



# 11<sup>TH</sup> PRIORITY PROJECT LIST REPORT

PREPARED BY:

LOUISIANA COASTAL WETLANDS CONSERVATION AND RESTORATION  
TASK FORCE

JULY 2003



**Breaux Act**

**(Coastal Wetlands Planning, Protection and Restoration Act)**

**11<sup>th</sup> Priority Project List Report**

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# Breaux Act

## (Coastal Wetlands Planning, Protection and Restoration Act)

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## **Breaux Act**

### **(Coastal Wetlands Planning, Protection and Restoration Act)**

#### **11<sup>th</sup> Priority Project List Report**

##### **Main Report – Volume 1**

### **I. INTRODUCTION**

Approximately 80 percent of the total coastal marsh loss within the lower 48 states occurs in the State of Louisiana. These losses are due to a combination of human and natural factors, including subsidence, shoreline erosion, freshwater and sediment deprivation, saltwater intrusion, oil and gas canals, navigation channels, and herbivory. While Louisiana still contains 40 percent of all the coastal marshes in the lower 48 states, dramatic annual losses of 25-35 square miles per year in the state continue to threaten the resource. Concern over this loss exists because of the living resources and national economies dependent on Louisiana's coastal wetlands. Louisiana's coastal wetlands provide habitat for fisheries, waterfowl, neotropical birds and furbearers, protection for oil and gas exploration and production, and water-borne commerce; amenities for recreation, tourism, flood protection; and the context for a culture unique to the world. Benefits go well beyond the local and state levels by providing positive economic impacts to the entire nation.

The coastal wetland loss problem in Louisiana is extensive and complex. Agencies of diverse purpose and mission that are involved with addressing the problem have proposed many alternative solutions. These proposals have had a wide spectrum of approaches for diminishing, neutralizing, or reversing these losses. A global observation of these efforts by federal, state and local governments and the public has led to the conclusion that a comprehensive approach is needed to address this significant environmental problem. In response to this, the Coastal Wetlands Planning, Protection and Restoration Act (Public Law 101-646) – also known as the Breaux Act – was signed into law by President Bush on November 29, 1990. This report documents the implementation of Section 303(a) of the cited legislation.

#### **STUDY AUTHORITY**

Section 303(a) of the Coastal Wetlands Planning, Protection and Restoration Act (CWPPRA, or the Breaux Act), displayed in Appendix A, directs the Secretary of the Army to convene the Louisiana Coastal Wetlands Conservation and Restoration Task Force to:

. . . initiate a process to identify and prepare a list of coastal wetlands restoration projects in Louisiana to provide for the long-term conservation of such wetlands and dependent fish and wildlife populations in order of priority, based upon the cost-effectiveness of such projects in creating, restoring, protecting, or enhancing coastal wetlands, taking into account the quality of such coastal wetlands, with due allowance for small-scale projects necessary to

demonstrate the use of new techniques or materials for coastal wetlands restoration.

## STUDY PURPOSE

The purpose of this study effort was to prepare the 11<sup>th</sup> Priority Project List (PPL) and transmit the list to Congress, as specified in Section 303(a)(3) of the CWPPRA. Section 303(b) of the Act calls for preparation of a comprehensive restoration plan for coastal Louisiana. In November 1993, the Louisiana Coastal Wetlands Restoration Plan was submitted. In December 1998, *Coast 2050: Toward a Sustainable Coastal Louisiana* was signed by all federal and state Task Force members. This plan consisted of several regional ecosystem strategies, that if all implemented would achieve no net loss of coastal marsh in Louisiana by the year 2050. A broad coalition of federal, state, and local entities, landowners, environmentalists, and wetland scientists developed the plan. In addition, all 20 coastal parishes approved the Coast 2050 plan.

## PROJECT AREA

A map of the Louisiana coastal zone is presented in Plate 1, indicating project locations by number of Priority Project Lists 1 through 11. Plate 2 contains a listing of these project names, referenced by number and grouped by sponsoring agency, for each PPL. The entire coastal area, which comprises all or part of 20 Louisiana parishes, is considered to be the CWPPRA project area. To facilitate the study process, the coastal zone was divided into nine hydrologic basins (refer to Plate 1).

## STUDY PROCESS

The Interagency Planning Groups. Section 303(a)(1) of the CWPPRA directs the Secretary of the Army to convene the Louisiana Coastal Wetlands Conservation and Restoration Task Force, to consist of the following members:

- The Secretary of the Army (Chairman)
- The Administrator, Environmental Protection Agency
- The Governor, State of Louisiana
- The Secretary of the Interior
- The Secretary of Agriculture
- The Secretary of Commerce

The State of Louisiana is a full voting member of the Task Force, with the exception of budget matters, as stipulated in President Bush's November 29, 1990, signing statement (Appendix A). In addition, the State of Louisiana may not serve as a "lead" Task Force member for design and construction of wetlands projects of the Priority Project List.

In practice, the Task Force members named by the law have delegated their responsibilities to other members of their organizations. For instance, the Secretary of the Army authorized the commander of the Corps of Engineers New Orleans District to act in his place as chairman of the Task Force.

The Task Force established the Technical Committee and the Planning and Evaluation Subcommittee, to assist it in putting the CWPPRA into action. Each of these bodies contains the same representation as the Task Force – one member from each of the five federal agencies and one from the state. The Planning and Evaluation Subcommittee is responsible for the actual planning of projects, as well as the other details involved in the CWPPRA process (such as development of schedules, budgets, etc.). This subcommittee makes recommendations to the Technical Committee and lays the groundwork for decisions that will ultimately be made by the Task Force. The Technical Committee reviews all materials prepared by the subcommittee, makes appropriate revisions, and provides recommendations to the Task Force. The Technical Committee operates at an intermediate level between the planning details considered by the subcommittee and the policy matters dealt with by the Task Force, and often formalizes procedures and formulates policy for the Task Force.

The Planning and Evaluation Subcommittee established several working groups to evaluate projects for priority project lists. The Environmental Work Group was charged with estimating the benefits (in terms of wetlands created, protected, enhanced, or restored) associated with various projects. The Engineering Work Group reviewed project cost estimates for consistency. The Economic Work Group performed the economic analysis, which permitted comparison of projects on the basis of their cost effectiveness. The Monitoring Work Group established a standard procedure for monitoring of CWPPRA projects, developed a monitoring cost estimating procedure based on project type, and a review of all monitoring plans.

The Task Force also established a Citizen Participation Group to provide general input from the diverse interests across the coastal zone: local officials, landowners, farmers, sportsmen, commercial fishermen, oil and gas developers, navigation interests, and environmental organizations. The Citizen Participation Group was formed to promote citizen participation and involvement in formulating priority project lists and the restoration plan. The group meets at its own discretion, but may at times meet in conjunction with other CWPPRA elements, such as the Technical Committee. The purpose of the Citizen Participation Group is to maintain consistent public review and input into the plans and projects being considered by the Task Force and to assist and participate in the public involvement program.

Involvement of the Academic Community. While the agencies sitting on the Task Force possess considerable expertise regarding Louisiana's coastal wetlands problems, the Task Force recognized the need to incorporate another invaluable resource: the state's academic community. The Task Force therefore retained the services of the Louisiana Universities Marine Consortium (LUMCON) to provide scientific advisors to aid the Environmental Work Group in performing Wetland Value Assessments. This Academic Advisory Group also assists in carrying out feasibility studies authorized by the Task Force. These include:

- The Louisiana Barrier Shoreline study – March 1995 - March 1999 (managed by the Louisiana Department of Natural Resources), and
- The Mississippi River Sediment, Nutrient, and Freshwater Redistribution study – March 1995 – July 2000 (managed by the Corps of Engineers).

Public Involvement. Even with its widespread membership, the Citizen Participation Group cannot represent all of the diverse interests concerned about by Louisiana’s coastal wetlands. The CWPPRA public involvement program provides an opportunity for all interested parties to express their concerns and opinions and to submit their ideas concerning the problems facing Louisiana’s wetlands. The Task Force has held at least eight public meetings each of the last eight years to obtain input from the public. In addition, the Task Force distributes a quarterly newsletter (“Watermarks”) with information on the CWPPRA program and on individual projects.

## II. PLAN FORMULATION PROCESS FOR THE 11<sup>TH</sup> PRIORITY PROJECT LIST

### IDENTIFICATION & SELECTION OF CANDIDATE PROJECTS

Regional meetings were held January 16-23, 2001 to provide a forum for the public and their local government representatives to prioritize Coast 2050 strategies for implementation under the priority list process. Regional Planning Teams (RPTs), together with members of the Citizen Participation Group (CPG), met during this period to rank all Regional Ecosystem Strategies by hydrologic basin, using Coast 2050 Strategic Objectives. During prioritization, sequencing of strategies were considered. Mapping unit and coastwide strategies were also considered in this prioritization effort. A schedule of meetings is shown in Table 1.

**Table 1: RPT Meetings for Prioritization of Coast 2050 Strategies**

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Region 1: New Orleans, Louisiana	January 23, 2001
Region 2: New Orleans, Louisiana	January 22, 2001
Region 3: Morgan City, Louisiana	January 17, 2001
Region 4: Rockefeller Refuge, Louisiana	January 16, 2001

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The CWPPRA Technical Committee met on February 8, 2001 to place each strategy into one of the following categories: (a) candidate for CWPPRA funding; (b) candidate for Water Resources Development Act (WRDA) funding; (c) programmatic strategy (such as “Maintain Atchafalaya Mudstream”), or (d) other funding authorization. The Technical Committee then reviewed, adjusted, and approved the strategies submitted by the RPT. The Technical Committee chose a manageable number of the prioritized regional strategies in each basin for project development.

The RPTs convened Basin Subcommittees during the period spanning March 6, 2001 – March 14, 2001 to develop the projects for CWPPRA strategies chosen by the Technical Committee as having a high priority in each basin. The Basin Subcommittees included the CWPPRA agencies, academic advisors, landowners, environmental groups, parish/community officials, members of the CPG, and the general public. The subcommittees evaluated each high priority strategy and listed all projects necessary to accomplish each strategy. A schedule of meetings is shown in Table 2. Following the meetings, Basin Subcommittees prepared preliminary maps and brief fact sheets for each



project that accomplished the high-priority strategies.

**Table 2: Basin Subcommittee Meetings to Develop Projects**

Region 1, Pontchartrain Basin	March 14, 2001
Region 2, Breton Sound, Birdsfoot Delta and Barataria Basins	March 12, 2001
Region 3, Teche/Vermilion, Terrebonne and Atchafalaya Basins	March 7, 2001
Region 4, Mermentau and Calcasieu/Sabine Basins	March 6, 2001

The CWPPRA Engineering Work Group calculated preliminary first cost (in ranges) for each project, based upon engineering judgment and historical costs. The Environmental/ Engineering Work Groups applied the Coast 2050 Criteria to each project. This information, along with the maps and fact sheets prepared by the Basin Subcommittees, was used by the CWPPRA Planning and Engineering (P&E) Subcommittee for their May 4, 2001 meeting. The purpose of this P&E meeting was to prepare a matrix of projects by basin that lists cost ranges and Coast 2050 Criteria score. This matrix was furnished to the CWPPRA Technical Committee and the State Wetlands Authority.

The CWPPRA Technical Committee met publicly on May 30, 2001 to consider the preliminary costs and Coast 2050 Criteria score of the projects. They selected 19 projects as Phase 0 candidates for further analysis.

Phase 0 analysis of the candidates took place from mid-May 2001 through November 2001. Interagency field visits were conducted at each project site/area with members of the Engineering and Environmental Work Groups, academics, and Louisiana Department of Natural Resources (LDNR) monitoring staff. The Environmental/Engineering Work Groups and academics met to refine the projects based on site visits. Detailed Project Information Sheets were developed by evaluating agencies, using the standard format developed by the Economics and Environmental/ Engineering Work Groups. These sheets included addressing “compatibility with Coast 2050” and Phase I and II engineering and design, and cost estimates. The Engineering Work Group met to review/approve the Phase I and II cost estimates developed by the agencies. The Economics Work Group reviewed the cost estimates, added monitoring, Operations and Maintenance (O&M), etc. and developed annualized costs. The Environmental Work Group finalized Wetland Value Assessments (WVAs) for each project. The Environmental/Engineering/Monitoring Work Group met to refine the goals and objectives and developed costs to monitor parameters of interest and opportunity. The Environmental/Engineering Work Group reviewed, and revised, the Coast 2050 Criteria score previously developed, considering all new information.

The CWPPRA P&E Subcommittee prepared a candidate project information package for the CWPPRA Technical Committee and State Wetlands Authority, consisting of: updated Project Information Sheets and matrix for each basin (listing projects in order of ranked strategies). The matrix included cost, WVA results (acres created, restored, and/or protected), Risk/Uncertainty, Longevity/Sustainability, and Coast 2050 Criteria. Supporting Partnerships and Public Support were discussed qualitatively. Three public

meetings were held in the coastal zones November 27-29, 2001 to present projects to the public for comment.

The CWPPRA Technical Committee met publicly on December 12, 2001 to select projects for recommendation to the CWPPRA Task Force for Phase I funding. Each agency received a total of 10 weighted votes, used to rank the 19 candidate projects. The top 10 projects were selected for recommendation to the CWPPRA Task Force for final Phase I funding approval on January 16, 2002. During the January 16, 2002 Task Force meeting another project, the Barataria Basin Landbridge Shoreline Protection project, Northeast extension only, was added to the 11<sup>th</sup> Priority Project List, bringing the total number of projects approved for PPL 11 to 11 projects. The results of the CWPPRA Technical Committee vote, including the one project added by the Task Force, are outlined in Table 3.

Complex projects were approved by the Task Force on October 7, 1999 as part of the FY 2000 CWPPRA Planning Budget. Six projects were approved for further study at the time. Projects designated as “complex projects” are recognized by CWPPRA as requiring in-depth study to address site-specific questions in support of estimating project effects and benefits, project location and sizing and other issues of project design and evaluation.

There were three complex projects that were approved for Phase I funding throughout the year and have also been included in this PPL 11 report. The Holly Beach Sand Management Complex Project and the Diversion into the Swamp South of Lake Maurepas Complex Project were approved by the Task Force on August 7, 2001. The Barataria Barrier Shoreline Complex Project was approved by the Task Force on January 16, 2002.

**Table 3: 11<sup>th</sup> Priority Project List Candidate Selection Process – Agency Voting Record**

Project No. <sup>1</sup>	Nominee Project Name	Coast 2050 Region	EPA	COE	FWS	DNR	NRCS	NMFS	Total
ME-20	South Grand Chenier Hydrologic Restoration	R4	6	9	7	1	9	3	35
LA-03b	Coastwide Nutria Control Program	Coast-wide	3	3	5	4	6	9	30
BA-35	Pass Chaland to Grand Bayou Pass Barrier Shoreline Restoration	R2	4	4		7	1	10	26
TE-46	West Lake Boudreaux Shoreline Protection and Marsh Creation	R3	5		9	5	2	5	26
ME-21	Grand Lake Shoreline Protection	R4		8	4	6		8	26
PO-31	Lake Borgne Shoreline Protection at Bayou Dupre	R1	9	1		8	4		22
BA-36	Dedicated Dredging on the Barataria Basin Landbridge	R2		7	10			4	21
TE-47	Ship Shoal: West Flank Restoration	R3	10			10		1	21
TE-48	Raccoon Island Shoreline Protection/Marsh Creation	R3	1		6		10	2	19
BA-37	Little Lake Shoreline Protection/Dedicated Dredging near Round Lake	R2		6	2		3	7	18
BA-27d <sup>2</sup>	Barataria Basin Landbridge Shoreline Protection (Northeast only)	R3			1		8		9
*	Southern Chandeleur Islands Restoration	R1	2	10	3				15
	South Shore of the Pen/Bayou Dupont Shoreline Protection//Marsh Creation	R2		5		3		6	14
	Southwest Pass Shoreline Stabilization	R3				9	5		14
	South White Lake Shoreline Protection, from Will's Point to the western shore of Bear Lake	R4		2		2	7		11
	Bayou Terrebonne East Bank Hydrologic Restoration	R3			8				8
	Blue Hammock Bayou Hydrologic Restoration and Beneficial Use Project	R3	8						8
	Oyster Bayou Marsh Creation	R4	7						7
	Lake Lery Dedicated Dredging	R2							0

\*Projects below this line were not selected for funding.

<sup>1</sup> Each project received a two-letter code to identify its basin; these codes are: PO-Ponchartrain, BS-Breton Sound, MR-Mississippi River Delta, BA-Barataria, TE-Terrebonne, AT-Atchafalaya, TV-Teche/Vermillion, ME-Mermentau, CS-Calcasieu-Sabine.

<sup>2</sup> This project added during the Task Force meeting on January 16, 2002.

## EVALUATION OF CANDIDATE PROJECTS

Benefit Analysis (WVA). The WVA is a quantitative, habitat-based assessment methodology developed for use in prioritizing project proposals submitted for funding under the Breaux Act. The WVA quantifies changes in fish and wildlife habitat quality and quantity that are projected to emerge or develop as a result of a proposed wetland enhancement 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 protected and/or gained.

The Environmental Work Group developed a WVA for each project. The WVA has been developed strictly for use in ranking proposed CWPPRA projects; it is not intended to provide a detailed, comprehensive methodology for establishing baseline conditions within a project area. It is a modification of the Habitat Evaluation Procedures (HEP) developed by the U.S. Fish and Wildlife Service (FWS) (U.S. Fish and Wildlife Service, 1980). HEP is widely used by the FWS 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. The HEP generally uses a species-oriented approach, whereas the WVA uses a community approach.

The following coastal Louisiana wetland types can be evaluated using WVA models: fresh marsh (including intermediate marsh), brackish marsh, saline marsh, and cypress-tupelo swamp. Future reference in this document to "wetland" or "wetland type" refers to one or more of these four communities.

These 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 or expressed through the use of a mathematical model developed specifically for each wetland type. Each model consists of the following components:

1. A list of variables that are considered important in characterizing fish and wildlife habitat:
  - a.  $V_1$ --percent of wetland covered by emergent vegetation,
  - b.  $V_2$ --percent open water dominated by submerged aquatic vegetation,
  - c.  $V_3$ --marsh edge and interspersion,
  - d.  $V_4$ --percent open water less than or equal to 1.5 feet deep,
  - e.  $V_5$ --salinity, and
  - f.  $V_6$ --aquatic organism access.
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 wetland habitat quality; that single value is referred to as the Habitat Suitability Index, or HSI.

The WVA models have been developed for determining the suitability of Louisiana coastal wetlands for providing resting, foraging, breeding and nursery habitat to a diverse assemblage of fish and wildlife species. 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 marsh type over a year or longer.

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.

A comprehensive discussion of the WVA methodology is presented in Appendix B.

Designs and Cost Analysis. During the plan formulation process, each of the Task Force agencies assumed responsibility for developing designs, and estimates of costs and benefits for a number of candidate projects. The cost estimates for the projects were to be itemized as follows:

1. Construction Cost
2. Contingencies Cost (25%)
3. Engineering and Design
4. Environmental Compliance
5. Supervision and Administration (Corps [\$500/yr administrative and \$30,000 minimum, up to 6% of construction per project for project management], and the LDNR Project Management [2% of construction])
6. Supervision and Inspection (Construction Contract)
7. Real Estate
8. Operations and Maintenance
9. Monitoring

In addition, each lead agency provided a detailed itemized construction cost estimate for each project. These estimates are shown in Appendix C.

An Engineering Work Group was established by the P&E Subcommittee, with each federal agency and the State of Louisiana represented. The work group reviewed each estimate for accuracy and consistency.

When reviewing the construction cost estimates, the work group verified that each project feature had an associated cost and that the quantity and unit prices for those items were reasonable. In addition, the work group reviewed the design of the projects to determine whether the method of construction was appropriate and the design was feasible.

All of the projects were assigned a contingency cost of 25 percent because detailed information such as soil borings, surveys, and – to a major extent – hydrologic data were not available, in addition to allowing for variations in unit prices.

Engineering and design, environmental compliance, supervision and administration, and supervision and inspection costs were reviewed for consistency, but ordinarily were not changed from what was presented by the lead agency.

Economic Analysis. The Breaux Act directed the Task Force to develop a prioritized list of wetland projects "based on the cost-effectiveness of such projects in creating, restoring, protecting, or enhancing coastal wetlands, taking into account the quality of such coastal wetlands." The Task Force satisfied this requirement through the integration of a traditional time-value analysis of life-cycle project costs and other economic impacts and an evaluation of wetlands benefits using the WVA. The product of these two analyses was an Average Annual Cost per AAHU figure for each project. These values are used as the primary ranking criterion. The method permits incremental analysis

of varying scales of investment and also accommodates the varying salinity types and habitat quality characteristics of projected wetland outputs.

The major inputs to the cost effectiveness analysis are the products of the lead Task Force agencies and the Engineering and Environmental Work Groups. The various plans were refined into estimates of annual implementation costs and respective AAHUs.

Financial costs chiefly consist of the resources needed to plan, design, construct, operate, monitor, and maintain the project. These are the costs, when adjusted for inflation, which the Task Force uses in budgeting decisions. The economic costs include, in addition to the financial cost, monetary indirect impacts of the plans not accounted for in the financial costs. Examples would include impacts on dredging in nearby commercial navigation channels, effects on water supplies, and effects on nearby facilities and structures not reflected in right-of-way and acquisition costs.

The stream of costs for each project was brought to present value and annualized at the current discount rate, based on a 20 year project life. Beneficial environmental outputs were annualized at a zero discount rate and expressed as AAHUs. These data were then used to rank each plan based on cost per AAHU produced. Annual costs were also calculated on a per acre basis. Costs were adjusted to account for projected levels of inflation and used to monitor overall budgeting and any future cost escalations in accordance with rules established by the Task Force.

Following the review by the Engineering Work Group, costs were expressed as first costs, fully funded costs, present worth costs, and average annual costs. The Cost per Habitat Unit criterion was derived by dividing the average annual cost for each wetland project by the AAHU for each wetland project. The average annual cost figures are based on price levels for the current year, the most current published discount rate, and a project life of 20 years. The fully funded cost estimates include operation and maintenance and other compensated financial costs. The fully funded cost estimates developed for each project were used to determine how many projects could be supported by the funds expected to be available in the current fiscal year.

### **III. DESCRIPTION OF CANDIDATE PROJECTS**

This section provides a concise narrative of each candidate project. The project details provided include the Coast 2050 strategy, project location, strategy, problem, goals, solution, benefits, cost, risk/uncertainty and longevity/sustainability, sponsoring agency and contact persons, and a map identifying the project area and features if applicable.





**Project Name** - Coastwide Nutria Control Program

**Coast 2050 Strategy** - Coastwide - Coastwide Herbivory Control

**Project Location** - This project is coastwide covering all basins and coastal parishes.

**Problem** - Fur trapping activity has been drastically declining for over ten years because of weak market demand and low prices. In Louisiana, this has resulted in an overpopulation of nutria and serious damage to coastal wetlands from nutria herbivory. Annual aerial surveys for 1993-2001 have indicated that approximately 100,000 acres have been impacted coastwide.

**Goals** - The objective of this project is to significantly reduce the damage to coastal wetlands resulting from nutria herbivory.

**Proposed Solution** - The proposed solution is to annually harvest 400,000 nutria.

**Project Benefits** - The project will protect 14,963 acres of emergent marsh over the course of the 20 year project life.

**Project Costs** - The total fully funded cost is \$76,924,100 and the fully funded first cost is \$2,890,100.

**Risk/Uncertainty and Longevity/Sustainability** - There is a low degree of risk associated with this project because the predicted population with project is below that where extensive damage was not determined. The project should continue providing benefits beyond 20 years after construction because a lag time will exist before populations rebound.

**Sponsoring Agency and Contact Person** - USDA, Natural Resources Conservation Service

Env.WG: Quin Kinler (225) 447-6050; [quin.kinler@la.usda.gov](mailto:quin.kinler@la.usda.gov)

Eng.WG: John Jurgensen (318) 473-7694; [john.jurgensen@la.usda.gov](mailto:john.jurgensen@la.usda.gov)

**No map associated with this project due to its coastwide project area.**

**Project Name** - Lake Borgne Shoreline Protection at Bayou Dupre

**Coast 2050 Strategy** - Regional Ecosystem Strategy #11: Maintain shoreline integrity of Lake Borgne.

**Project Location** - Region 1 - Pontchartrain Basin; St. Bernard Parish; south-west shoreline of Lake Borgne on either side of Bayou Dupre.

**Problem** - The narrow strip of marsh between Lake Borgne and the Mississippi River Gulf Outlet (MRGO) in the vicinity of Bayou Dupre is disappearing. The opening between Lake Borgne and the MRGO in this area is estimated to be approximately 550 feet wide. Shoreline erosion rates in the area have been estimated to be about 10 feet per year. At this rate, the opening at Bayou Dupre will be 2,300 feet across in 20 years. Interior marsh loss would likely speed this process. This project is necessary to maintain and restore the narrow strip of land that remains between Lake Borgne and the MRGO. The project would address the problem of shoreline erosion and the coalescence of Lake Borgne with the MRGO through shoreline protection in Lake Borgne with the opportunity for marsh creation.

**Goals** - The goals are a) to prevent or reduce Lake Borgne shoreline retreat in the area adjacent to Bayou Dupre; b) to prevent further coalescence of the lake and the MRGO; c) to re-establish a sustainable lake rim; and d) to prevent or reduce conversion of emergent marsh to open water.

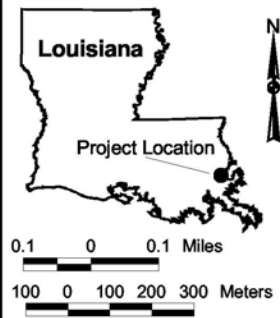
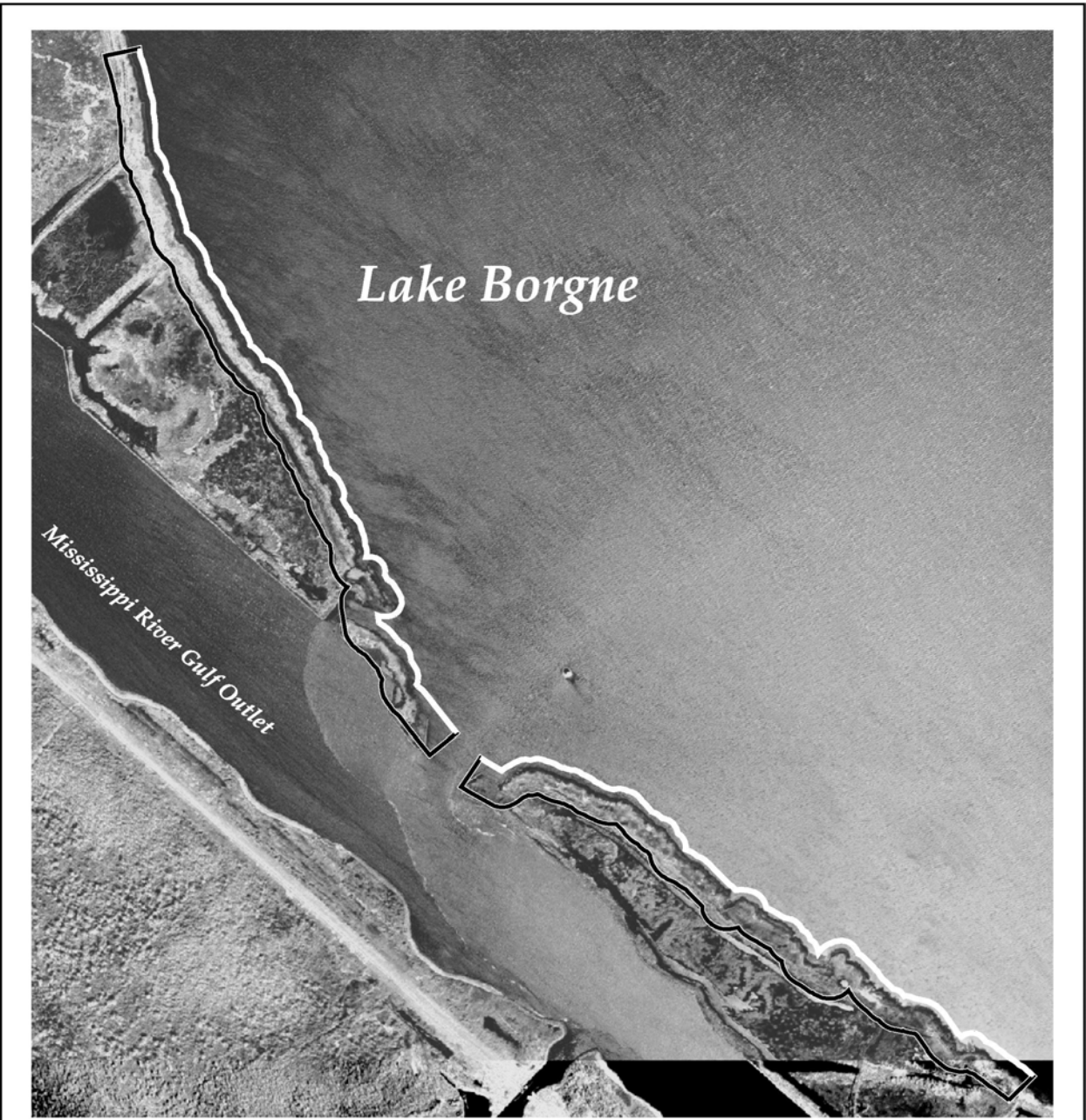
**Proposed Solution** - Continuous nearshore rock breakwaters would be constructed 1.2 miles to the east and 1.6 miles to the west of Bayou Dupre. The design of the breakwaters would roughly follow that used for the PPL 10 project, "Shore Protection in Lake Borgne at Shell Beach." The breakwaters would tie into those present along the north bank of the MRGO and extend into the lake to about the 2-foot contour. Openings would be included in the breakwaters at a minimum of every 1,000 feet. Offset breakwaters would be built in front of the openings.



