13TH PRIORITY PROJECT LIST REPORT

PREPARED BY:

LOUISIANA COASTAL WETLANDS CONSERVATION AND RESTORATION TASK FORCE

JULY 2004

Breaux Act

(Coastal Wetlands Planning, Protection and Restoration Act)

13th Priority Project List Report

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Main Report – Volume 1

I. INTRODUCTION

Approximately 90 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. Louisiana still contains 30 percent of all the coastal marshes and 45 percent of all intertidal coastal marshes in the lower 48 states. Dramatic annual wetland losses from 1990 to the present of 24 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. These wetlands provide habitat for fisheries, waterfowl, neotropical birds, and furbearers; amenities for recreation and tourism; a buffer for coastal flooding; and a natural landscape for a culture unique to the world. Consequently, 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 purposes and missions 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 George H.W. 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 13th 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

Plate 1 contains a listing of these project names, referenced by number and grouped by sponsoring agency, for each PPL. A map of the Louisiana coastal zone is presented in Plate 2, indicating project locations by number of Priority Project Lists 1 through 13. 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 2).

STUDY PROCESS

<u>The Interagency Planning Groups</u>. 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 George H.W. 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 PPL.

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 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 13TH PRIORITY PROJECT LIST

IDENTIFICATION & SELECTION OF CANDIDATE PROJECTS

Regional Planning Team meetings were held during the period of February 19 through February 27, 2003 to provide a forum for the public and their local government representatives to identify potential projects for implementation under the priority list process. The Regional Planning Teams met to examine basin maps, discuss areas of need and Coast 2050 strategies and to choose no more than two projects per hydrologic basin. A total of up to eighteen projects could be nominated. A schedule of meetings is shown in Table 1.

Table 1: RPT Meetings to Nominate Projects

Region 1: New Orleans, Louisiana	February 27, 2003
Region 2: New Orleans, Louisiana	February 26, 2003
Region 3: Morgan City, Louisiana	February 20, 2003
Region 4: Rockefeller Refuge, Louisiana	February 19, 2003

The Engineering Work Group met on March 18, 2003 to estimate preliminary fully funded cost ranges for each project, based on engineering judgment and historical costs. On March 19, 2003, the Environmental and Engineering Work Groups applied the Coast 2050 Criteria to each project to achieve a consensus description for each project. The P&E Subcommittee prepared a matrix of cost estimates and furnished it to the Technical Committee and State Wetlands Authority (SWA) on March 21, 2003. The matrix is included as Table 2.

Table 2: 13th Project Priority List - Nominee Project Matrix by Basin

Rg-Prjc	*Basin	#Type	Project	Potential Issues: Preliminary Fully Funded Cost Range	Oysters	Land Rights	Pipelines/ Utilities	+O&M	Other Issues
1-1	PO	SP	Bank Stabilization Lake Borgne-Bayou Dupre to Bayou Bienvenue	$10M-$15M	X			H	
1-2	PO	MC/SP	Goose Point/Point Platte Marsh Creation	$15M-$20M			X	L	X Gulf Sturgeon
2-1	BS	SP	Lake Lery Shoreline Protection	$10M-$15M		X	X	H	X Parish Opposition
2-2	BS	OM	Caernarvon Outfall Management East	$30M-$40M		X	X	H	
2-3	BA	MC	Naomi Siphon Sediment Enrichment	$10M-15M			X	H	
2-4	BA	SP	Shell Island Barrier Protection	$15M-$20M	X	X	X	M	
2-5	MR	FD	Spanish Pass Diversion	$15M-$20M		X	X	L	
3-1	TE	MC	Havoline Canal Dedicated Dredging	$10M-$15M	X		X	L	
3-2	TE	MC	Whiskey Island Back Barrier Fill	$15M-$20M				L	X Source ID
3-3	AT	SP	Bayou Sale Ridge Protection	$5M-$10M				M	
3-4	AT	HR	Hydrologic Restoration of Plumb Island Point to Palmetto Bayou	$0M-$5M				H	
3-5	TV	SP	Shark Island Shoreline Protection	$10M-$15M	X			H	
3-6	TV	TR	Toms Bayou/Rainey Marsh	$5M-$10M	X			M	
4-1	ME	SP	Gulf of Mexico Shoreline Protection (Joseph's Harbor East)	$30M-$40M			X	M	
4-2	ME	SP	Shoreline Stabilization at Freshwater Bayou Canal	$15M-$20M			X	M	
4-3	CS	TR	Oyster Bayou Stabilization	$0M-$5M			X	M	
4-4	CS	HR/SP	Black Bayou Hydrologic Restoration, Phase II	$10M-$15M		X	X	H	

*Basin codes are: PO=Ponchartrain; BS=Breton Sound; MR=Mississippi River Delta; BA=Barataria; TE=Terrebonne; AT=Atchafalaya; TV=Teche/Vermilion; ME=Mermentau; CS=Calcasieu/Sabine.
Type codes: FD=Freshwater Diversion; HR=Hydrologic Restoration; MC=Marsh Creation; OM= Outfall Management; SP=Shoreline Protection; TR=Terracing;
+O & M codes: L=Low; M=Moderate; H=High

The CWPPRA Technical Committee met publicly on March 26, 2003 to consider the preliminary costs, Coast 2050 Criteria descriptions, and potential wetland benefits of the nominees. Eight candidate projects were selected for detailed assessment by the Environmental, Engineering, and Economic Work Groups.

Phase 0 analysis of the eight candidate projects took place from May 2003 through November 2003. Interagency field visits were conducted during May through August 2003 at each project site/area with members of the Engineering and Environmental Work Groups, Academic Advisory Group (AAG), and Louisiana Department of Natural Resources (LDNR) staff. The Environmental and Engineering Work Groups and AAG met to refine the projects and develop boundaries on July 23, 2003, based on site visits.

Detailed Project Information Sheets were developed by the Economics and Environmental and 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 on September 3 - 4, 2003. The Environmental Work Group finalized Wetland Value Assessments (WVAs) for each project. The Environmental and Engineering Work Group reviewed and revised the Coast 2050 Criteria description previously developed, considering all new information during a meeting on September 5, 2003. The Economics Work Group reviewed cost estimates, added monitoring, Operations and Maintenance (O&M), etc., and developed annualized costs in the month of October.

The Environmental/Engineering Work Group prepared a candidate project information package for the CWPPRA Technical Committee, consisting of: updated Project Information Sheets and matrix. The matrix included AAHUs, WVA results (acres created, restored, and/or protected), prioritization score, and costs. The matrix is included as Table 3.

Table 3: 13th Priority Project List Candidate Project Evaluation Matrix

Project Name	AAHUs	WVA In Net Acres	Prioritization Score	Total Fully Funded Cost	Average Annual Cost (AAC)	Cost Effectiveness (AAC/AAHU)
Spanish Pass Diversion	79	433	67.5	$13,927,800	$1,113,200	$14,091
Goose Point/Point Platte Marsh Creation	297	436	53	$21,747,400	$2,029,400	$6,833
Whiskey Island Back Barrier Marsh Creation	292	272	50.5	$21,786,300	$1,910,000	$6,541
Oyster Bayou Terracing	37	61	43.5	$4,209,900	$291,000	$7,865
Bayou Sale Ridge Protection	153	329	42.2	$32,103,000	$2,397,200	$15,671
Shark Island Shoreline Protection	54	178	44.5	$19,246,100	$1,539,800	$28,515
Naomi Siphon Outfall Area Marsh Creation/Nourishment	77	135	45	$9,192,000	$803,500	$10,435
Caernarvon Outfall Management East	103	320	45.5	$44,736,100	$3,296,000	$32,000

Two public meetings were held in Abbeville, LA, and New Orleans, LA, respectively, November 19 and 20, 2003, to present projects to the public for comment.

The CWPPRA Technical Committee met on December 10, 2003 to select projects for recommendation to the CWPPRA Task Force for Phase I funding. Each agency received a total of four weighted votes, used to rank the eight candidate projects. The top four projects were selected for recommendation to the CWPPRA Task Force for Phase I funding approval on January 28, 2004. The Technical Committee also ranked the five demonstration projects and recommended the top ranked project for funding, at a cap of $1,000,000. The results of the CWPPRA Technical Committee vote are outlined in Table

4. On January 28, 2004, the CWPPRA Task Force reviewed the Technical Committee recommendations and moved to adopt the recommendation without change.

Table 4: 13th Priority Project List Candidate Selection Process – Agency Voting Record

*Project No.	Nominee Project Name	Coast 2050 Region	EPA	COE	FWS	DNR	NRCS	NMFS	No. of Votes	Sum of Point Score
MR-14	Spanish Pass Diversion	R2	2	4	3	4	3	4	6	20
TE-50	Whisky Island Backbarrier Marsh Creation	R3	4	1	1	3	1	2	6	12
PO-33	Goose Point/Pointe Platte Marsh Creation	R1		3	4	2	2	3	5	14
TV-20	Bayou Sale Shoreline Protection	R3			2	1	4	1	4	8
+	Naomi Siphon Outfall Area Marsh Creation/Nourishment	R2	3	2					2	5
+	Caernarvon Outfall Management East	R2	1						1	1
+	Shark Island Shoreline Protection	R3							0	0
+	Oyster Bayou Terracing	R4							0	0

Demonstration Projects

*Project No.	Nominee Project Name	Coast 2050 Region	EPA	COE	FWS	DNR	NRCS	NMFS		Total
LA-06	Shoreline Protection Foundation Improvements Demo	N/A		1	1	1				3
+	Flowable Fill Demo	N/A					1	1		2
+	Hackberry Bay Oyster Reef Demo	N/A	1							1
+	Interior Shoreline Protection Demo	N/A								0
+	Soil Salinity Remediation Demo	N/A								0

*Each selected 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/Vermilion; ME-Mermentau; CS-Calcasieu/Sabine.
+ These projects were not selected for funding.

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 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 % 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.

Prioritization Criteria. The Breaux Act was initially authorized in November 1990, with two additional authorizations resulting in authority through 2009. It is expected that the funding requirements of all projects on Priority Project Lists (PPL) 1-12 will exceed the anticipated funding available in the program, with a projected shortfall of nearly $400 million. The purpose of the prioritization effort is to develop a process to prioritize those projects on PPLs 1-12 for which construction has not been authorized. The CWPPRA Task Force will use the prioritization process as a tool in making future funding approval decisions within available funds. The process is not intended to suggest that some projects are not worthy of construction. It is intended to identify those projects that, based on their degree of support for the goals of the Louisiana Coastal Area (LCA) Feasibility Study, implementability and cost-effectiveness are the highest priority for funding using presently existing available monies. The Prioritization Criteria, discussed in more detail in the following paragraphs, are listed below:

- I. Cost effectiveness
- II. Address the area of need, high loss area
- III. Implementability
- IV. Certainty of benefits
- V. Sustainability of benefits
- VI. Consistent with hydrogeomorphic objective of increasing riverine input in the deltaic plain or freshwater input and saltwater penetration limiting in the Chenier plain
- VII. Consistent with hydrogeomorphic objective of increased sediment input

VIII. Consistent with hydrogeomorphic objective of maintaining or establishing landscape features critical to a sustainable ecosystem structure and function

I. Cost-effectiveness

Scoring for this criterion should be based on current estimated total fully funded project cost and net acres created/protected/restored at Target Year (TY) 20. See Attachment 1 of this section for calculation of swamp net acres. The fully funded cost estimate (100%) must be reviewed and approved by the Engineering and Economics Workgroups. Monitoring costs should be removed from the fully funded cost estimate, unless the project has a project-specific monitoring cost not covered by Coast-wide Referencing Monitoring System (CRMS). The net acreage figure must be derived from the official WVA conducted for the project and any new figures must be reviewed and approved by the Environmental Work Group.

Less than $20,000/ net acre	10
Between $20,000 and $40,000/net acre	7.5
Between $40,000 and $60,000/net acre	5
Between $60,000 and $80,000/net acre	2.5
More than $80,000/net acre	1

Alternate Net Acres for Swamps: The "cost/net acre" approach used above does not work for swamp projects because the wetland loss rates estimated for Louisiana coastal wetlands using historical and recent aerial photography have not detected losses for swamps. However, future loss rates for swamps have been estimated by Coast 2050 mapping unit. This information, combined with other information regarding project details/benefits can be used to provide an "alternate net acres" estimate for swamp projects. *Attachment 1* of the Prioritization Criteria contains a description of how alternate net acres will be derived for the purposes of assessing the cost-effectiveness of swamp projects, along with the assessment of alternate net acres for two listed swamp projects.

II. Address area of need, high loss area

The purpose of this criterion is to encourage the funding of projects that are located in basins undergoing the greatest loss. Additionally, projects should be located, to the maximum extent practicable, in localized "hot spots" of loss when they are likely to substantially reduce or reverse that loss. The appropriate basin determination on the following table should be selected based on the location of the majority of the project benefits, and the project's Future Without Project (FWOP) loss rates should be applied. Either table or a combination of both tables (pro-rating) may be used for scoring depending upon what type of loss rates were developed for use in the WVA. Specific basins are assigned to high, medium, low, and stable/gain categories based on recent basin-wide loss rates (1990 to 2001).

For projects with sub-areas affected by varying land loss or erosion rates, the score shall be a weighted average which reflects the proportion of the total project area affected by each loss rate. *Example: Project located in Calcasieu/Sabine basin. Project area of 1,000 acres of which sub-area 1 is 200 acres and experiences a shoreline internal loss rate of 3%/yr, and 800-acre sub-area 2 has an internal loss rate of 1%/yr. The project would receive a score of (0.2*7)+(0.8*5) = 5.4*

For project areas affected by both internal wetlands loss and shoreline loss, the score shall be a weighted average which reflects the proportion of the total project area affected by each loss rate. *Example: Project located in Calcasieu/Sabine basin. Project area of 1,000 acres of which sub-area 1 is 200 acres and experiences a shoreline erosion rate of 30 feet/yr, and 800-acre sub-area 2 has an internal loss rate of 0.1%/yr. The project would receive a score of (0.2*7.5)+(0.8*3) = 3.9*

FOR NON-SHORELINE PROTECTION PROJECTS
Internal Loss Rates

Basin	**High** **≥2.0%/yr**	**Medium** **< 2.0% to ≥ 0.5%/yr**	**Low** **< 0.5%/yr to ≥ 0.01%/yr**
Barataria and Terrebonne	10	7.5	5
Calcasieu/Sabine, Mermentau, and Pontchartrain	7.5	5	4
Breton, Mississippi River	5	4	3
Atchafalaya and Teche/Vermilion	4	3	1

FOR SHORELINE PROTECTION AND BARRIER ISLAND PROJECTS
Average Erosion Rate

Basin	**High** **≥ 25 ft/yr**	**Medium** **≥ 10 to < 25 ft/yr**	**Low** **0 to < 10 ft/yr**
Barataria and Terrebonne	10	7.5	5
Calcasieu/Sabine Mermentau, and Pontchartrain	7.5	5	4
Breton, Mississippi River	5	4	3
Atchafalaya and Teche/Vermilion	4	3	1

III. Implementability

Implementability is defined as the expectation that a project has no serious impediment(s) precluding its timely implementation. Impediments include issues such as design related issues, land rights, infrastructure relocations, and major public concerns. The Workgroups will, by consensus or vote, agree on impediments which will warrant a point score deduction. Other issues which sponsoring agencies believe may significantly affect implementability may also be identified.

