	Station 4	Station 5	Station 6	Station 7
March-April							
Max	-0.01	0.30	0.06	-0.35	-0.66	-0.01	0.00
Min	-0.30	-0.73	-0.13	-2.11	-1.28	-0.63	-0.11
Mean	-0.30	-0.34	-0.04	-1.36	-0.94	-0.34	-0.05
Median	-0.30	-0.43	-0.05	-1.51	-0.95	-0.34	-0.05
July-August							
Max	0.01	0.40	0.10	0.11	0.03	0.00	0.00
Min	-0.01	0.03	0.02	-0.18	-0.03	-0.33	-0.01
Mean	0.00	0.14	0.05	-0.04	-0.01	-0.20	0.00
Median	0.00	0.13	0.05	-0.05	-0.01	-0.20	0.00
November-December							
Max	0.01	0.41	0.16	0.10	0.03	0.00	0.00
Min	-0.01	0.06	0.07	-0.08	0.00	-0.29	-0.02
Mean	0.00	0.16	0.09	0.01	0.01	-0.17	-0.01
Median	0.00	0.15	0.08	0.02	0.00	-0.18	-0.01

Percent Change

	Station 1	Station 2	Station 3	Station 4	Station 5	Station 6	Station 7
March-April							
Max	-0.19	8.01	10.47	-7.66	-67.31	-0.19	0.02
Min	-6.75	-18.20	-19.60	-41.69	-89.39	-21.39	-1.57
Mean	-6.75	-9.72	-6.85	-30.49	-82.16	-12.68	-0.79
Median	-6.75	-13.75	-9.72	-36.31	-86.99	-13.76	-0.85
July-August							
Max	-0.05	10.95	16.64	2.43	2.44	-0.05	0.02
Min	-11.25	0.89	3.19	-3.46	-2.09	-11.25	-0.13
Mean	-7.29	4.30	8.80	-0.76	-0.45	-7.29	-0.06
Median	-7.77	3.69	8.38	-1.04	-1.08	-7.77	-0.06
November-December							
Max	0.12	11.16	24.50	2.35	2.41	0.12	-0.06
Min	-10.40	1.62	11.15	-1.88	-0.79	-10.40	-0.28
Mean	-6.66	5.11	16.93	0.34	0.66	-6.66	-0.17
Median	-7.04	4.68	16.73	0.45	0.58	-7.04	-0.17

[1]Drough Event denotes 90-Percent Probability Exceedance Event (also called the 10-Percent non-Exceedance or Drought Event)