**Project Benefits** - The project would benefit 98 acres of marsh and shallow open water. Approximately 83 acres of marsh would be created/protected over the 20-year project life.

**Project Costs** - The total fully funded cost is \$11,928,100. The fully funded first cost is \$7,980,900.

**Risk/Uncertainty and Longevity/Sustainability** - There is a low degree of risk associated with this project because monitoring of past projects has indicated that breakwaters significantly reduce erosion. The project should continue providing benefits beyond 20 years after construction because some rocks will be replaced at years 3 and 14.

**Sponsoring Agency and Contact Person** - National Marine Fisheries Service  
Bren Haase (225)389-0508; [bren.haase@noaa.gov](mailto:bren.haase@noaa.gov)  
Rachel Sweeney (225)389-0508; [rachel.sweeney@noaa.gov](mailto:rachel.sweeney@noaa.gov)



 Project area  
 Shoreline Protection

Data Source:  
 U.S. Geological Survey  
 National Wetlands Research Center  
 Coastal Restoration Field Station  
  
 LA Department of Natural Resources  
 Coastal Restoration Division  
 Map Date: November 1, 2001  
 Map ID: 200204115  
  
 Image Data:  
 1998 Digital Orthophoto Quarter Quads (DOQQS)

CWPPRA PPL11  
 Region 1  
  
**Lake Borgne  
 Shoreline Protection  
 at Bayou Dupre (PO-11-1)**

**Project Name** - Southern Chandeleur Islands Restoration Plan

**Coast 2050 Strategy** - Regional Ecosystem Strategy #9: Dedicated delivery of sediment for marsh building.

**Project Location** - Region 1 - Pontchartrain Basin, St. Bernard and Plaquemines Parishes, southern Chandeleur Islands.

**Problem** - The southern portion of the Chandeleur Island chain, including Breton Island, Grand Gosier Island and Curlew Island, was severely impacted during the passage of Hurricane Georges in 1998. Storm impact assessments indicate that more than 90% of the sub-aerial habitat on the islands was destroyed.

**Goals** - This restoration plan is designed to rebuild and maintain barrier island habitat in the southern Chandeleur system. These habitats provide important areas for fish and wildlife resources including sea birds, fish and crustaceans.

**Proposed Solution** - High quality sand will be dredged from nearby deposits and placed unconfined on the islands to rebuild barrier habitat. Features on Curlew and Grand Gosier Islands will restore 129 acres of dunes, 225 feet wide and more than 5 feet high, 164 acres of supratidal habitat including beach and swales, and 476 acres of back barrier marsh 2 feet high and 975 feet wide. Four miles of sand fencing will be installed and 935 acres of dune and marsh vegetation will be planted. On Breton Island, the land created with beneficial use material will be maintained and improved with the installation of 2 miles of sand fencing and the planting of 206 acres of dune and marsh vegetation.

**Project Benefits** - The islands are expected to accrete for the first six years as they recover from Hurricane Georges but during the next 14 years, they will begin to erode. Over the project life of 20 years, the islands will show a net increase of 145 acres of dune, 178 acres of supratidal habitat, and 412 acres of back barrier marsh over the future without project scenario. This new habitat will provide a platform for the islands to migrate onto during storm events.

**Project Costs** - The total fully funded cost is \$63,923,400 and the fully funded first cost is \$63,529,500.

**Risk/Uncertainty and Longevity/Sustainability** - There would be a moderate degree of risk associated with this project because of the uncertainty of hurricane and concern about construction. The project should continue providing benefits more than 20 years after construction because project features will introduce more than ten million cubic yards of high quality sand into the system.

**Sponsoring Agency and Contact Persons** - U.S. Army, Corps of Engineers, New Orleans District

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Christopher Alfonso (504) 862-2401; [christopher.d.alfonso@mvn02.usace.army.mil](mailto:christopher.d.alfonso@mvn02.usace.army.mil)



**Project Vicinity\***

\*Please note this map depicts only the vicinity of the candidate restoration project, not the actual project area.

Data Source:  
 U.S. Geological Survey  
 National Wetlands Research Center  
 Coastal Restoration Field Station

LA Department of Natural Resources  
 Coastal Restoration Division

Map Date: November 14, 2001  
 Map ID: 200204136

Image Data:  
 1990 SPOT Imagery

CWPPRA PPL11  
 Region 1

**Southern Chandeleur Islands  
 Restoration Plan  
 (PO-09-2)**

**Project Name** - Lake Lery Dedicated Dredging

**Coast 2050 Strategy** - Coastwide - Dedicated dredging to create, restore, or protect wetlands.

**Project Location** - Region 2 - Breton Sound Basin, St. Bernard Parish, northeast of Lake Lery and west of Highway 300.

**Problem** - This mapping unit had 12,260 acres of marsh in 1932 but had lost 3,260 acres by 1990; 1,000 acres of this loss were from 1974-1990. In 1991, the Caernarvon Freshwater Diversion structure began operating. However, this corner of the Breton Sound Basin is somewhat out of the influence of the diversion and has many open ponds surrounded by deteriorating marsh.

**Goals** - The goal of this project is to create and nourish marsh in and near three ponds.

**Proposed Solution** - The project would utilize dedicated dredging from Lake Lery to create 630 acres of marsh and to nourish 828 acres of broken marsh. All created marsh would be planted. Landscape design features would be implemented to increase estuarine productivity and maintain opportunities for traditional fish and wildlife use of the marsh.

**Project Benefits** - The project would benefit 832 acres of marsh and 788 acres of open water (total 1,620 acres). Marsh would be created and nourished so at the end of 20 years there would be a net of 649 acres of marsh over the future without project condition. Restoring the integrity of these wetlands will ensure opportunities for continued recreational and commercial uses of natural resources and will help protect the community of Delacroix.

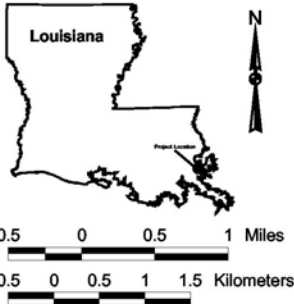
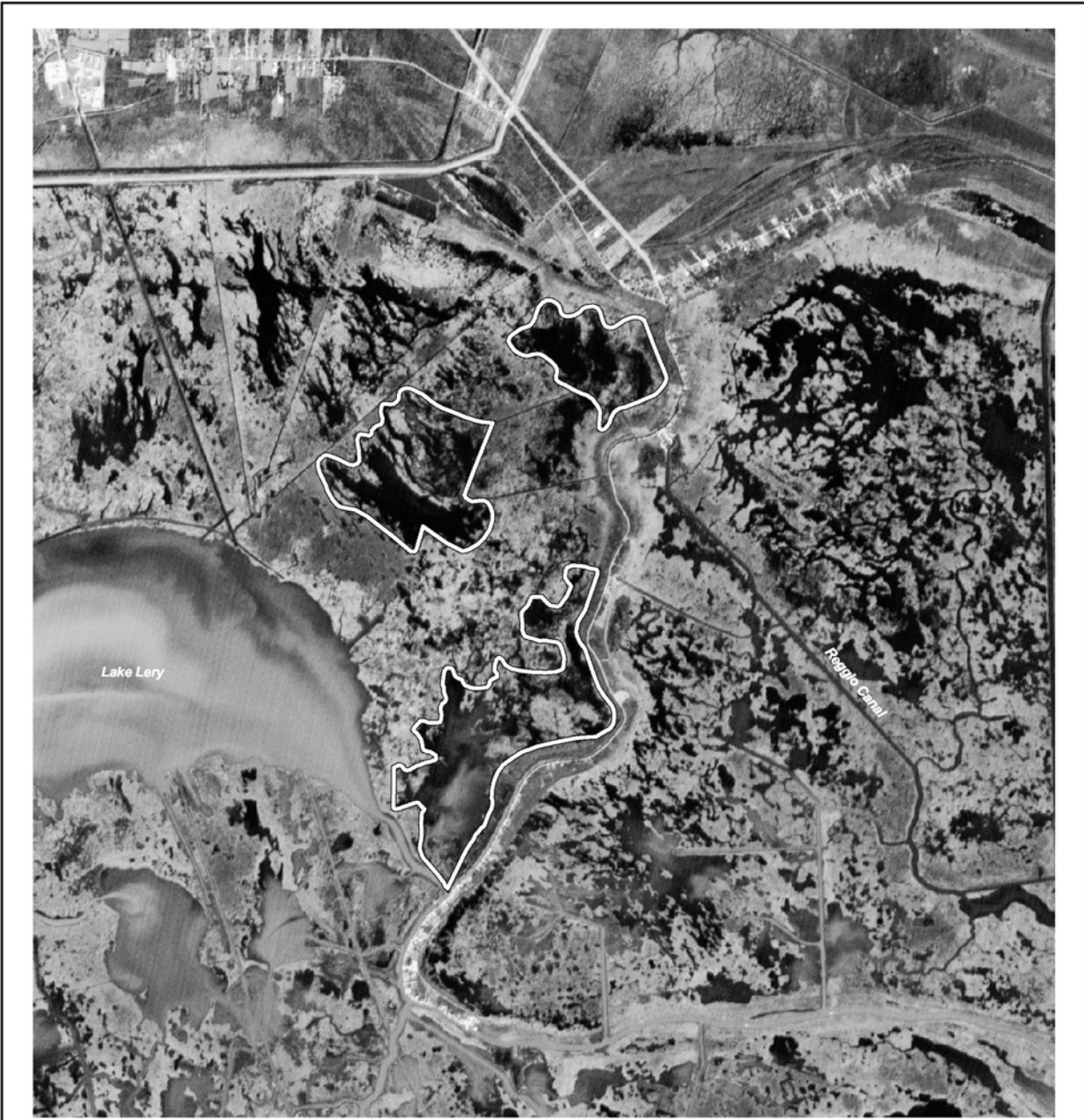
**Project Costs** - The total fully funded cost is \$32,661,300 and the fully funded first cost is \$32,317,800.


**Risk/Uncertainty and Longevity/Sustainability** - There would be a low degree of risk associated with this project because monitoring has indicated that marsh creation is a successful technique. The project should continue providing benefits more than 20 years after construction because large amounts of marsh would be created and nourished.

**Sponsoring Agency and Contact Persons** - U.S. Army, Corps of Engineers, New Orleans District

Gregory Miller (504) 862-2310; [gregory.b.miller@MVN02.usace.army.mil](mailto:gregory.b.miller@MVN02.usace.army.mil)

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 Project area

Data Source:  
 U.S. Geological Survey  
 National Wetlands Research Center  
 Coastal Restoration Field Station

LA Department of Natural Resources  
 Coastal Restoration Division

Map Date: November 14, 2001  
 Map ID: 200204122

Image Data:  
 1990 SPOT Panchromatic

CWPPRA PPL11  
 Region 2

**Lake Lery Dedicated  
 Dredging (BS-CW-1)**

**Project Name** - Dedicated Dredging on the Barataria Basin Landbridge

**Coast 2050 Strategy** - Coastwide - Dedicated dredging to create, restore, or protect wetlands.

**Project Location** - Region 2 - Barataria Basin; Jefferson Parish. The project area is located along the southeastern side of Bayou Rigolettes and between the Harvey Cut and Bayou Perot, and consists of 502 acres of emergent marsh and 780 acres of open water for a total of 1,282 acres.

**Problem** - The Barataria Basin Landbridge is the landmass that hydrologically divides the upper and lower Barataria Basin. The hydrologic connections between the upper and lower Barataria Basin are much greater today due to the Barataria Bay Waterway, Bayou Segnette Waterway, Harvey Cut, and substantial erosion and interior marsh loss that has occurred along Bayous Perot and Rigolettes. USACE and USGS land loss data indicate a recent loss rate of 2.3%/yr to 2.5%/yr. The causes of marsh loss appear to be primarily from subsidence and wind/wave erosion. This project, in conjunction with the Barataria Basin Landbridge Shoreline Protection Project (BBLSP), will protect the functional integrity of this critical area of the Barataria Basin.

**Goals** - The goals of this project are to create 780 acres of emergent marsh and to nourish/enhance an additional 502 acres of emergent marsh.

**Proposed Solution** - The project will include hydraulic dredging in Bayou Rigolettes and placement of dredged material in open water areas in the marsh interior. Shoreline protection features of the BBLSP will be used for containment along Bayous Perot and Rigolettes and earthen containment will be used in other areas. Upon demobilization, the marsh platform will be aerially seeded with a mixture of browntop millet, Japanese millet and/or other species to increase soil stability and jumpstart vegetative colonization.

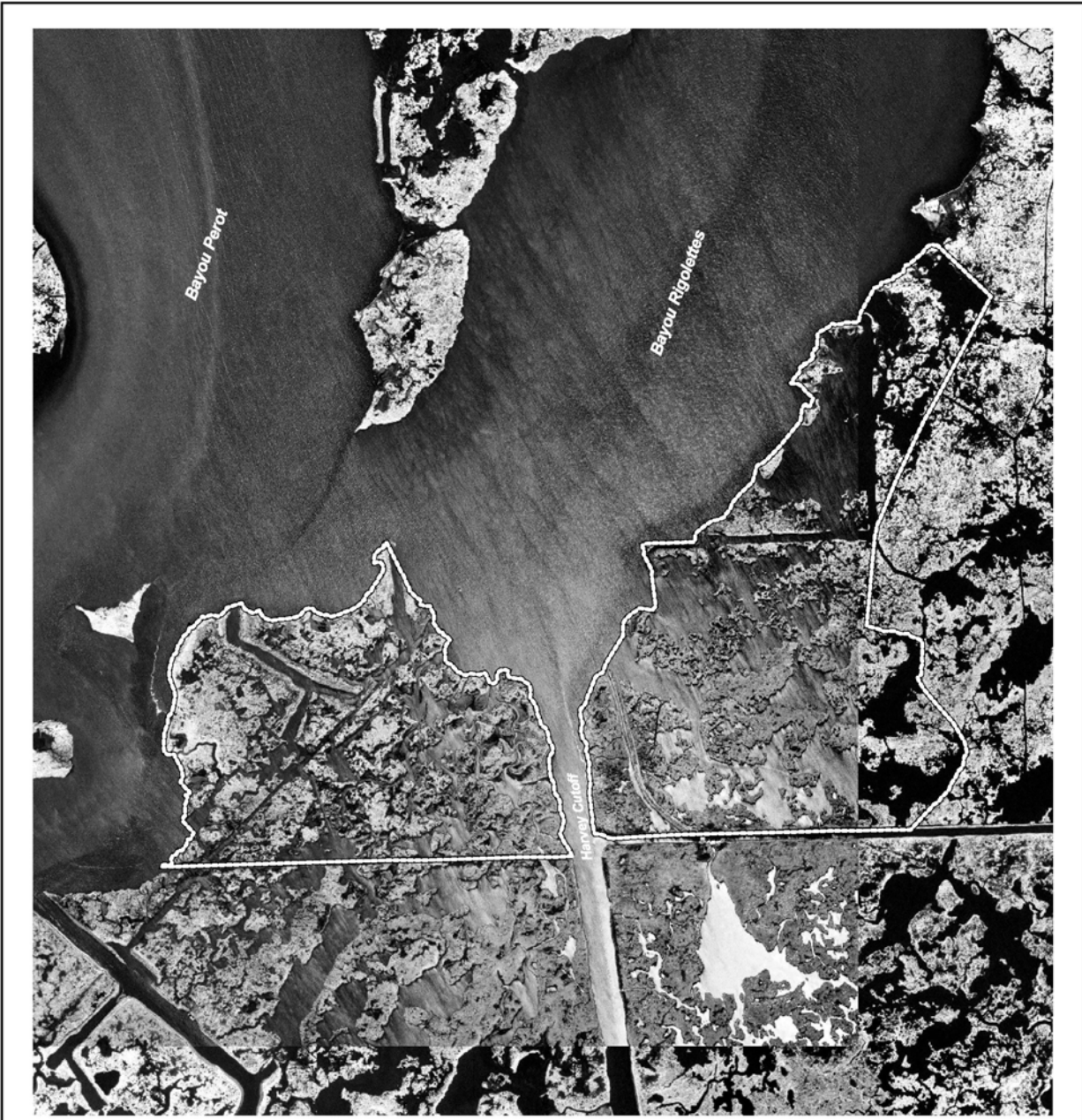
**Project Benefits** - The project will directly benefit 1,282 acres of intermediate marsh and open water and result in the net protection/creation of 564 acres of emergent marsh.

**Project Costs** - The total fully funded cost is \$29,692,800 and the fully funded first cost is \$29,377,100.

**Risk/Uncertainty and Longevity/Sustainability** - There is a low degree of risk/uncertainty associated with this project because of the numerous successful marsh creation projects which have been constructed along the coast. The project should continue to provide wetland benefits for greater than 20 years after construction.


**Sponsoring Agency and Contact Person** - U.S. Fish and Wildlife Service  
Kevin Roy (337) 291-3120; [kevin\\_roy@fws.gov](mailto:kevin_roy@fws.gov)  
Ronnie Paille (337) 291-3117; [ronald\\_paille@fws.gov](mailto:ronald_paille@fws.gov)





0.2 0 0.2 Miles

0.2 0 0.2 0.4 0.6 Kilometers

 Areas to be filled/nourished

Data Source:  
U.S. Geological Survey  
National Wetlands Research Center  
Coastal Restoration Field Station

LA Department of Natural Resources  
Coastal Restoration Division

Map Date: November 2, 2001  
Map ID: 200204113

Image Data:  
1998 Digital Orthophoto Quarter Quads (DOQQS)

CWPPRA PPL11  
Region 2

**Dedicated Dredging on the  
Barataria Basin Landbridge  
(BA-CW-3)**

**Project Name** - Little Lake Shoreline Protection and Dedicated Dredging Near Round Lake

**Coast 2050 Strategy** - Regional Ecosystem Strategy #6: Use dedicated dredging or beneficial use of sediment for wetland creation or protection. Regional Ecosystem Strategy #24: Preserve bay and lake shoreline integrity on the landbridge.

**Project Location** - Region 2 - Barataria Basin; Lafourche Parish. The project is located in the vicinity of southwestern Little Lake and is generally bound by the East and West Forks of Bayou L'Ours and the southern shoreline of Little Lake from Plum Point westward to Breton Canal.

**Problem** - The Little Lake mapping unit is an area of high wetland loss rates caused by shoreline erosion, subsidence, and channel construction. The project is located in an area which protects approximately 3,000 acres of fragile interior marsh located between the Little Lake shoreline and the Bayou L'Ours Ridge. Project area wetlands currently experience two major problems: high shoreline erosion rates (20 - 40 feet per year) and subsidence which deteriorates interior marshes with escalating loss rates. Marshes within the project area are expected to convert to predominantly open water over the next 20 years. Continued shoreline erosion and wetland loss will likely adversely affect large areas of adjacent marsh.

**Goals** - a) Prevent erosion along approximately four miles of Little Lake shoreline; b) create 488 acres of intertidal vegetated wetlands along the Little Lake Shoreline; c) nourish and maintain 532 acres of existing intermediate marsh; and d) reduce land loss rates by 50% over the 20 year project life.

**Proposed Solution** - Installation of 21,000 feet of shoreline protection (geotextile encapsulated lightweight aggregate capped with rock) in open water, with a crest elevation approximately 2 feet above mean water. Perform dedicated dredging from Little Lake to create approximately 488 acres of intertidal elevation and nourish 532 acres of fragmented, subsiding marsh.

**Project Benefits** - The project would provide benefits to 1,373 acres, and would protect and/or create approximately 713 acres over the course of the 20 year project life.

**Project Costs** - The total fully funded cost is \$37,174,900 and the fully funded first cost is \$31,946,500.

**Risk/Uncertainty and Longevity/Sustainability** - There is a low degree of risk associated with this project because shoreline protection and marsh creation are proven restoration techniques, there are no anticipated impacts to oyster leases, and the project area is owned by a single, large landowner which has participated in past restoration projects. Additionally, the project features are scalable, allowing for reconfiguration in Phase I to optimize project performance. The project should continue providing benefits for more than 20 years after construction because significant quantities of sediment will be placed in project area marshes and adequate maintenance of the shoreline protection features is provided.

**Sponsoring Agency and Contact Person** - National Marine Fisheries Service  
Rachel Sweeney (225) 389-0508; [rachel.sweeney@noaa.gov](mailto:rachel.sweeney@noaa.gov)



<p>Louisiana</p> <p>Project Location</p> <p>0.2 0 0.2 Miles</p> <p>0.2 0 0.2 0.4 Kilometers</p>	<p>N</p> <p>Project area</p> <p>Shoreline Protection</p> <p>Data Source: U.S. Geological Survey National Wetlands Research Center Coastal Restoration Field Station</p> <p>LA Department of Natural Resources Coastal Restoration Division</p> <p>Map Date: November 12, 2001 Map ID: 200204112</p> <p>Image Data: 1998 Digital Orthophoto Quarter Quads (DOQQS)</p>	<p>CWPPRA PPL11 Region 2</p> <p>Little Lake Shoreline Protection/ Dedicated Dredging Near Round Lake (BA-24-1)</p> <p><i>Marsh Creation and Nourishment - Area A</i> <i>Shoreline Protection - Areas A, B and C</i></p>
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**Project Name** - South Shore of the Pen/Bayou Dupont Shoreline Protection/Marsh Creation

**Coast 2050 Strategy** - Coastwide - Dedicated dredging to create, restore or protect wetlands, and Regional Ecosystem Strategy #24: Preserve bay and lake shoreline integrity on landbridge.

**Project Location** - Region 2 - Barataria Basin; Jefferson and Plaquemines Parishes, on the south shore of the Pen and both sides of Bayou Dupont from the Pen east and south toward Round Lake.

**Problem** - The marsh on the south shore of the Pen is eroding rapidly. Both sides of Bayou Dupont from the Pen to near Round Lake have deteriorated badly leaving large areas of open water. Probable causes of the loss are shoreline erosion on the shore of the Pen. Subsidence/compaction of the soil and possibly vegetation loss from increased salinity levels and altered hydrology have caused the loss along Bayou Dupont.

**Goals** - The goal is a) to restore viable marsh in several open water areas on the south shore of the Pen and along both sides of Bayou Dupont; b) to restore nearly four miles of Bayou Dupont bankline; and c) reduce the rate of shoreline erosion along the south shore of the Pen.

**Proposed Solution** - An earthen retaining levee would be built along the south shore of the Pen with the inside toe of the levee on the shoreline and the levee extending out into the Pen. There would be no fish access across the levee. Material would be dredged from the Pen and Bayou Dupont to fill a 275 acre area. The levee would be planted. Material would be dredged from Bayou Dupont with a small dredge to create marsh in four semi-confined disposal areas along the bayou. A meandering three-foot "terrace" with a top width of 23 feet would protect about 4 miles of eroding bank along Bayou Dupont. The terrace would be planted.

**Project Benefits** - The project would benefit 162 acres of marsh and 536 acres of open water for a total of 698 acres. Approximately 476 acres of marsh would be created/protected over the course of the 20 year project life.

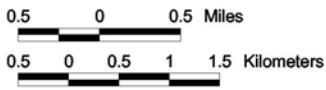
**Project Costs** - The total fully funded cost is \$28,486,200 and the fully funded first cost is \$27,110,100.



**Risk/Uncertainty and Longevity/Sustainability** - There is a moderate degree of risk associated with this project because of the uncertainty of the poor foundation in the area. This project should continue providing benefits beyond 20 years after construction because large amounts of marsh would be created initially.

**Sponsoring Agency and Contact Persons** - U.S. Army, Corps of Engineers, New Orleans District

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-  Marsh Creation Area
-  Shoreline Protection/ Marsh Creation

Data Source:  
 U.S. Geological Survey  
 National Wetlands Research Center  
 Coastal Restoration Field Station  
 LA Department of Natural Resources  
 Coastal Restoration Division  
 Map Date: November 3, 2001  
 Map ID: 200204114  
 Image Data:  
 1990 SPOT

CWPPRA PPL11  
 Region 2

South Shore of the Pen/  
 Bayou Dupont Shoreline  
 Protection/Marsh Creation  
 (BA-24-3b)

**Project Name** - Northeast and South Extension of Barataria Landbridge Shoreline Protection

**Coast 2050 Strategy** - Regional Ecosystem Strategy #24: Preserve bay and lake shoreline integrity on the landbridge.

**Project Location** - Region 2 - Barataria Basin; Jefferson Parish. The Northeast Extension begins at the intersection of Bayou Rigolettes and Barataria Waterway, and extends 31,500 feet southward along the east bank of Bayou Rigolettes. The South Extension begins at the southern end of Harvey Cut and extends southwest along the Turtle Bay shoreline, then west and north along the Little Lake shoreline for a distance of 23,300 feet.

**Problem** - Shoreline erosion and deterioration of the Barataria landbridge.

**Goals** - The objective for this project is to eliminate shoreline erosion for the areas listed in the project location. For the South Extension, dredged material from the construction of access canals will be placed in open water areas.

**Proposed Solution** - The Northeast Extension will consist of 31,500 feet of foreshore rock dike with a lightweight aggregate core or concrete sheetpile and will incorporate “fish dips” and openings at historic natural channels. The South Extension will consist of 19,000 feet of rock shoreline revetment and 4,300 feet of foreshore rock dike with a lightweight aggregate core or concrete sheetpile. Using material dredged from construction access channels, approximately 36 acres would be created.

**Project Benefits** - The project will benefit a total of 1,109 acres of marsh and shallow water. It will protect 430 acres of emergent marsh over the course of the 20 year project life.

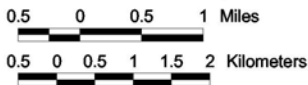
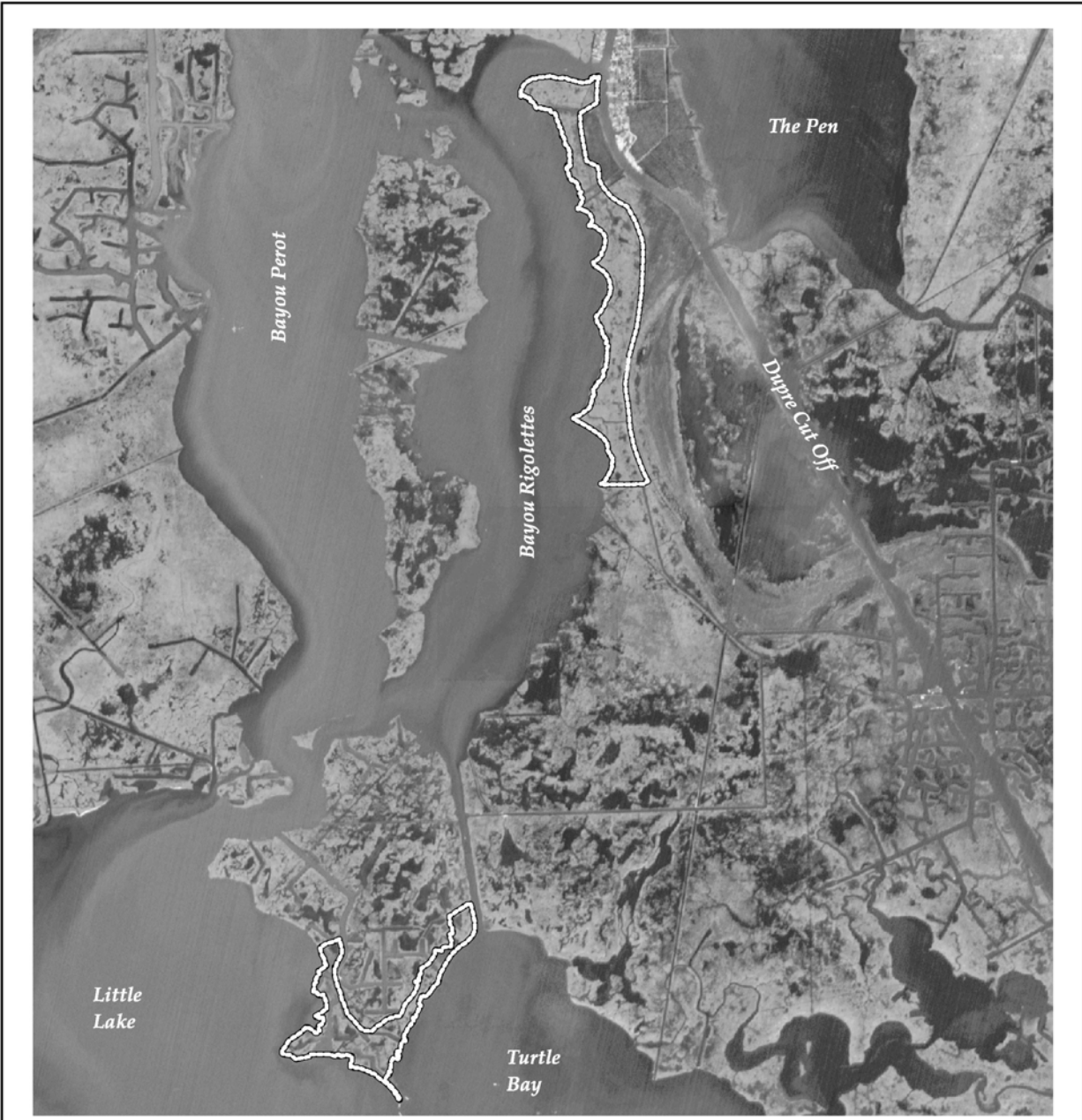
**Project Costs** - The total fully funded cost is \$54,679,900 and the fully funded first cost is \$37,893,100.