The predominant land rights issue affecting implementability is identified as non-participating landowners (i.e., demonstrated unwilling to execute required servitudes, rights-of-way, etc.) of tracts critical to major project features, *unless* the project is sponsored by an agency with condemnation authority which has confirmed its willingness to use such authority. Other difficult or time-consuming land rights issues (e.g., reclamation issues, tracts with many owners/undivided interests) are not defined as issues affecting implementability unless identified as such by the agency procuring land rights for the project.

Infrastructure issues are generally limited to modifications/relocations for which project-specific funding is not included in estimated project costs, or if the infrastructure operator/owner has confirmed its unwillingness to have its operations/structures relocated/modified.

Significant concerns include issues such as large-scale flooding increases, significant navigation impacts, basin-wide ecological changes which would significantly affect productivity or distribution of economically- or socially-important coastal resources.

The project has no obvious issues affecting implementability 10 pts

Subtract 3 points for each identified implementability issue, negative scores are possible.

IV. Certainty of benefits

The Adaptive Management review showed that some types of projects are more effective in producing the anticipated benefits. Factors that influence the certainty of benefits include soil substrate, operational problems, lack of understanding of causative factors of loss, success of engineering and design as well as construction, etc. Scoring for this criterion should be based on selecting project types which reflect the planned project features. If a project contains more than one type of feature, the relative contribution of each type should be weighed in the scoring, as in the example below.

*Example: A project in the Chenier plain with two major project components: inland shoreline protection and hydrologic restoration. Approximately 80% of the anticipated benefits (i.e., net acres at TY 20) are expected to result from shoreline protection features and approximately 20% of the benefits (i.e. net acres at TY 20) are anticipated to result from hydrologic restoration. Scoring for this project should generally be (0.8*10)+(0.2*5) = 9*

Certainty of Benefits – Project Type Table

Inland shoreline protection - chenier plain	10
River diversions- deltaic plain	9
Terracing - chenier plain	8
Inland shoreline protection - deltaic plain	8
Marsh creation - chenier plain	7
Marsh creation - deltaic plain	7
Barrier island projects*	7
Gulf shoreline protection - chenier plain**	6
Gulf shoreline protection - deltaic plain**	5
Freshwater diversion -chenier plain	5
Freshwater diversion - deltaic plain	5
Hydrologic restoration - chenier plain	5
Vegetative plantings (low energy area)	5
Terracing - deltaic plain	3
Hydrologic restoration - deltaic plain	2
Vegetative plantings (high energy area)	2

* Refers to traditional barrier island projects creating marsh and dune habitats by dedicated dredging. If shoreline protection is a project component, then the score should be weighted by apportioning the benefits between shoreline protection (score of 5) and traditional dedicated dredging techniques (score of 7).

** Gulf shoreline protection means typical structures currently being used around the state and nation such as breakwaters, revetments, concrete mats, etc. Does not include experimental structures being tested at various locations.

V. Sustainability of benefits

This criterion should be scored as follows: The net acres (i.e., TY 20 FWP acres – TY 20 FWOP acres) benefited at TY 20 should be projected through TY 30 based on application of FWOP conditions (i.e., internal loss) to the TY 20 net acres. The net acres benefited at TY 20 and the percent decrease in net acres from TY 20 to TY 30 are combined in the matrix below to produce an indicator of sustainability. Assume that, after year 20, project features such as water control structures would be locked open, controlled diversions and siphons would be closed, and shoreline protection structures only would provide full protection until the next projected maintenance event would be necessary (i.e, future with project (FWP) conditions would continue from TY 20 until the next maintenance event would be required.

For shoreline protection projects in the Deltaic Plain, shoreline protection effectiveness will be reduced by 50% from the year the next scheduled maintenance event is required to TY 30. For shoreline protection projects in the Chenier Plain, shoreline protection effectiveness will be reduced by 25% from the year the next scheduled maintenance event is required to TY 30. The effectiveness of shoreline protection projects utilizing concrete panels will be reduced by 10%. A 50% reduction in effectiveness will also be applied to barrier island projects using rock shoreline protection. Vegetative plantings used for shoreline protection return to FWOP erosion rates after TY20. For all shoreline protection projects, it is critical that information be provided to substantiate when the next projected maintenance event would occur.

Selected project types (e.g., uncontrolled sediment diversions) may be considered for continued application of FWP conditions provided that a valid rationale is provided.

% decrease in net acres between TY20 and TY30	Score
0 to 5% (or gain)	10
6 to 10%	8
11 to 15%	6
16 to 20%	4
21 to 30%	2
> 30%	1

VI. Consistent with hydrogeomorphic objective of increasing riverine input in the deltaic plain or freshwater input and saltwater penetration limiting in the Chenier plain

DELTAIC PLAIN PROJECTS

The project would significantly increase direct riverine input into the benefitted wetlands (structure capable of diverting $\geq$ 2,500 cfs)	10
The project would result in the direct riverine input of between 2,500 cfs and1,000 cfs into benefitted wetlands	7
The project would result in some minor increases of direct riverine flows into the benefitted wetlands (structure or diversion <1,000 cfs)	4

The project would result in an increase of indirect riverine flows into the benefitted wetlands — 2

The project will not result in increases in riverine flows — 0

CHENIER PLAIN PROJECTS

The project will divert freshwater from an area where excess water adversely impacts wetland health to an area which would be benefitted from freshwater inputs OR the project will provide a significant level of salinity control to an area where it is in need — 6

The project will result in increases in freshwater inflow to an area where it is in need OR the project may provide some minor and/or local salinity control benefits — 3

The project will not affect freshwater inflow or salinity — 0

VII. Consistent with hydrogeomorphic objective of increased sediment input

The purpose of this criterion is to encourage projects that bring in sediment from exterior sources (i.e., Atchafalaya River north of the delta, Mississippi River, Ship Shoal, or other exterior sources). Therefore, for projects to score on this criterion at all, they must have some outside sediment sources as project components. Large river diversions similar to Benny's Bay (i.e. >-12 ft bottom elevation) and large marsh creation projects (i.e. $\geq$ 5 million cubic yards) can be expected to input a substantial amount of sediment into areas of need and should rank higher than diversions and marsh creation projects of smaller magnitude. Quantities of sediment deposited by river diversions must be reviewed and approved by the Engineering Workgroup. Mining sediment from outside systems should receive emphasis. Large scale mining of river sediments such as proposed in the Sediment Trap project represent a major input of sediment from outside the system. Major mining of Ship Shoal for use on barrier islands also should be considered to be more beneficial than dredging minor volumes of sediment for placement on barrier islands. Mining ebb tidal deltas also should receive less emphasis than major mining of Ship Shoal due to the limited quantity of high quality sand available from ebb tidal deltas. Ebb tidal deltas are sediment sinks disconnected from input into the system and should be emphasized over flood tidal deltas or other similar interior bay borrow sites. In all cases, to receive any points, the source of the sediment should be considered to be exterior to, and have no natural sediment input into, the basin in which the project is located. Because of the recognized differences in logistics between river-source marsh creation projects/diversions and barrier island projects, a separate scoring category is used for barrier island projects. Projects which do not supply sediment from external sources cannot receive points for this criterion.

Scoring categories for diversions and marsh creation projects utilizing the Mississippi River or Atchafalaya River as a sediment source:

The project will result in the significant placement of sediment ($\geq$ 5 million cubic yards) from exterior sources — 10

The project will input some sediment (< 5 million cubic yards)

from external sources	5
The project will not increase sediment input over that presently occurring	0

Scoring categories for barrier island projects utilizing offshore and ebb tidal delta sediment sources:

The project will result in the significant placement of sediment ($\geq$ 1 million cubic yards) from an offshore sediment source	10
The project will input some sediment (> 2 million cubic yards) from an ebb tidal delta source	5
The project will not increase sediment input over that presently occurring	0

VIII. Consistent with hydrogeomorphic objective of maintaining or establishing landscape features critical to a sustainable ecosystem structure and function

Certain landscape features provide critical benefits to maintaining the integrity of the coastal ecosystem. Such features include barrier islands, lake and bay rims/shorelines, cheniers, landbridges, and natural levee ridges. Projects which do not maintain or establish at least one of those features cannot receive points for this criterion.

The project serves to protect, for at least the 20 year life of the project, landscape features which are critical to maintaining the integrity of the mapping unit in which they are found or are part of an ongoing effort to restore a landscape feature deemed critical to a basin (e.g., Barataria land bridge, Grand and White Lake land bridge) or the coast in general (e.g., barrier islands)	10
The project serves to protect, for at least the 20 year life of the project, any landscape feature described above.	5
The project does not meet the above criteria	0

Once all the projects have been evaluated and scored by the Environmental and Engineering Work Groups, each score will be weighted using the following table and the following formula to create one final score. A maximum of 100 points is possible.

Weighting per criteria:

1. Cost-Effectiveness	20
2. Area of Need	15
3. Implementability	15
4. Certainty of Benefits	10
5. Sustainability	10
6. HGM Riverine Input	10
7. HGM Sediment Input	10

8. HGM Structure and Function	10
TOTAL	100%

(C1*2.0) + (C2*1.5) + (C3*1.5) + (C4*1.0) + (C5*1.0) + (C6*1.0) + (C7*1.0) + (C8*1.0)

Prioritization Criteria - Attachment 1

Cost / "Alternate Net Acres" (swamp)

"Cost /Net Acre" does not work for swamp projects because the wetland loss rates estimated for Louisiana coastal wetlands using historical and recent aerial photography, have not detected losses for swamps. In spite of this, swamp ecologists and others know that the condition of many of swamps is very poor, and that the trend is for rapid decline. They also know that the ultimate result of this trend will be conversion of the swamps to open water. This conversion is expected to happen very quickly when swamp health reaches some critical low threshold. Because of this, it is not possible to estimate "net acres" as is done for marsh projects. However, future loss rates for swamps have been estimated by Coast 2050 mapping unit (Louisiana Coastal Wetlands Conservation and Restoration Task Force and the Wetlands Conservation and Restoration Authority [LCWCRTF] 1998). This information, combined with other information regarding project details/benefits can be used to provide an "alternate net acres" estimate for swamp projects.

Examples

Maurepas Diversion Project: Wetland loss rates for the Coast 2050 Amite/Blind Rivers mapping unit for 1974-90 were estimated by USACE to be 0.83% per year for the swamps, and 0.02% per year for fresh marsh. Based on these rates, about 50% of the swamp, and 1.2% of the fresh marsh will be lost in 60 years (LCWCRTF 1998. Appendix C). For the purposes of this example, in order to be consistent with other approaches, one can estimate the acres that would be lost in the project area in 20 years without the project. The project area is 36,121 acres (Lee Wilson & Associates 2001). The Amite/Blind Rivers mapping unit consisted of 138,900 acres of swamp and 3,440 acres of fresh marsh in 1990 (LCWCRTF 1998. Appendix C). Since we don't have an estimate of the proportion of swamp and fresh marsh in our study area, we will assume the same proportions as in the Amite/Blind Rivers mapping unit, 98% swamp, 2% fresh marsh. Applying these proportions and the loss rates for the mapping unit, to the project area, about 17,699 acres of swamp and about 9 acres of fresh marsh will be lost in 60 years in the Maurepas project area without the project. With the project, we assume none of this will be lost. Assuming a linear rate of loss (not really the case for swamps), 5,900 acres of swamp and 3 acres of fresh marsh will be lost in 20 years without the project. With the project, we assume none of this will be lost, so the "alternate net acres" for this project are 5,903. Cost/"Alternative Net Acres" is equal to the project cost estimate, $57,500,000, divided by 5,903 = $9,741. This then would fall within the "Less than $20,000 / net acre" category for a score of 10.

Small Diversion into NW Barataria Basin: This project is in the Coast 2050 Des Allemands mapping unit. It is estimated that 60% of the swamp and 30% of the marsh in this unit will be lost in 60 years (LCWCRTF 1998. Appendix D). The project area includes 4,057 acres of swamp and 20 acres of fresh marsh (USGS & LDNR 2000). Applying the estimated future loss rates from Coast 2050 to this project area, we estimate that 2,434 acres of swamp and 6 acres of fresh marsh will be lost in 60 years without the project. Assuming a linear rate of loss (not really the case for swamps), we estimate that 811 acres of swamp and 2 acres of fresh marsh will be lost in 20 years without the project. With the project, we assume none of this will be lost. In addition, this project will restore 200 acres of existing open water to swamp (U.S. EPA 2000), for a total “alternate net acres” for this project of 1,013 acres. Cost/“Alternative Net Acres” is equal to the project cost estimate, $7,913,519, divided by 1,013 = $7,812. This then would fall within the “Less than $20,000 / net acre” category for a score of 10.

REFERENCES

Louisiana Coastal Wetlands Conservation and Restoration Task Force and the Wetlands Conservation and Restoration Authority. 1998. Coast 2050: Toward a Sustainable Coastal Louisiana. Appendices C and D. Louisiana Department of Natural Resources. Baton Rouge, La.

Lee Wilson and Associates. 2001. Diversion Into the Maurepas Swamps. Prepared for U.S. EPA Region 6, Dallas, Texas.

U.S. EPA Region 6. 2000. Wetland Value Assessment Project Information Sheet- Small Freshwater Diversion to the Northwestern Barataria Basin.

USGS & Louisiana Department of Natural Resources. 2000. Northwestern Barataria Basin.

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, problem, goals, proposed solution, benefits, costs, risk/uncertainty and longevity/sustainability, sponsoring agency and contact persons, and a map identifying the project area and features if applicable.

Project Name: Goose Point/Point Platte Marsh Creation

Coast 2050 Strategies: Coastwide - Dedicated dredging to create, restore, or protect wetlands; maintenance of gulf, bay and lake shoreline; vegetative planting. Mapping Unit - Maintain shoreline integrity; vegetative plantings.

Project Location: Region 1, St. Tammany Parish, north shore of Lake Pontchartrain between Fountainbleau State Park and Hwy 11, within the Big Branch Marsh National Wildlife Refuge.

Problem: Interior ponding and to a lesser extent shoreline erosion are the major causes of wetland loss in the project area. Loss rates were highest during the period from 1956 to 1978. Those high loss rates were associated with hydrologic alterations with allowed saltwater to penetrate the fresher marshes. During the transition to a more brackish plant community, large ponds were formed. A narrow strip of land separates those ponds from Lake Pontchartrain. Although the shoreline erosion rates are relatively low, the shoreline is already breached in several areas and marsh loss in the interior ponds would be expected to increase if the shoreline failed.