Port of Iberia Salinity Stations

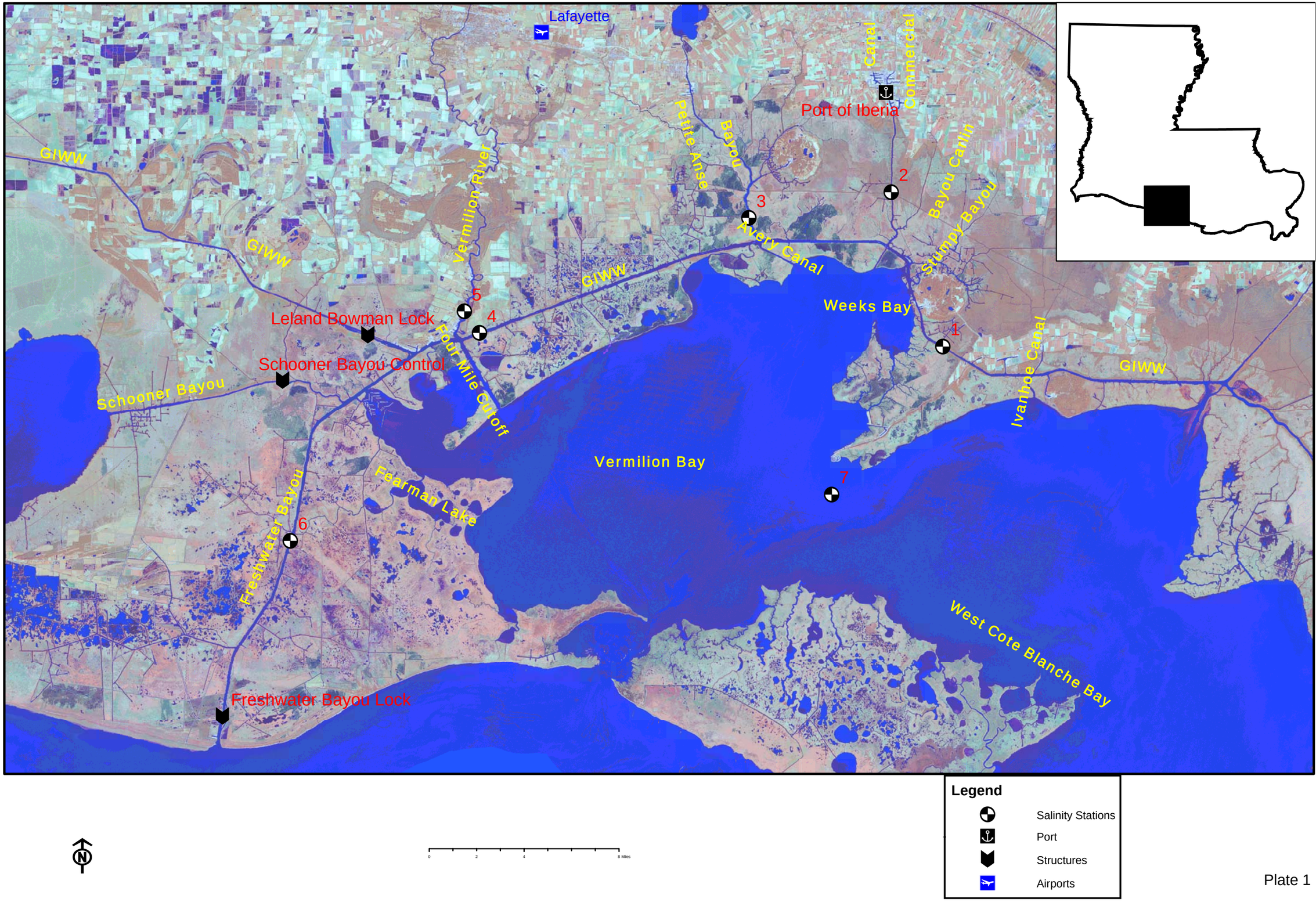
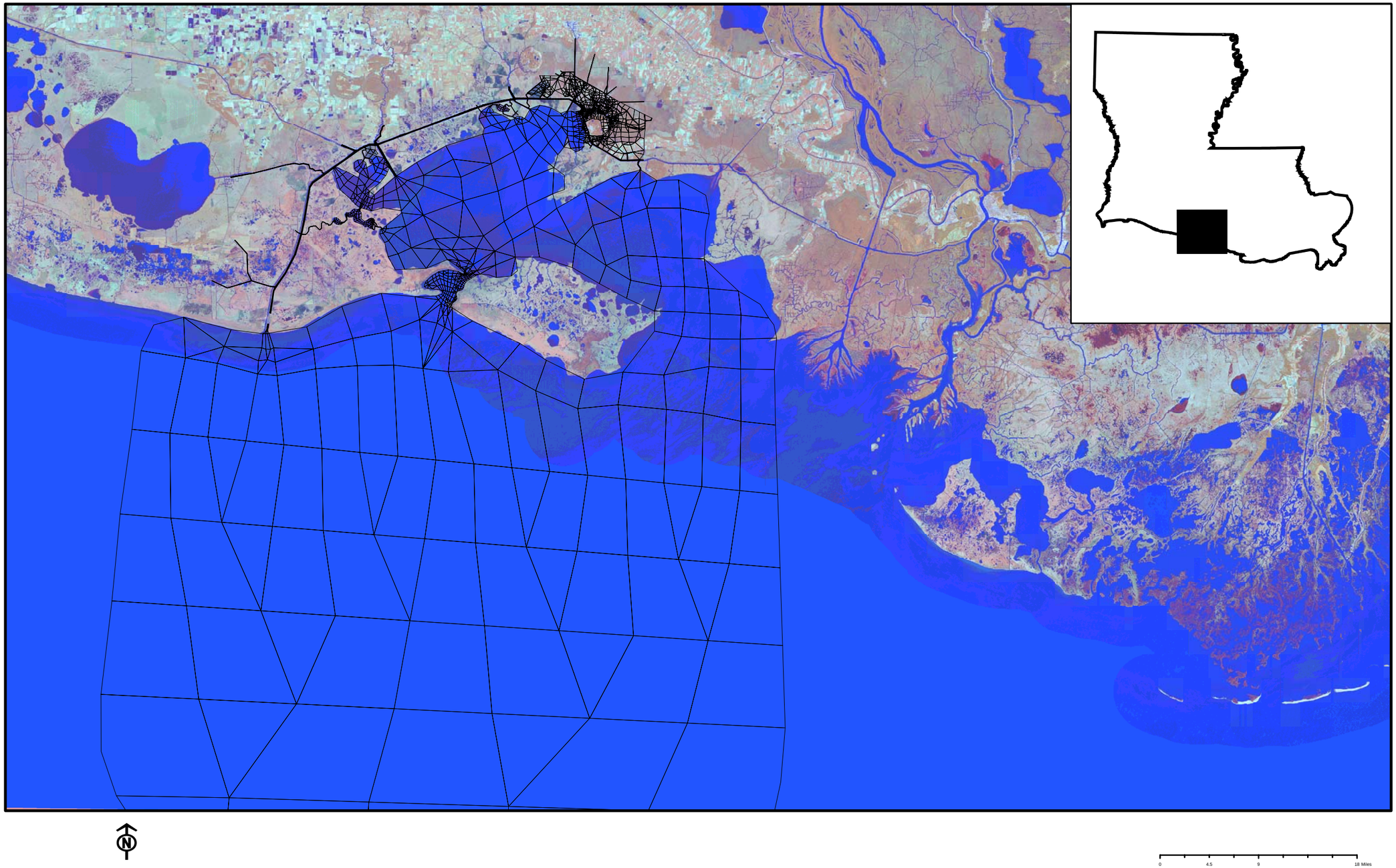