**Risk/Uncertainty and Longevity/Sustainability** - There is a low degree of risk associated with this project because of results determined from test sections constructed in the previous phases of the Barataria Landbridge. The project should continue providing benefits beyond 20 years after construction because of protection provided by project.

**Sponsoring Agency and Contact Person** - USDA, Natural Resources Conservation Service

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Eng.WG: John Jurgensen (318) 473-7694; [john.jurgensen@la.usda.gov](mailto:john.jurgensen@la.usda.gov)



 Project area

Data Source:  
 U.S. Geological Survey  
 National Wetlands Research Center  
 Coastal Restoration Field Station  
 LA Department of Natural Resources  
 Coastal Restoration Division  
 Map Date: November 15, 2001  
 Map ID: 200204116  
 Image Data:  
 1990 SPOT Panchromatic Imagery

CWPPRA PPL11  
 Region 2  
 Extension of Barataria  
 Landbridge Shoreline  
 Protection  
 (BA-24-4)

**Project Name** - Pass Chaland to Grand Bayou Pass Barrier Shoreline Restoration

**Coast 2050 Strategy** - Regional Ecosystem Strategy #21: Extend and maintain barrier headlands, islands, and shorelines.

**Project Location** - Region 2 - Barataria Basin; Plaquemines Parish; between Pass Chaland and Grand Bayou Pass, part of the Plaquemines Barrier System. The project boundary extends from bayside edge of the Bay Joe Wise Headland northward between the confluence of Bayou Huertes with the Gulf shoreline to Grand Bayou Pass.

**Problem** - Wetlands, dune, and swale habitats within the project area have undergone substantial loss due to oil and gas activities (e.g., pipeline construction), subsidence, absolute sea-level rise, and marine and wind induced shoreline erosion (e.g., gulfside and bayside). Marine processes acting on the abandoned deltaic headlands rework and redistribute previously deposited sediment. Development of fragmentary islands from breaches in the barrier headland and subsequent inlet/pass formation has resulted from increased tidal prism storage and storm related impacts. The Bay Joe Wise headland has receded and decreased to a critical width that is susceptible to breaching during storms with a return frequency of 8.3 years for the Barataria Shoreline.

**Goals** - The goals of the project are to a) prevent breaching of the barrier shoreline by increasing its width and b) create 226 acres of back-barrier soil elevations conducive to the establishment of marsh vegetation.

**Proposed Solution** - Create a marsh platform approximately 1,000 feet wide contiguous with the northern side of the Gulf shoreline of Bay Joe Wise. This platform would be created at a maximum initial fill elevation of +2.0 feet NAVD with semi-confined disposal. A cut to fill ratio was assumed to be 1.5 to 1 based on semi-confined construction and the geotechnical analyses by the University of New Orleans and the U.S. Geological Survey. Approximately 10,000 feet of tidal creeks, 4 feet wide, 2 feet deep, with 1:3 slopes would be constructed. Additionally, six, one-acre ponds would be constructed 2 feet deep. The marsh platform would be aerially seeded with Japanese or Browntop millet and then planted with smooth cordgrass and black mangroves on 10-foot centers.

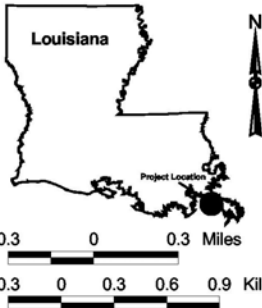
**Project Benefits** - The project area anticipated to be benefited is 359 acres, and the project will protect/create approx. 161 acres of barrier island habitat over the course of the 20 year project life.

**Project Costs** - The total fully funded cost is \$19,001,400 and the fully funded first cost is \$18,676,100.

**Risk/Uncertainty and Longevity/Sustainability** - There is a moderate degree of risk associated with this project because it depends on landowner cooperation, and pipelines and oyster leases are present. The project should continue providing benefits for more than 20 years after construction because project features are designed to compensate for ongoing shoreline erosion and future storm events.

**Sponsoring Agency and Contact Person** - National Marine Fisheries Service  
Patrick Williams (225) 389-0508; [patrick.williams@noaa.gov](mailto:patrick.williams@noaa.gov)  
Rachel Sweeney (225) 389-0508; [rachel.sweeney@noaa.gov](mailto:rachel.sweeney@noaa.gov)





 Project area

Data Source:  
 U.S. Geological Survey  
 National Wetlands Research Center  
 Coastal Restoration Field Station  
 LA Department of Natural Resources  
 Coastal Restoration Division  
 Map Date: November 1, 2001  
 Map ID: 200204107  
 Image Data:  
 1998 Digital Orthophoto Quarter Quads (DOQQS)

CWPPRA PPL11  
 Region 2  
 Grand Bayou to Pass Chaland Island  
 Restoration (BA-21-2)

**Project Name** - Bayou Terrebonne East Bank Hydrologic Restoration Project

**Coast 2050 Strategy** - Regional Ecosystem Strategy #10: Restore hydrologic conditions at tidal exchange points.

**Project Location** - Region 3 - Terrebonne Basin, Terrebonne Parish, east bank of Bayou Terrebonne from Madison Canal southward to near Sea Breeze Pass.

**Problem** - The dredging of access canals through east bank of Bayou Terrebonne and the deterioration/erosion of sections of that bank are allowing saline Lake Barre waters to enter Bayou Terrebonne where other canals into the Lake Boudreaux Basin via Robinson Canal and Boudreaux Canal transport them. These canals have short-circuited flow through the existing natural bayous, thereby increasing tidal exchange and saltwater intrusion. Monitoring of area salinities and flow patterns has provided evidence of this problem.

**Goals** - The project goal is to restore and maintain the east bank of Bayou Terrebonne because it provides a critically important hydrologic barrier between the saline water of Lake Barre and low-salinity marshes in the Lake Boudreaux Basin.

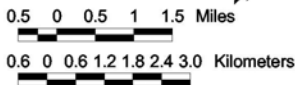
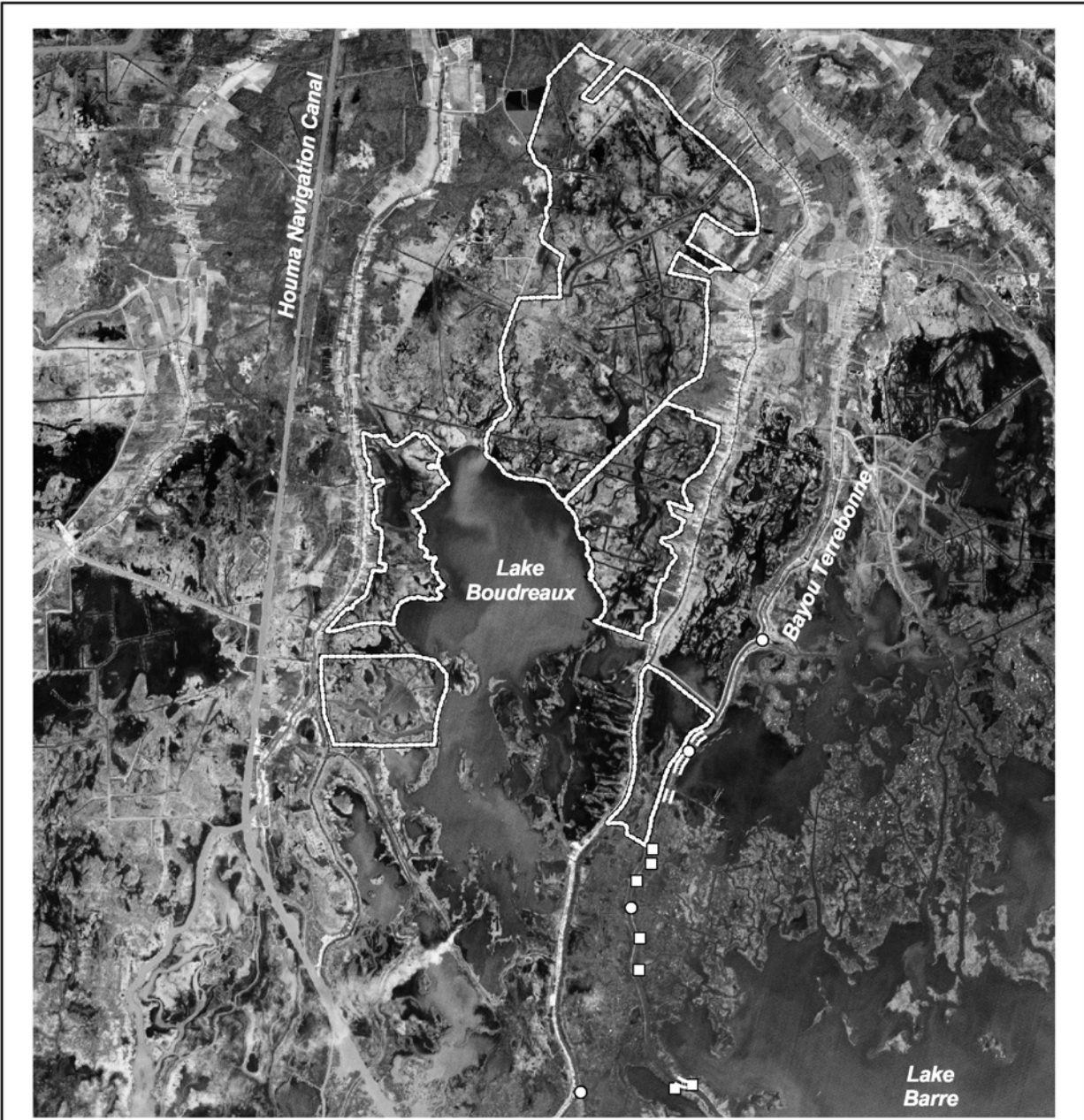
**Proposed Solution** - Project features include the construction of 6 canal plugs, the repair of one deteriorated canal plug, the installation of 4 passive sheetpile constriction structures on canals, and construction of 3 segments of low-level riprap shore protection totaling approximately 3,700 linear feet. This would prevent breaching of deteriorated banks and the subsequent establishment of new hydrologic exchange points. Maintenance would be required for each of above listed features.

**Project Benefits** - The project would affect almost 21,000 acres of intermediate, brackish and saline marsh and open water. Over the 20 year project life, it would protect a net of 144 acres of marsh over the without-project condition.

**Project Costs** - The total fully funded cost is \$17,172,700 and the fully funded first cost is \$10,331,200.

**Risk/Uncertainty and Longevity/Sustainability** - There is a moderate degree of risk associated with this project given the complexity of area hydrology. The project should continue providing benefits more than 20 years after construction because of materials, designs, and maintenance of project features.

**Sponsoring Agency and Contact Person** - U.S. Fish and Wildlife Service  
Ronny Paille (337) 291-3117; [ronald\\_paille@fws.gov](mailto:ronald_paille@fws.gov)



- Project area
- Proposed dike
- Proposed plug
- Proposed constriction structure

Data Source:  
 U.S. Geological Survey  
 National Wetlands Research Center  
 Coastal Restoration Field Station

LA Department of Natural Resources  
 Coastal Restoration Division

Map Date: November 14, 2001  
 Map ID: 200204120

Image Data:  
 1990 SPOT Panchromatic

CWPPRA PPL11  
 Region 3

Bayou Terrebonne  
 East Bank Hydrologic  
 Restoration Project (TE-10-5)

**Project Name** - Blue Hammock Hydrologic Restoration and Beneficial Use Project

**Coast 2050 Strategy** - Regional Ecosystem Strategy #10: Restore hydrologic conditions of major exchange points or prevent adverse tidal exchange points between Gulf/lake, lake/marsh, bay/marsh, Gulf/bay and marsh/navigation channel locations.

**Project Location** - Region 3 - Terrebonne Basin, Terrebonne Parish. The project area is located between Fourleague Bay and Bayou Dularge, encompassing all of Lake Mechant and the marshes north to Bayou Decade.

**Problem** - Grand Pass is a major tidal exchange point through the Bayou Dularge ridge, which carries higher salinity water directly from Sister Lake into Lake Mechant and the surrounding marshes. Historically, this pass did not cut straight through the ridge and was a less efficient channel than it is now. Periodic increases in salinity in Lake Mechant are contributing to the loss of intermediate and brackish marshes in the basin. Freshwater input into the basin currently comes through the GIWW and the Penchant system on the north and Atchafalaya River input from Four League Bay via Bayous Carencro and Blue Hammock Bayou. However, the size of Blue Hammock Bayou decreases substantially west of Lake Mechant, which limits the easterly flow of sediment laden river water into Lake Mechant and surrounding marshes.

**Goals** - 1) more efficiently utilize Blue Hammock Bayou as a means to increase the flow of freshwater, sediments and nutrients into Lake Mechant and surrounding marshes; 2) beneficially utilize dredged material from Blue Hammock Bayou to create marsh; 3) reduce the tidal exchange and the resulting saltwater input through Grand Pass and Buckskin Bayou; 4) increase the retention time of freshwater and sediments within the Lake Mechant area.

**Proposed Solution** - 1) conduct hydrologic modeling to determine appropriate channel sizes to accomplish the goals of the project; 2) construct a weir in Grand Pass; 3) construct a weir in Buckskin Bayou; 4) dredge Blue Hammock Bayou to increase the cross section; 4) create 229 acres of marsh with the material dredged from Blue Hammock Bayou.

**Project Benefits** - The project will benefit a total of 43,555 acres and will protect/create 670 net acres of emergent marsh over the 20 year project life.

**Project Costs** - The total fully funded cost is \$46,708,700 and the fully funded first cost is \$38,263,800.

**Risk/Uncertainty and Longevity/Sustainability** - There is a high degree of risk and uncertainty associated with this project because the specific channel dimensions and degree of channel constrictions needed to accomplish the goals are unknown until hydrologic modeling is conducted. The project should continue providing benefits more than 20 years after construction.

**Sponsoring Agency and Contact Person** - U.S. Fish and Wildlife Service  
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**Project Name -** West Lake Boudreaux Shoreline Protection/ Marsh Creation

**Coast 2050 Strategy -** Coastwide - Maintenance of Gulf Bay and Lake Shoreline Integrity

**Project Location** - Region 3 - Terrebonne Basin; Terrebonne Parish; West shore of Lake Boudreaux

**Problem** - The west bank of Lake Boudreaux has experienced high rates of erosion due to wind driven waves and high water. These erosion rates vary from 45 ft/yr (northwestern shore) to 7 ft/yr (southwestern shore). The shoreline is approximately 600 - 900 ft. in width and has been breached in several places. If this erosion is not stopped then the interior marsh will be compromised. The interior marsh had a land loss rate of 3.68% per year from 1983-1990. Continued shoreline loss will convert the productive shallow open-water areas filled with SAV to an open lake habitat.

**Goals** - 1) reduce shoreline erosion to protect 80 acres of emergent marsh and protect submerged aquatic vegetation throughout the project area; 2) initially create 124 acres of emergent marsh along the shoreline and interior marsh sites through deposition of dredged material; 3) reduce marsh loss rates within the project area.

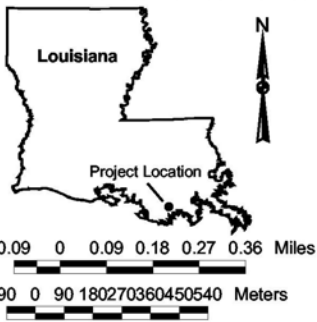
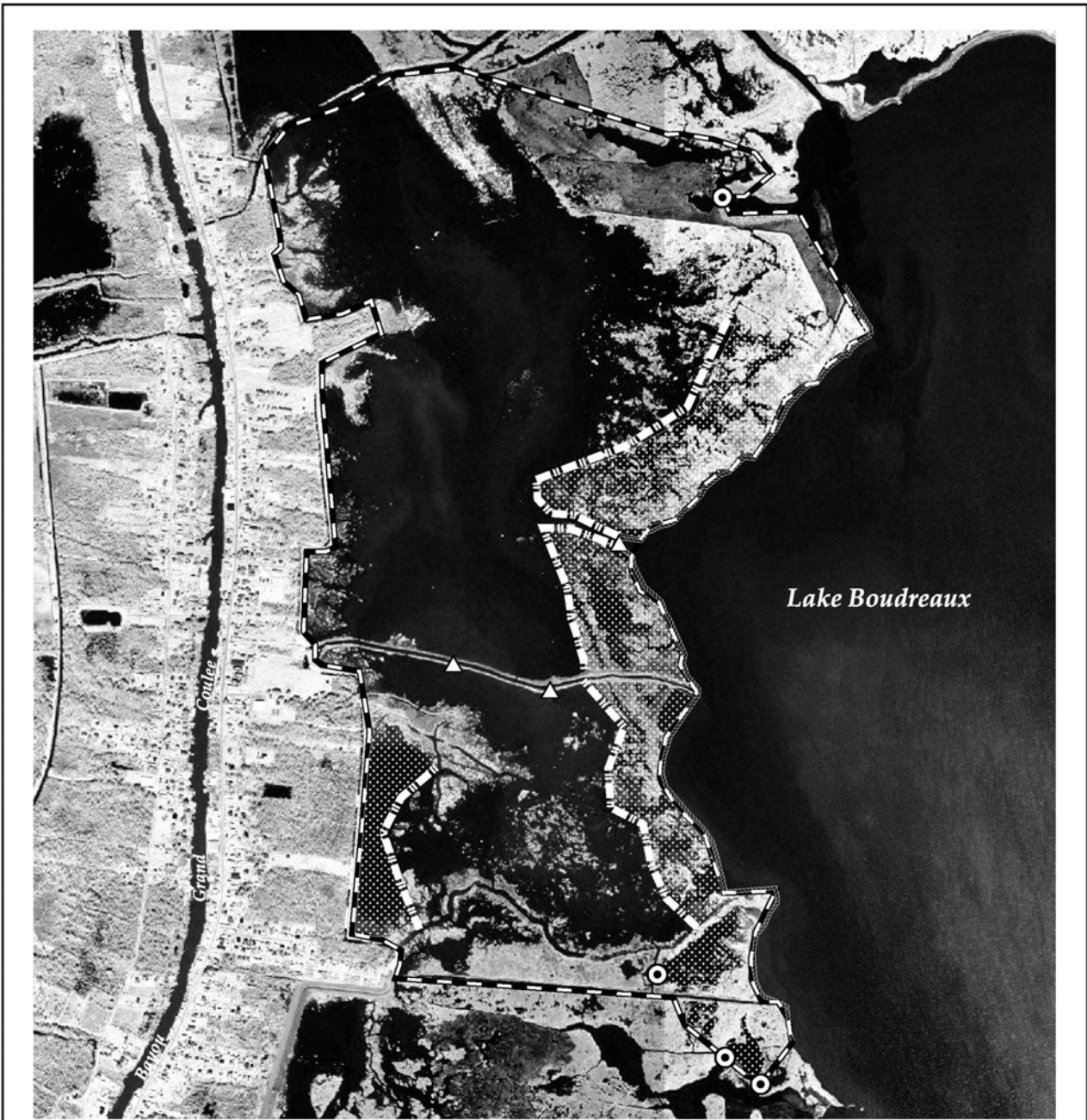
**Proposed Solution** - 1) construct 11,644 linear feet of shoreline protection in two sections along the western shoreline of Lake Boudreaux. A gap, approximately 100 ft. wide, would be left open for fish access; 2) construct 4,000 linear feet of earthen dike and 4 earthen plugs to contain dredged material. Hydraulically dredge lake-bottom sediments to create 124 acres of marsh; 3) construct one earthen plug to reduce water exchange; 4) enlarge existing openings or create new openings in the pumping station canal spoil bank to facilitate water exchange between the north and south ponds.

**Project Benefits** - The project will benefit a total of 1,177 acres of marsh and open water. It will create and/or protect a net of 145 acres of emergent marsh over the 20 year project life.

**Project Costs** - The total fully funded cost is \$14,565,900 and the fully funded first cost is 13,022,000.

**Risk/Uncertainty and Longevity/Sustainability** - This project has low risk because the use of rocks for shoreline erosion projects has been shown to stop shoreline erosion and marsh creation is a successful tool. The project should continue providing benefits for more than 20 years after construction because of low subsidence rate in Boudreaux Basin and amount of remaining marsh.

**Sponsoring Agency and Contact Person** - U.S. Fish and Wildlife Service  
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- Project area
- Inside Dikes
- Shoreline Protection
- Fishways
- Earthen Plug
- Direct impact

Data Source:  
 U.S. Geological Survey  
 National Wetlands Research Center  
 Coastal Restoration Field Station  
 LA Department of Natural Resources  
 Coastal Restoration Division  
 Map Date: November 1, 2001  
 Map ID: 200204118  
 Image Data:  
 1998 Digital Orthophoto Quarter Quadrangle (DOQQS)

CWPPRA PPL11  
 Region 3

**West Lake Boudreaux  
 Shoreline Protection/Marsh Creation  
 (TE-CW-2)**

**Project Name** - Ship Shoal: Whiskey West Flank Restoration

**Coast 2050 Strategy** - Regional Ecosystem Strategy #14: Restore and maintain the Isles Dernieres barrier island chain.

**Project Location** - Region 3 - Terrebonne Basin, Terrebonne Parish, west spit area Whiskey Island.

**Problem** - The Isles Dernieres Chain, which has been considered one of the most rapidly deteriorating barrier shorelines in the U.S., is losing its structural framework functions for the coastal/estuarine ecosystem including storm buffering capacity and protection for inland bays, estuary and wetlands, human populations and infrastructure. Chain breakup has resulted from both major storm actions and from loss of nourishing sediment from the natural system due to human alterations. Whiskey Island changes from 1978 to 1988 include loss of 31.1 acres per year.

**Goals** - 1) restore the integrity of the west flank of Whiskey Island to retain its structural function to the coastal/estuary ecosystem; 2) add new offshore prime quality sediment into the west flank; 3) initially restore approximately 387 acres of barrier island habitat to the western flank.

**Proposed Solution** - The project entails mining and placing Ship Shoal sand from the Minerals Management Service Block 88 by cutterhead or hopper dredge to rebuild the west flank of Whiskey Island, a distance of about 8 miles. The area to be restored includes 57 acres of dunes 7 feet high and 150 feet wide, 114 acres supratidal habitat at 4 feet in elevation, 208 acres intertidal habitat at a 2-foot elevation, and 8 acres subtidal habitat from 0 to minus 1.5 feet in elevation. All areas would be planted and sand fencing placed to trap wind-blown sediment.

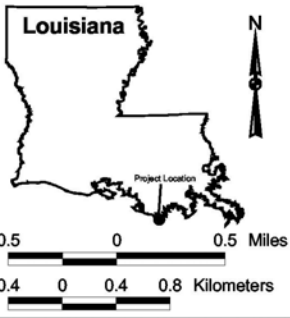
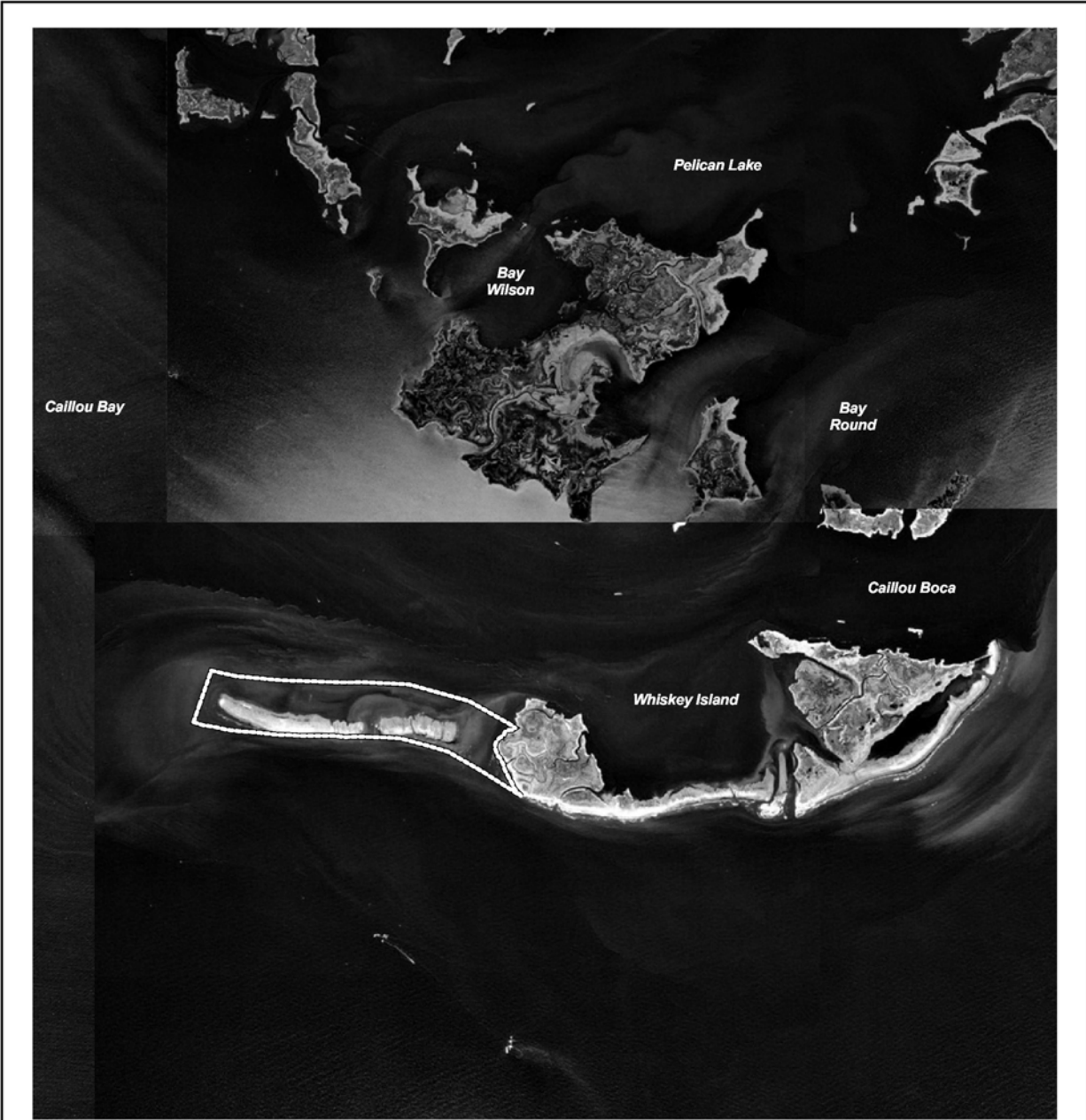
**Project Benefits** - Benefits include prevention of loss of sediment from the system into deeper Gulf waters or into bayside deeper water. The project would benefit a total of 398 acres of barrier island and shallow water. At the end of 20 years, there would be a net of 182 acres of island over the without-project condition.

**Project Costs** - The fully funded first cost is \$38,985,100 and the total fully funded cost is \$39,302,900.

**Risk/Uncertainty and Longevity/Sustainability** - There is a moderate degree of risk associated with this project due to greater storm effects in this area of the coast and difficulty in engineering and construction. Benefits should continue for more than 20 years due to the high quality and compatibility of Ship Shoal sand.

**Sponsoring Agency/Contact Persons** - U.S. Environmental Protection Agency  
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 Project area

Data Source:  
 U.S. Geological Survey  
 National Wetlands Research Center  
 Coastal Restoration Field Station

LA Department of Natural Resources  
 Coastal Restoration Division

Map Date: November 15, 2001  
 Map ID: 200204138

Image Data:  
 1998 Digital Orthophoto Quarter Quads (DOQQS)

CWPPRA PPL11  
 Region 3

**Whiskey Island West Flank Extension  
 (TE-14-1b)**

**Project Name** - Raccoon Island Shoreline Protection/Marsh Creation

**Coast 2050 Strategy** - Regional Ecosystem Strategy #14: Restore and maintain the barrier islands and Gulf shorelines such as Isles Dernieres and Timbalier barrier island chains, Marsh Island, Point au Fer and Cheniere au Tigre.

**Project Location** - Region 3 - Terrebonne Basin; Terrebonne Parish. The project area is the westernmost barrier island in the Isles Dernieres chain.

**Problem** - The Isles Dernieres barrier island chain is experiencing one of the highest rates of erosion of any coastal region in the world.

**Goals** - The primary objectives of this project are to protect the Raccoon Island rookery and seabird colonies from an encroaching shoreline by reducing the rate of shoreline erosion along the western end of the island, and creating 60 acres of new habitat for bird species along the northern shoreline.