Goals: The goal of this project is to recreate marsh habitat in the open water behind the shoreline. This will maintain the lake-rim function along this section of the north shore of Lake Pontchartrain by preventing the formation of breaches into the interior marsh.

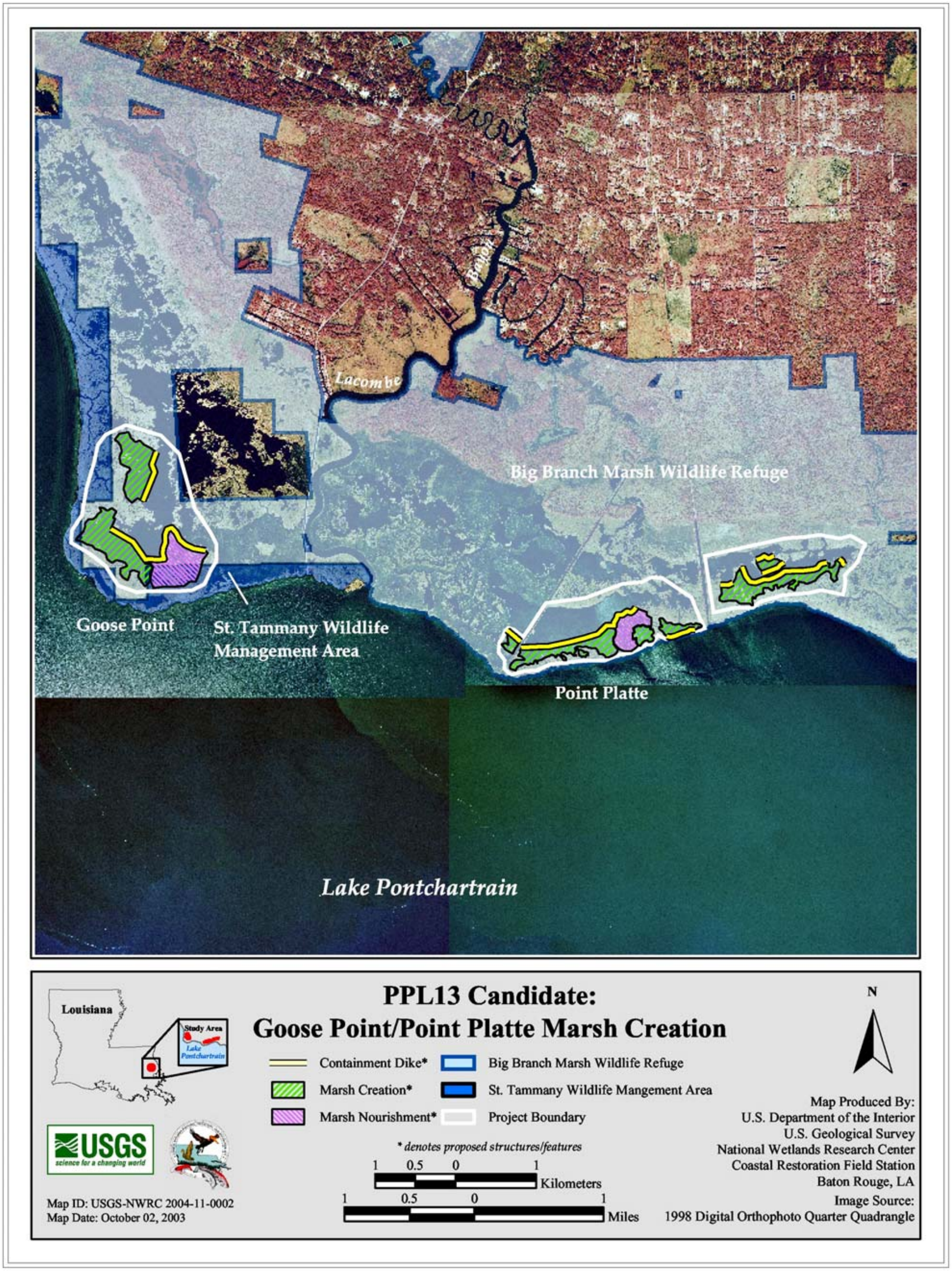
Proposed Solution: Sediment would be dredged from Lake Pontchartrain and placed in cells within the ponds and planted with vegetation to create approximately 437 acres of marsh. In addition, 114 acres of degraded marsh would be nourished with dredged material. Marsh would be created to widen the shoreline so that the ponds would not be breached during the course of normal shoreline retreat.

Project Benefits: The project would benefit about 1,384 acres of fresh marsh and open water. Approximately 436 acres of marsh would be created/protected over the 20-year project life.

Project Costs: Total fully funded cost = $21,747,400.
Fully funded first cost = $21,262,500.

Risk/Uncertainty and Longevity/Sustainability: There is a low degree of risk associated with this project because current loss rates are relatively low. The project should continue providing benefits 20 – 30 years after construction because the created marsh would be lost slowly.

Sponsoring Agency/Contact Person: U.S. Fish and Wildlife Service
Martha Segura (337) 291-3110; martha_segura@fws.gov



Bayou
Lacombe
Big Branch Marsh Wildlife Refuge
Goose Point
St. Tammany Wildlife Management Area
Point Platte
Lake Pontchartrain
Louisiana
Study Area
Lake Pontchartrain
PPL13 Candidate:
Goose Point/Point Platte Marsh Creation
N
Containment Dike*
Marsh Creation*
Marsh Nourishment*
Big Branch Marsh Wildlife Refuge
St. Tammany Wildlife Mangement Area
Project Boundary
* denotes proposed structures/features
1 0.5 0 1
Kilometers
1 0.5 0 1
Miles
USGS
science for a changing world
Map ID: USGS-NWRC 2004-11-0002
Map Date: October 02, 2003
Map Produced By:
U.S. Department of the Interior
U.S. Geological Survey
National Wetlands Research Center
Coastal Restoration Field Station
Baton Rouge, LA
Image Source:
1998 Digital Orthophoto Quarter Quadrangle

Project Name: Caernarvon Outfall Management (East)

Coast 2050 Strategy: Regional #5 - Operate existing diversions and manage their outfall

Project Location: Region 2, St. Bernard Parish, southwest of Verret, LA.

Problem: The historic Bayou Terre aux Boeufs/Bayou La Loutre distributary channel connection to the Mississippi River has been severed for over 100 years and is no longer available to deliver fluvial water to the benefit area (Roberts and Stone, MRSNFR report). The benefit area is located a few miles east of Caernarvon, LA, and has been significantly affected due to a lack of river water, salinity intrusion and other factors. The benefit area is in the upper most reach of the sub-basin and was historically the least saline wetland of the sub-basin. This area now receives negligible fluvial water input. The Caernarvon Diversion structure has excess capacity during certain times of the year and is being underutilized. Even under higher discharge, freshwater from the existing Caernarvon Diversion structure is unlikely to significantly impact the target area.

Goals: To re-establish historic hydrology of northern reaches of Bayou Terre aux Boeufs; to deliver nutrients to areas of significant land loss or impoundment to promote marsh growth; to utilize the discharge capacity of the Caernarvon Diversion structure resulting in a net increase in discharge from the Caernarvon Diversion structure; to deliver freshwater to the historic fresher habitats of the sub-basin; to re-establish historic northeast-southwest orientation of habitat boundaries of Breton Basin; to enhance a natural levee and ridge habitat along Bayou Terre aux Boeufs.

Proposed Solution: A 1,200 cfs pumping station would be constructed to discharge water from the Caernarvon Diversion Canal to a conveyance canal that parallels the existing borrow canal for the Lake Verret Levee without blocking navigation on Caernarvon Canal.

Project Benefits: The project would benefit approximately 6,839 acres of fresh marsh and open water. Approximately 320 acres of marsh would be created/protected over the 20-year project life.

Project Costs: Total fully funded cost = $44,736,100.
Fully funded first cost = $31,717,600.

Risk/Uncertainty and Longevity/Sustainability: There is a moderate degree of risk associated with this project because of the uncertainty of the exact quantity of marsh that will be created/protected. The project should continue providing benefits 20 – 30 years after construction.

Sponsoring Agency/Contact Person: U.S. Army Corps of Engineers
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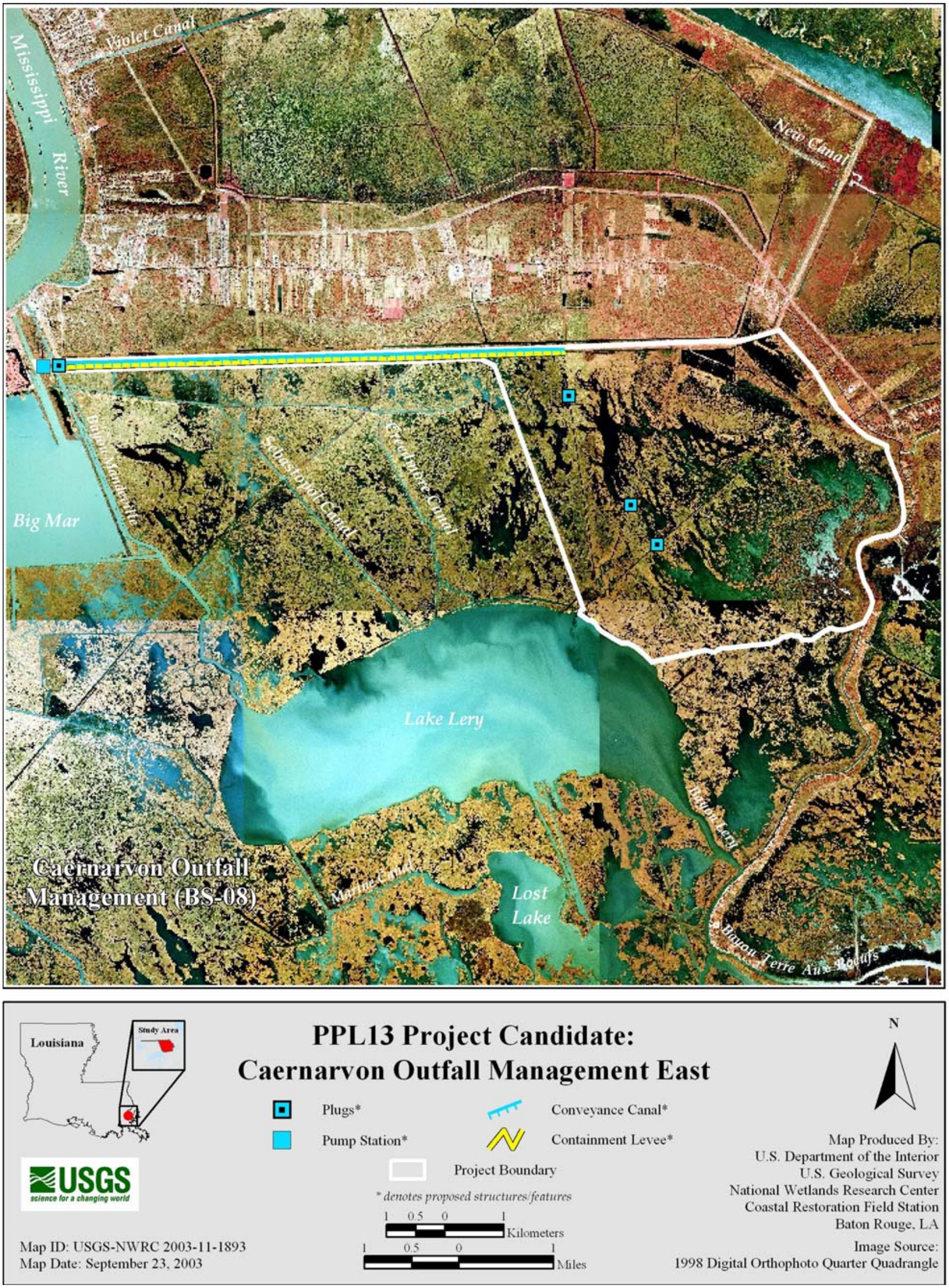
Chris Monnerjahn (504) 862-2415; christopher.j.monnerjahn@mvn02.usace.army.mil


Violet Canal
Mississippi River
New Canal
Sebastopol Canal
Big Mar
Lake Lery
Caernarvon Outfall Management (BS-08)
Lost Lake
Bayou Terre Aux Boeufs
Louisiana
Study Area
PPL13 Project Candidate:
Caernarvon Outfall Management East
N
Plugs*
Pump Station*
Conveyance Canal*
Containment Levee*
Project Boundary
* denotes proposed structures/features
1 0.5 0 1
Kilometers
1 0.5 0 1
Miles
USGS
science for a changing world
Map Produced By:
U.S. Department of the Interior
U.S. Geological Survey
National Wetlands Research Center
Coastal Restoration Field Station
Baton Rouge, LA
Image Source:
1998 Digital Orthophoto Quarter Quadrangle
Map ID: USGS-NWRC 2003-11-1893
Map Date: September 23, 2003

Project Name: Naomi Siphon Outfall Area Marsh Creation/Nourishment

Coast 2050 Strategy: Coastwide - Dedicated dredging for wetland creation. Regional - Enrich existing diversions with sediment.

Project Location: Region 2, Barataria Basin, Plaquemines Parish, at Naomi, LA, along the western bank of the Mississippi River.

Problem: Prior to construction of the Naomi Siphon, the wetland area west of Naomi was converting to open water due to an accretion deficit, in turn caused by the elimination of input of inorganic sediment from overbank flooding of the Mississippi River. Other causes are sediment input reduction due to altered hydrology due to spoil banks along oil and gas pipeline and access canals. Reduction of flows through the wetlands due to spoil bank semi-impoundment may also have increased water levels and reduced flows through the marshes, possibly reducing plant health and productivity. Finally, saltwater intrusion and increased hydraulic flow may have resulted in some conversion of fresh marsh to open water. The Naomi Siphon seems to be positively effecting the marsh. However, a large pond system on the northern side of the outfall area remains as shallow open water and does not appear to be filling in. Aerial photographs suggest that this area receives benefits from the siphon. The proximity to the Mississippi River is an excellent opportunity to utilize sediment from the river to restore and create wetlands in this area. Finally, the Naomi Siphon area is one of a few existing opportunities to test combining marsh creation with freshwater redistribution (diversion).

Goals: 1) Restore 135 acres of fresh-intermediate marsh in the northern portion of the Naomi Siphon Outfall Area, using Mississippi River sediment; 2) Nourish 87 acres of existing fresh-intermediate marsh in a band surrounding the large open water area to be filled for marsh creation; 3) Increase sustainability of created and nourished marsh by locating the project close to the Naomi Siphon.