Plate 1

Port of Iberia TABS-MD Mesh



SECTION 17
LIST OF ACRONYMS AND ABBREVIATIONS

AAHU	Average Annual Habitat Units
BA	Biological Assessment
C°	Celsius
CEMVN	U.S. Army Corps of Engineers-Mississippi Valley Division, New Orleans District
CFR	Code of Federal Regulations
COE	U.S. Army Corps of Engineers
Corps	U.S. Army Corps of Engineers
CWPPRA	Coastal Wetland Planning Protection and Restoration Act
cy	cubic yards
DA	disposal area
DMSMP	dredge material site management plan
EFH	Essential Fish Habitat
EIS	environmental impact statement
ENV WG	environmental work group
EPA	Environmental Protection Agency
ERNS	Emergency Response Notification System
ESA	Endangered Species Act
FDEP	Florida Department of Environmental Protection
FINDS	Facility Index System
FWB	Freshwater Bayou
GIWW	Gulf Intracoastal Waterway
GPS	Geographic Positioning System
HCD	Habitat Conservation District
HEP	Habitat Evaluation Procedure
HSI	Habitat Suitability Index
HTRW	Hazardous Toxic and Radioactive Waste
HU	Habitat Unit
ISA	initial site assessment
L	liters
LA	Louisiana
LDEQ	Louisiana Department of Environmental Quality
LSU	Louisiana State University
LTMP	long term management plan
mg	milligrams
mL	milliliters
MMPA	Marine Mammal Protection Act
MPN	most probable number
MSL	Mean Sea Level
N/A	not applicable
NAVD	North American Vertical Datum
NMFS	National Marine Fisheries Service
NOAA	National Oceanic and Atmospheric Administration

NRC	National Response Center
PCB	Polychlorinated Byphinel
PEL	probable effects level
POI	Port of Iberia
PPP	Pollution Prevention Plan
ppt	parts per thousand
RCRIS	Resource Conservation and Recovery Information System
SAV	subaquatic vegetation
SHPO	State Historic Preservation Office
SQB	sediment quality benchmark
SUD	sacrificial upland disposal
TEL	threshold effect level
TRI	Toxic Release Inventory
U.S.	United States
ug	micrograms
USA	United States of America
USACE	United States Army Corps of Engineers
USFWS	United States Fish and Wildlife Service
USGS	United States Geologic Survey
WRDA	Water Resources Development Act
WVA	Wetland Value Assessment