**Proposed Solution** - Project features include the construction of eight additional segmented breakwaters along the Gulf side of the island just to the west of the Raccoon Island Demo (TE-29) Project. Connection of existing breakwaters numbers 0, 1 and 2 with rock riprap and construction of an earthen dike between two peninsulas along the northern shore (bayside), with backfill material placed between the dike and the island with sediments dredged from the bay. The created area will be planted with herbaceous species and six different woody species.

**Project Benefits** - This project would benefit approximately 327 acres of beach, shrub, saline marsh and shallow water habitat. This project will result in the protection/creation of 167 acres over the course of the 20 year project life.

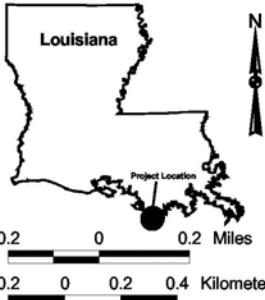
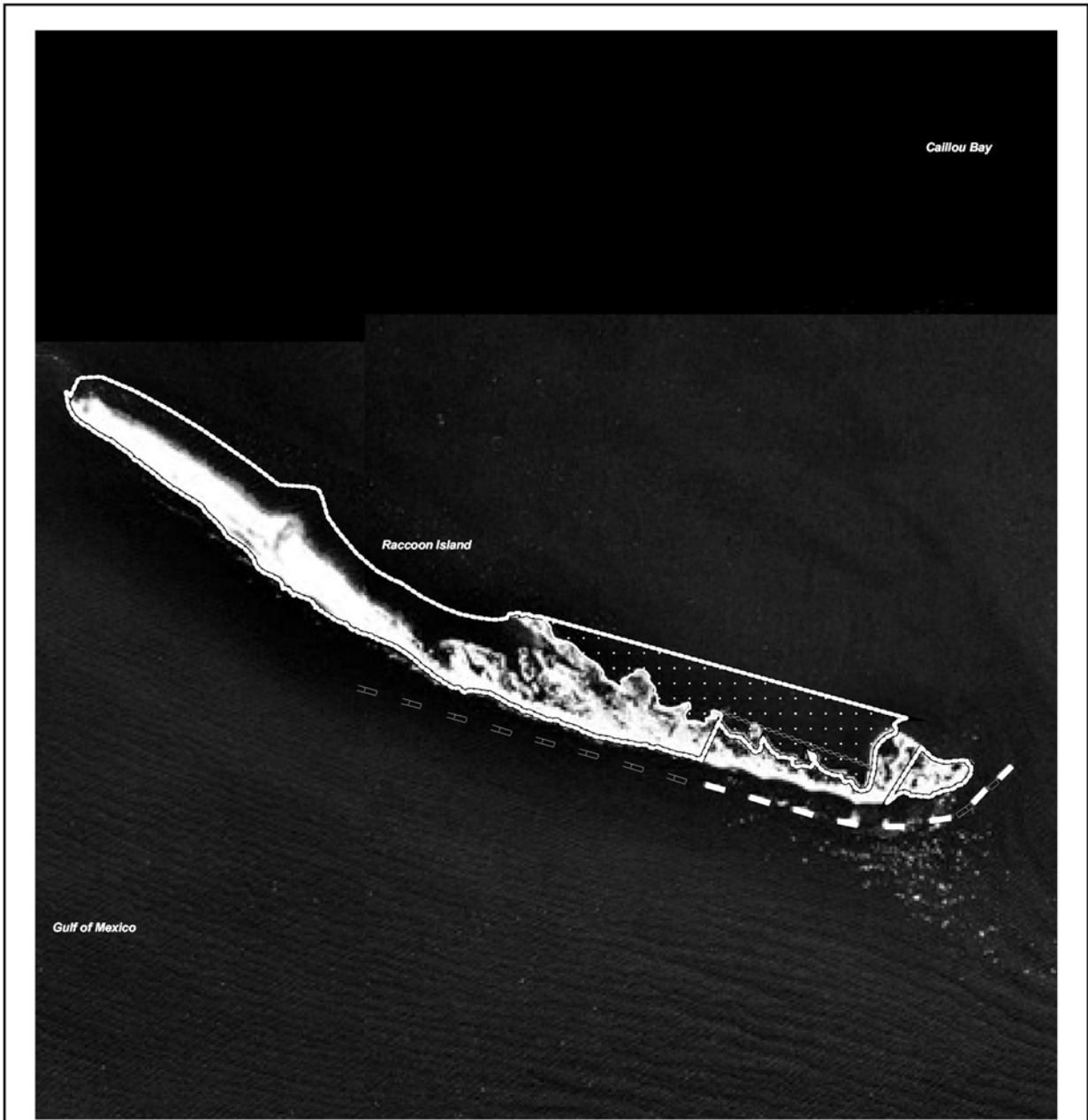
**Project Costs** - The proposed total fully funded cost is \$10,355,700 and the fully funded first cost is \$10,037,900.






**Risk/Uncertainty and Longevity/Sustainability** - There is a low degree of risk associated with this project because it follows the same proven methods that have been achieved by the demonstration project and contains marsh creation with appropriate vegetative plantings. The project should continue providing benefits beyond 20 years after construction as a result of additional elevation and width, and Gulf side protection afforded by the breakwaters.

**Sponsoring Agency and Contact Person** - USDA, Natural Resources Conservation Service

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Eng.WG: Loland Broussard (337) 291-3060; [loland.broussard@la.usda.gov](mailto:loland.broussard@la.usda.gov)



-  Project area
-  Existing breakwater
-  Proposed breakwater
-  Dune height
-  Marsh creation

Data Source:  
 U.S. Geological Survey  
 National Wetlands Research Center  
 Coastal Restoration Field Station

LA Department of Natural Resources  
 Coastal Restoration Division  
 Map Date: November 16, 2001  
 Map ID: 200204119  
 Image Data:  
 1996 Digital Orthophoto Quarter Quads (DOQQS)

CWPPRA PPL11  
 Region 3

**Raccoon Island Shoreline Protection/  
 Marsh Creation (TE-14-2)**

**Project Name** - South White Lake Shoreline Protection - Will's Point to the western shore of Bear Lake

**Coast 2050 Strategy** - Regional Ecosystem Strategy #16: Stabilize Grand and White Lakes shorelines

**Project Location** - Region 4 - Mermentau Basin, Vermilion Parish, south shore of White Lake north of Pecan Island

**Problem** - The south shoreline of White Lake is retreating at an average rate of 15 feet per year as a result of wind-induced wave energy. As the shoreline south of Bear Lake erodes, it could breach low marsh management levees and increase interior marsh loss rates in the area.

**Goals** - Stop shoreline erosion and promote accretion landward of the breakwater. Prevent future land loss in a marsh management unit south of Bear Lake when the existing low levees breach.

**Proposed Solution** - A segmented breakwater at the -2 foot contour with a five-foot wide crown at an elevation of +2 NGVD would be built. The 330,000 tons of stone would be placed on geotextile. There would be 20-foot wide fish dips at 1,000-foot intervals. They would be lined with concrete or rock smaller than the 24-inch stones used in the rest of the breakwater. These dips would crest one foot above the existing -2 foot bottom. A flotation channel would be necessary and all material would be cast inshore of the breakwater.

**Project Benefits** - This breakwater would benefit a total area of 1,856 acres; 1,136 acres of open water and 720 acres of marsh. It would protect and create approximately 424 acres of marsh over the 20 year project life compared to the without-project condition.

**Project Costs** - The total fully funded cost is \$25,448,500 and the fully funded first cost is \$18,575,500.

**Risk/Uncertainty and Longevity/Sustainability** - There would be a low degree of risk associated with this project because monitoring has indicated that breakwaters significantly reduce erosion. The project should continue providing benefits for more than 20 years after construction because some rocks will be replaced at years 5 and 15.

**Sponsoring Agency and Contact Persons** - U.S. Army, Corps of Engineers, New Orleans District



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0.5 0 0.5 Miles

0.5 0 0.5 1 1.5 Kilometers

 Project area  
 Breakwater

Data Source:  
 U.S. Geological Survey  
 National Wetlands Research Center  
 Coastal Restoration Field Station  
 LA Department of Natural Resources  
 Coastal Restoration Division  
 Map Date: November 13, 2001  
 Map ID: 200204135  
 Image Data:  
 1990 SPOT Imagery

CWPPRA PPL11  
 Region 4  
  
 South White Lake Protection  
 from Will's Point to the  
 Western Shore of Bear Lake  
 (ME-16-1)

**Project Name** - Grand Lake Shoreline Protection, from Superior Canal to Tebo Point

**Coast 2050 Strategy** - Regional Ecosystem Strategy #16: Stabilize Grand and White Lakes shorelines.

**Project Location** - Region 4 - Mermentau Basin, Cameron Parish, south shore of Grand Lake.

**Problem** - According to a comparison of the 1978-79 aerial photography with 1997-98 photography, shoreline erosion rates in this area vary from 11 to 32 feet per year.

**Goals** - 1) stop shoreline erosion from Superior Canal to Tebo Point. 2) promote accretion between the breakwater and the shore.

**Proposed Solution** - Approximately 39,000 feet of stone breakwater will be built in Grand Lake at the outer edge of the -2 foot contour from Superior Canal to Tebo Point. The crest elevation will be +2.0 feet NGVD; crest width 4 feet; front and back slopes 1:3; and stone size 650# maximum. Approximately 163,000 tons of riprap will be used. The stone will be placed on geotextile fabric that is 200 lb/inch. Gaps for fish access will be built every 1,000 feet. They will have a top width of 46 feet and extend to the lake bottom. They will be lined with a concrete apron. A flotation channel will be at least 35 feet from the centerline of the dike with a side slope of 1:4 and a depth of -6 feet. Material from the flotation canal will be cast inside the breakwater.

**Project Benefits** - The project would benefit 445 acres of fresh marsh and 717 acres of open water (total 1,162 acres). Shoreline loss would be prevented and some marsh would accrete south of the breakwater so at the end of 20 years, 495 acres of marsh would be protected/created.

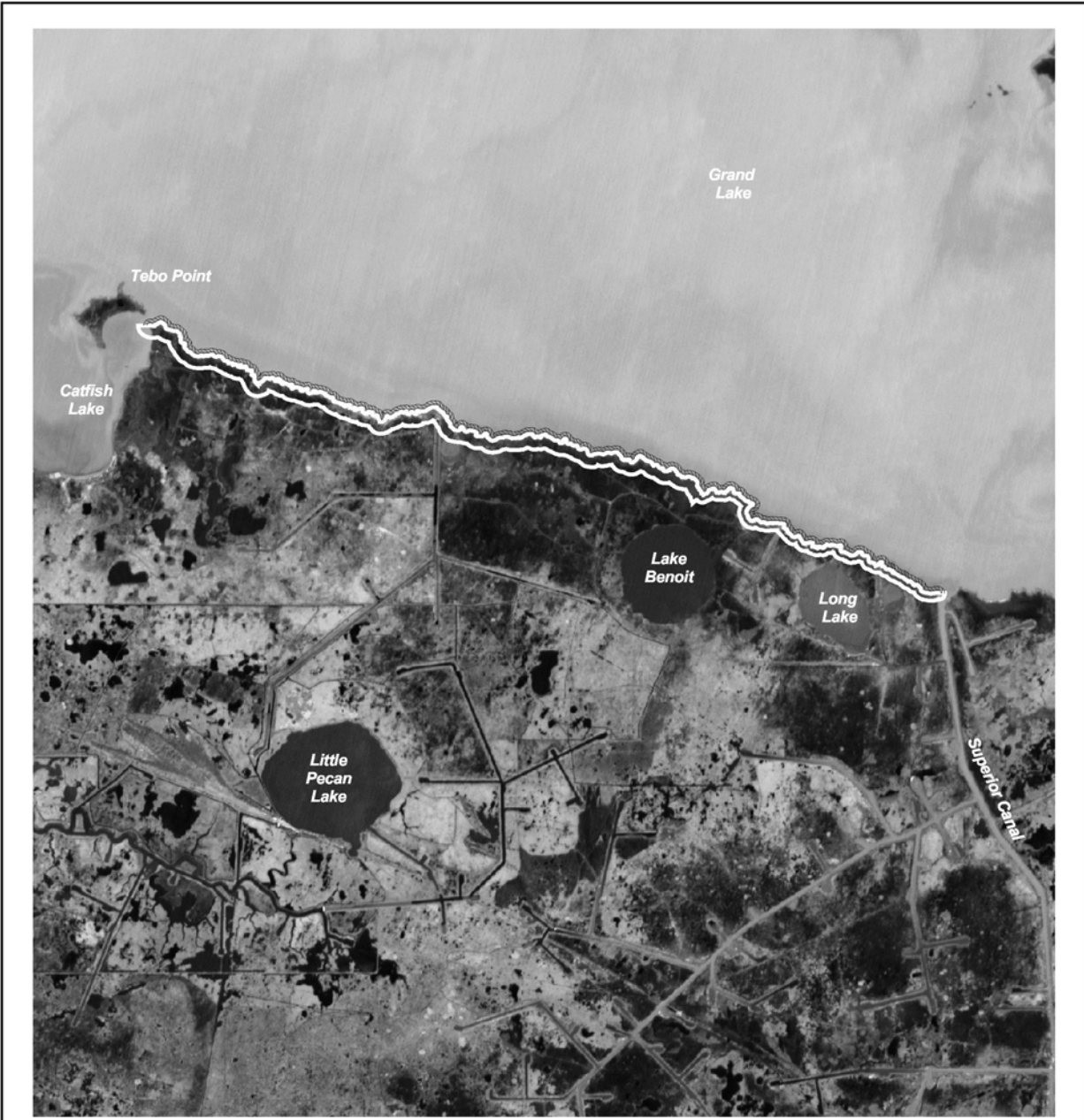
**Project Costs** - The total fully funded cost is \$13,562,500 and the fully funded first cost is \$9,559,700.



**Risk/Uncertainty and Longevity/Sustainability** - There will be a low degree of risk associated with this project because monitoring has indicated that breakwaters significantly reduce erosion. The project should continue providing benefits more than 20 years after construction because some rocks will be replaced at years 5 and 15.

**Sponsoring Agency and Contact Persons** - U.S. Army, Corps of Engineers, New Orleans District

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-  Project area
-  Proposed Breakwater

Date Source:  
 U.S. Geological Survey  
 National Wetlands Research Center  
 Coastal Restoration Field Station

LA Department of Natural Resources  
 Coastal Restoration Division

Map Date: November 16, 2001  
 Map ID: 200204142

Image Data:  
 1990 SPOT Panchromatic Imagery

0.5 0 0.5 Miles

0.5 0 0.5 1 1.5 Kilometers

CWPPRA PPL11  
 Region 4

**Grand Lake Shoreline Protection  
 Superior Canal to Tebo Point  
 (ME-16-2)**

**Project Name** - Southwest Pass Shoreline Protection

**Coast 2050 Strategy** - Coastwide, and Regional Ecosystem Strategy #12: Maintain shoreline integrity and stabilize critical areas of Vermilion, East and West Cote Blanche, Atchafalaya, Caillou, Terrebonne and Timbalier Bays.

**Project Location** - Region 3 - Teche-Vermilion Basin; Iberia and Vermilion Parishes. The project is located between Marsh Island and Louisiana State Wildlife Refuge and Game Preserve.

**Problem** - Extensive widening of Southwest Pass due to land loss associated with shoreline erosion has increased tidal variations and salinities in the Vermilion Bay estuary. In turn, emergent wetlands impacted by such changes have reverted to a lesser productive, brackish/saline habitat type and interior marsh losses have increased. Continued erosion of the landbridge/peninsula area would also reduce the area's effectiveness as a mainland barrier to Gulf storm surge and wave energy.

**Goals** - This goal of this project is to reduce or eliminate shoreline erosion in critical areas so as to stabilize and maintain current tidal flows and variations within the Vermilion Bay estuary to preserve current environmental conditions.

**Proposed Solution** - Maintain the current width and flow pattern of Southwest Pass by installing a rock dike around the perimeter of Lighthouse Point and providing rock revetment protection around the perimeter of Southwest Point. The rock dike and revetment will also parallel the Gulf of Mexico and Vermilion Bay shoreline to some extent to prevent tidal currents from circumventing the restriction at the pass and breaching adjacent marsh areas. A low degree of maintenance is expected to be required for this project.

**Project Benefits** - This project will benefit an area of ninety three acres. Over the twenty year project life, there will be a net of ninety one acres over the without-project condition.

**Project Costs** - The total fully funded cost is \$14,659,800 and the fully funded first cost is \$9,687,600.

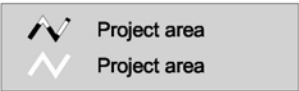
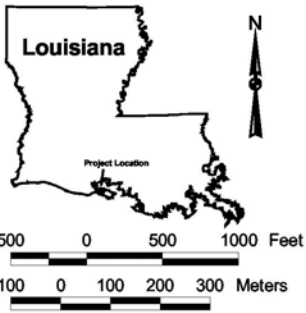
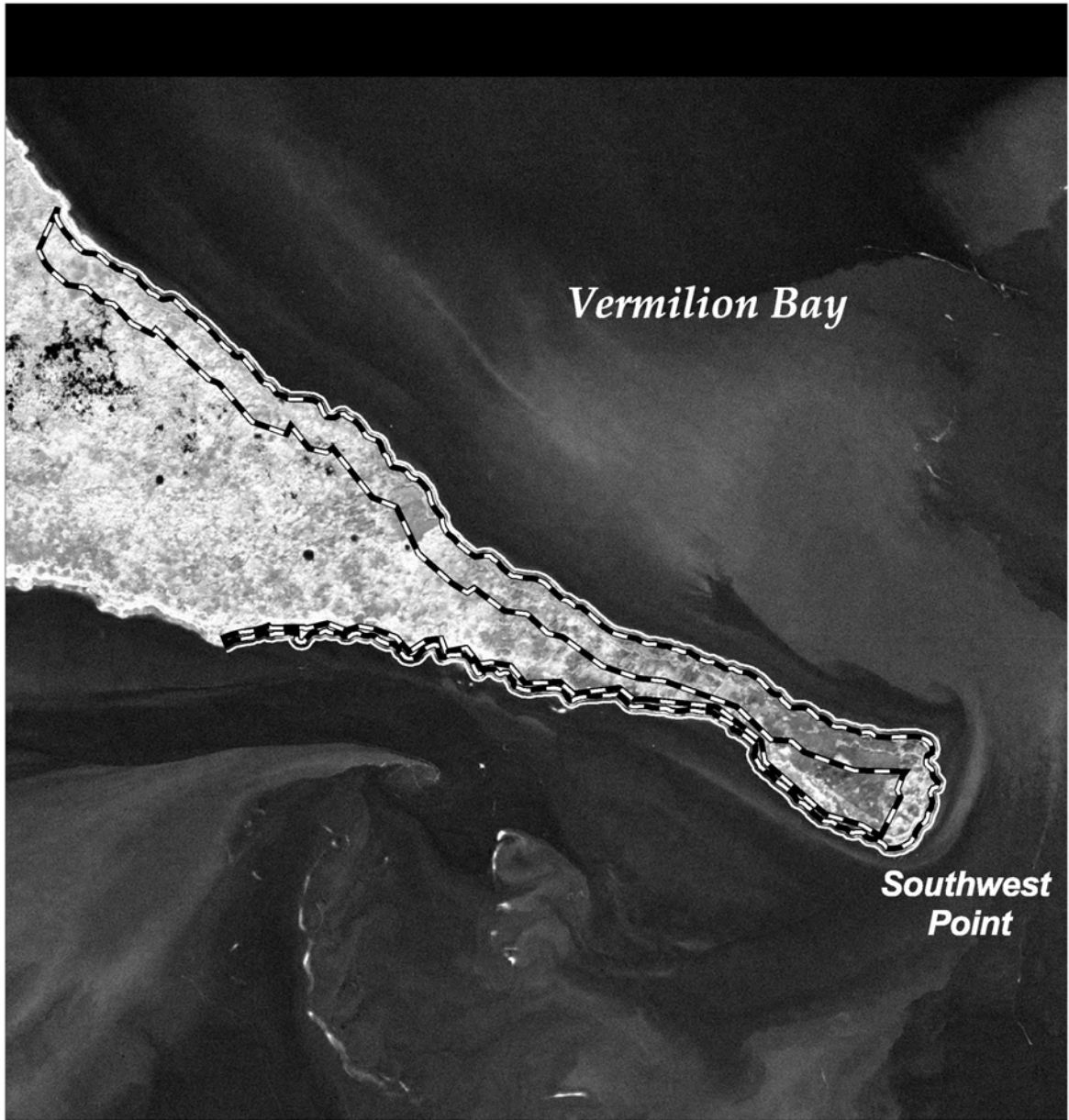
**Risk/Uncertainty and Longevity/Sustainability** - There is a low degree of risk associated with this project because of the proven effectiveness of both techniques of shoreline protection. The project should continue providing benefits beyond 20 years after construction because of the type of project features.

**Sponsoring Agency and Contact Person** - USDA, Natural Resources Conservation Service

Env.WG: Marty Floyd (318) 473-7690; [marty.floyd@la.usda.gov](mailto:marty.floyd@la.usda.gov)

Eng.WG: Loland Broussard (337) 291-3060; [loland.broussard@la.usda.gov](mailto:loland.broussard@la.usda.gov)





Date Source:  
 U.S. Geological Survey  
 National Wetlands Research Center  
 Coastal Restoration Field Station  
 LA Department of Natural Resources  
 Coastal Restoration Division  
 Map Date: November 15, 2001  
 Map ID: 200204123  
 Image Data:  
 1998 Digital Orthophoto Quarter Quads (DOQQS)

CWPPRA PPL11  
 Region 3  
  
 Southwest Pass  
 Hydrologic Restoration (TV-10-2)  
 Southwest Point

**Project Name** - South Grand Chenier Hydrologic Restoration Project

**Coast 2050 Strategies** - Regional Ecosystem Strategy #8: Restore historic hydrologic and salinity conditions to protect wetlands from hydrologic modification. Regional Ecosystem Strategy #4: Move water from the Lakes Sub-basin across Highway 82 including outfall management and flood protection where needed.

**Project Location** - Region 4 - Mermentau Basin; Cameron Parish. The project-benefited marsh is located south of Grand Chenier, LA, between LA Highway 82 and Hog Bayou.

**Problem** - The major problem is marsh loss caused by failed agricultural impoundments and pump-offs, saltwater intrusion caused by the Mermentau Ship Channel construction, and Gulf shoreline erosion (40 ft/year). Total marsh lost in the unit from 1932 to 1990 equaled 9,230 ac or about 38% of the original 24,010 acres of marsh present in 1932 (0.65%/yr). Greatest land loss was between 1956 and 1974 (0.94%/yr).

**Goals** - The project goals are to create 400 acres of emergent marsh and to nourish and enhance an additional 4,000 acres of emergent marsh with freshwater, nutrients and some sediment.

**Proposed Solution** - The project includes hydraulic dredging in Upper Mud Lake or the Gulf of Mexico and placement of dredged material in two 200-acre cells in shallow open water west and south of Second Lake. The second project component consists of introducing “fresher” water from the Mermentau River at two locations (approximately 126 cubic feet per second at each); 1) the BP-Tennessee Gas producing facility and pipeline, and 2) the Dr. Miller Canal to the McCall-Sturlese Tract south of Highway 82.

**Project Benefits** - The project will result in net benefits to 3,763 acres of brackish and saline marsh and 3,733 acres of open water (total 7,496 acres). The project will protect/create 440 net acres of emergent marsh over 20 years.

**Project Costs** - The total fully funded cost for this project is \$20,998,000 and the fully funded first cost is \$19,307,700.






**Risk/Uncertainty and Longevity/Sustainability** - There is a moderate degree of certainty that this project will meet its objectives because marsh restoration with dredged material and freshwater introduction are proven coastal restoration techniques. However, the project depends on landowner cooperation and the ability to negotiate agreements regarding pipelines. The project should continue providing benefits over 20 years after construction; marsh restoration because after construction land loss rates will be lower.

**Sponsoring Agency and Contact Persons** - U.S. Fish and Wildlife Service  
Darryl Clark (337) 291-3111; [darryl\\_clark@fws.gov](mailto:darryl_clark@fws.gov)  
Engineer (NRCS) - John Jurgensen (318) 473-7694; [john.jurgensen@la.usda.gov](mailto:john.jurgensen@la.usda.gov)



0.7 0 0.7 1.4 Miles

0.7 0 0.7 1.4 2.1 2.8 Kilometers

-  Project area
-  Marsh Creation Area
-  Dedicated Dredging Areas
-  Freshwater Introduction
-  Gates

Data Source:  
 U.S. Geological Survey  
 National Wetlands Research Center  
 Coastal Restoration Field Station  
 LA Department of Natural Resources  
 Coastal Restoration Division  
 Map Date: November 15, 2001  
 Map ID: 200204121  
 Image Data:  
 1990 SPOT Panchromatic

CWPPRA PPL11  
 Region 4

**South Grand Chenier  
 Hydrologic Restoration Project  
 (ME-08-1)**

**Project Name** - Oyster Bayou Marsh Creation

**Coast 2050 Strategy** - Regional Ecosystem Strategy #6: Use dedicated dredging or beneficial use of sediment for wetland creation or protection.

**Project Location** - Region 4 - Calcasieu/Sabine Basin; Cameron Parish; east of Mud Lake from Highway 82 to Oyster Lake. The project area lies in the middle of the Coast 2050 Mud Lake unit. The project consists of three sub-areas comprised of saline marsh, brackish marsh, and shallow open water bottoms. Area A is located adjacent to Oyster Lake at the terminus of Oyster Bayou. Area B is located east of Mud Lake and west of Mud Pass, and Area C is located to the east of Mud Pass.

**Problem** - Most of the wetland loss in the project area likely has resulted from subsidence, saltwater intrusion, and hydrologic modification from oil and gas exploration. Subsidence rates in this unit are intermediate (1.1-2 feet per century). Most of the wetland loss in Areas A and B occurred during 1956 to 1978, whereas most the wetland loss in Areas A and C has occurred more recently. The project would offset some of the marsh loss in the project area by the direct creation of intertidal marsh.

**Goals** - Marsh creation and marsh nourishment with dedicated dredging.

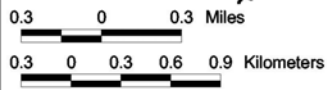
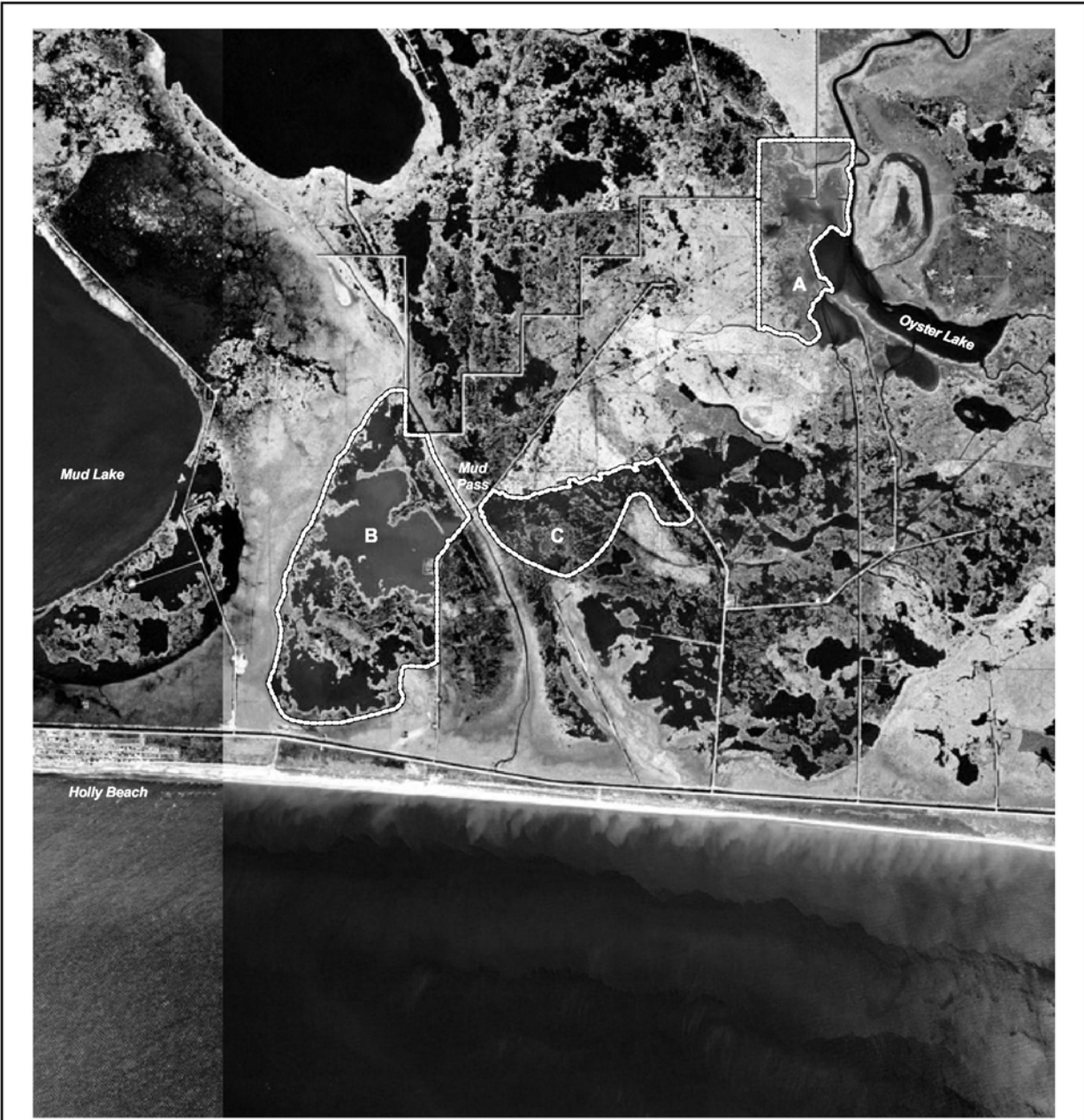
**Proposed Solution** - The project would construct intertidal marsh elevations in Areas A, B, and C by placing sediment dredged from the Gulf of Mexico semi-confined to an initial elevation of +1 foot above average marsh level with a final target elevation equal to average marsh level. To ensure some aquatic habitat remains in the project area for waterfowl and estuarine fish, approximately 60% of the open water in Areas A, B, and C would be filled to create 36, 151, and 45 acres of marsh, respectively. Construction of earthen containment dikes would be minimized to the maximum extent practicable and would be gapped in strategic locations upon contractor demobilization to ensure tidal connection. The first spring after construction the created platform would be hand planted primarily with *Spartina alterniflora* cv. *Vermilion* and *Spartina patens* on 5-ft centers.