Proposed Solution: A dedicated dredge in the Mississippi River will pump sediment through a 2.5 mile pipeline to create approximately 135 acres of marsh in a large pond in the northern portion of the Naomi Siphon Project Area, and nourish 87 acres of marsh in a band around the large pond, with up to six inches of sediment. After settlement, newly-placed sediment at marsh elevation in the large pond will be planted with two species of marsh plants. The pipeline will go under the highway and the railroad.

Project Benefits: The project would benefit about 222 acres of fresh-intermediate marsh and open water. Approximately 137 acres of marsh would be created/protected over the 20-year project life.

Project Costs: Total fully funded cost = $9,192,000.
Fully funded first cost = $9,054,400.

Risk/Uncertainty and Longevity/Sustainability: There is a low degree of risk because marsh creation has been practiced for some time with considerable success, and this marsh will be sustained by the beneficial effects of the Naomi Siphon. The project should continue providing benefits 30 – 40 years after construction because marsh loss rates are very low due to the effects of the Naomi Siphon.

Sponsoring Agency/Contact Person: U.S. Environmental Protection Agency
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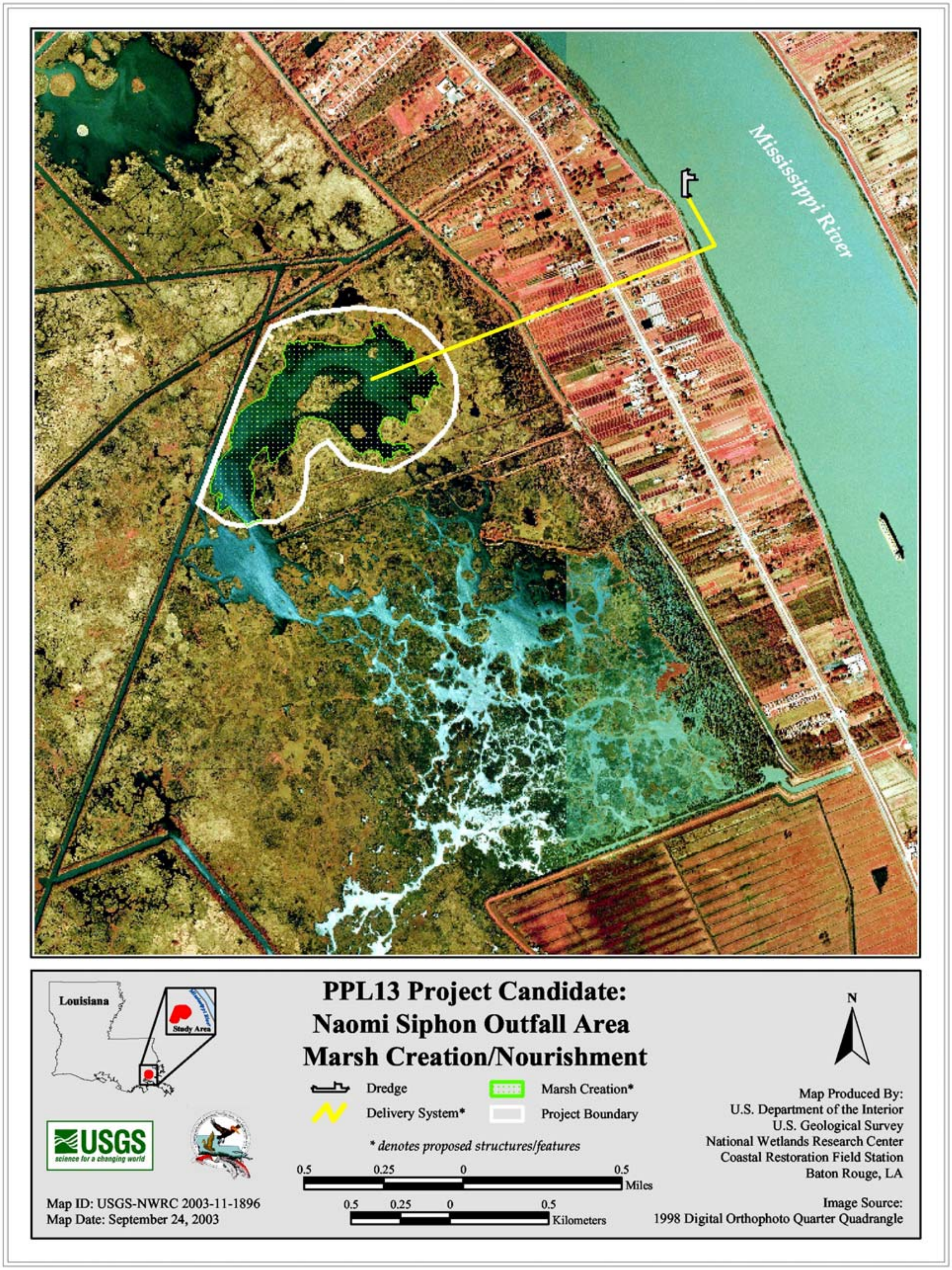

Mississippi River
Louisiana
Study Area
PPL13 Project Candidate:
Naomi Siphon Outfall Area
Marsh Creation/Nourishment
Dredge
Delivery System*
Marsh Creation*
Project Boundary
* denotes proposed structures/features
0.5
0.25
0
0.5
Miles
0.5
0.25
0
0.5
Kilometers
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USGS
science for a changing world
Map Produced By:
U.S. Department of the Interior
U.S. Geological Survey
National Wetlands Research Center
Coastal Restoration Field Station
Baton Rouge, LA
Image Source:
1998 Digital Orthophoto Quarter Quadrangle
Map ID: USGS-NWRC 2003-11-1896
Map Date: September 24, 2003

Project Name: Spanish Pass Diversion

Coast 2050 Strategy: Regional #8 - Construct most effective small diversions into marsh with outfall management.

Project Location: Region 2, Mississippi River Delta Basin, Plaquemines Parish, Venice, LA.

Problem: Marsh in the project area is not receiving sediment and is becoming open water. The principle hydrologic changes in the area are due to the dredging of canals for the Venice Oil Field, roads and other infrastructure. This has caused Spanish and Red Pass to be cut off from the influence of the Mississippi River thus starving the area of freshwater sediments and nutrients. These processes have resulted in the loss of more than 3,900 acres of fresh marsh and swamp.

Goals: The primary goal is to gain emergent marsh to the maximum extent practicable by diverting river water and sediments into an otherwise open water environment.

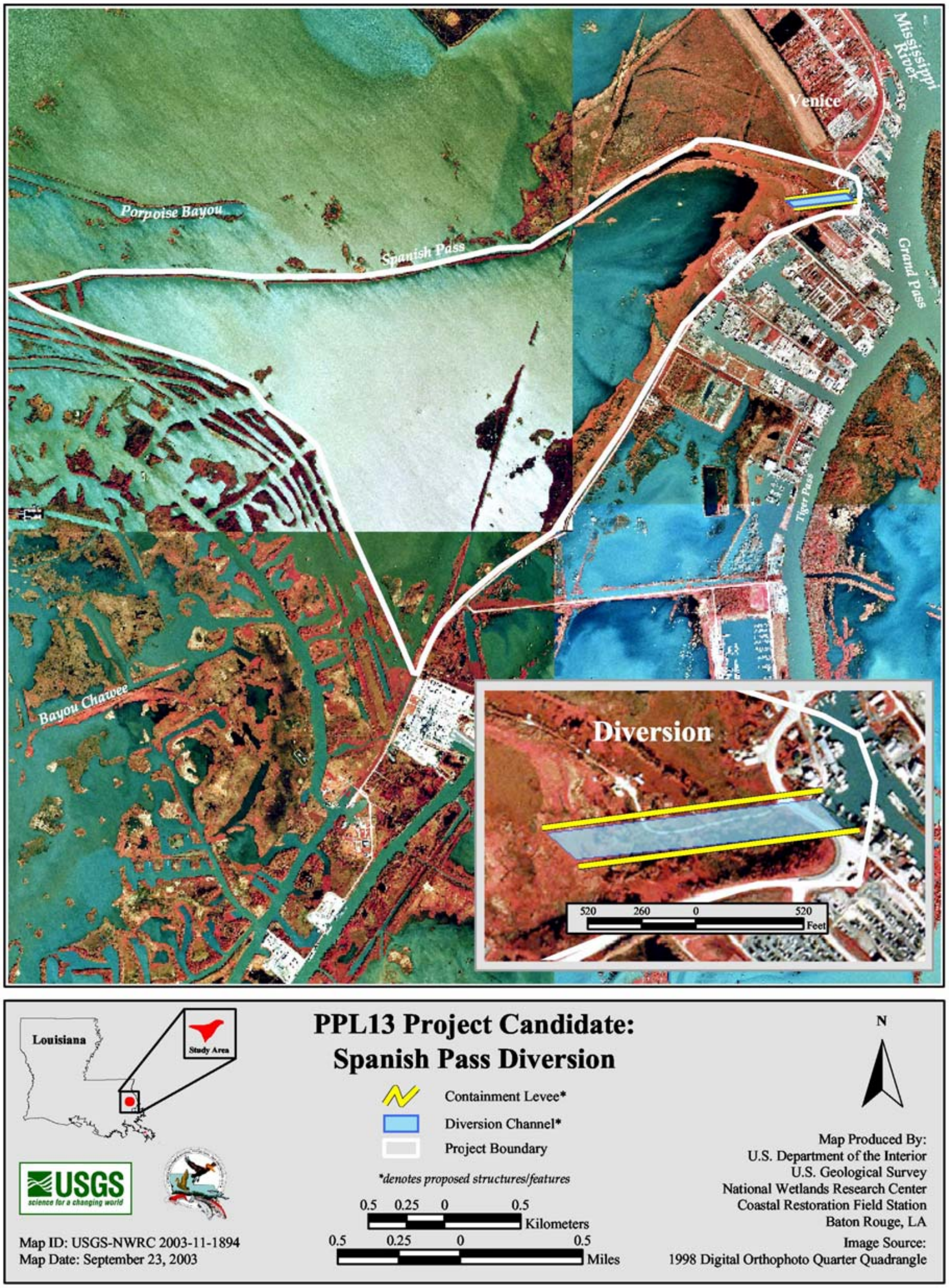
Proposed Solution: The project involves constructing a 7,000 cfs diversion channel from Grand Pass (a distributary of the Mississippi River) into the large open water receiving area shown on the project map. Outfall management measures will be evaluated and incorporated to increase benefits to aquatic habitats in the system.
Project features include:
1. 1,300 lf of diversion channel with containment levees
2. A bridge at Tidewater Road

Project Benefits: The project would benefit approximately 1,580 acres of fresh marsh and open water. Approximately 433 acres of marsh would be created/protected over the 20-year project life.

Project Costs: Total fully funded cost = $13,927,800.
Fully funded first cost = $12,261,000.

Risk/Uncertainty and Longevity/Sustainability: There is a moderate degree of risk associated with this project because of the uncertainty of the exact quantity of marsh that will be created. The project should continue providing benefits 30 – 40 years after construction because it is an open channel diversion and has adequate O&M funds budgeted.

Sponsoring Agency/Contact Person: U.S. Army Corps of Engineers
Chris Monnerjahn (504) 862-2415; christopher.j.monnerjahn@mvn02.usace.army.mil


Mississippi River
Venice
Porpoise Bayou
Spanish Pass
Grand Pass
Tiger Pass
Bayou Chawee
Diversion
520 260 0 520
Feet
Louisiana
Study Area
PPL13 Project Candidate:
Spanish Pass Diversion
Containment Levee*
Diversion Channel*
Project Boundary
*denotes proposed structures/features
0.5 0.25 0 0.5
Kilometers
0.5 0.25 0 0.5
Miles
N
Map Produced By:
U.S. Department of the Interior
U.S. Geological Survey
National Wetlands Research Center
Coastal Restoration Field Station
Baton Rouge, LA
Image Source:
1998 Digital Orthophoto Quarter Quadrangle
USGS
science for a changing world
Map ID: USGS-NWRC 2003-11-1894
Map Date: September 23, 2003

Project Name: Bayou Sale Shoreline Protection

Coast 2050 Strategies: 1) Protect bay shorelines; 2) Protection of ridge function; 3) Beneficial use of dredged material.

Project Location: Region 3, Teche/Vermilion Basin, St. Mary Parish, along the eastern shoreline of East Cote Blanche Bay from British American Canal to the mouth of Bayou Sale.

Problem: Eroding shoreline at an estimated rate of 13.5 ft/yr caused by the open water fetch and resulting wave energy from East Cote Blanche Bay. The retreating shoreline has resulted in a substantial loss of live oak forest, emergent wetlands and critical habitat used by a multitude of fish and wildlife species including the endangered black bear.

Goals: The goal of this project is to reduce and/or reverse shoreline erosion and create marsh between the breakwater and existing shoreline.

Proposed Solution: Construction of a foreshore rock dike parallel to and approximately 150 feet out from the existing eastern shoreline of East Cote Blanche Bay. The linear footage of shoreline is approximately 35,776 feet. The rock dike will be tied into the banks of all substantial channels. Smaller channels and sloughs will have provisions for adequate drainage and aquatic organism access via openings through the dredge material and gaps in the dike. It is anticipated that approximately 123 acres of marsh will be created with the fill material from dredging of an access channel to accommodate construction equipment.

Project Benefits: The project would benefit 312 acres of marsh and 58 acres of bottomland hardwoods. Approximately 329 acres of marsh and bottomland hardwoods would be created and/or protected over the 20-year project life.

Project Costs: Total fully funded cost = $32,103,000.
Fully funded first cost = $22,885,300.

Risk/Uncertainty and Longevity/Sustainability: There is a low degree of risk associated with this project because rock dikes are an effective technique for stopping shoreline erosion. The project should continue providing benefits 30 – 40 years after construction because adequate O&M funds are budgeted.