**Project Benefits** - The project would provide benefits to 773 acres, and would create approximately 223 acres over the course of the 20 year project life.

**Project Costs** - The total fully funded cost is \$16,541,800 and the fully funded first cost is \$16,217,600.

**Risk/Uncertainty and Longevity/Sustainability** - There is a low degree of risk associated with this project because proven marsh creation techniques will be used. The project should continue providing benefits for more than 20 years after construction because of the large amount of marsh initially created.

**Sponsoring Agency and Contact Person** - National Marine Fisheries Service  
Patrick Williams (225) 389-0508; [patrick.williams@noaa.gov](mailto:patrick.williams@noaa.gov)  
Rachel Sweeney (225) 389-0508; [rachel.sweeney@noaa.gov](mailto:rachel.sweeney@noaa.gov)



Data Source:  
 U.S. Geological Survey  
 National Wetlands Research Center  
 Coastal Restoration Field Station  
 LA Department of Natural Resources  
 Coastal Restoration Division  
 Map Date: November 1, 2001  
 Map ID: 200204111  
 Image Data:  
 1998 Digital Orthophoto Quarter Quads (DOQQS)

CWPPRA PPL11  
 Region 4  
  
 Oyster Bayou Marsh Creation  
 (CS-06-1)



## IV. PROJECT SELECTION

On January 16, 2002, the Louisiana Coastal Wetlands Conservation and Restoration Task Force made its selection for the 11<sup>th</sup> Priority Project List. The Task Force selection for the 11<sup>th</sup> Priority Project List is shown in Table 4.

**Table 4: The 11<sup>th</sup> Priority Projects List**

1	2	3	4	5	6	7	8	9	10	11	12
Project Number	Project Name	Physical Type	Sponsoring Agency	Fully Funded Total Cost	Fully Funded Phase I Total Cost	Cumulative Fully Funded Phase I Total Cost	Fully Funded Phase II Total Cost	Cumulative Fully Funded Phase II Total Cost	Fully Funded Phase II Total Cost (3 Yr C+O&M+M)	Cumulative Fully Funded Phase II Total Cost (3 yr C+O&M+M)	Average Annual Habitat Units (AAHUs)
ME-20	South Grand Chenier Hydrologic Rest.	HR	FWS	\$20,997,967	\$2,358,420	\$2,358,420	\$18,639,547	\$18,639,547	\$17,100,261	\$17,100,261	322
LA-03b	Coastwide Nutria Control Program	HC	NRCS	\$76,924,089	\$269,211	\$2,627,631	\$76,654,878	\$95,294,425	\$10,997,543	\$28,097,804	2,993
BA-35	Pass Chaland to Grand Bayou Pass Barrier Shoreline Restoration	SP	NMFS	\$19,001,435	\$1,880,700	\$4,508,331	\$17,120,735	\$112,415,160	\$16,834,975	\$44,932,779	88
TE-46	West Lake Boudreaux Shoreline Protection and Marsh Creation	MC SP	FWS	\$14,565,882	\$1,322,354	\$5,830,685	\$13,243,528	\$125,658,688	\$12,458,806	\$57,391,585	88
ME-21	Grand Lake Shoreline Protection	SP	COE	\$13,562,486	\$1,049,029	\$6,879,714	\$12,513,457	\$138,172,145	\$8,546,023	\$65,937,608	142
PO-31	Lake Borgne Shoreline Protection at Bayou Dupre	SP	NMFS	\$11,928,100	\$891,720	\$7,771,434	\$11,036,380	\$149,208,525	\$9,037,707	\$74,975,315	29
BA-36	Dedicated Dredging on the Barataria Basin Landbridge	MC	FWS	\$29,692,776	\$2,294,410	\$10,065,844	\$27,398,366	\$176,606,891	\$27,121,128	\$102,096,443	339
TE-47	Ship Shoal: West Flank Restoration	BI	EPA	\$39,302,923	\$2,998,960	\$13,064,804	\$36,303,963	\$212,910,854	\$36,023,432	\$138,119,875	191
TE-48	Raccoon Island Shoreline Protection/ Marsh Creation	SP MC	NRCS	\$10,355,652	\$1,016,758	\$14,081,562	\$9,338,894	\$222,249,748	\$9,058,363	\$147,178,238	89
BA-37	Little Lake Shoreline Protection/Dedicated Dredging near Round Lake	SP	NMFS	\$37,174,879	\$2,639,536	\$16,721,098	\$34,535,343	\$256,785,091	\$32,125,352	\$179,303,590	349
BA-27d	Barataria Basin Landbridge Shoreline Protection (Northeast only)	SP	NRCS	\$36,541,411	\$2,191,807	\$18,912,905	\$34,349,604	\$291,134,695	\$29,840,016	\$209,143,606	121

<p><b>Project Physical Type:</b>                  FD=Freshwater Diversion                  HR=Hydrologic Restoration                  HC=Herbivore Control                  MC=Marsh Creation                  SD=Sediment Diversion                  SP=Shoreline Protection                  TR=Terracing                  BI=Barrier Island                  SNT=Sediment Trap</p>	<p><b>Sponsoring Agencies:</b>                  COE=US Army Corps of Engineers                  EPA=Environmental Protection Agency                  NMFS=National Marine Fisheries Service                  NRCS=Natural Resources Conservation Service                  FWS=US Fish and Wildlife Service</p>
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There were three complex projects that were approved for Phase I funding throughout the year and have also been included in this PPL 11 report. The Holly Beach Sand Management Complex Project and the Diversion into the Swamp South of Lake Maurepas Complex Project were approved by the Task Force on August 7, 2001. The Barataria Barrier Shoreline Complex Project was approved by the Task Force on January 16, 2002. The Complex Projects List for PPL 11 are shown in Table 5.

**Table 5: The 11<sup>th</sup> Priority Complex Projects List**

1	2	3	4	5	6	7	8	9	10	11	12
Project Number	Project Name	Physical Type	Sponsoring Agency	Fully Funded Total Cost	Fully Funded Phase I Total Cost	Cumulative Fully Funded Phase I Total Cost	Fully Funded Phase II Total Cost	Cumulative Fully Funded Phase II Total Cost	Fully Funded Phase II Total Cost (3 Yr C+O&M+M)	Cumulative Fully Funded Phase II Total Cost (3 yr C+O&M+M)	Average Annual Habitat Units (AAHUs)
BA-38	Barataria Barrier Island Complex Project: Pelican Island and Pass La Mer to Chalard Pass	BI	NMFS	\$54,307,600	\$3,083,934	\$3,083,934	\$51,223,666	\$51,223,666	\$50,671,563	\$50,671,563	508
CS-31	Holly Beach Sand Management Complex Project	SP	NRCS	\$19,252,500	n/a	\$3,083,934	\$19,252,500	\$70,476,166	\$19,252,500	\$69,924,063	370
PO-29	Diversion into Maurepas Swamp Complex Project	FD	EPA	\$57,474,400	\$5,434,288	\$8,518,222	\$52,040,112	\$122,516,278	\$49,564,049	\$119,488,112	8,486

<p><b>Project Physical Type:</b>  <b>FD</b>=Freshwater Diversion  <b>HR</b>=Hydrologic Restoration  <b>HC</b>=Herbivore Control  <b>MC</b>=Marsh Creation  <b>SD</b>=Sediment Diversion  <b>SP</b>=Shoreline Protection  <b>TR</b>=Terracing  <b>BI</b>=Barrier Island  <b>SNT</b>=Sediment Trap</p>	<p><b>Sponsoring Agencies:</b>  <b>COE</b>=US Army Corps of Engineers  <b>EPA</b>=Environmental Protection Agency  <b>NMFS</b>=National Marine Fisheries Service  <b>NRCS</b>=Natural Resources Conservation Service  <b>FWS</b>=US Fish and Wildlife Service</p>
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## **V. DESCRIPTION OF PROJECTS SELECTED FOR PHASE I FUNDING**

This section provides a concise narrative of each selected project that was funded for Phase I. The project details provided include the Coast 2050 strategy, project location, strategy, problem, goals, solution, benefits, cost, risk/uncertainty and longevity/sustainability, sponsoring agency and contact persons, and a map identifying the project area and features if applicable.

**Project Name** - South Grand Chenier Hydrologic Restoration Project (ME-20)

**Coast 2050 Strategies** - Regional Ecosystem Strategy #8: Restore historic hydrologic and salinity conditions to protect wetlands from hydrologic modification. Regional Ecosystem Strategy #4: Move water from the Lakes Sub-basin across Highway 82 including outfall management and flood protection where needed.

**Project Location** - Region 4 - Mermentau Basin; Cameron Parish. The project-benefited marsh is located south of Grand Chenier, LA, between LA Highway 82 and Hog Bayou.

**Problem** - The major problem is marsh loss caused by failed agricultural impoundments and pump-offs, saltwater intrusion caused by the Mermentau Ship Channel construction, and Gulf shoreline erosion (40 ft/year). Total marsh lost in the unit from 1932 to 1990 equaled 9,230 ac or about 38% of the original 24,010 acres of marsh present in 1932 (0.65%/yr). Greatest land loss was between 1956 and 1974 (0.94%/yr).

**Goals** - The project goals are to create 400 acres of emergent marsh and to nourish and enhance an additional 4,000 acres of emergent marsh with freshwater, nutrients and some sediment.

**Proposed Solution** - The project includes hydraulic dredging in Upper Mud Lake or the Gulf of Mexico and placement of dredged material in two 200-acre cells in shallow open water west and south of Second Lake. The second project component consists of introducing “fresher” water from the Mermentau River at two locations (approximately 126 cubic feet per second at each); 1.) the BP-Tennessee Gas producing facility and pipeline, and 2.) the Dr. Miller Canal to the McCall-Sturlese Tract south of Highway 82.

**Project Benefits** - The project will result in net benefits to 3,763 acres of brackish and saline marsh and 3,733 acres of open water (total 7,496 acres). The project will protect/create 440 net acres of emergent marsh over 20 years.

**Project Costs** - The total fully funded cost for this project is \$20,998,000 and the fully funded first cost is \$19,307,700.

**Risk/Uncertainty and Longevity/Sustainability** - There is a moderate degree of certainty that this project will meet its objectives because marsh restoration with dredged material and freshwater introduction are proven coastal restoration techniques. However, the project depends on landowner cooperation and the ability to negotiate agreements regarding pipelines. The project should continue providing benefits over 20 years after construction; marsh restoration because after construction land loss rates will be lower.

**Sponsoring Agency and Contact Persons** - U.S. Fish and Wildlife Service  
Darryl Clark (337) 291-3111; [darryl\\_clark@fws.gov](mailto:darryl_clark@fws.gov)  
Engineer (NRCS) - John Jurgensen (318) 473-7694; [john.jurgensen@la.usda.gov](mailto:john.jurgensen@la.usda.gov)



<p><b>Louisiana</b></p> <p>Project Location</p> <p>0.7 0 0.7 1.4 Miles</p> <p>0.7 0 0.7 1.4 2.1 2.8 Kilometers</p>	<p> Project area</p> <p> Marsh Creation Area</p> <p> Dedicated Dredging Areas</p> <p> Freshwater Introduction</p> <p> Gates</p> <p>Data Source:          U.S. Geological Survey          National Wetlands Research Center          Coastal Restoration Field Station          LA Department of Natural Resources          Coastal Restoration Division          Map Date: November 15, 2001          Map ID: 200204121          Image Data:          1990 SPOT Panchromatic</p>	<p>CWPPRA PPL11          Region 4</p> <p><b>South Grand Chenier          Hydrologic Restoration Project          (ME-08-1)</b></p>
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**State Project Number: ME-20 (number on map is the Federal number)**

**Project Name** - Coastwide Nutria Control Program (LA-03b)

**Coast 2050 Strategy** - Coastwide - Coastwide Herbivory Control

**Project Location** - This project is coastwide covering all basins and coastal parishes.

**Problem** - Fur trapping activity has been drastically declining for over ten years because of weak market demand and low prices. In Louisiana, this has resulted in an overpopulation of nutria and serious damage to coastal wetlands from nutria herbivory. Annual aerial surveys for 1993-2001 have indicated that approximately 100,000 acres have been impacted coastwide.

**Goals** - The objective of this project is to significantly reduce the damage to coastal wetlands resulting from nutria herbivory.

**Proposed Solution** - The proposed solution is to annually harvest 400,000 nutria.

**Project Benefits** - The project will protect 14,963 acres of emergent marsh over the course of the 20 year project life.

**Project Costs** - The total fully funded cost is \$76,924,100 and the fully funded first cost is \$2,890,100.

**Risk/Uncertainty and Longevity/Sustainability** - There is a low degree of risk associated with this project because the predicted population with project is below that where extensive damage was not determined. The project should continue providing benefits beyond 20 years after construction because a lag time will exist before populations rebound.

**Sponsoring Agency and Contact Person** - USDA - Natural Resources Conservation Service

Env.WG: Quin Kinler (225) 447-6050; [quin.kinler@la.usda.gov](mailto:quin.kinler@la.usda.gov)

Eng.WG: John Jurgensen (318) 473-7694; [john.jurgensen@la.usda.gov](mailto:john.jurgensen@la.usda.gov)

**No map associated with this project due to its coastwide project area.**

**Project Name** - Pass Chaland to Grand Bayou Pass Barrier Shoreline Restoration (BA-35)

**Coast 2050 Strategy** - Regional Ecosystem Strategy #21: Extend and maintain barrier headlands, islands, and shorelines.

**Project Location** - Region 2 - Barataria Basin; Plaquemines Parish; between Pass Chaland and Grand Bayou Pass, part of the Plaquemines Barrier System The project boundary extends from bayside edge of the Bay Joe Wise Headland northward between the confluence of Bayou Huertes with the Gulf shoreline to Grand Bayou Pass.

**Problem** - Wetlands, dune, and swale habitats within the project area have undergone substantial loss due to oil and gas activities (e.g., pipeline construction), subsidence, absolute sea-level rise, and marine and wind induced shoreline erosion (e.g., gulfside and bayside). Marine processes acting on the abandoned deltaic headlands rework and redistribute previously deposited sediment. Development of fragmentary islands from breaches in the barrier headland and subsequent inlet/pass formation has resulted from increased tidal prism storage and storm related impacts. The Bay Joe Wise headland has receded and decreased to a critical width that is susceptible to breaching during storms with a return frequency of 8.3 years for the Barataria Shoreline.

**Goals** - The goals of the project are to a) prevent breaching of the barrier shoreline by increasing its width and b) create 226 acres of back-barrier soil elevations conducive to the establishment of marsh vegetation.

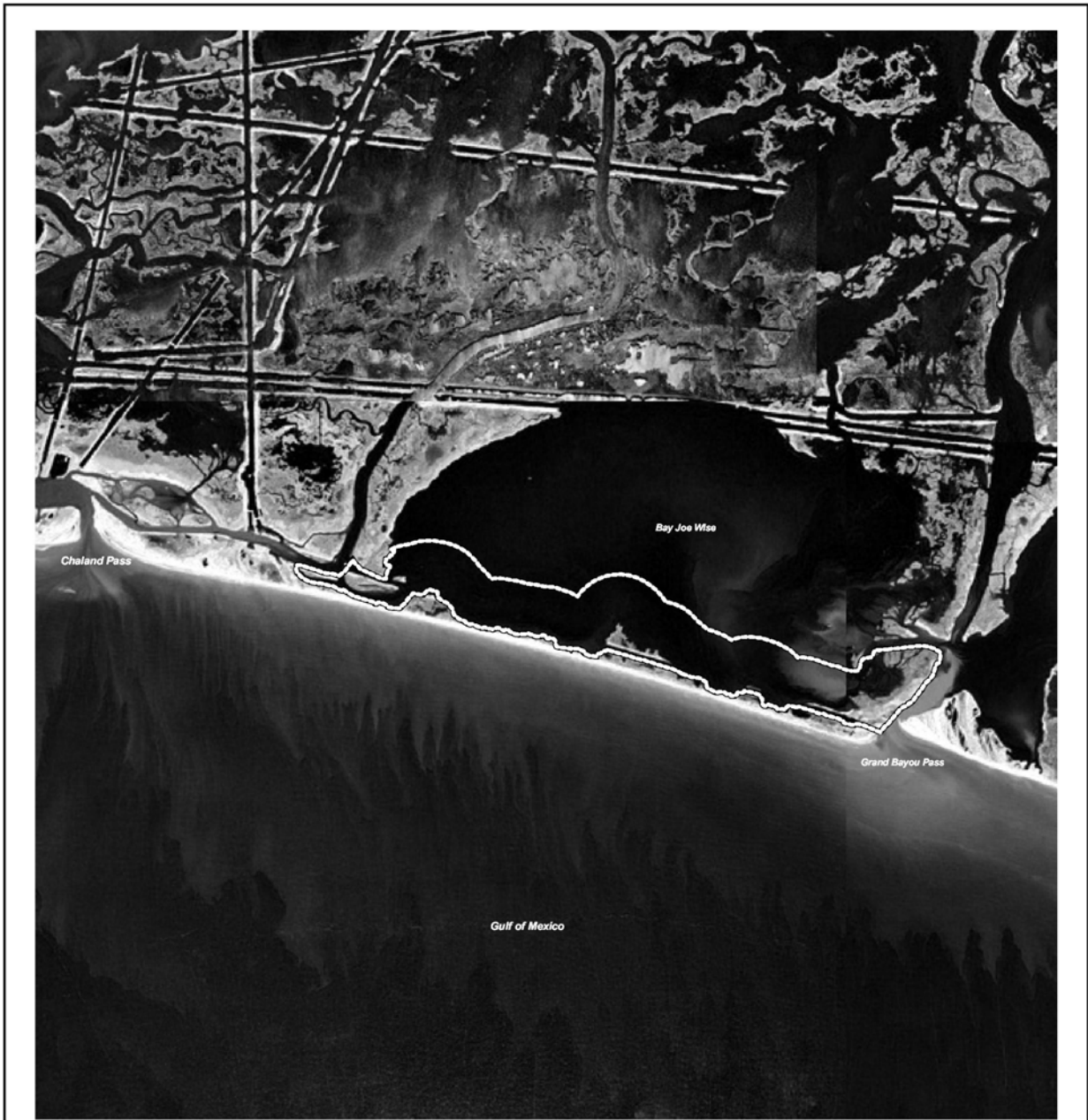
**Proposed Solution** - Create a marsh platform approximately 1,000 feet wide contiguous with the northern side of the Gulf shoreline of Bay Joe Wise. This platform would be created at a maximum initial fill elevation of +2.0 feet NAVD with semi-confined disposal. A cut to fill ratio was assumed to be 1.5 to 1 based on semi-confined construction and the geotechnical analyses by the University of New Orleans and the U.S Geological Survey. Approximately 10,000 feet of tidal creeks, 4 feet wide, 2 feet deep, with 1:3 slopes would be constructed. Additionally, six, one-acre ponds would be constructed 2 feet deep. The marsh platform would be aerially seeded with Japanese or Browntop millet and then planted with smooth cordgrass and black mangroves on 10-foot centers.

**Project Benefits** - The project area anticipated to be benefited is 359 acres, and the project will protect/create approximately 161 acres of barrier island habitat over the course of the 20 year project life.

**Project Costs** - The total fully funded cost is \$19,001,400 and the fully funded first cost is \$18,676,100.

**Risk/Uncertainty and Longevity/Sustainability** - There is a moderate degree of risk associated with this project because it depends on landowner cooperation, and pipelines and oyster leases are present. The project should continue providing benefits for more than 20 years after construction because project features are designed to compensate for ongoing shoreline erosion and future storm events.

**Sponsoring Agency and Contact Person**-National Marine Fisheries Service (225) 389-0508; Patrick Williams; [patrick.williams@noaa.gov](mailto:patrick.williams@noaa.gov); Rachel Sweeney, [rachel.sweeney@noaa.gov](mailto:rachel.sweeney@noaa.gov)



<p>0.3 0 0.3 Miles</p> <p>0.3 0 0.3 0.6 0.9 Kilometers</p>	<p>Project area</p> <p>Date Source: U.S. Geological Survey National Wetlands Research Center Coastal Restoration Field Station</p> <p>LA Department of Natural Resources Coastal Restoration Division</p> <p>Map Date: November 1, 2001 Map ID: 200204107 Image Data: 1996 Digital Orthophoto Quarter Quads (DOQQS)</p>	<p>CWPPRA PPL11 Region 2</p> <p>Grand Bayou to Pass Chaland Island Restoration (BA-21-2)</p>
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**State Project Number: BA-35 (number on map is the Federal number)**

**Project Name** - West Lake Boudreaux Shoreline Protection/ Marsh Creation (TE-46)

**Coast 2050 Strategy** - Coastwide - Maintenance of Gulf Bay and Lake Shoreline Integrity

**Project Location** - Region 3 - Terrebonne Basin; Terrebonne Parish; West shore of Lake Boudreaux

**Problem** - The west bank of Lake Boudreaux has experienced high rates of erosion due to wind driven waves and high water. These erosion rates vary from 45 ft/yr (northwestern shore) to 7 ft/yr (southwestern shore). The shoreline is approximately 600 - 900 ft. in width and has been breached in several places. If this erosion is not stopped then the interior marsh will be compromised. The interior marsh had a land loss rate of 3.68% per year from 1983-1990. Continued shoreline loss will convert the productive shallow open-water areas filled with SAV to an open lake habitat.

**Goals** - 1) reduce shoreline erosion to protect 80 acres of emergent marsh and protect submerged aquatic vegetation throughout the project area; 2) initially create 124 acres of emergent marsh along the shoreline and interior marsh sites through deposition of dredged material; 3) reduce marsh loss rates within the project area.

**Proposed Solution** - 1) construct 11,644 linear feet of shoreline protection in two sections along the western shoreline of Lake Boudreaux. A gap, approximately 100 ft. wide, would be left open for fish access; 2) construct 4,000 linear feet of earthen dike and 4 earthen plugs to contain dredged material. Hydraulically dredge lake-bottom sediments to create 124 acres of marsh; 3) construct one earthen plug to reduce water exchange; 4) enlarge existing openings or create new openings in the pumping station canal spoil bank to facilitate water exchange between the north and south ponds.

**Project Benefits** - The project will benefit a total of 1,177 acres of marsh and open water. It will create and/or protect a net of 145 acres of emergent marsh over the 20 year project life.

**Project Cost** - The total fully funded cost is \$14,565,900 and the fully funded first cost is 13,022,000.

**Risk/Uncertainty and Longevity/Sustainability** - This project has low risk because the use of rocks for shoreline erosion projects has been shown to stop shoreline erosion and marsh creation is a successful tool. The project should continue providing benefits for more than 20 years after construction because of low subsidence rate in Boudreaux Basin and amount of remaining marsh.

**Sponsoring Agency and Contact Person** - U.S. Fish and Wildlife Service  
Robert Dubois (337) 291-3127; [robert\\_dubois@fws.gov](mailto:robert_dubois@fws.gov)  
Ronnie Paille (337) 291-3117; [ronald\\_paille@fws.gov](mailto:ronald_paille@fws.gov)





<p><b>Louisiana</b></p> <p>Project Location</p> <p>0.09 0 0.09 0.18 0.27 0.36 Miles</p> <p>90 0 90 180270360450540 Meters</p>	<ul style="list-style-type: none"> <li> Project area</li> <li> Inside Dikes</li> <li> Shoreline Protection</li> <li> Fishways</li> <li> Earthen Plug</li> <li> Direct impact</li> </ul> <p>Data Source:          U.S. Geological Survey          National Wetlands Research Center          Coastal Restoration Field Station          LA Department of Natural Resources          Coastal Restoration Division          Map Date: November 1, 2001          Map ID: 200204118          Image Data:          1998 Digital Orthophoto Quarter Quadrangle (DOQQS)</p>	<p>CWPPRA PPL11          Region 3</p> <p><b>West Lake Boudreaux          Shoreline Protection/Marsh Creation          (TE-CW-2)</b></p>
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**State Project Number: TE-46 (number on map is the Federal number)**

**Project Name** - Grand Lake Shoreline Protection, from Superior Canal to Tebo Point (ME-21)

**Coast 2050 Strategy** - Regional Ecosystem Strategy #16: Stabilize Grand and White Lakes shorelines.

**Project Location** - Region 4 - Mermentau Basin, Cameron Parish, south shore of Grand Lake.

**Problem** - According to a comparison of the 1978-79 aerial photography with 1997-98 photography, shoreline erosion rates in this area vary from 11 to 32 feet per year.

**Goals** - 1) Stop shoreline erosion from Superior Canal to Tebo Point; 2) Promote accretion between the breakwater and the shore.

**Proposed Solution** - Approximately 39,000 feet of stone breakwater will be built in Grand Lake at the outer edge of the -2 foot contour from Superior Canal to Tebo Point. The crest elevation will be +2.0 feet NGVD; crest width 4 feet; front and back slopes 1:3; and stone size 650# maximum. Approximately 163,000 tons of riprap will be used. The stone will be placed on geotextile fabric that is 200 lbs./inch. Gaps for fish access will be built every 1,000 feet. They will have a top width of 46 feet and extend to the lake bottom. They will be lined with a concrete apron. A flotation channel will be at least 35 feet from the centerline of the dike with a side slope of 1:4 and a depth of -6 feet. Material from the flotation canal will be cast inside the breakwater.

**Project Benefits** - The project would benefit 445 acres of fresh marsh and 717 acres of open water (total 1,162 acres). Shoreline loss would be prevented and some marsh would accrete south of the breakwater so at the end of 20 years, 495 acres of marsh would be protected/created.

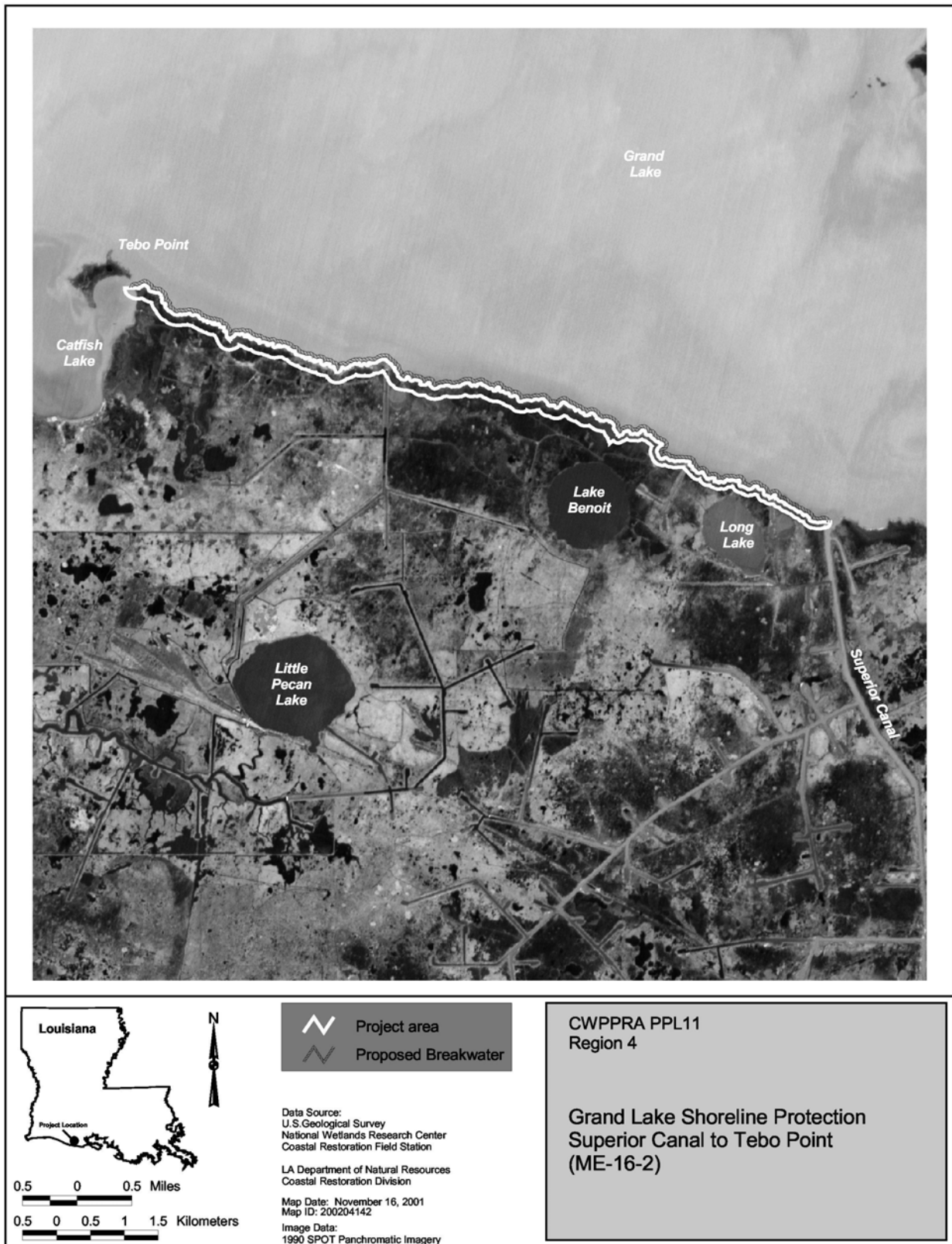
**Project Cost** - The total fully funded cost is \$13,562,500 and the fully funded first cost is \$9,559,700.