Sponsoring Agency/Contact Person: USDA, Natural Resources Conservation Service
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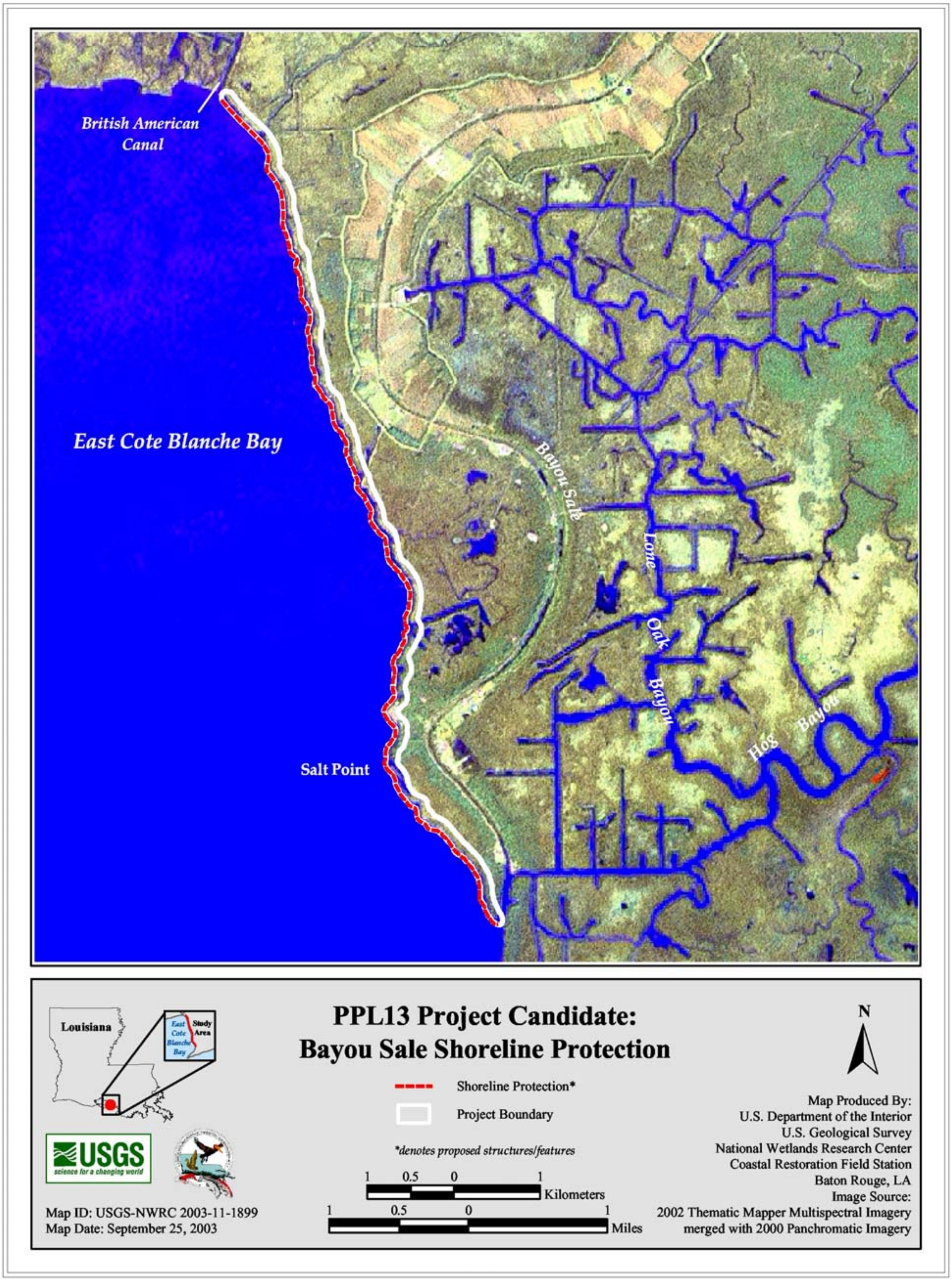

British American Canal
East Cote Blanche Bay
Bayou Sale
Lone Oak Bayou
Hog Bayou
Salt Point
Louisiana
East Cote Blanche Bay
Study Area
PPL13 Project Candidate:
Bayou Sale Shoreline Protection
Shoreline Protection*
Project Boundary
*denotes proposed structures/features
1 0.5 0 1 Kilometers
1 0.5 0 1 Miles
N
Map Produced By:
U.S. Department of the Interior
U.S. Geological Survey
National Wetlands Research Center
Coastal Restoration Field Station
Baton Rouge, LA
Image Source:
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merged with 2000 Panchromatic Imagery
USGS science for a changing world
Map ID: USGS-NWRC 2003-11-1899
Map Date: September 25, 2003

Project Name: Shark Island Shoreline Protection

Coast 2050 Strategy: Regional #11 - Maintain shoreline integrity and stabilize critical areas of Vermilion, East and West Cote Blanche, Atchafalaya, Caillou, Terrebonne, and Timbalier Bay systems including the Gulf shoreline.

Project Location: Region 3, Teche-Vermilion Basin, Iberia Parish. The project boundary includes 40 feet of open water along the western shoreline of Shark Island (21,805 ft) and 20 years of projected erosion from Pelican Point down to Blue Point.

Problem: Analysis of georectified 1978 color infrared photography to 1998 DOQQs determined an average shoreline erosion rate of 23.7 feet/year. According to the Coast 2050 report, subsidence plays a minor role in interior wetland loss at a rate of only 1.1 to 2.0 feet/century (0.132 in. to 0.24 in.) Sea level rise calculated for the Vermilion/Cote Blanche Bay Complex is 0.05 ft/yr from 1942 to 1983 (USACE 2001).

Goals: Stabilize the western shoreline of Shark Island by eliminating or reducing shoreline erosion.

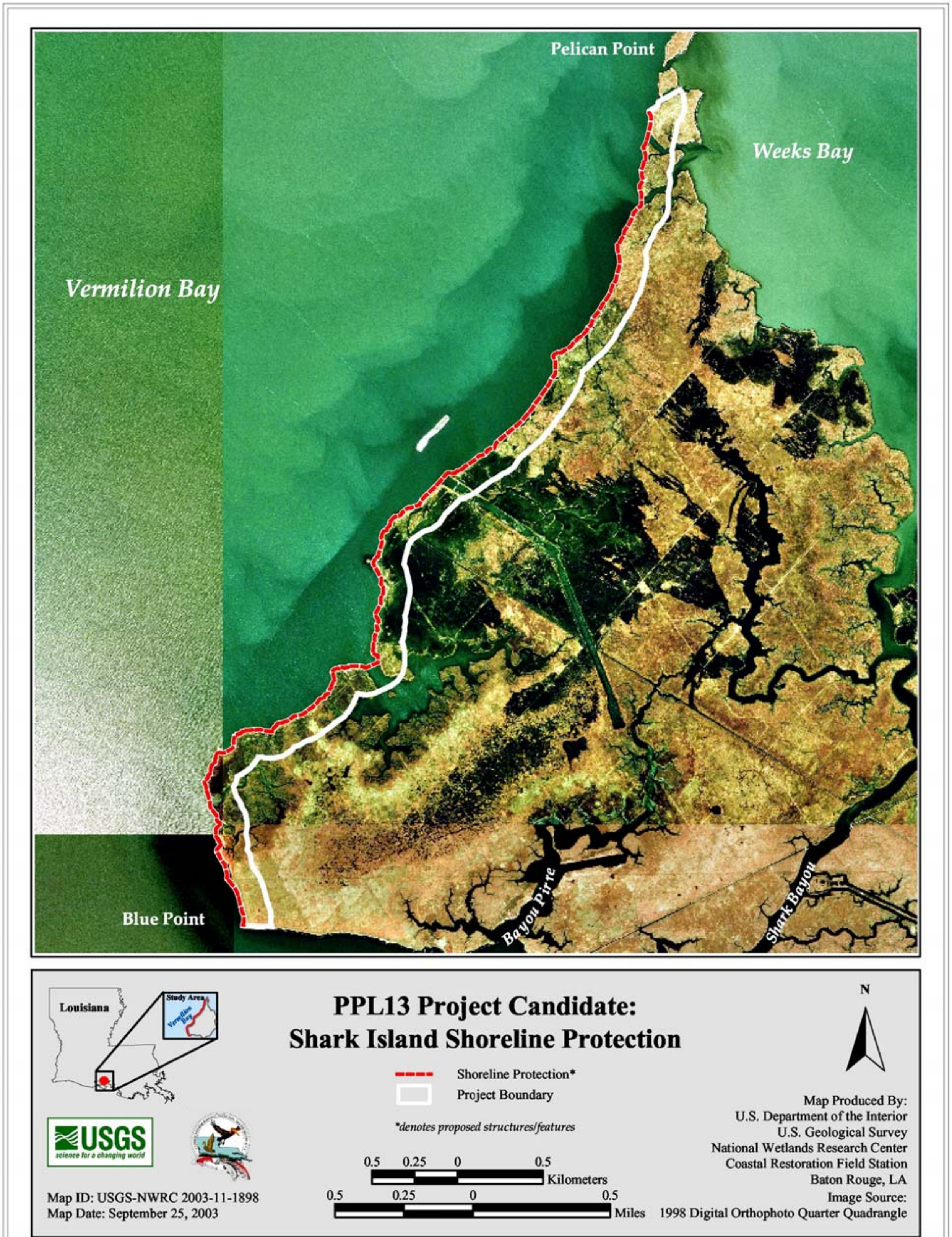
Proposed Solution: Due to poor soil stability and load bearing, the proposed project feature consists of constructing 21,805 feet of concrete sheetpile wall (with approximately 500 feet of tie-in) approximately 40 feet from shore. If authorized, all cost effective techniques would be evaluated as alternatives based on site specific geotechnical soils analysis. There would be a minimum of 25-foot gaps every 1,000 feet. Additionally, there would be a 50-foot wide gap at the water crossing just south of Pelican Point, a 50-foot wide gap at the oil and gas canal, and two 100-foot wide gaps at the tidal inlet located approximately half way between the oil and gas canal and Blue Point. Each gap would have an offset section of sheetpile installed with 20 feet of overlap on both ends to prevent waves from passing past the structure. Rock scour pads would be installed along the base of all structures and in the gaps. Existing sediment in the gaps would be dredged (mucked out) prior to installation of the rock scour pad so as to not decrease the water depth through the gaps.

Project Benefits: The project would protect 178 acres of existing intermediate marsh from conversion to open water with erosion over the 20-year project life.

Project Costs: Total fully funded cost = $19,246,100.
Fully funded first cost = $17,070,900.

Risk/Uncertainty and Longevity/Sustainability: There is a moderate degree of risk and uncertainty associated with this project because of poor soil stability. The project should continue providing benefits 30 – 40 years after construction because of design features and because moderate O&M funds are budgeted.

Sponsoring Agency/Contact Person: National Marine Fisheries Service
Patrick Williams (225) 389-0508; Patrick.Williams@noaa.gov


Pelican Point
Weeks Bay
Vermilion Bay
Blue Point
Bayou Pi'rre
Shark Bayou
Louisiana
Study Area
Vermilion Bay
PPL13 Project Candidate:
Shark Island Shoreline Protection
Shoreline Protection*
Project Boundary
*denotes proposed structures/features
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0.5 0.25 0 0.5
Kilometers
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Miles
USGS
science for a changing world
Map ID: USGS-NWRC 2003-11-1898
Map Date: September 25, 2003
Map Produced By:
U.S. Department of the Interior
U.S. Geological Survey
National Wetlands Research Center
Coastal Restoration Field Station
Baton Rouge, LA
Image Source:
1998 Digital Orthophoto Quarter Quadrangle

Project Name: Whiskey Island Back Barrier Marsh Creation

Coast 2050 Strategy: Regional #14 - Restore and maintain the barrier islands and gulf shoreline such as Isle Dernieres, Timbalier barrier island chains, Marsh Island, Point au Fer, and Cheniere au Tigre (including backbarrier beaches).

Project Location: Region 3, Terrebonne Basin, Terrebonne Parish, Lake Pelto Mapping Unit, north of the previous restoration project (TE-27).

Problem: Gulfside and bayside erosion combined has resulted in Whiskey Island (and the entire Isles Dernieres) narrowing as the two shorelines migrate toward each other, resulting in a 68% decrease in average width for the Isles Dernieres (McBride and Byrnes 1997). Within 100 years, the entire subaerial portion of the of the Isles Dernieres barrier island system is projected to disappear except small land fragments associated with the western end of Whiskey Island and the eastern end of East Island. However, if the area change extrapolation method is used, the Isles Dernieres are projected to disappear much earlier, in 2017 (McBride and Byrnes 1997). Other predictions suggest that without restoration, the island would become subaqueous sand shoals between 2007 (McBride et al. 1991) and 2019 (Penland et al. 1988). In June, 2000 a CWPPRA restoration project (TE-27) was completed here, including dredging/placement (February, 1998), vegetative planting (July, 1998 and June, 1999), and sand fencing (June 2000).

Goals: 1) To create approximately 300 acres of backbarrier, intertidal marsh; 2) To create a minimum of six 1-acre tidal ponds and 10,000 ft of tidal creeks; 3) To increase the longevity of the previously-restored and natural portions of the island by increasing the island width; 4) To maintain the longevity of the island by conserving sand volume and elevation by increasing the island width.

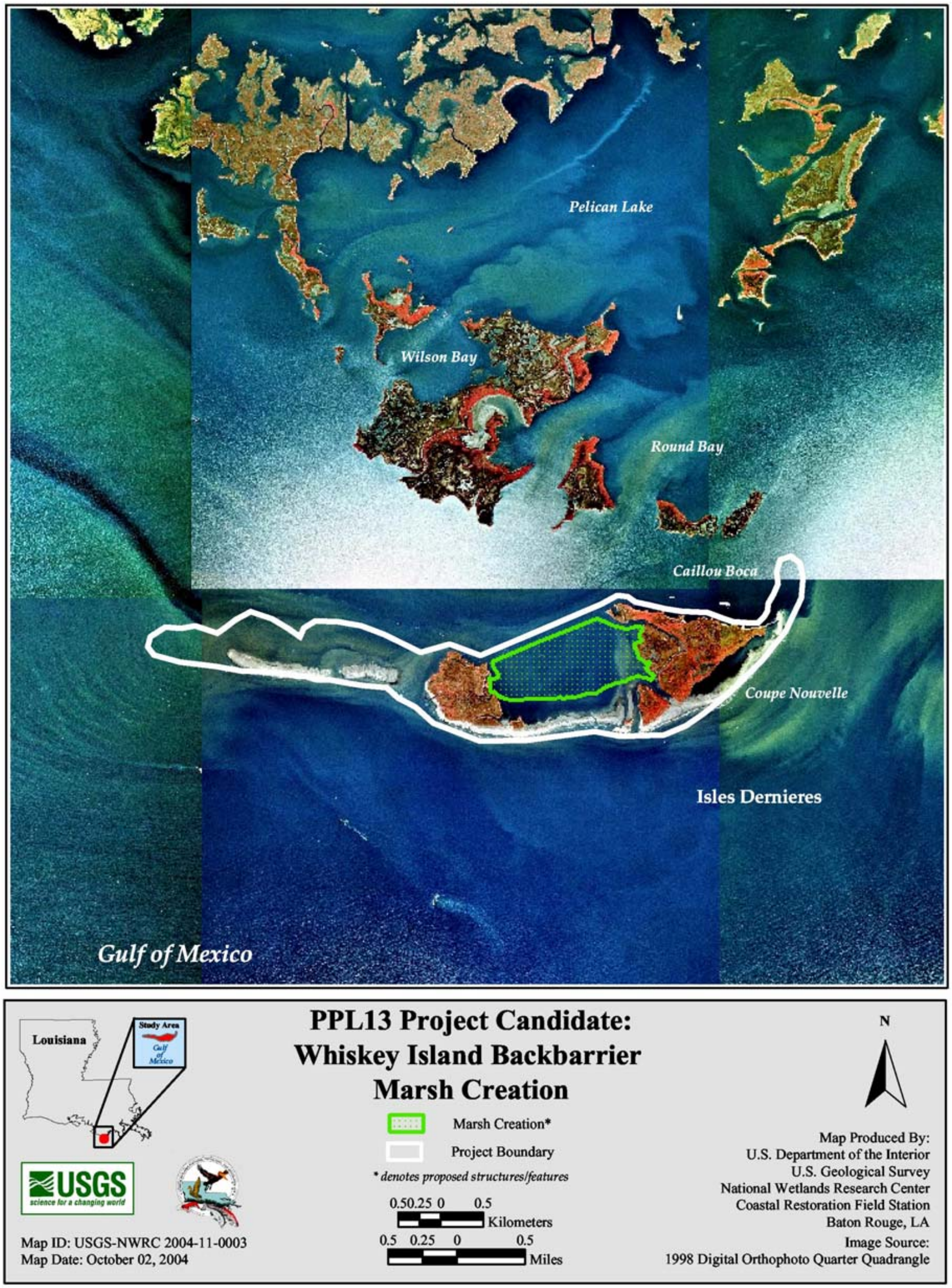
Proposed Solution: Approximately 300 acres of intertidal, back barrier marsh would be created by semi-confined disposal and placement of dredged material to +2 ft NAVD 88 (0.5ft). A minimum of six 1-acre tidal ponds and 10,000 ft of tidal creeks would be constructed. The area would be planted with smooth cordgrass (*Spartina alterniflora)*. The boundary of the disposal area generally would follow the –3.5' contour. Because the project only involves marsh creation, high quality sand is not needed. This will allow sediment to be mined from a sediment source nearer the island than Ship Shoal, for example. A large area of silty sand lies directly to the south of the island, at a distance of three or four kilometers, at a depth of two to four meters.

Project Benefits: The project would benefit about 1,038 acres of barrier island habitat. Approximately 272 acres of intertidal saltmarsh would be created/protected over the 20-year project life.

Project Costs: Total fully funded cost = $21,786,300.
Fully funded first cost = $21,645,900.

Risk/Uncertainty and Longevity/Sustainability: There is a high degree of risk associated with this project because barrier islands have high loss rates due to their role in absorbing/dissipating energy from the Gulf. The project should continue providing benefits 20–30 years after construction.

Sponsoring Agency/Contact Person: U.S. Environmental Protection Agency
Ken Teague (214) 665-6687; teague.kenneth@epa.gov
Brad Crawford (214) 6255; landers.timothy@epa.gov
Patricia Taylor (214) 665-6403; crawford.brad@epa.gov



Pelican Lake
Wilson Bay
Round Bay
Caillou Boca
Coupe Nouvelle
Isles Dernieres
Gulf of Mexico
Louisiana
Study Area
PPL13 Project Candidate:
Whiskey Island Backbarrier
Marsh Creation
Marsh Creation*
Project Boundary
* denotes proposed structures/features
0.5 0.25 0 0.5
Kilometers
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Miles
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science for a changing world
Map Produced By:
U.S. Department of the Interior
U.S. Geological Survey
National Wetlands Research Center
Coastal Restoration Field Station
Baton Rouge, LA
Image Source:
1998 Digital Orthophoto Quarter Quadrangle
Map ID: USGS-NWRC 2004-11-0003
Map Date: October 02, 2004

Project Name: Oyster Bayou Terracing

Coast 2050 Strategy: Coastwide Strategies - Terracing; Vegetative Planting.

Project Location: Region 4 - Calcasieu-Sabine Basin, Cameron Parish, 2.5 miles west of Cameron. The project is located between East Mud Lake, the Calcasieu Ship Channel, Highway 82, and the West Fork of the Calcasieu River.

Problem: Saltwater intrusion and drought stress are contributing to interior marsh breakup. Evidence of fragmentation and brown marsh-like syndrome was observed during 2003 interagency inspections. As ponds have coalesced, water bodies have grown which may be increasing marsh breakup from wave action. Based on USGS and analysis of 1978 to 2000 data and Corps of Engineers data from 1974 to 1990, land loss ranges from 4.8 acres to 18.8 acres for the project area. Subsidence rates for the mapping unit are 0 to 1 ft per century (i.e., maximum of 0.12"/yr or 2.4" in 20 years) (Coast 2050).

Goals: Create approximately 55.5 acres of brackish marsh (after settlement) and protect some existing marsh from erosion.

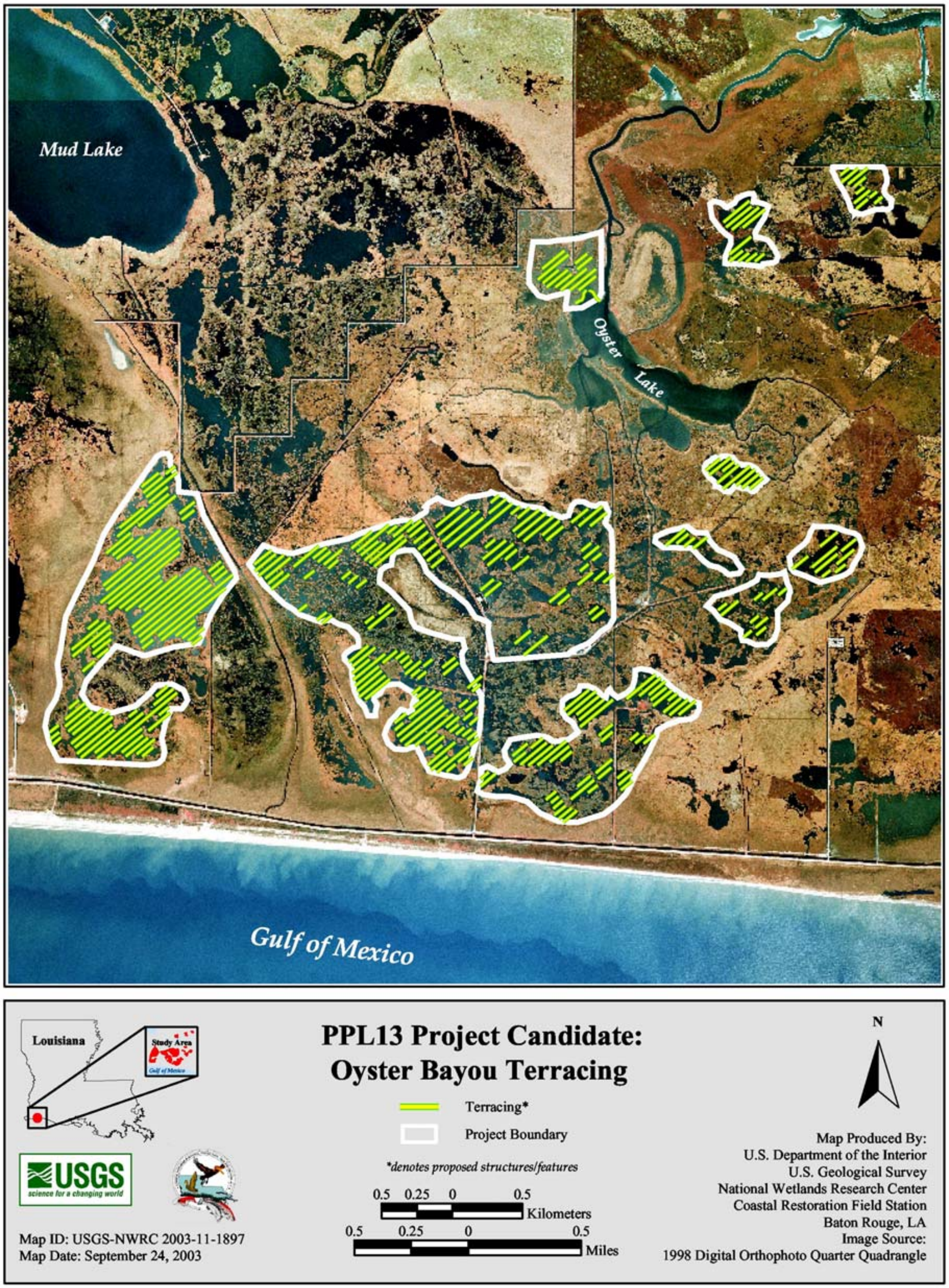
Proposed Solution: Construct approximately 124,967 feet of earthen terraces. Terraces would have a 10 ft crown and 1:4 side slopes and a 4 ft fill height to settle primarily to intertidal elevations. Layout of the terrace field would include 50 foot gaps every 500 feet. Terrace orientation and layout would be re-evaluated through coordiantion with the landowners during Phase I. Terraces would be planted with four rows of *Spartina alterniflora* cv. Vermilion (smooth cordgrass) plugs. Two rows would be installed at the mean water line on 5-ft centers. The other two rows would be installed on 10-ft offset centers at the crest of the terrace-side slope at the crown. In year 15, funding is included to reconstruct up to 25% of the terraces which is similar to a 1 foot lift for all terraces. Also, funding for up to 50% replacement of the original plants has been included.

Project Benefits: The project would result in a net of 61 acres of brackish marsh from the terraces and protection of adjacent marsh over the 20-year project life.

Project Costs: Total fully funded cost = $4,209,900.
Fully funded first cost = $3,027,700.

Risk/Uncertainty and Longevity/Sustainability: There is a low degree of risk and uncertainty associated with this project based on the shallow waters and relatively firm soils. The project should continue providing benefits 20 – 30 years after construction.

Sponsoring Agency/Contact Person: National Marine Fisheries Service
Patrick Williams (225) 389-0508; Patrick.Williams@noaa.gov


Mud Lake
Oyster Lake
Gulf of Mexico
Louisiana
Study Area
PPL13 Project Candidate:
Oyster Bayou Terracing
Terracing*
Project Boundary
*denotes proposed structures/features
0.5 0.25 0 0.5
Kilometers
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USGS
science for a changing world
Map ID: USGS-NWRC 2003-11-1897
Map Date: September 24, 2003
Map Produced By:
U.S. Department of the Interior
U.S. Geological Survey
National Wetlands Research Center
Coastal Restoration Field Station
Baton Rouge, LA
Image Source:
1998 Digital Orthophoto Quarter Quadrangle

Project Name: Shoreline Protection Foundation Improvements Demonstration Project

Coast 2050 Strategy: n/a

Project Location: n/a

Problem: Poor soil conditions in coastal Louisiana limit the effectiveness of shoreline protection dikes because of high rates of subsidence. High subsidence rates require frequent and expensive project maintenance, lowering overall project cost effectiveness.

Goals: The goal of the project is to bring shoreline protection into the realm of feasibility by investigating a ground improvement method to reduce subsidence. Shoreline protection is currently challenged in terms of cost effectiveness over a 20-yr project life cycle.

Proposed Solution: The objective is to develop foundation improvements using a sand foundation beneath rock dikes for application in coastal Louisiana to demonstrate alternative means to achieve bearing capacity and consolidation settlement design tolerances in ways that lessen 20-year project life cycle costs, as compared to traditional approaches. This demonstration project is proposed to "piggy back" on a funded shoreline protection project, to be selected by the Task Force, which uses a traditionally designed and constructed rock dike section. The potential test region would be in an environment where soil conditions are very poor, the wave climate is harsh, and wetland loss is high. This demonstration project proposes seven sections, which would each be approximately 300 feet long. The first section is a reference section to the ground improvement test sections, having an unimproved foundation. The remaining six sections would consist of a sand foundation involving two construction methods. In the first construction case, containing 3 sections, the sand will displace the soft material near the surface. In the second construction case, containing 3 sections, the soft material near the surface will be dredged prior to sand placement. All of these sections will be instrumented with settlement plates, inclinometers, and extensometers to determine the effectiveness of these foundation improvements.

Project Benefits: From the results of this proposed demonstration project, a more effective and economical method can be established in the design and construction of shoreline protection. Therefore, shoreline protection could be provided in areas not currently protected due to project cost limitations, thus protecting precious wetlands by preventing coastal erosion and aiding in marsh creation.

Project Costs: Total fully funded cost = $1,000,000.
Fully funded first cost = $1,000,000.

Sponsoring Agency and Contact Persons: U.S. Army Corps of Engineers
Chris Monnerjahn (504) 862-2415; chris.j.monnerjahn@mvn02.usace.army.mil
Julie L. Oliphant (504) 862-2035; julie.l.oliphant@mvn02.usace.army.mil
Gretchen S. Hammond (504) 862-1659; gretchen.s.hammond@mvn02.usace.army.mil

Project Name: Flowable Fill Demonstration Project

Coast 2050 Strategy: n/a

Project Location: n/a

Problem: Several post constructed projects suffer from high maintenance due to rock slippage caused by storms, incessant wave energy or high tides coupled with high wake energy which shear off the top-most part of rock structures. A rock structure which has been bonded together will also be resistant to vandalism. Fresh spoil used to construct the seaward face of terraces or other earthen structures is very vulnerable to erosion until such time that protective vegetation on the terrace is established. Both of these scenarios sometimes call for the affected works to be repaired or have intensive maintenance soon after initial construction.

Goals: To test a technique whereby rock structures have increased integral strength without adding to overall structure weight, and earthen works are afforded protection from erosion on the windward edge of the project in the period immediately following initial and post construction.

Proposed Solution: For rock structures, slippage can be controlled by injecting/applying a flowable fill material consisting of portland cement, sand, water, re-cycled fly-ash, and a plasticizer. This material will bond rocks together and reduce the incidence of re-working or adding new material to the structure due to rock loss, an example of which is occurring at the structure along Freshwater Bayou. This material has an approximate weight of 2,615 lbs./cu yd and an approximate strength of 1,500 pounds per square inch (psi). Flowable fill could eliminate or reduce maintenance on existing and future projects. This flowable fill can also be applied to the erosive face of freshly constructed and existing earthen works to provide protection against wave energy. This material will set-up and cure in underwater applications.

Project Benefits: Eliminate or minimize post construction (re-working) or yearly maintenance of structures built for the control of shoreline erosion. Control marsh, bay, lake, gulf shoreline and navigation bank erosion. A layer of flowable fill on the erosive face of earthen terraces will extend the life of the structure allowing for increased sedimentation within protected areas, which over time may allow the formation of emergent marsh vegetation. The application of flowable fill over existing or new rock type structures will assist in bonding the structure together resulting in less rock slippage and eventual loss which diminishes the effectiveness of the structures' designed use and results in increased costs during the operation/maintenance phase of the project. Successful demonstration of this project may also have ramifications for inclusion on new projects, especially rock structures whereby planned or additional structure height may be achieved with flowable fill instead of rock material. The substitution of flowable fill, in place of rock, could possibly lower project costs or increase structure coverage.

Project Costs: Total fully funded cost = $1,789,900.
Fully funded first cost = $1,180,600.