**Risk/Uncertainty and Longevity/Sustainability** - There will be a low degree of risk associated with this project because monitoring has indicated that breakwaters significantly reduce erosion. The project should continue providing benefits more than 20 years after construction because some rocks will be replaced at years 5 and 15.

**Sponsoring Agency and Contact Persons** - U.S. Army, Corps of Engineers, New Orleans District

Sue Hawes (504) 862-2518; [suzanne.r.hawes@mvn02.usace.army.mil](mailto:suzanne.r.hawes@mvn02.usace.army.mil)

Christopher Alfonso (504) 862-2401; [christopher.d.alfonso@mvn02.usace.army.mil](mailto:christopher.d.alfonso@mvn02.usace.army.mil)



**State Project Number: ME-21 (number on map is the Federal number)**

**Project Name** - Lake Borgne Shoreline Protection at Bayou Dupre (PO-31)

**Coast 2050 Strategy** - Regional Ecosystem Strategy #11: Maintain shoreline integrity of Lake Borgne.

**Project Location** - Region 1 - Pontchartrain Basin; St. Bernard Parish; south-west shoreline of Lake Borgne on either side of Bayou Dupre.

**Problem** - The narrow strip of marsh between Lake Borgne and the Mississippi River Gulf Outlet (MRGO) in the vicinity of Bayou Dupre is disappearing. The opening between Lake Borgne and the MRGO in this area is estimated to be approximately 550 feet wide. Shoreline erosion rates in the area have been estimated to be about 10 feet per year. At this rate, the opening at Bayou Dupre will be 2,300 feet across in 20 years. Interior marsh loss would likely speed this process. This project is necessary to maintain and restore the narrow strip of land that remains between Lake Borgne and the MRGO. The project would address the problem of shoreline erosion and the coalescence of Lake Borgne with the MRGO through shoreline protection in Lake Borgne with the opportunity for marsh creation.

**Goals** - The goals are a) to prevent or reduce Lake Borgne shoreline retreat in the area adjacent to Bayou Dupre; b) to prevent further coalescence of the lake and the MRGO; c) to re-establish a sustainable lake rim; and d) to prevent or reduce conversion of emergent marsh to open water.

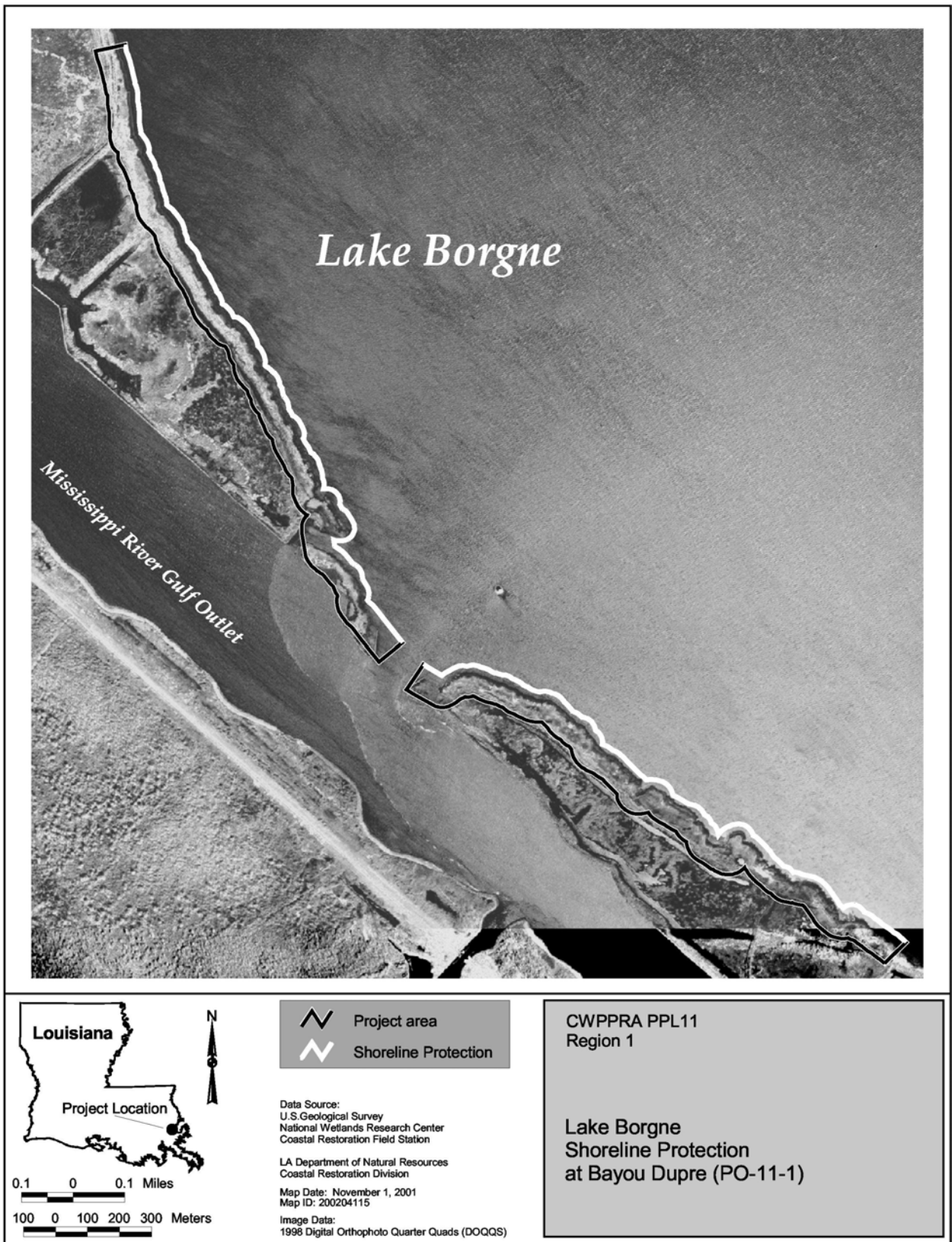
**Proposed Solution** - Continuous nearshore rock breakwaters would be constructed 1.2 miles to the east and 1.6 miles to the west of Bayou Dupre. The design of the breakwaters would roughly follow that used for the PPL 10 project, "Shore Protection in Lake Borgne at Shell Beach." The breakwaters would tie into those present along the north bank of the MRGO and extend into the lake to about the 2-foot contour. Openings would be included in the breakwaters at a minimum of every 1,000 feet. Offset breakwaters would be built in front of the openings.

**Project Benefits** - The project would benefit 98 acres of marsh and shallow open water. Approximately 83 acres of marsh would be created/protected over the 20-year project life.

**Project Cost** - The total fully funded cost is \$11,928,100. The fully funded first cost is \$7,980,900.

**Risk/Uncertainty and Longevity/Sustainability** - There is a low degree of risk associated with this project because monitoring of past projects has indicated that breakwaters significantly reduce erosion. The project should continue providing benefits beyond 20 years after construction because some rocks will be replaced at years 3 and 14.

**Sponsoring Agency and Contact Person** - National Marine Fisheries Service  
Bren Haase (225) 389-0508; [bren.haase@noaa.gov](mailto:bren.haase@noaa.gov)  
Rachel Sweeney (225) 389-0508; [rachel.sweeney@noaa.gov](mailto:rachel.sweeney@noaa.gov)



**State Project Number: PO-31 (number on map is the Federal number)**

**Project Name** - Dedicated Dredging on the Barataria Basin Landbridge (BA-36)

**Coast 2050 Strategy** - Coastwide Strategy - Dedicated dredging to create, restore, or protect wetlands.

**Project Location** - Region 2 - Barataria Basin; Jefferson Parish. The project area is located along the southeastern side of Bayou Rigolettes and between the Harvey Cut and Bayou Perot, and consists of 502 acres of emergent marsh and 780 acres of open water for a total of 1,282 acres.

**Problem** - The Barataria Basin Landbridge is the landmass that hydrologically divides the upper and lower Barataria Basin. The hydrologic connections between the upper and lower Barataria Basin are much greater today due to the Barataria Bay Waterway, Bayou Segnette Waterway, Harvey Cut, and substantial erosion and interior marsh loss that has occurred along Bayous Perot and Rigolettes. USACE and USGS land loss data indicate a recent loss rate of 2.3%/yr to 2.5%/yr. The causes of marsh loss appear to be primarily from subsidence and wind/wave erosion. This project, in conjunction with the Barataria Basin Landbridge Shoreline Protection Project (BBLSP), will protect the functional integrity of this critical area of the Barataria Basin.

**Goals** - The goals of this project are to create 780 acres of emergent marsh and to nourish/enhance an additional 502 acres of emergent marsh.

**Proposed Solution** - The project will include hydraulic dredging in Bayou Rigolettes and placement of dredged material in open water areas in the marsh interior. Shoreline protection features of the BBLSP will be used for containment along Bayous Perot and Rigolettes and earthen containment will be used in other areas. Upon demobilization, the marsh platform will be aerially seeded with a mixture of browntop millet, Japanese millet and/or other species to increase soil stability and jumpstart vegetative colonization.

**Project Benefits** - The project will directly benefit 1,282 acres of intermediate marsh and open water and result in the net protection/creation of 564 acres of emergent marsh.

**Project Costs** - The total fully funded cost is \$29,692,800 and the fully funded first cost is \$29,377,100.

**Risk/Uncertainty and Longevity/Sustainability** - There is a low degree of risk/uncertainty associated with this project because of the numerous successful marsh creation projects which have been constructed along the coast. The project should continue to provide wetland benefits for greater than 20 years after construction.

**Sponsoring Agency and Contact Person** - U.S. Fish and Wildlife Service  
Kevin Roy (337) 291-3120; [kevin\\_roy@fws.gov](mailto:kevin_roy@fws.gov)  
Ronnie Paille (337) 291-3117; [ronald\\_paille@fws.gov](mailto:ronald_paille@fws.gov)



**State Project Number: BA-36 (number on map is the Federal number)**

**Project Name** - Ship Shoal: Whiskey West Flank Restoration (TE-47)

**Coast 2050 Strategy** - Regional Ecosystem Strategy #14: Restore and maintain the Isles Dernieres barrier island chain.

**Project Location** - Region 3 - Terrebonne Basin, Terrebonne Parish, west spit area Whiskey Island.

**Problem** - The Isles Dernieres Chain, which has been considered one of the most rapidly deteriorating barrier shorelines in the U.S., is losing its structural framework functions for the coastal/estuarine ecosystem including storm buffering capacity and protection for inland bays, estuary and wetlands, human populations and infrastructure. Chain breakup has resulted from both major storm actions and from loss of nourishing sediment from the natural system due to human alterations. Whiskey Island changes from 1978 to 1988 include loss of 31.1 acres per year.

**Goals** - 1) restore the integrity of the west flank of Whiskey Island to retain its structural function to the coastal/estuary ecosystem; 2) add new offshore prime quality sediment into the west flank; 3) initially restore approximately 387 acres of barrier island habitat to the western flank.

**Proposed Solution** - The project entails mining and placing Ship Shoal sand from the Minerals Management Service Block 88 by cutterhead or hopper dredge to rebuild the west flank of Whiskey Island, a distance of about 8 miles. The area to be restored includes 57 acres of dunes 7 feet high and 150 feet wide, 114 acres supratidal habitat at 4 feet in elevation, 208 acres intertidal habitat at a 2-foot elevation, and 8 acres subtidal habitat from 0 to minus 1.5 feet in elevation. All areas would be planted and sand fencing placed to trap wind-blown sediment.

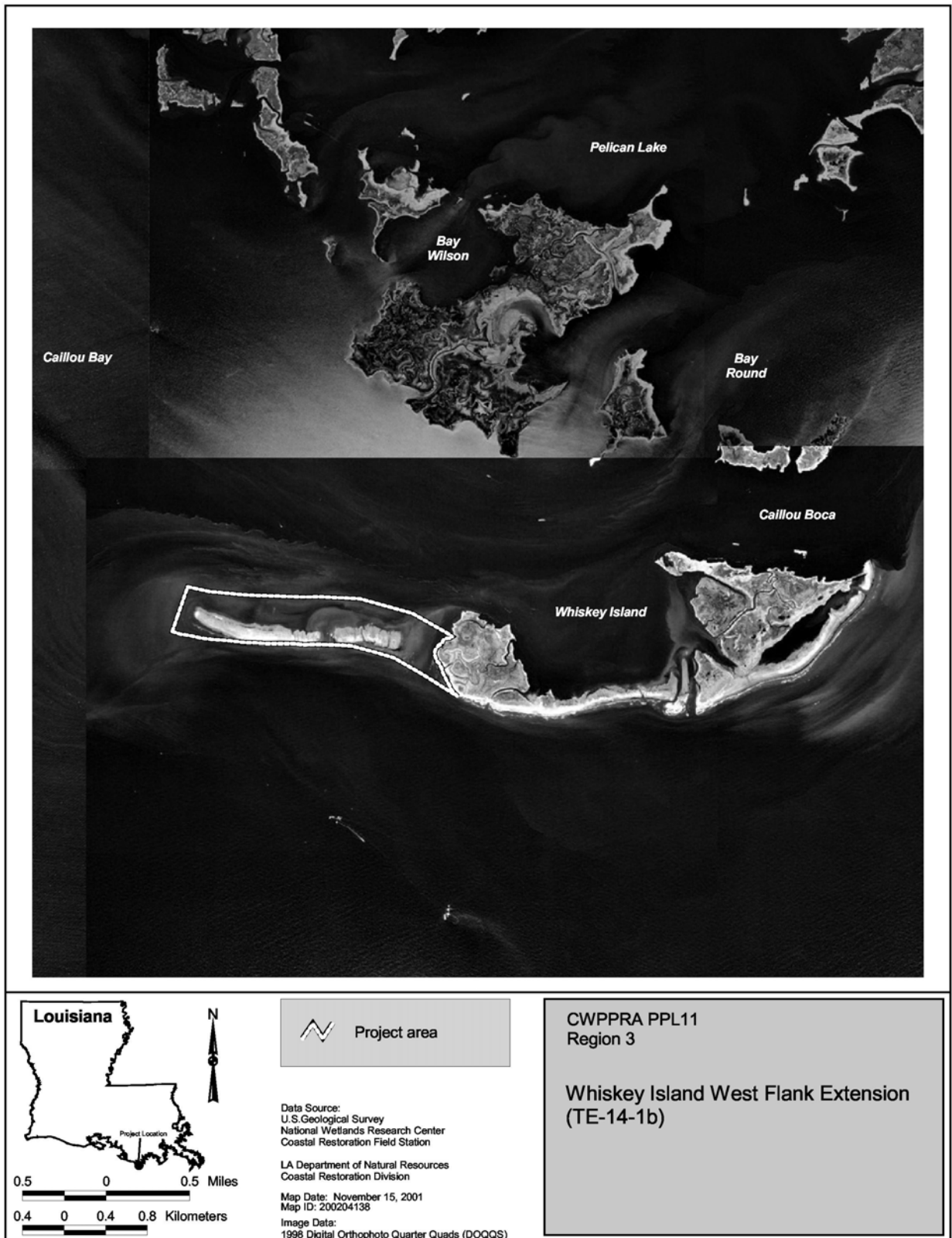
**Project Benefits** - Benefits include prevention of loss of sediment from the system into deeper Gulf waters or into bayside deeper water. The project would benefit a total of 398 acres of barrier island and shallow water. At the end of 20 years, there would be a net of 182 acres of island over the without-project condition.

**Project Costs** - The fully funded first cost is \$38,985,100 and the total fully funded cost is \$39,302,900.

**Risk/Uncertainty and Longevity/Sustainability** - There is a moderate degree of risk associated with this project due to greater storm effects in this area of the coast and difficulty in engineering and construction. Benefits should continue for more than 20 years due to the high quality and compatibility of Ship Shoal sand.

**Sponsoring Agency/Contact Persons** - U.S. Environmental Protection Agency  
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**State Project Number: TE-47 (number on map is the Federal number)**

**Project Name** - Raccoon Island Shoreline Protection/Marsh Creation (TE-48)

**Coast 2050 Strategy** - Regional Ecosystem Strategy #14: Restore and maintain the barrier islands and gulf shorelines such as Isles Dernieres and Timbalier barrier island chains, Marsh Island, Point au Fer and Cheniere au Tigre.

**Project Location** - Region 3 - Terrebonne Basin; Terrebonne Parish. The project area is the westernmost barrier island in the Isles Dernieres chain.

**Problem** - The Isles Dernieres barrier island chain is experiencing one of the highest rates of erosion of any coastal region in the world.

**Goals** - The primary objectives of this project are to protect the Raccoon Island rookery and seabird colonies from an encroaching shoreline by reducing the rate of shoreline erosion along the western end of the island, and creating 60 acres of new habitat for bird species along the northern shoreline.

**Proposed Solution** - Project features include the construction of eight additional segmented breakwaters along the gulf side of the island just to the west of the Raccoon Island Demo (TE-29) Project. Connection of existing breakwaters numbers 0, 1 and 2 with rock riprap and construction of an earthen dike between two peninsulas along the northern shore (bayside), with backfill material placed between the dike and the island with sediments dredged from the bay. The created area will be planted with herbaceous species and six different woody species.

**Project Benefits** - This project would benefit approximately 327 acres of beach, shrub, saline marsh and shallow water habitat. This project will result in the protection/creation of 167 acres over the course of the 20 year project life.

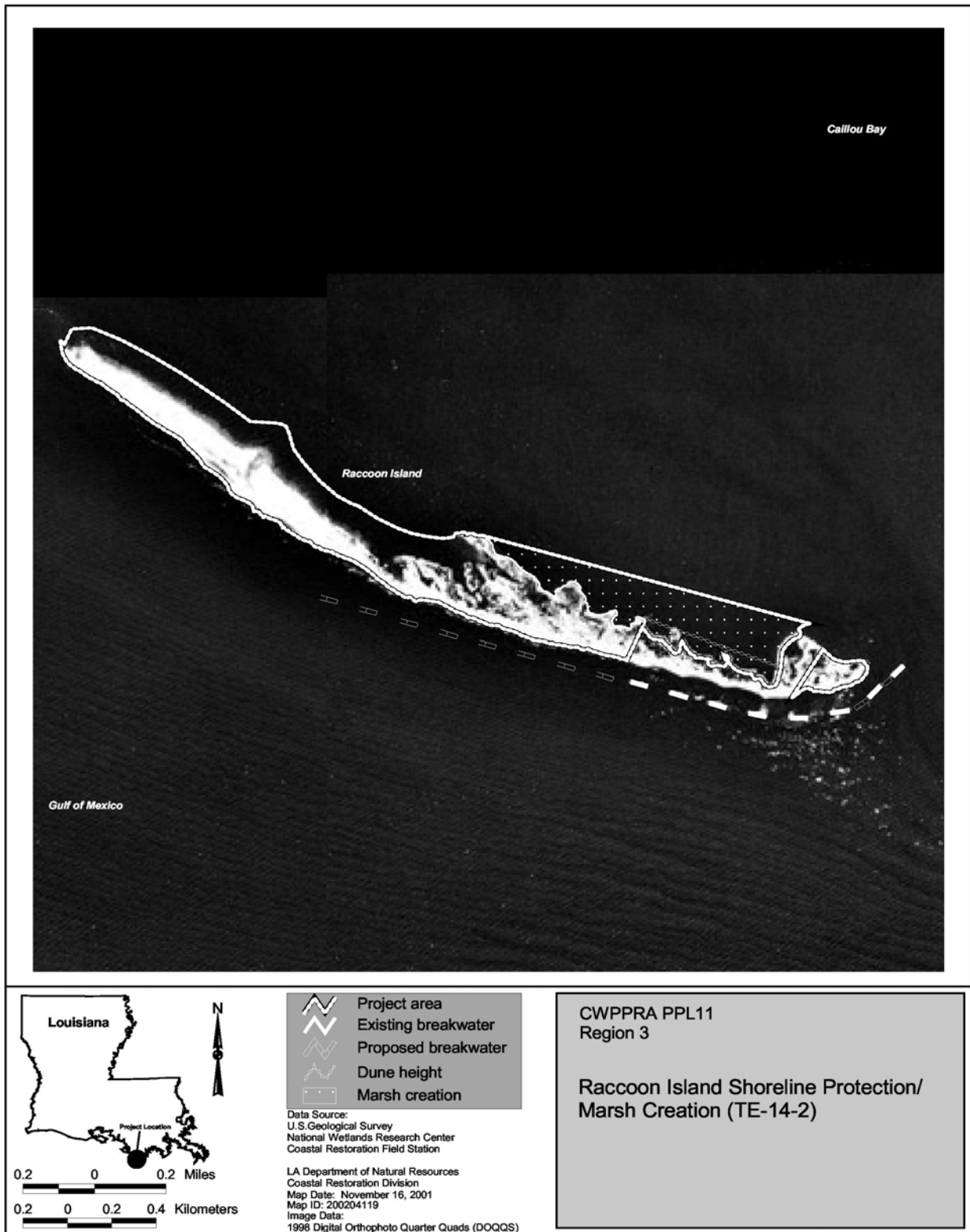
**Project Costs** - The proposed total fully funded cost is \$10,355,700 and the fully funded first cost is \$10,037,900.

**Risk/Uncertainty and Longevity/Sustainability** - There is a low degree of risk associated with this project because it follows the same proven methods that have been achieved by the demonstration project and contains marsh creation with appropriate vegetative plantings. The project should continue providing benefits beyond 20 years after construction as a result of additional elevation and width, and Gulf side protection afforded by the breakwaters.

**Sponsoring Agency and Contact Person** - USDA, Natural Resources Conservation Service

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**State Project Number: TE-48 (number on map is the Federal number)**

**Project Name** - Little Lake Shoreline Protection and Dedicated Dredging Near Round Lake (BA-37)

**Coast 2050 Strategy** - Regional Ecosystem Strategy #6: Use dedicated dredging or beneficial use of sediment for wetland creation or protection. Regional Ecosystem Strategy #24: Preserve bay and lake shoreline integrity on the landbridge.

**Project Location** - Region 2 - Barataria Basin; Lafourche Parish. The project is located in the vicinity of southwestern Little Lake and is generally bound by the East and West Forks of Bayou L'Ours and the southern shoreline of Little Lake from Plum Point westward to Breton Canal.

**Problem** - The Little Lake mapping unit is an area of high wetland loss rates caused by shoreline erosion, subsidence, and channel construction. The project is located in an area which protects approximately 3,000 acres of fragile interior marsh located between the Little Lake shoreline and the Bayou L'Ours Ridge. Project area wetlands currently experience two major problems: high shoreline erosion rates (20 - 40 feet per year) and subsidence which deteriorates interior marshes with escalating loss rates. Marshes within the project area are expected to convert to predominantly open water over the next 20 years. Continued shoreline erosion and wetland loss will likely adversely affect large areas of adjacent marsh.

**Goals** - a) Prevent erosion along approximately four miles of Little Lake shoreline; b) create 488 acres of intertidal vegetated wetlands along the Little Lake Shoreline; c) nourish and maintain 532 acres of existing intermediate marsh; and d) reduce land loss rates by 50% over the 20 year project life.

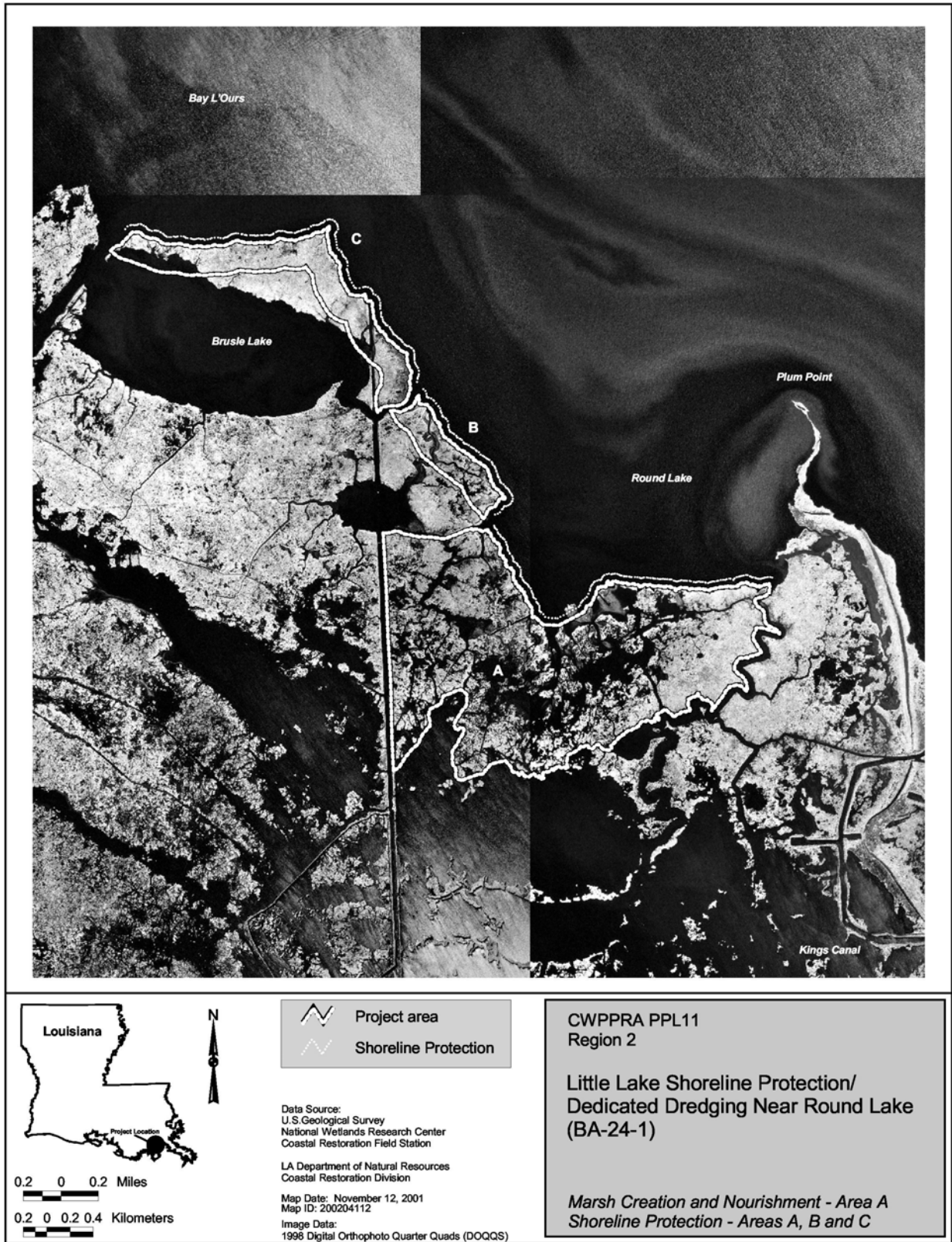
**Proposed Solution** - Installation of 21,000 feet of shoreline protection (geotextile encapsulated lightweight aggregate capped with rock) in open water, with a crest elevation approximately 2 feet above mean water. Perform dedicated dredging from Little Lake to create approximately 488 acres of intertidal elevation and nourish 532 acres of fragmented, subsiding marsh.

**Project Benefits** - The project would provide benefits to 1,373 acres, and would protect and/or create approximately 713 acres over the course of the 20 year project life.

**Project Costs** - The total fully funded cost is \$37,174,900 and the fully funded first cost is \$31,946,500.

**Risk/Uncertainty and Longevity/Sustainability** - There is a low degree of risk associated with this project because shoreline protection and marsh creation are proven restoration techniques, there are no anticipated impacts to oyster leases, and the project area is owned by a single, large landowner which has participated in past restoration projects. Additionally, the project features are scalable, allowing for reconfiguration in Phase I to optimize project performance. The project should continue providing benefits for more than 20 years after construction because significant quantities of sediment will be placed in project area marshes and adequate maintenance of the shoreline protection features is provided.

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**State Project Number: BA-37 (number on map is the Federal number)**

**Project Name** - Barataria Basin Landbridge Shoreline Protection (Northeast only) (BA-27d)

**Coast 2050 Strategy** - Regional Ecosystem Strategy #24: Preserve bay and lake shoreline integrity on the landbridge.

**Project Location** - Region 2 - Barataria Basin; Jefferson Parish. The Northeast Extension begins at the intersection of Bayou Rigolettes and Barataria Waterway, and extends 31,500 feet southward along the east bank of Bayou Rigolettes.