Sponsoring Agency/Contact Person: USDA, Natural Resources Conservation Service
Bart Devillier (337) 893-5664; bart.devillier@la.usda.gov

Project Name: Interior Shoreline Protection Demonstration Project

Coast 2050 Strategy: n/a

Project Location: n/a

Problem: Interior marsh loss has lead to the coalescence of many small ponds into a few large ponds. At Lake Fearman, wind generated waves from the lake will soon coalesce into a small, unnamed lake along the southwest shoreline. At Rockefeller Refuge, wind generated wave energy is now focused on the containment levee of the northeast corner of Unit 6. Poor load bearing capacity of the soils in both cases eliminates traditional rock shoreline stabilization techniques.

Goals: Demonstrate the effectiveness of fiberglass sheet pile to stop erosion and re-establish lake shoreline in shallow water (2 feet or less) interior lakes.

Proposed Solution: Install approximately 2,640 linear feet of fiberglass sheet pile along the shoreline following the –2.0 contour, with a top elevation of +3.0 (NAVD-88). Organism and material linkages will be maintained through a 10” by 30” window within the sheet pile every 100 feet for 1,320 feet of the 2,640 foot long system.

Project Benefits: Stop shoreline erosion.

Project Costs: Total fully funded cost = $1,121,900.
Fully funded first cost = $1,064,400.

Sponsoring Agency/Contact Person: National Marine Fisheries Service
John D. Foret (337) 291-2107; John.Foret@noaa.gov

Project Name: Soil Salinity Remediation Demonstration Project

Coast 2050 Strategy: n/a

Project Location: n/a

Problem: The CWPPRA program along the Louisiana coast is increasingly going to the use of dredged material for marsh creation. In some cases, the dredged material comes as a result of maintenance dredging of a ship channel or river bottom in which soil salinity is significantly higher than salinities in the receiving area. Project planners are left with the choice of either planting the area with a plant species with higher salt tolerances (which may not be the dominant plant type in the area) or wait until enough dilution takes place, via rainfall, to plant with a target species for the receiving area. Reclamation of salt (NaCl) burdened soils in place (in-situ) using calcium has been practiced for many decades in terrestrial environments, but the most utilized form of calcium has been the use of gypsum (hydrated calcium sulfate) which is a slow process at best and involves extensive logistical and application expense as gypsum is a solid, powdery calcium salt. The objective of this project is to lower sodium ion concentrations to a point equivalent to a target habitat type of the surrounding marsh.

Goals: 1) Test the efficiency of a calcium soil amendment to lower sodium concentrations such that the indigenous plant community can thrive on dredge spoils that originate from a higher salinity regime; 2) Improve the permeability of soils to air and water by displacement of sodium ions from the rooting zone, thus improving survivability of emergent vegetation volunteers and increasing marsh stability.

Proposed Solution: A 45 acre test area is to be partitioned into nine discrete, 5-acre areas by the construction of earthen levees with a finished elevation of + 0.3 meters above settled grade and 1.5 meter finished crown width. The acquisition, transportation and deposition of the spoils are not considered herein with regard to estimating total costs associated with the testing of this soil treatment method as this demonstration project will be associated with a scheduled maintenance dredging project. The dredged material will be deposited is such a manner as to create a consolidated elevation of not greater than 6 inches above surrounding marsh. This proposal calls for the application at two treatment rates of salt remediating, calcium soil amendment and the establishing of a triplicate of "control" impoundments. There is to be no discharge of water from the impoundments after the cells are filled with dredged material thus allowing for downward percolation and evaporation of water accumulated during dredged material deposition. The treatment methodology is to involve the pumping of surface water through a plastic pipe distribution system using diesel engine powered pumps while injecting known rates of soil amendment. After the soil treatments have been made, vegetative plantings with appropriate target species to match the surrounding dominant marsh type will be made. Planting layout calls for 5' OC spacing (2,400 plants), diagonally across each cell forming an "x" in each test cell.

Project Benefits: Improving survivability of emergent vegetation.

Project Costs: Total fully funded cost = $1,840,700.
Fully funded first cost = $1,672,500.

Sponsoring Agency/Contact Person: National Marine Fisheries Service
John D. Foret (337) 291-2107; John.Foret@noaa.gov

Project Name: Hackberry Bay Oyster Reef Demonstration Project

Coast 2050 Strategy: n/a

Project Location: n/a

Problem: The head of coastal bays are experiencing shoreline erosion and enlargement of passes resulting in increased saltwater intrusion, increased subsidence, reduced sediment accretion, and conversion to open water of the interior marshes. Barataria Bay has coalesced into Hackberry Bay, with only a few remnant islands separating the bays. Evidence of the magnitude of the problem is recognized in the restoration strategies of the Coast 2050 Regions 1, 2, and 3 for the protection of shoreline integrity at the head of bays. A current CWPPRA demonstration project, Terrebonne Bay Shoreline Protection Demonstration Project, is addressing the same goals as this proposed project. However, the Terrebonne Bay Project is only focusing on structural applications. This project will focus on reef development.

Goals: The goal of the project is the protection of shorelines by creating a living, self sustainable oyster reef. Reefs can be constructed with low profile aerial features that would provide wave attenuation by absorbing wave energy and protecting fringing marshes. Increases in essential fish habitat would be accomplished, as well as increases in water quality.

Proposed Solution: This project would attempt to construct oyster reefs. Reef orientation would resemble staggered breakwaters. Reef design would incorporate Geotubes or other suitable and cost effective alternatives as the nucleus or core with oyster shells as cover. Adequate engineering analysis and solutions are to be derived to properly place the oyster shells. The reef would be shaped to accommodate wave run-up and provide optimum habitat conducive to spat attachment and oyster reef development. Seed oysters may be applied to expedite reef development. Possibilities of planting SAV's on the landward side will be explored. This will also provide stability to the reef and enhance the fish habitat.

Project Benefits: Possible general benefits include restoration of area-wide hydrology, valuable reef habitat, improved water quality, and protection of fringing marsh areas. Additional benefits include improvements in the salinity gradient which will make the areas more suitable for oyster cultivation as well as the creation of ecologically valuable reef habitat for crabs, fish and other aquatic species (Comprehensive Oyster Management Plan, Chesapeake Bay, 2002). Nonmechanical, recreational public harvesting of oysters, suitable to the Louisiana Department of Wildlife and Fisheries concerns, will also be explored. Benefits of harvesting may result in promoting eco-tourism as well as enhancing oyster reef growth.

Project Costs: Total fully funded cost = $1,687,500.
Fully funded first cost = $1,378,700.

Sponsoring Agency and Contact Person: U.S. Fish and Wildlife Service
Ronny Paille (337) 291-3117; Ronald_paille@fws.gov

IV. PROJECT SELECTION

On January 28, 2004, the CWPPRA Task Force made its selection for the 13th PPL. The CWPPRA Task Force selection for the 13th PPL is shown in Table 5.

One demonstration project, Shoreline Protection Foundation Improvements, was also approved on January 28, 2004.

Table 5: The 13th Priority Project 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)**
MR-14	Spanish Pass Diversion	SD	COE	$13,927,800	$1,137,344	$1,137,344	$12,790,456	$12,790,456	$11,141,705	$11,141,705	79
PO-33	Goose Point/Pointe Platte Marsh Creation	MC	FWS	$21,747,400	$1,930,596	$3,067,940	$19,816,804	$32,607,260	$19,692,207	$50,203,937	297
TE-50	Whisky Island Back Barrier Marsh Creation	BI	EPA	$21,786,300	$2,293,893	$5,361,833	$19,492,407	$52,099,667	$19,370,025	$30,511,730	292
T/V-20	Bayou Sale Shoreline Protection	SP	NRCS	$32,103,000	$2,254,912	$7,616,745	$29,848,088	$81,947,755	$26,222,260	$76,426,197	153
Demonstration Project											
LA-06	Shoreline Protection Foundation Improvements Demonstration Project	SP	COE	$1,000,000	$1,000,000		$0		$0		N/A
	TOTALS			$90,564,500		$8,616,745		$81,947,755		$76,426,197	821

Project Physical Type:
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
VP=Vegetative Planting

Sponsoring Agencies:
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

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, problem, goals, solution, benefits, costs, risk/uncertainty and longevity/sustainability, sponsoring agency and contact persons, and a map identifying the project area and features if applicable.

Project Name: Goose Point/Point Platte Marsh Creation (PO-33)

Coast 2050 Strategies: Coastwide - Dedicated dredging to create, restore, or protect wetlands; maintenance of gulf, bay and lake shoreline; vegetative planting. Mapping Unit - Maintain shoreline integrity; vegetative plantings.

Project Location: Region 1, St. Tammany Parish, north shore of Lake Pontchartrain between Fountainbleau State Park and Hwy 11, within the Big Branch Marsh National Wildlife Refuge.

Problem: Interior ponding and to a lesser extent shoreline erosion are the major causes of wetland loss in the project area. Loss rates were highest during the period from 1956 to 1978. Those high loss rates were associated with hydrologic alterations with allowed saltwater to penetrate the fresher marshes. During the transition to a more brackish plant community, large ponds were formed. A narrow strip of land separates those ponds from Lake Pontchartrain. Although the shoreline erosion rates are relatively low, the shoreline is already breached in several areas and marsh loss in the interior ponds would be expected to increase if the shoreline failed.

Goals: The goal of this project is to recreate marsh habitat in the open water behind the shoreline. This will maintain the lake-rim function along this section of the north shore of Lake Pontchartrain by preventing the formation of breaches into the interior marsh.

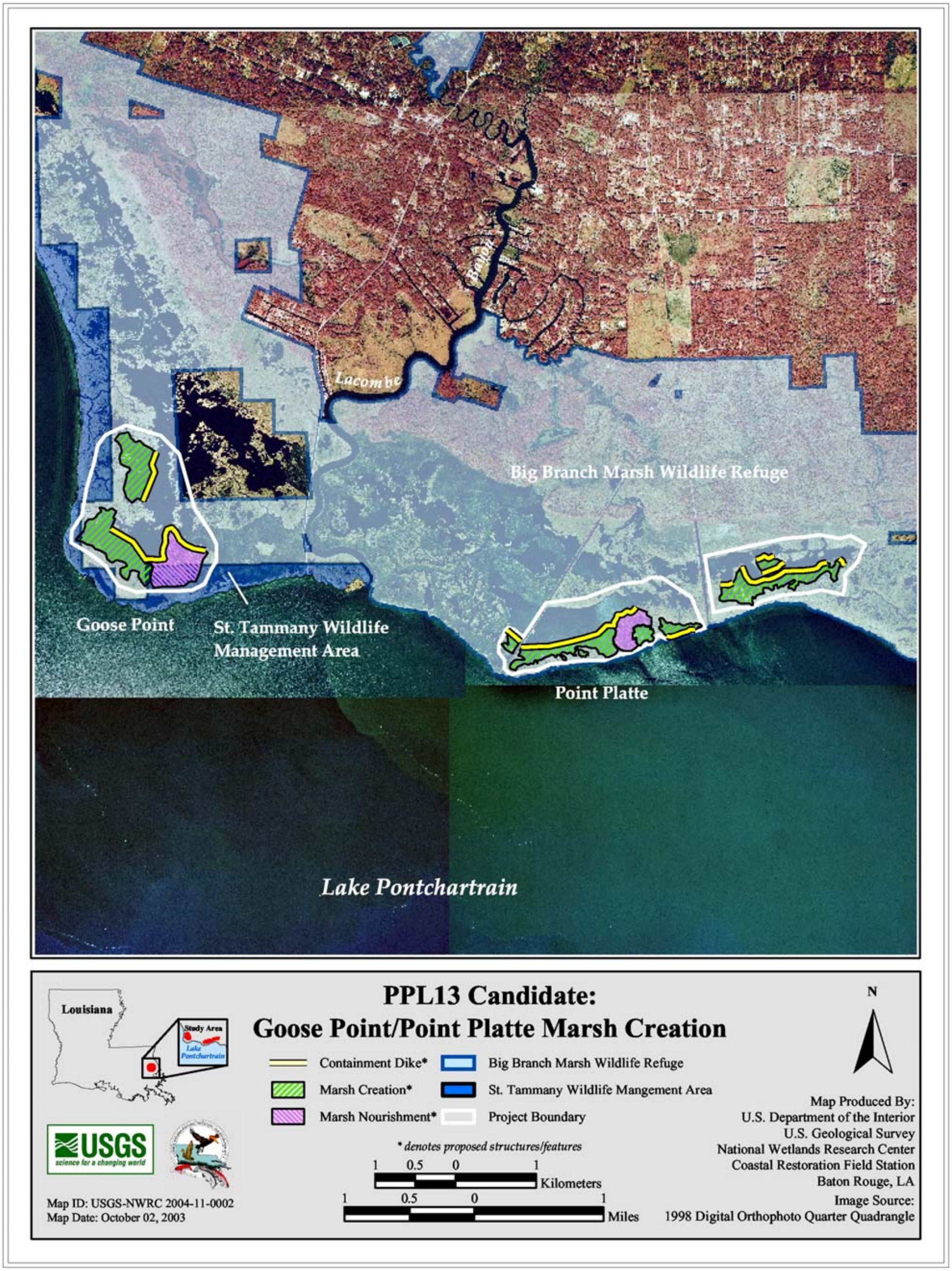
Proposed Solution: Sediment would be dredged from Lake Pontchartrain and placed in cells within the ponds and planted with vegetation to create approximately 437 acres of marsh. In addition, 114 acres of degraded marsh would be nourished with dredged material. Marsh would be created to widen the shoreline so that the ponds would not be breached during the course of normal shoreline retreat.

Project Benefits: The project would benefit about 1,384 acres of fresh marsh and open water. Approximately 436 acres of marsh would be created/protected over the 20-year project life.

Project Costs: Total fully funded cost = $21,747,400.
Fully funded first cost = $21,262,500.

Risk/Uncertainty and Longevity/Sustainability: There is a low degree of risk associated with this project because current loss rates are relatively low. The project should continue providing benefits 20 – 30 years after construction because the created marsh would be lost slowly.

Sponsoring Agency/Contact Person: U.S. Fish and Wildlife Service
Martha Segura (337) 291-3110; martha_segura@fws.gov


Lacombe
Bayou
Big Branch Marsh Wildlife Refuge
Goose Point
St. Tammany Wildlife Management Area
Point Platte
Lake Pontchartrain
Louisiana
Study Area
Lake Pontchartrain
PPL13 Candidate:
Goose Point/Point Platte Marsh Creation
Containment Dike*
Marsh Creation*
Marsh Nourishment*
Big Branch Marsh Wildlife Refuge
St. Tammany Wildlife Mangement Area
Project Boundary
* denotes proposed structures/features
1 0.5 0 1 Kilometers
1 0.5 0 1 Miles
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USGS
science for a changing world
Map Produced By:
U.S. Department of the Interior
U.S. Geological Survey
National Wetlands Research Center
Coastal Restoration Field Station
Baton Rouge, LA
Image Source:
1998 Digital Orthophoto Quarter Quadrangle
Map ID: USGS-NWRC 2004-11-0002
Map Date: October 02, 2003

Project Name: Spanish Pass Diversion (MR-14)

Coast 2050 Strategy: Regional #8 - Construct most effective small diversions into marsh with outfall management.