**Problem** - Shoreline erosion and deterioration of the Barataria landbridge.

**Goals** - The objective for this project is to eliminate shoreline erosion for the areas listed in the project location.

**Proposed Solution** - The Northeast Extension will consist of 31,500 feet of foreshore rock dike with a lightweight aggregate core or concrete sheetpile and will incorporate “fish dips” and openings at historic natural channels.

**Project Benefits** - The project will benefit a total of 706 acres of marsh and shallow water. It will protect 334 acres of emergent marsh over the course of the 20 year project life.

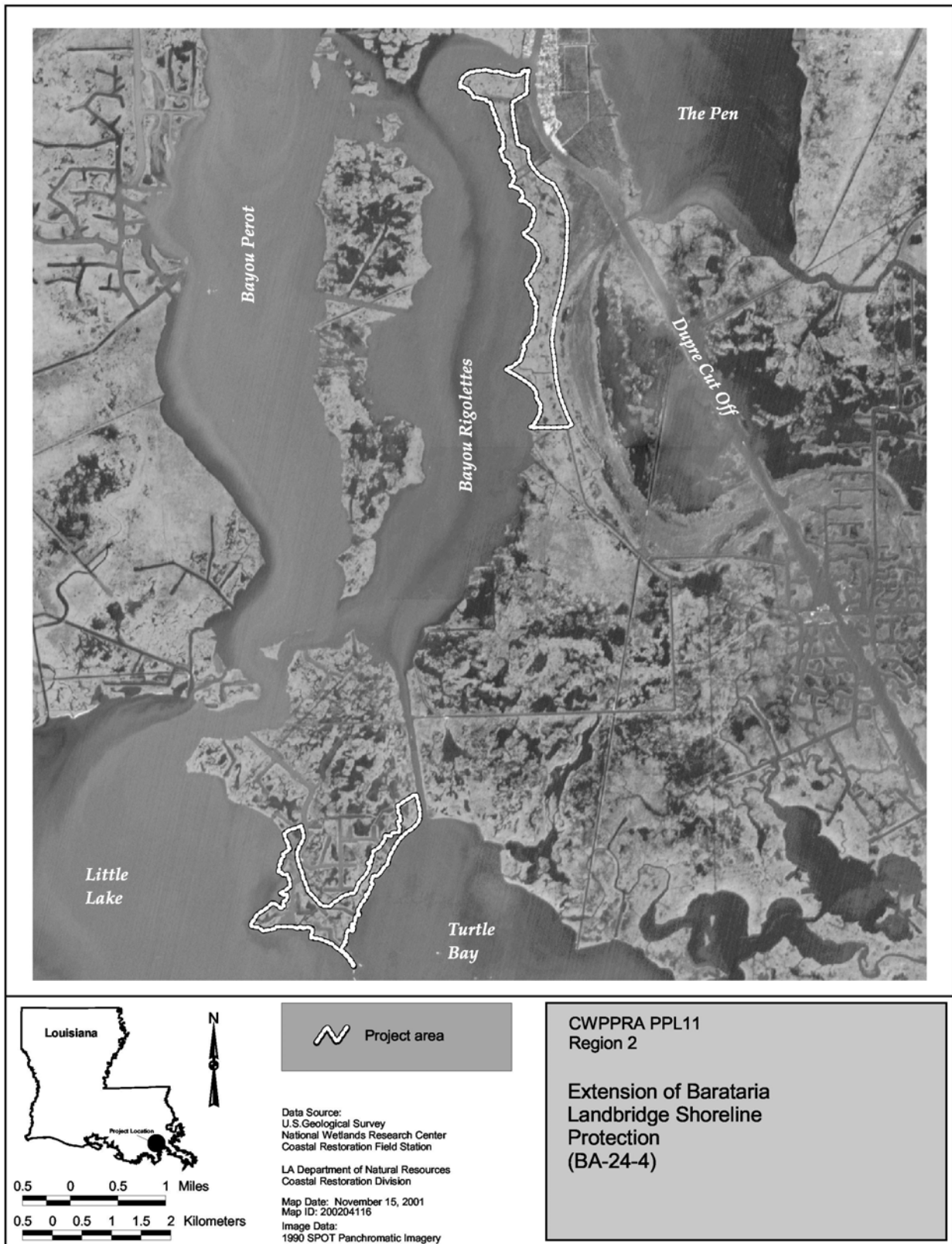
**Project Costs** - The total fully funded cost is \$36,541,411 and the fully funded first cost is \$2,191,807.

**Risk/Uncertainty and Longevity/Sustainability** - There is a low degree of risk associated with this project because of results determined from test sections constructed in the previous phases of the Barataria Landbridge. The project should continue providing benefits beyond 20 years after construction because of protection provided by project.

**Sponsoring Agency and Contact Person** - USDA, Natural Resources Conservation Service

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**State Project Number: BA-27d (number on map is the Federal number)**

**Project Name** - Barataria Barrier Shoreline Complex Project: Pelican Island and Pass La Mer to Chalant Pass (BA-38)

**Background-** This project was initiated to investigate the feasibility of 1) restoring the entire barrier island chain from Grand Terre to Southwest Pass, and 2) installing wave absorbers in the interior bays to reduce shoreline erosion from waves. Construction costs were originally estimated in the \$500 million to \$1 billion range and expected to be submitted for funding under the Water Resources Development Act. Subsequent to initiation of the LDNR/COE Coast 2050 Barrier Island Feasibility Study, the complex project was scaled to CWPPRA level to provide short-term restoration of critical island segments. Initially, four segments were selected, but after the evaluation process, the project was narrowed to two critical sub-reaches.

**Study Objectives-** Identify critical island reaches ( $\pm$  5-10 miles/2-3 islands) between Grand Terre and Sandy Point. Consider use of a combination of sand, alternative materials, and hard structures for restoration. Determine the feasibility of installing wave absorbers as proposed in the BIFS or similar protection along inland shorelines.

**Restoration Design Objectives-** Create barrier island, shoreline, and vegetated wetland habitats, enhance storm-related surge and wave protection; prevent overtopping during storms of #5 year return frequency; and increase volume of sand within the active barrier system.

**Evaluation Process-** Developed site selection matrix with input from Jefferson and Plaquemines parishes and Task Force agencies. Conducted preliminary real estate and oyster assessments. Updated barrier island loss rates. Conducted inventory of existing information regarding potential borrow sites, identified data gaps, conducted geotechnical investigations on prime targets, evaluated the feasibility of outside sand sources, and conducted sediment budget analysis. Conducted topographic/bathymetric site surveys of selected sites. Developed preliminary project features, completed feasibility level ( $\pm$ 30%) engineering and design, developed detailed cost estimates. Evaluated both landward and seaward design alternatives for each selected shoreline segment:

- Conducted S-Beach modeling to assess project engineering and environmental performance

- Completed CWPPRA Work group (ENV, ENG and ECO) review of the projects
- Complete list of deliverables and products included.

**Results-** Identified two critical reaches in need of near-term restoration: 1) Pass La Mer to Chalant Pass (3.1 miles long) and 2) Pelican Island (2.4 miles long). Each of these reaches is in danger of significant breaching within the next 6-10 years. Detailed project fact sheets are included here. Conducted preliminary engineering analysis (e.g., storm response modeling and  $\pm$  30% design), developed detailed cost estimates, and assessed benefits for the construction alignments.



The following table summarizes the benefits and costs of each construction alternative:

Alternative	Pass La Mer to Chaland Pass		Pelican Island	
	Landward	Seaward	Landward	Seaward
Project Area (acres)	398	419	497	418
Target Year 20 Acres	198	115	124	69
Average Annual Habitat Units	178	97	136	101
Fully funded construction cost (includes 25% contingency)	\$22.5 M	\$24.9 M	\$18.4 M	\$21.3 M

**Phase 1 Authorization-** Request authorization of \$3,083,934 to complete Phase 1 activities for both the Pass La Mer to Chaland Pass and the Pelican Island reaches.

**Phase 1 Tasks**

- Data collection (additional geotechnical investigations to increase accuracy of current 1 km grid, magnetometer surveys, engineering level bathymetric and topographic surveys)
- Engineering (storm response and borrow area impact modeling, develop final schematic designs for shoreface/beach/dune fill, final wetland platform design; complete plans and specifications)
- Land rights (conduct ownership/title investigations, develop servitude/agreement, obtain landowner signatures)
- Oysters (conduct lease assessments)
- Select preferred alternative alignments
- Complete NEPA documentation and required regulatory approvals

<b>Phase 1 Cost Estimates</b>	<b>Pelican</b>	<b>Pass La Mer</b>	<b>Both</b>
Engineering	<i>\$570,000</i>	<i>\$570,000</i>	<i>\$945,000</i>
Storm Impact Modeling, Borrow Area Impact Modeling, Natural Forces, Coastal Processes, Design Cross-Sections, Marsh/Wetland Design, Assess Erosion, Borrow Area Design, Fill Placement Scenario, Plans and Specifications			
Data Collection	<i>\$453,000</i>	<i>\$452,000</i>	<i>\$852,000</i>
Borrow Area Investigation, Sub-bottom/Mag. SideScan Surveys, Geotechnical Investigations, Cultural Resources Survey, Beach and Marsh Surveys			
Supervision and Administration			
Federal	\$341,000	\$388,000	\$500,000
State	\$326,000	\$373,000	\$400,000

Easements and Land Rights	\$ 50,000	\$ 50,000	\$100,000
Oyster Leases (14 leases and 5 leases, respectively @ \$2,000 each)	\$ 28,000	\$ 10,000	\$ 38,000
Monitoring	\$ 31,000	\$ 31,000	\$ 62,000
Total Phase 1 Cost Estimate (Fully Funded)	\$1,915,197	\$1,994,845	\$3,083,934

### Sub-Reach - Pass La Mer to Chaland Pass

Coast 2050 Strategy: Regional Ecosystem Strategy #22 Restore/maintain barrier headlands, islands, and shorelines.

Project Location- Region 2: Barataria Basin; Plaquemines Parish; between Pass La Mer and Chaland Pass, part of the Plaquemines Barrier System.

Problem- Wetlands, dune, and swale habitats within the project area have undergone substantial loss due to oil and gas activities (e.g., pipeline construction), subsidence, absolute sea-level rise, and marine and wind induced shoreline erosion (e.g., Gulfside and bayside). Marine processes acting on the abandoned deltaic headlands rework and redistribution previously deposited sediment. In two areas along an oil and gas access canal the shoreline has receded and decreased to a critical width that is susceptible to breaching during storm with a return frequency of 8.3 years.

Goals- a) prevent breaching of the barrier shoreline by increasing its width and average height and b) protect/create 198 acres or 115 acres of dune, swale, and intertidal marsh with the landward alternative and seaward alternatives, respectively.

Proposed Solution- The landward alternative would be constructed north of the existing Gulf shoreline filling existing habitat, whereas the seaward alternative would be constructed both south and north of the Gulf shoreline primarily only filling open water.

	Length (miles)	Beach Berm (ac) 200-ft. wide, +5 ft. NAVD	Dune (ac) 20-ft. wide, +7 NAVD	Marsh (ac)
Landward	3.1	91	36	250 (1,000-ft. wide)
Seaward	3.1	100	36	60 (open water only)

Semi-confinement with temporary containment dikes may be necessary, and temporary or permanent structures may be constructed at the terminal end of the sub-reach to reduce losses of sand from the project area and minimize shoaling of the adjacent passes. Created acres under both designed alternatives would be planted and sand fencing would be constructed to maximize sand retention.

Project Benefits	Project Area (ac)	Protect/Create (ac)
Landward	398	198
Seaward	419	115

Project Costs- \$212.5 million [\*construction + 25% contingency for the most expensive alternative (i.e., seaward)].

Risk/Uncertainty and Longevity/Sustainability- There is a higher degree of risk and less longevity with the seaward alternative that is more dependent on the sand quality. There is a moderate degree of risk associated with both design alternatives because it depends on landowner cooperation, and a barge mounted production facility, pipelines, and oyster leases are present. The landward alternative has greater adverse impacts to intertidal marsh. Both design alternatives were shown to have substantial acreage remaining after the 20-year project life based on engineering S-Beach modeling and WVA analysis.

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**Sub-Reach - Pelican Island**

Coast 2050 Strategy- Regional Ecosystem Strategy #22 Restore/maintain barrier headlands, islands, and shorelines.

Problem- Wetlands, dune, and swale habitats within the project area have undergone substantial loss due to oil and gas activities (e.g., pipeline construction), subsidence, absolute sea-level rise, and marine and wind induced shoreline erosion (e.g., Gulfside and bayside). Marine processes acting on the abandoned deltaic headlands rework and redistribute previously deposited sediment. The overall island width is very narrow along this sub-reach and is susceptible to breaching during storm with a return frequency of 8.3 years.

Goals- a) prevent breaching of the barrier shoreline by increasing its width and average height and b) protect/create 124 acres or 69 acres of dune, swale, and intertidal marsh with the landward alternative and seaward alternatives, respectively.

Proposed Solution- The landward alternative would be constructed north of the existing Gulf shoreline filling existing habitat, whereas the seaward alternative would be constructed both south and north of the Gulf shoreline primarily only filling open water.

	Length (miles)	Beach Berm (ac) 200-ft. wide, +5 ft. NAVD	Dune (ac) 20-ft. wide, +7 NAVD	Marsh (ac)
Landward	2.4	78	31	210 (1,000-ft. wide)
Seaward	2.4	110	31	60 (open water only)

Semi-confinement with temporary containment dikes may be necessary, and temporary or permanent structures may be constructed at the terminal end of the sub-reach to reduce losses of sand from the project area and minimize shoaling of the adjacent passes. Created

acres under both designed alternatives would be planted and sand fencing would be constructed to maximize sand retention.

Project Benefits	Project Area (ac)	Protect/Create (ac)
Landward	497	124
Seaward	418	69


Project Costs- The fully funded cost is \$26,812,100 and the fully funded Phase 1 cost is \$1,915,197. The fully funded first cost is \$26,486,800.



Risk/Uncertainty and Longevity/Sustainability- There is a higher degree of risk and less longevity with the seaward alternative that is more dependent on the sand quality. There is a moderate degree of risk associated with both design alternatives because it depends on landowner cooperation, and pipelines and oyster leases are present. The landward alternative has greater adverse impacts to intertidal marsh. Both design alternatives were shown to have substantial acreage remaining after the 20-year project life based on engineering S-Beach modeling and WVA analysis, whereas considerable island breakup would occur without the project.



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**Barataria Barrier Island Complex Project:  
Pass La Mer to Chaland Pass  
(BA-38)**

 Project Boundary


0.25 0 0.25 0.5 Miles  
0.25 0 0.25 0.5 0.75 Kilometers



Map Produced By:  
U.S. Department of the Interior  
U.S. Geological Survey  
National Wetlands Research Center  
Coastal Restoration Field Station



Background Imagery:  
1994 Digital Orthophoto Quarter Quadrangles  
Map Date: March 19, 2002  
Map ID#: 200011047



**Barataria Barrier Island Complex Project:  
Pelican Island  
(BA-38)**

 Project Boundary

0.25 0 0.25 0.5 Miles  
0.25 0 0.25 0.5 0.75 Kilometers

Map Produced By:  
U.S. Department of the Interior  
U.S. Geological Survey  
National Wetlands Research Center  
Coastal Restoration Field Station

Background Imagery:  
1994 Digital Orthophoto Quarter Quadrangles  
Map Date: March 19, 2002  
Map ID#: 200011047

**Project Name - Holly Beach to Constance Beach Segmented Breakwaters Sand Management Complex Project (CS-31)**

**Introduction**

The purpose for the proposed Holly Beach to Constance Beach Segmented Breakwaters Sand Management Project (CS-31) is to protect existing coastal wetlands by restoring and maintaining the integrity and functionality of the remaining chenier/beach ridge. This will be accomplished through beach renourishment and monitoring of shoreline response, and possible augmentation and/or enhancement of existing breakwaters.

The project is located on the southwest coast of Louisiana between Calcasieu Pass, Louisiana and Sabine Pass, Texas. The project area has been subdivided into two sections, referred to as Areas A and B. Area A, located north of LA Hwy 82, totals 8,520 ac of predominately intermediate and brackish marsh habitat. Area B approximates 1,503 ac of beach dune habitat, brackish and intermediate marsh habitat, shrub/scrub habitat, and open gulf water. The existing breakwater field, constructed between 1985 and 1994, is 7.2 mi in length, with its eastern terminus approximately 8.5 mi west of Calcasieu Pass. The field is composed of 85 rubblemound breakwaters, which vary in length from 150 ft to 175 ft, with gaps ranging from 250 ft to 330 ft. The average crest elevation is 3.8 ft NGVD and the offshore breakwater distance varies from 310 ft to 700 ft.

A sand management and breakwater enhancement plan, developed by Coastal Planning and Engineering (CPE), was authorized by the Louisiana Department of Natural Resources (LDNR) to determine if beach nourishment in tandem with the existing breakwaters, will protect the sand deficient chenier/beach ridge.

**I. Goal Statement**

The goals of this project are:

- protect the existing shoreline from further erosion and degradation caused during episodic higher wave energy events in the Gulf of Mexico; and
- protect existing intermediate and brackish marsh habitat north of the chenier/beach ridge.

**II. Strategy Statement**

Project goals will be achieved through the following strategy/project feature:

- a fill of approximately 1.75 million cubic yards of sediment dredged from nearshore and/or offshore regions.

**Strategy-Goal Relationship**

Re-establishing the sub-aerial and sub-aqueous beach profile using sediment dredged from nearshore and/or offshore regions, will 1) maintain the integrity and functionality of the chenier/beach ridge; 2) reduce overwash occurrences of the chenier/beach ridge during episodic higher wave energy events in the Gulf of Mexico; 3) provide storm protection to intermediate and brackish marsh habitats north of the

chenier/beach ridge (Area A); 4) restore the littoral drift system, thereby reducing down drift erosion rates; and 5) allow for monitoring and quantification of beach profile changes and beach shape development, resulting in a refining of breakwater design and possible augmentation and/or enhancement of existing breakwaters.

## **Project Feature Evaluation**

For project feature evaluation, the LDNR Database Analysis Section (DAS) focused on source and design specifications of beach fill. This evaluation was done in collaboration with LDNR and contract project engineers.

### Borrow Sites

A preliminary geotechnical investigation was undertaken to locate and delineate potential sand sources for the beach fill component of the proposed project. Identification of high-quality, borrow material is critical to the feasibility and success of any restoration project that has a gulf side beach-fill component because beach fills tend to perform better when grain size characteristics of the borrow material are equal to or slightly coarser than the native beach material (Krumbein 1957; James 1974; 1975; Dean 1974; USACE 1984; National Research Council 1995). As part of the preliminary geotechnical investigation, CPE conducted a combined geophysical survey during July 2000. The total area surveyed approximates 9 sq mi and is located seaward of Peveto Beach to Calcasieu Pass. The survey consisted of a two phase field investigation. The first phase included bathymetric, side scan sonar, and seismic surveys. The second phase included jet probes and collection of surface sediment samples. A review of previous investigations of Sabine Bank (Morton and Gibeaut 1995) was also conducted.

During the geotechnical investigation, two large sand deposits were identified in a Pleistocene fluvial channel system (6,000 - 13,000 ft in width) that had dissected the present continental shelf during the last low stand of sea level (LDNR 1985). The delineated sand deposits consist of several pockets of sand and have been classified as either nearshore or offshore, on the basis of distance from the shoreline and sand characteristics (CPE 2001).

The nearshore region lies in water depths of 9 to 23 ft NGVD and range from 0.6 to 2.7 nautical mi. offshore. The deposit consists of fine-grained gray sand (0.11 - 0.15 mm), is located 6 to 8 ft below the surface of the sea floor, and has a volume of 3.63 million cubic yards. To reach the nearshore deposit, approximately 5 to 9 ft of overburden consisting of fine silt and clay will have to be removed (CPE 2001).

The offshore deposit lies in water depths of 23 to 30 ft NGVD and range from 2.7 to 5.3 nautical mi offshore. The deposit consists of fine-grained yellowish brown sand (0.10 - 0.15 mm) up to 10 ft in thickness, is located 5 to 7 ft below the sea floor, and has a volume of 16.5 million cubic yards. The offshore sand deposit is thought to have greater aesthetic appeal than the nearshore sand deposit, due to its yellowish brown color. To reach the offshore deposit, approximately 5 to 7 ft of overburden will have to be removed (CPE 2001).

A review of previous investigations pertaining to potentially economic concentrations of sand and shell in the western Gulf of Mexico (Morton and Gibeaut 1995)

was conducted by CPE (2001). This review identified the portion of Sabine Bank located in Louisiana waters, as a potential sand source. Sabine Bank is a large shore-aligned, lens-shaped sand body, created during the most recent rise in sea-level (Paine et al. 1988). Morton and Gibeaut (1995) collected a total of 11 vibracores. Analysis of vibracores retrieved indicate moderately well to poorly sorted fine sand and slightly muddy sand, and poorly to very poorly sorted shelly sand and gravels to be the coarsest sediments (0.11 - 0.43 mm) available. Sediments become finer with depth. An estimated total of 195 million cubic yards of sand, in water depths ranging from 22 to 30 ft, is available from the eastern portion of the Sabine Bank within the State of Louisiana.

### Fill Section

Beach renourishment is a common engineering method used to mitigate further erosion of an existing shoreline. The beach fill component will extend the shoreline seaward, thereby creating a buffer which will protect the existing shoreline and intermediate and brackish marsh habitat north of the chenier/beach ridge.

The total beach renourishment volume has two primary components, 1) the fill required to achieve the design profile and to provide protection during the life of the project; and 2) an advanced nourishment section which will sacrificially erode throughout the nourishment interval. This two-section design, prepared by CPE (2001), is in accordance with the National Research Council Report (1995).

Beach renourishment is proposed for the existing breakwater field between breakwaters 10 and 72, for a total length of 5.4 mi. A 50 ft design berm width at an elevation of +5 ft NGVD was determined using cross-shore modeling, given a developed beach profile shape and design criterion. Breakwaters 12 to 70 will have the full design berm width. Breakwaters 10 to 12 and 70 to 72 will taper. Based on the design berm width and elevation, the recommended beach fill volume is 1.43 million cubic yards.

The advanced fill is the erodible portion of the profile and acts as a sacrificial berm in front of the design profile. The calculated advanced fill berm width, given design criterion, will be 25 ft behind breakwaters 12 to 22 and 34 to 70. The advanced fill berm width will increase to 50 ft behind breakwaters 23 to 33. The recommended advanced nourishment volume is 320,000 cubic yards. The fill required to achieve the design profile and the advanced nourishment fill combine for a recommended beach renourishment volume of 1.75 million cubic yards.

### **Assessment of Goal Attainability**

Protecting the existing shoreline by placing 1.75 million cubic yards of fill into the existing breakwater field is an attainable goal given the preliminary geophysical data. The success of the project relies heavily on both the quantity and quality of the borrow material which will determine the longevity, integrity, and functionality of the chenier/beach ridge; thus protecting existing intermediate and brackish marsh habitat to the north. At this time, comparisons to and/or evaluations of beach nourishment projects in the Isles Dernieres (CWPPRA Project No. TE-20, TE-24, and TE-27) and Timbalier Islands (TE-25 and TE-30), constructed between 1998 and 2000, are precluded due to the paucity of post-construction monitoring data.



The proposed beach renourishment will not only protect the existing shoreline from further erosion, but in conjunction with monitoring efforts will provide data necessary to model for possible breakwater enhancement. Since construction completion in 1994, the Holly Beach breakwaters have failed to reverse net erosion rates in the central and western portions of the project area (Underwood et al. 1999). Underwood et al. (1999) identified the reduction of longshore sediment supply, caused by leveeing of the Mississippi River and construction of both Calcasieu Pass and Sabine Pass jetties, as the primary reason for continued shoreline degradation. The project's effectiveness was further compromised by the distance between the breakwater field and the shoreline as well as the breakwater length to gap width ratio (CPE 2001 and Underwood et al. 1999). Suggested breakwater modifications such as an increase in crest height and/or a reduction in gap width could potentially alleviate the chronic erosion problem (CPE 2001 and Underwood et al. 1999). Although rock breakwaters have been previously constructed along the Gulf shoreline in Terrebonne Parish (TE-22 and TE-29) with varying degrees of success, the unique geologic setting of the Holly Beach project area precludes a definitive comparison between similar project features.

### **Recommendations**

The Holly Beach to Constance Beach Segmented Breakwaters Sand Management Project (CS-01) should be approved pending acquisition of additional geophysical data, as recommended by CPE (2001). Further investigation is needed to increase our confidence level with regard to delineation of the borrow area and quantity and quality of the borrow material.

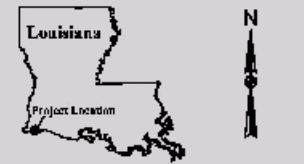
Project monitoring should concentrate data collection efforts on quantifying pre-construction and post-construction (immediately post-construction and year 2) adjustment in the vertical and horizontal of the sub-aerial and sub-aqueous beach profiles. Data collected will provide statistically valid comparisons, resulting in possible augmentation and/or enhancement of the existing breakwater field. Additionally, project monitoring should include, as outlined in the Draft Monitoring Plan, the following elements necessary to determine project goal achievement; 1) acquisition and analysis of aerial photography to measure land and water areas and to document long-term changes in beach and shoreline morphology; 2) survey shoreline change (erosion and accretion) using differential global positioning system (DGPS); 3) installation of two continuous recorders to collect hourly salinity data, characterize salinity regime, and assist in determining frequency of overwash events into interior marsh; and 4) monitor emergent vegetation in the project area. Data should be collected pre- and post-construction (immediately post-construction and years 2, 5, and 10) in the project and reference areas, providing for statistically valid comparisons.

### **Construction Cost Estimates**

Construction cost for the sand nourishment is \$18,900,000. Costs for a two year monitoring plan amount to \$340,000. The amount requested at this time totals \$19,252,500. It is requested that CWPPRA will fund 50% of the total or \$9,626,250. The remaining \$9,626,250 is expected from the state with \$4,813,250 or 25% of the total from the Coastal Impact Assistance Program and the remaining \$4,813,250 from the State Wetlands Trust Fund.



## Holly Beach Sand Management Project (CS-31)



Prepared by:  
 U.S. Geological Survey  
 Coastal and Estuarine Science Center  
 1220 University Ave.  
 St. Petersburg, FL 33708  
 Map ID: 2831101

**Project Name** - Diversion into the Swamps South of Lake Maurepas Complex  
Project PO-29)

Regional Strategy- Region 1, Strategies 1 and 2

1. Small Mississippi River diversion at Blind River with outfall management.
2. Small Mississippi River diversion at Reserve Relief Canal with outfall management.

Location- The project is proposed for the upper Pontchartrain Basin, Coast 2050 Region 1, Amite/Blind Rivers Mapping Unit; St. John the Baptist, St. James and Ascension Parishes. The project area is approximately 36,121 acres in size.

Problem- Since the construction of the Mississippi River flood control levees, the Maurepas swamps have been virtually cut off from any freshwater, sediment, or nutrient input. Thus, the only soil building has come from organic production within the wetlands; and preliminary evaluations suggest that productivity in the stressed Maurepas swamps may be substantially depressed compared to normal conditions. Subsidence in this area is classified as intermediate, at about 1.1 to 2.0 feet/century. With minimal soil building and moderately high subsidence, there has been a net lowering of ground surface elevation, leading to a doubling in flood frequency over the last four decades (Thompson, 2000), so that now the swamps are persistently flooded.

With minimal ability to drain and persistent flooding, the typical seasonal drying of the swamp does not usually occur. Cypress and tupelo trees are reliable to grow in flooded conditions. Apparently, tupelo trees are more competitive in permanently flooded conditions (Conner et al, 1981, Dicke and Tolliver, 1990), a condition that may explain the recent dominance of tupelo in the south Maurepas swamps. However, a high mortality of tupelo trees also has occurred in the last few years within the Maurepas study area.

Neither cypress nor tupelo seeds can germinate when flooded. Seeds of both species remain viable when submerged in water and can germinate readily when floodwaters recede (Kozlowski, 1984).

In addition, the existing trees are highly stressed, which appears to decrease productivity, increase mortality, and increase susceptibility to herbivory and other parasites. Saltwater intrusion has increased, at least in part due to progressive combination of net subsidence and the lack of riverine freshwater inputs.

It is expected that without restoration, the factors and processes that are contributing to stress and deterioration of the south Maurepas swamps will continue and result in loss of the swamp, with succession to open water. These remaining swamps are composed of about 80% tupelo trees and 20% cypress trees, and as of 1990, covered an area within the Amite/Blind Rivers mapping unit of about 138,900 acres of swamp and 3,440 acres of fresh marsh. The wetland loss rates for the Amite/Blind Rivers mapping unit of 1974-90 were estimated by USACE to be .083% per year for the swamps, and 0.02% per year for fresh marsh. Based on these rates, about 50% or 69,450 acres of swamp, and 1.2% or about 40 acres of fresh marsh will be lost in 60 years.

Goal- The goal of the south Maurepas diversion concept is to restore and protect the health and productivity of the swamps south of Lake Maurepas, through re-introduction of Mississippi River water with its sediments and nutrients.

## Objectives

1. Retain (i.e. minimize loss of) existing areas of swamp vegetation;
2. Retain and preferably increase overstory cover;
3. Decrease the morbidity rate of tupelo trees;
4. Increase the density of the dominant trees species;
5. Increase the primary productivity of trees;
6. Increase accretion of substrate in the swamp;
7. Restore and maintain characteristics of natural swamp hydrology (e.g., flooding regime, drainage patterns, through-flow);
8. Reduce salinity levels in the swamp;
9. Increase sediment loading to the swamp;
10. Increase nutrient loading to the swamp;
11. Increase dissolved loading to the swamp;
12. Maximize nutrient removal from river water diverted to the swamp;
13. Ensure that diversion of river water does not result in increased nuisance algal blooms in Lake Maurepas; and;
14. Reduce nutrient loading from the Mississippi River to the Gulf of Mexico

## Proposed Solution

The project would consist of:

- Diversion Structure- Box culverts (for cost estimation purposes, assumed to be sized approximately 2,000cfs)
  - Two 10 x 10 foot box culverts (number and size of culverts assumed based on comparison to Myrtle Grove 5,000cfs diversion proposal; actual number and size of culverts would be defined in Phase I).
  - Sediment Basin
  - Modifications and features to accommodate intercepted local drainage (e.g., lateral canals)
  - Outflow channel: approximately 27,500 ft., from river to I-10, with levees to contain diverted flow created from excavation of channel cross-section. Channel dimensions: bottom width 50 ft., top width 110ft, average depth 10ft, 3:1 side slopes. Cross-section average depth of cut 17.5 ft. on upland and 12.5 ft. in swamp. Improvements to existing channels were assumed to require excavation of 60% of the channel cross-section. Total excavation estimated at 1,032,300 cy. Also include a structure of 4 (72") flap-gated culverts at the point where the new diversion joins Hope Canal just north of Airline Highway, to prevent backflow of diverted water up Hope Canal (toward the river). The channel under I-10 will be reinforced with riprap.
- Outfall Management
  - Gaps will be added in remnant railroad bed running along west side of Hope Canal from I-10 north (some gaps already exist).
    - Costs for two channel constrictions have been included to maximize sheet flow of diverted water through the swamps, and minimize the amount of water able to remain in the channel from the point of diversion to the lake. These are planned as riprap placements to decrease channel cross-section, though other management options exist, such as adjustments weirs with boat bays, and will be further considered in Phase I.
- Relocations

- Major relocation costs for Airline Highway, the Illinois Central and the Kansas City railroad. Assumed existing culverts would be replaced with bridge structures.
- Relocations included for 17 other water mains, sewer lines, product and utility pipelines identified.

## Project Benefits

### Hydrology

The reason for diverting river water into the swamps of Lake Maurepas is to reestablish the swamp to a healthy, self-sustainable condition. The trees are excessively flooded. The Maurepas swamps are often lower in elevation than the lake, rendering flooding semi-permanent. The flow and exchange of water through the swamp is very low, due both to the low elevation of the swamp and to partial impoundment resulting from flood control levees and abandoned railroad track embankments. Thus the swamps are inundated with stagnant and therefore oxygen-poor, nutrient-poor water. Low input of nutrients and stagnant water and associated low dissolved oxygen decrease productivity in cypress swamps. Based on results of the Phase 0 studies, stagnant water conditions and lack of nutrients have limited the productivity and health of the Maurepas swamps.

The proposed diversion would greatly increase flow through the project area swamps. This, in combination with outfall management to optimize sheet flow the swamps, will renew oxygen- and nutrient-rich water to the swamps. Benefits will include increases in productivity, which will help build swamp substrate and balance subsidence, as well as increases in tree growth, reduced mortality, and an increase in soil bulk density. As accretion improves, there should be an increase in recruitment of new cypress and tupelo. Without recruitment in the long term, the swamps would be lost completely, as older and/or stressed trees die with no replacements.

### Sediments

Results of the Phase 0 studies confirm that the Maurepas swamp substrates are highly organic, and that bulk densities are low. This high organic content and low bulk density is assumed to be partly responsible for observed low vegetative productivity. Mississippi River sediment load is estimated at 226 mg/l, of which 26% is sand, with silt and clays each contributing between 30-40% each. Sand will drop out in the proposed sediment basin, prior to reaching the swamp. Thus, even if only clays are conveyed by the channel to the swamps north of I-10, about 30% of the river sediment load is expected to reach the swamps. Most of the sediment that reaches the swamps from a diversion will be deposited in the swamps. Only the swamps that are first to receive diverted water will receive sediment benefits. Sediments in this area will increase accretion rates here, likely maintaining or increasing existing swamp elevations against subsidence. This sediment input will also increase soil bulk densities. Higher elevations and soil bulk densities will increase tree health, survival, and productivity, and will increase the potential for tree regeneration.

### Nutrients

Results of the Phase 0 study show the Maurepas swamps are almost certainly nutrient limited. Experimental nutrient enrichment increased biomass production.

Addition of nutrients and associated increase in production will contribute substantially to the buildup of swamp substrates, which will help counterbalance subsidence. So over time, nutrient additions will improve the health of the trees, conditions in the swamp, and will encourage regeneration of cypress and tupelo.

### Freshening

Results of the Phase 0 study show the impacts of saltwater intrusion on the cypress-tupelo swamps south of Lake Maurepas. Two of the most dramatic effects were mortalities of tupelo, as well as of red maple and ash, in the areas of highest salinity, and suppression of tree productivity with increasing salinity. Saltwater intrusion into the Maurepas swamps is impacting swamp vegetation already stressed by excessive flooding.

The proposed diversion is expected to directly ameliorate increasing salinities in the swamps south of Lake Maurepas, as well as in the lake itself. This is expected to prevent the high mortalities previously observed. More persistently freshwater conditions are also expected to increase tree and herbaceous productivity, which along with flow through of oxygen-, sediment-, and nutrient-rich water, will contribute to stronger substrates and increased accretion.

### Effects on Regeneration

To preserve these swamps, conditions must be re-established that allow for survival of existing cypress and tupelo trees, and allow at least periodic reproduction and recruitment of seedlings. Non-stagnant water, accretion and freshening are all needed to achieve these goals. Long-term operation of the diversion is expected to produce improvements, including stronger substrates, higher elevations, and less frequent flooding, which will make conditions more conducive to seed germination and recruitment of young cypress and tupelo. However, it may be beneficial to periodically modify diversion operations to allow drier conditions to develop, which are conducive to cypress and tupelo seed germination.

### Fresher Lake Water

The proposed 1500 cfs diversion would significantly freshen Lake Maurepas. Compared to the existing average freshwater inflow to Lake Maurepas, the diversion represents up to a 45% increase in average freshwater input to the lake. In addition, the diversion design would be capable of operating at full flow even during the late summer and fall low-flow period, when high salinities are the greatest threat. Thus it is expected that Lake Maurepas would experience significant freshening as a benefit beyond direct benefits to the swamps.

### Dissolved Oxygen

Mississippi River water is much higher in dissolved oxygen than the water in the swamp is currently. Water in the swamp is also stagnant, while a diversion will increase flows through the swamp system dramatically. In addition to the higher initial oxygen concentration, the higher flows will help to maintain higher dissolved oxygen.

## Fisheries Benefits

The fisheries of Lake Maurepas and the rivers and bayous entering the lake, such as Blind River, have been impacted by increasing and stagnant water. Lake Maurepas and rivers and bayous of the Maurepas swamp system will garner freshwater benefits from the proposed diversion. Blind River and Hope Canal/Tent Bayou/Dutch Bayou will see substantial addition of flowing fresh water, which will provide a substantial benefit to its fisheries.

## Gulf Hypoxia Benefits

Nutrient studies in the Phase 0 work show that 90-100% of nutrients in diverted river water will be removed within the Maurepas swamps. Thus, the proposed diversion will buffer the impact of nitrates and other nutrients on the Inner Continental Shelf off Louisiana. The volume of the proposed Maurepas diversion is small compared to average flows in the Mississippi River, so by itself this diversion would not have a measurable impact on the size of the hypoxic zone. But the proposed diversion should be viewed as a part of a potentially larger system of diversions that together could help reduced nutrient input to the Gulf, as well as restore wetlands.

## Wetland Value Assessment

Based on the results of UNET modeling, field hydrologic surveys, ecological monitoring and other existing data, estimates of project benefits were developed using the Wetland Value Assessment (WVA) methodology.

The area immediately around Hope Canal, Sub-area 1, is the first to receive the great majority of diverted water. Sub-area 1 is about 6,032 acres of cypress/tupelo swamp that is less degraded than other portions of the project area. This sub-area is expected to receive the highest influence from the diversion, getting sediment, nutrient, and freshwater benefits. Here, stand structure of the vegetation is expected to improve greatly with the project, and to decline significantly without it. Stand maturity is expected to increase slightly in the future, both with and without the project. The water regime is expected to improve moderately with the project, and degrade moderately without it. Mean high salinity during the growing season is expected to decrease very significantly with the project, and to remain the same without it. Total Average Annual Habitat Units (AAHUs) estimated for Sub-area 1 was 1504.

Sub-area 2 is defined as an approximate 12,229 acre band of degraded cypress/tupelo swamp, surrounding Sub-area 1. This area is expected to receive moderate (freshwater and nutrient) influence from the diversion, because it will diverted water from the immediately adjacent high influence area (Sub-area 1). Here, stand structure of the vegetation is expected to improve substantially with the project, and to decline significantly without it. The water regime is expected to improve moderately with the project, and to degrade moderately without it. Mean high salinity during the growing season is expected to decrease very significantly with the project, and to stay the same without it. Total AAHUs estimated for Sub-area 2 was 3606.

Sub-area 3 is defined as an approximate 13,876 acre band of degraded/moderately-degraded cypress/tupelo swamp, north and east of Sub-area 2, and adjacent to the lake and Reserve Relief Canal. This area is expected to receive direct freshwater benefits form a diversion. Here, stand structure of the vegetation is expected to improve moderately with the project, and to decline greatly without it. Stand maturity is expected to increase moderately to greatly with the project, and to remain the same to

increase slightly without it. The water regime is expected to improve moderately with the project, and to degrade moderately without it. Mean high salinity during the growing season is expected to decrease very significantly with the project, and to stay the same without it. Total AAHUs estimated for Sub-area 3 was 3255.

Sub-area 4 is defined as a ½ mile wide strip along the southern shore of Lake Maurepas from Reserve Relief Canal east to Pass Manchac, plus another ½ mile wide strip along the eastern bank of Reserve Relief Canal from I-10 to within ½ mile of the lake. This area is estimated to be 3,984 acres of degraded to highly-degraded swamp. This area is based on qualitative predictions for salinity reduction/freshwater benefits based on general reduction of lake salinity and on assumptions regarding incomplete efficiency of Reserve Relief Canal in moving water to the lake. It is assumed that some diverted water making its way to Reserve Relief Canal after flowing through swamps will flow into the swamps to the east of the canal, rather than flowing directly to the lake. Sub-area 4 is expected to receive indirect freshwater benefits from a diversion. Here, stand structure of vegetation is expected to be maintained with the project, and to degrade somewhat or stay the same in some areas, without it. Stand maturity is expected to increase slightly with the project, and to remain the same without it. The water regime is expected to degrade with or without the project. Mean high salinity during the growing season is expected to decrease moderately with the project, and to stay the same without it. Total AAHUs estimated for Sub-area 4 was 121.

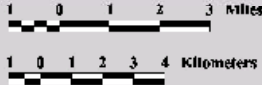
Based on the above information, the CWPPRA Environmental Work Group estimated WVA Benefits of 8,486 AAHUs in the approximate 36,121 acre project area.





# Diversion into Maurepas Swamp (PO-29)

 Project Boundary



Map created by  
U.S. Department of the Interior  
U.S. Geological Survey  
Biology and Health Branch & State  
Coastal Resources Field Office  
Baton Rouge, Louisiana, USA  
July 2011 (PO-29)



## VI. SUMMARY AND CONCLUSIONS

The 11<sup>th</sup> Priority Project List consists of 11 projects, for a total Phase I cost of \$18,912,905 and a total Phase II cost of \$291,134,695, which will be funded as these projects mature. The total benefits of the projects are estimated to be 4,751 AAHUs, based on a comparison of future with and without-project conditions over the 20 year project life.

The 11<sup>th</sup> Priority Project List includes one project that was added during the Task Force meeting on January 16, 2002, with a Phase I cost of \$2,191,807, and a Phase II cost of \$34,349,604. The total benefit of this project is estimated to be 121 AAHUs, based on a comparison of future with and without-project conditions over the 20 year project life.

In addition, the 11<sup>th</sup> Priority Project List includes three complex projects, with a Phase I cost of \$8,518,222 and a Phase II cost of \$122,516,278. The total benefits of the projects are estimated to be 9,364 AAHUs, based on a comparison of future with and without-project conditions over the 20 year project life.

With the addition of the three complex projects, the total Phase I cost for the 11<sup>th</sup> Priority Project List is \$27,431,127 and the total Phase II cost is \$413,650,973. The total benefits of the projects are estimated to be 14,115 AAHUs, based on a comparison of future with and without-project conditions over the 20 year project life.

The Task Force believes the recommended projects represent the best strategy for addressing the immediate needs of Louisiana's coastal wetlands. The Task Force will conduct a final review of the plans and specifications for each project prior to the award of construction contracts by the lead Task Force agency and the allocation of construction funds by the Task Force chairman.



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**1<sup>st</sup> Priority Project List** (deauthorized = underlined)

**Environmental Protection Agency**

TE-20 Eastern Isles Dernieres Barrier Island Restoration Demonstration

**U.S. Department of the Army**

MR-3 West Bay Sediment Diversion Marsh Creation

PPO-10 Bayou LaBranche Wetland Marsh Creation

BA-19 Barataria Bay Waterway Marsh Creation

FTV-3 Vermillion River Cutoff Wetland Creation

**U.S. Department of Commerce**

BA-18 Fourchon Hydrologic Restoration

TE-19 Lower Bayou La Cache Wetland Hydrologic Restoration

**U.S. Department of Agriculture**

BA-2 G.I.W.W. to Clovelly Hydrologic Restoration Coastal Vegetation Program

TE-18 Timbalier Island Planting Demonstration

TE-17 Falgout Canal Planting Demonstration

FCS-19 West Hackberry Vegetative Planting

ME-8 Dewitt-Rollover Shore Protection Demo (Vegetative Planting de-authorized)

**U.S. Department of the Interior**

XPO-52a Bayou Sauvage NWR Hydrologic Restoration

ME-9 Cameron Prairie Refuge NWR Erosion Prevention

FCS-18 Sabine Refuge Pool 3 Unit Protection

FCS-17 Cameron-Creole Watershed Project Borrow Canal Plug

**2<sup>nd</sup> Priority Project List**

**Environmental Protection Agency**

XTE-41 Isles Dernieres Island Restoration

**U.S. Department of the Army**

PTE-27 West Belle Pass Headland Restoration

PCS-27 Clear Marais Shore Protection

**U.S. Department of Commerce**

PAT-2 East Atchafalaya Crevasse Creation

PTE-2/24 Pointe Au Fer Canal Plugs

XAT-7 Big Island Sediment Distribution

**U.S. Department of Agriculture**

CS-9 Brown Lake Hydrologic Restoration

ME-4/XME-21 Freshwater Bayou Wetlands and Shore Protection

PBA-35 Jonathon Davis Wetlands Protection

PCS-24 East Mud Lake Hydrologic Restoration

PCS-25 Hwy. 384 Hydrologic Restoration

PO-6 Fritchie Marsh Creation

PTV-18/TV-9 Vermillion Bay/Boston Canal Shoreline Stabilization

BS-3a Caernarvon Diversion Outfall Management

**U.S. Department of the Interior**

XPO-52b Bayou Sauvage NWR Hydrologic Restoration

**3<sup>rd</sup> Priority Project List** (deauthorized = underlined)

**Environmental Protection Agency**

PTE-15bi Whiskey Island Restoration

XTE-43 Modified Red Mud Demonstration

**U.S. Department of the Army**

XPO-71 M.R.G.O. Disposal Area Marsh Protection

XMR-10 Channel Armor Gap Crevasse

MR-8/9a Pass-a-Loutre Crevasse

**U.S. Department of Commerce**

XBA-65a Restoration of Bayou Perot/Bayou Rigolettes Marsh

XTE-67 East Timbalier Sediment Restoration

PTE-23 Lake Chapeau Marsh Creation & Hydrologic Restoration, Pointe au Fer Isle

BA-15 Lake Salvador Shoreline Protection Demonstration

**U.S. Department of Agriculture**

BA-4c West Pointe-a-la-Hache Outfall Management

TV-4 Cote Blanche Marsh Management

CS4a Cameron – Creole Maintenance

BS-4a White's Ditch Diversion Outfall Management

PTE-26b Brady Canal Hydrologic Restoration

PO-9a Violet Freshwater Distribution, Central Wetlands

PME-6 Southwest Shore White Lake Shore Protection Demonstration

**U.S. Department of the Interior**

XCS-47 / 481 Replace Hog Island, West Cove and Headquarters Canal at Sabine  
Refuge Water Control Structures

**4<sup>th</sup> Priority Project List** (deauthorized = underlined)

**Environmental Protection Agency**

XCS-36 Compost Demonstration

**U.S. Department of the Army**

PBS-9 Grand Bay Crevasse

XMR-12 Beneficial Use of Hopper Dredged Material Demonstration

**U.S. Department of Commerce**

PPO-4 Eden Isles Marsh Sediment Restoration

XTE-45 / 67b East Timbalier Barrier Island Sediment Restoration

**U.S. Department of Agriculture**

PCS-26 Perry Ridge Shore Protection

PBA-34 Bayou L'Ours Ridge Hydrologic Restoration

PBA-12a Barataria Bay Waterway Bank Protection (west)

XCS-56 Plowed Terraces Demonstration

XTE-54b Flotant Marsh Fencing Demonstration

**5<sup>th</sup> Priority Project List**

**Environmental Protection Agency**

PBA-20 Bayou Lafourche Siphon (w/o cutoff structure)

**U.S. Department of the Army**

XPO-69 Marsh Creation at Bayou Chevee

**U.S. Department of Commerce**

PTV-19 Little Vermillion Bay Sediment Trapping

XBA-48a Siphon at Myrtle Grove

**U.S. Department of Agriculture**

BA-3c Naomi Outfall Management

CS-11b Sweet Lake/ Willow Lake Hydrologic Restoration

PTE-15bii Raccoon Island Breakwater Demonstration

XME-29 Freshwater Bayou Bank Stabilization

**U.S. Department of the Interior**

TE-10/XTE-49 Grand Bayou/GIWW freshwater diversion

**6<sup>th</sup> Priority Project List** (deauthorized = underlined)

**Environmental Protection Agency**

XTE-321 Bayou Boeuf Pump Station Increment 1

**U.S. Department of the Army**

TV-5/7 Marsh Island Hydrologic Restoration

CW-5i Marsh Creation east of the Atchafalaya River – Avoca Island (Increment 2)

XMR-12b Flexible Dustpan (DEMO) Dredging for Marsh Creation the Miss. Delta Region

**U.S. Department of Commerce**

XCS- 48 Black Bayou Hydrologic Restoration

PMR-10 Delta-Wide Crevasse

PTV-19b Sediment Trapping at the Jaws

**U.S. Department of Agriculture**

PTE-261 Penchant Natural Resources Plan Increment I

XTV-251 Oaks/Avery Canals Hydrologic Restoration Increment I (Bank stabilization)

PBA-12b Barataria Bay Waterway "Dupre Cut" Bank Protection (east)

PTV-5 Cheniere au Tigre Sediment Trapping Device

**U.S. Department of the Interior**

TE-7f Lake Boudreaux Basin Freshwater Introduction and Hydrologic Management – Alternative B

CW-7 Nutria Harvest for Wetland Restoration



### 7th Priority Project List

#### Environmental Protection Agency

TE11a Lake Pelto Dedicated Dredging at New Cut Closure\*

#### U.S. Department of the Army

PPO-2d/h Lake Borgne Shore Protection – Base Near Shell Beach\*

XCS-48 Sabine Refuge Marsh Creation\*

PO-11 Cut Off Bayou Marsh Creation\*

XTE-62 Wine Island Extension\*

#### U.S. Department of Commerce

XBA-1a Vegetative Planting of Dredged Material Disposal Site on Grande Terre Isl.

XME-22 Pecan Island Terracing Project

#### U.S. Department of Agriculture

PBS-1 Upper Oak River FW Introduction Siphon\*

XBA-63 Barataria Basin Landbridge, Shoreline Stabilization – Phase 1

BA-2ii Along Bayou Perot and Rigolettes, Phase 1\*

BA-2ii Along Bayou Perot and Rigolettes, Phase 2\*

XME-42 South Grand Cheniere Freshwater Introduction\*

Te-36 Thin Mat Flotant Marsh (DEMO)

\* - unfunded

### 8th Priority Project List (deauthorized = underlined)

#### Environmental Protection Agency

#### U.S. Department of the Army

XCS-48 Sabine Refuge Marsh Creation (Alternative 1)

#### U.S. Department of Commerce

XPO-74a Bayou Bienvenue Pump Outfall Management and Marsh Creation

PPO-38 Hopedale Hydrologic Restoration

#### U.S. Department of Agriculture

XBA-63ii Barataria Basin Land Bridge, Shore line Protection, Phase 2 Increment A

XBA-63ii Barataria Basin Land Bridge, Shore line Protection, Phase 2 Increment B

XBA-63ii Barataria Basin Land Bridge, Shore line Protection, Phase 2 Increment C

PME-15 Humble Canal Hydrologic Restoration

PBS-1 Upper Oak River Freshwater Introduction Siphon

PTV-20 Lake Portage Land Bridge Phase 1

#### U.S. Department of the Interior

### 9th Priority Project List

#### Environmental Protection Agency

BA-32a LA Highway 1 Marsh Creation

XTE-45a Timbalier Island Dune/Marsh Restoration

TE-11a New Cut Dune/Marsh Restoration

#### U.S. Department of the Army

XPO-55a Opportunistic Use of the Bonnet Carre Spillway

XTV-27 Freshwater Bayou Canal HR/Sp – Belle Isle to Lock

MR-Demo Periodic Introduction of Sediment and Nutrients at Selected Diversion Sites

PTV-13 Weeks Bay/Commercial Canal/GIWW

#### U.S. Department of Commerce

XPO-95 Chandeleur Islands Restoration

XTV-30 Four-Mile Cut/Little Vermillion Bay HR

XAT-11 Castille Pass Sediment Delivery

PPO-7a LaBranche Wetlands Terracing/Plantings

XBA-1 East/West Grand Terre Islands Restoration

#### U.S. Department of Agriculture

PTE-28 South Lake DeCade/Atch. Freshwater Introduction

CS-16 Black Bayou Bypass Culverts

PCS-26ii GIWW Bank Stabilization (Perry Ridge to Texas)

XME-42a Little Pecan Bayou Control Structure

XBA-63iii Barataria Basin Land Bridge Shore Protection Phase 3

#### U.S. Department of the Interior

PME-7a FW Introduction South of Hwy. 82

XTE-DEMO Mandalay Bank Protection Demonstration

### 10th Priority Project List

#### Environmental Protection Agency

- PO-30 Shore Prot./Marsh Restoration in Lake Borgne at Shell Beach
- BA-34 Small Freshwater Diversion to the NW Barataria Basin

#### U.S. Department of the Army

- MR-13 Benny's Bay 50,000 cfs Diversion
- BA-33 Delta Building Diversion at Myrtle Grove
- BS-10 Delta Building Diversion North of Fort St. Philip

#### U.S. Department of Commerce

- ME-18 Rockefeller Refuge Gulf Shoreline Stabilization

#### U.S. Department of Agriculture

- TE-43 GIWW Bank Restoration of Critical Areas in Terrebonne

#### U.S. Department of the Interior

- ME-19 Grand-White Lake Land Bridge Protection Project
- TE-44 North Lake Mechant Land Bridge Restoration
- BS-11 Delta Management at Fort St. Philip
- CS-32 East Sabine Lake Hydrologic Restoration (with Terraces)

### 11th Priority Project List

#### Environmental Protection Agency

- PO-29 Diversion into Swamps South of Lake Maurepas Complex Project
- PO-31 Lake Borgne Shoreline Protection at Bayou Dupre
- TE-47 Ship Shoal: Whiskey West Flank Restoration

#### U.S. Department of the Army

- ME-21 Grand Lake Shore Protection from Superior Canal to Tebo Point

#### U.S. Department of Commerce

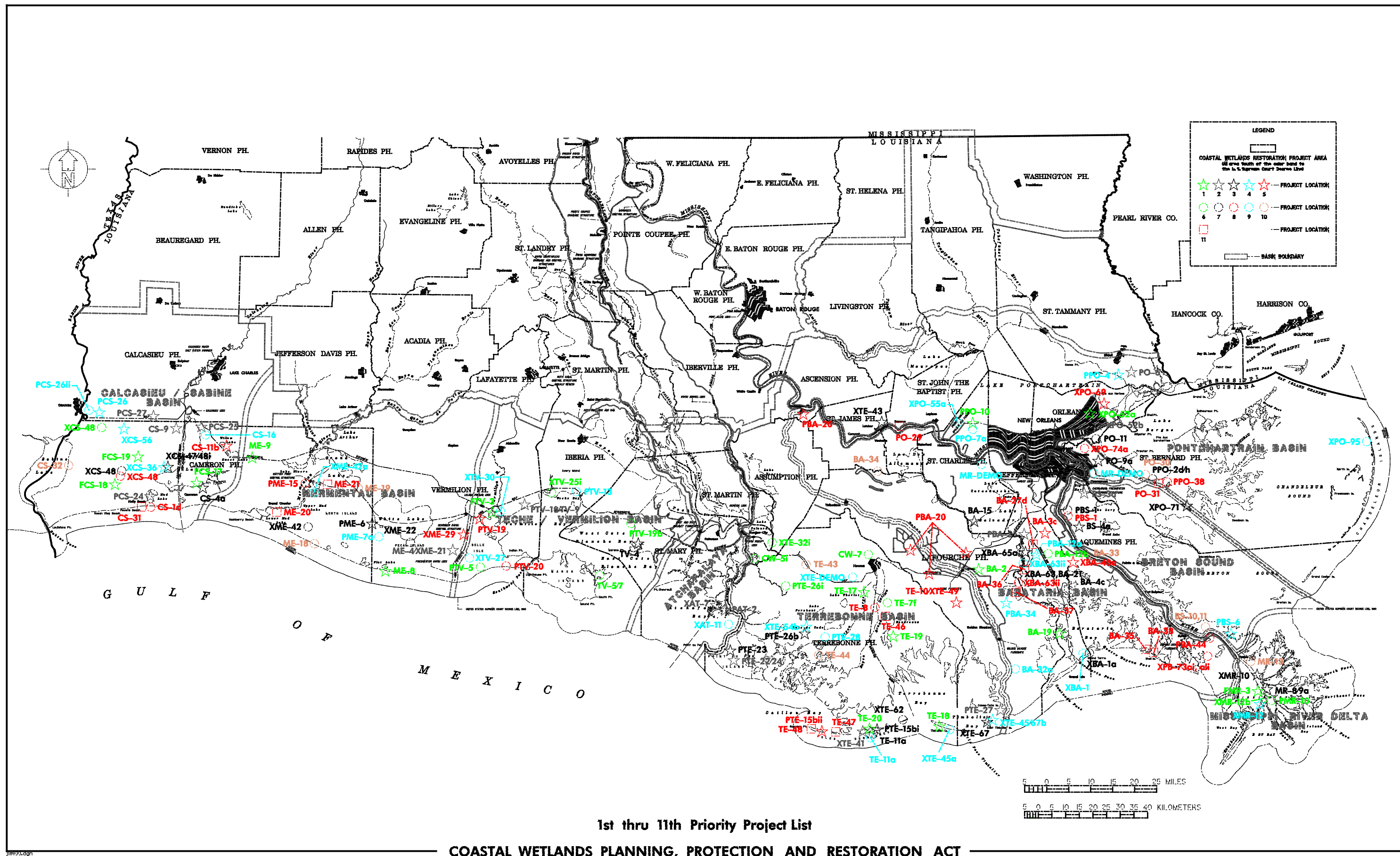
- BA-35 Pass Chaland to Grand Bayou Pass Barrier Island Restoration
- BA-37 Little Lake Shoreline Protection/Dedicated Dredging near Round Lake
- BA-38 Barataria Barrier Island Complex Project: Pelican Island and Pass La Mer to Chaland Pass

#### U.S. Department of Agriculture

- BA-27d Barataria Basin Land Bridge Shoreline Protection (Northeast only)
- LA-03b Coastwide Nutria Control Program
- CS-31 Holly Beach Sand Management Complex Project
- TE-48 Raccoon Island Shoreline Protection/Marsh Creation

#### U.S. Department of the Interior

- BA-36 Dedicated Dredging on the Barataria Basin Landbridge
- ME-20 South Grand Chenier Hydrologic Restoration
- TE-46 W. Lake Boudreaux Shoreline Protection and Marsh Creation



1st thru 11th Priority Project List

COASTAL WETLANDS PLANNING, PROTECTION AND RESTORATION ACT