Project Location: Region 2, Mississippi River Delta Basin, Plaquemines Parish, near Venice, LA.

Problem: Marsh in the project area is not receiving sediment and is becoming open water. The principle hydrologic changes in the area are due to the dredging of canals for the Venice Oil Field, roads and other infrastructure. This has caused Spanish and Red Pass to be cut off from the influence of the Mississippi River thus starving the area of freshwater sediments and nutrients. These processes have resulted in the loss of more than 3,900 acres of fresh marsh and swamp.

Goals: The primary goal is to gain emergent marsh to the maximum extent practicable by diverting river water and sediments into an otherwise open water environment.

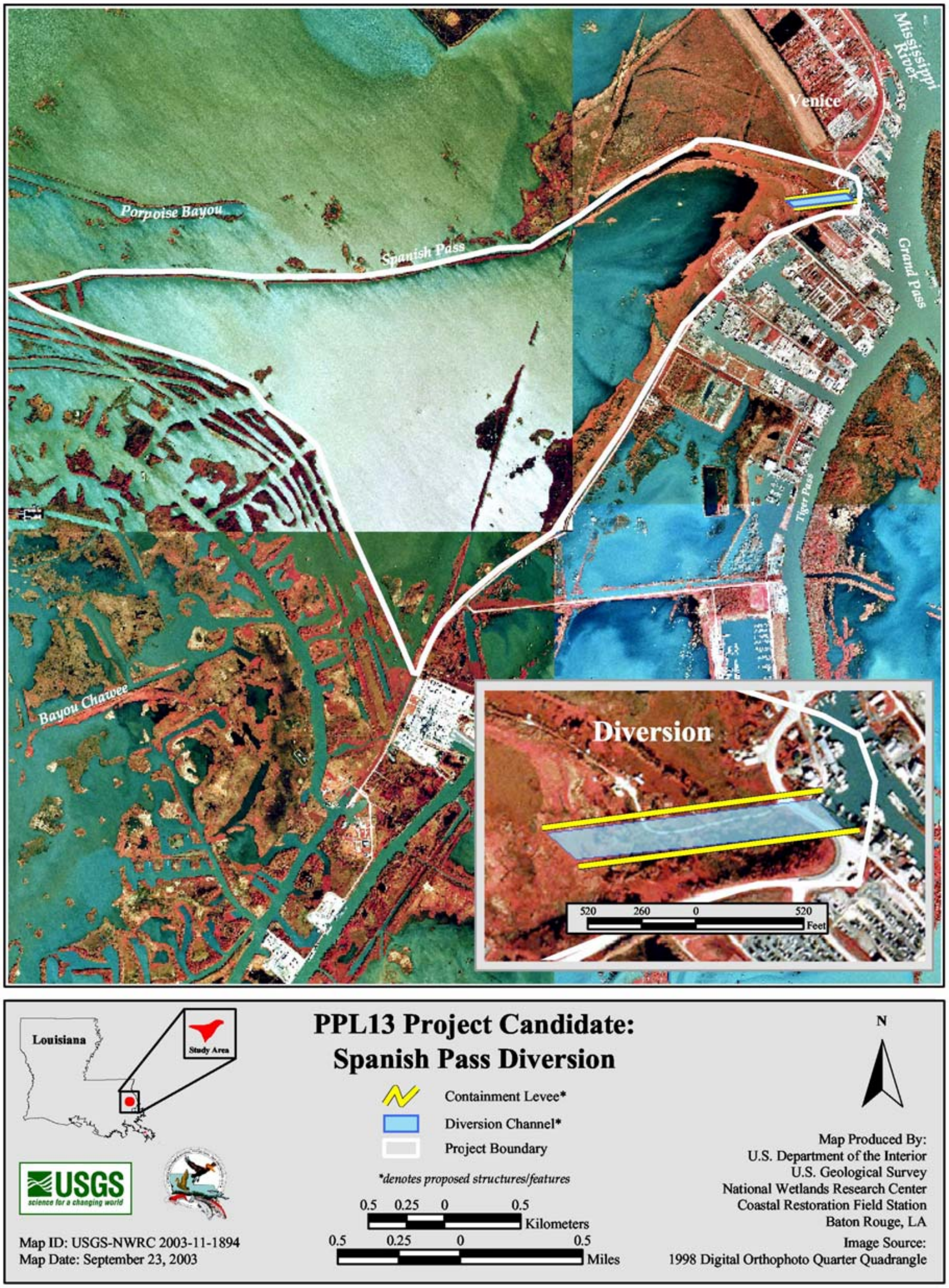
Proposed Solution: The project involves constructing a 7,000 cfs diversion channel from Grand Pass (a distributary of the Mississippi River) into the large open water receiving area shown on the project map. Outfall management measures will be evaluated and incorporated to increase benefits to aquatic habitats in the system.
Project features include:
1. 1,300 lf of diversion channel with containment levees
2. A bridge at Tidewater Road

Project Benefits: The project would benefit approximately 1,580 acres of fresh marsh and open water. Approximately 433 acres of marsh would be created/protected over the 20-year project life.

Project Costs: Total fully funded cost = $13,927,800.
Fully funded first cost = $12,261,000.

Risk/Uncertainty and Longevity/Sustainability: There is a moderate degree of risk associated with this project because of the uncertainty of the exact quantity of marsh that will be created. The project should continue providing benefits 30 – 40 years after construction because it is an open channel diversion and has adequate O&M funds budgeted.

Sponsoring Agency/Contact Person: U.S. Army Corps of Engineers
Chris Monnerjahn (504) 862-2415; chris.j.monnerjahn@mvn02.usace.army.mil


Mississippi River
Venice
Porpoise Bayou
Spanish Pass
Grand Pass
Tiger Pass
Bayou Chawee
Diversion
520 260 0 520
Feet
Louisiana
Study Area
PPL13 Project Candidate:
Spanish Pass Diversion
Containment Levee*
Diversion Channel*
Project Boundary
*denotes proposed structures/features
N
USGS
science for a changing world
0.5 0.25 0 0.5
Kilometers
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Miles
Map ID: USGS-NWRC 2003-11-1894
Map Date: September 23, 2003
Map Produced By:
U.S. Department of the Interior
U.S. Geological Survey
National Wetlands Research Center
Coastal Restoration Field Station
Baton Rouge, LA
Image Source:
1998 Digital Orthophoto Quarter Quadrangle

Project Name: Bayou Sale Shoreline Protection (T/V 20)

Coast 2050 Strategies: 1) Protect bay shorelines; 2) Protection of ridge function; 3) Beneficial use of dredged material.

Project Location: Region 3, Teche/Vermilion Basin, St. Mary Parish, along the eastern shoreline of East Cote Blanche Bay from British American Canal to the mouth of Bayou Sale.

Problem: Eroding shoreline at an estimated rate of 13.5 ft/yr caused by the open water fetch and resulting wave energy from East Cote Blanche Bay. The retreating shoreline has resulted in a substantial loss of live oak forest, emergent wetlands and critical habitat used by a multitude of fish and wildlife species including the endangered black bear.

Goals: The goal of this project is to reduce and/or reverse shoreline erosion and create marsh between the breakwater and existing shoreline.

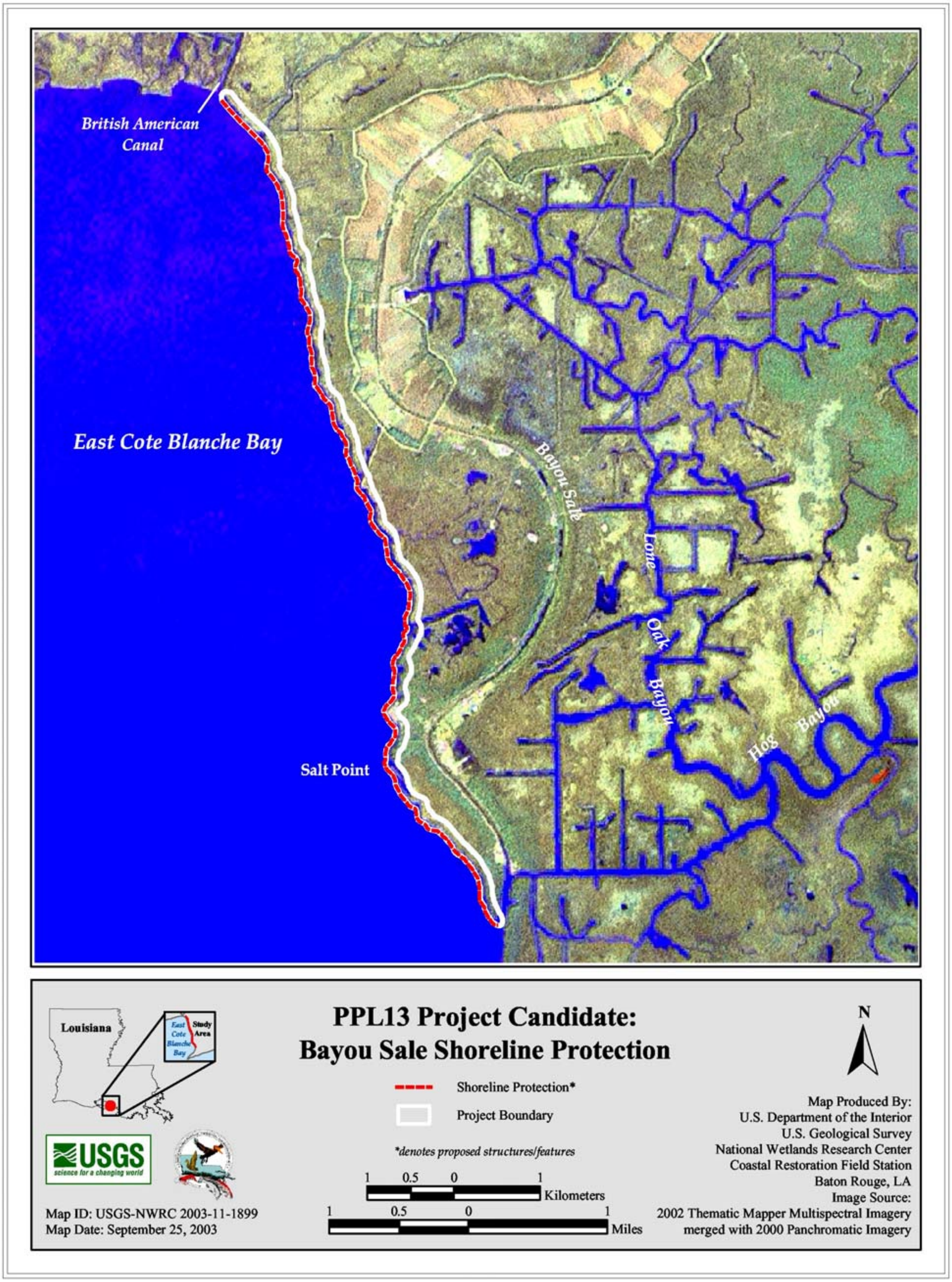
Proposed Solution: Construction of a foreshore rock dike parallel to and approximately 150 feet out from the existing eastern shoreline of East Cote Blanche Bay. The linear footage of shoreline is approximately 35,776 feet. The rock dike will be tied into the banks of all substantial channels. Smaller channels and sloughs will have provisions for adequate drainage and aquatic organism access via openings through the dredge material and gaps in the dike. It is anticipated that approximately 123 acres of marsh will be created with the fill material from dredging of an access channel to accommodate construction equipment.

Project Benefits: The project would benefit 312 acres of marsh and 58 acres of bottomland hardwoods. Approximately 329 acres of marsh and bottomland hardwoods would be created and/or protected over the 20-year project life.

Project Costs: Total fully funded cost = $32,103,000.
Fully funded first cost = $22,885,300.

Risk/Uncertainty and Longevity/Sustainability: There is a low degree of risk associated with this project because rock dikes are an effective technique for stopping shoreline erosion. The project should continue providing benefits 30 – 40 years after construction because adequate O&M funds are budgeted.

Sponsoring Agency/Contact Person: USDA, Natural Resources Conservation Service
Mike Carloss (337) 291-3063; michael.carloss@la.usda.gov
Loland Broussard (337) 291-3069; loland.broussard@la.usda.gov


British American Canal
East Cote Blanche Bay
Bayou Sale
Lone Oak Bayou
Hog Bayou
Salt Point
Louisiana
East Cote Blanche Bay
Study Area
PPL13 Project Candidate:
Bayou Sale Shoreline Protection
Shoreline Protection*
Project Boundary
*denotes proposed structures/features
N
1 0.5 0 1 Kilometers
1 0.5 0 1 Miles
Map Produced By:
U.S. Department of the Interior
U.S. Geological Survey
National Wetlands Research Center
Coastal Restoration Field Station
Baton Rouge, LA
Image Source:
2002 Thematic Mapper Multispectral Imagery
merged with 2000 Panchromatic Imagery
USGS
science for a changing world
Map ID: USGS-NWRC 2003-11-1899
Map Date: September 25, 2003

Project Name: Whiskey Island Back Barrier Marsh Creation (TE-50)

Coast 2050 Strategy: Regional #14 - Restore and maintain the barrier islands and gulf shoreline such as Isle Dernieres, Timbalier barrier island chains, Marsh Island, Point au Fer, and Cheniere au Tigre (including backbarrier beaches).

Project Location: Region 3, Terrebonne Basin, Terrebonne Parish, Lake Pelto Mapping Unit, north of the previous restoration project (TE-27).

Problem: Gulfside and bayside erosion combined has resulted in Whiskey Island (and the entire Isles Dernieres) narrowing as the two shorelines migrate toward each other, resulting in a 68% decrease in average width for the Isles Dernieres (McBride and Byrnes 1997). Within 100 years, the entire subaerial portion of the of the Isles Dernieres barrier island system is projected to disappear except small land fragments associated with the western end of Whiskey Island and the eastern end of East Island. However, if the area change extrapolation method is used, the Isles Dernieres are projected to disappear much earlier, in 2017 (McBride and Byrnes 1997). Other predictions suggest that without restoration, the island would become subaqueous sand shoals between 2007 (McBride et al. 1991) and 2019 (Penland et al. 1988). In June, 2000 a CWPPRA restoration project (TE-27) was completed here, including dredging/placement (February, 1998), vegetative planting (July, 1998 and June, 1999), and sand fencing (June 2000).

Goals: 1) To create approximately 300 acres of backbarrier, intertidal marsh; 2) To create a minimum of six 1-acre tidal ponds and 10,000 ft of tidal creeks; 3) To increase the longevity of the previously-restored and natural portions of the island by increasing the island width; 4) To maintain the longevity of the island by conserving sand volume and elevation by increasing the island width.

Proposed Solution: Approximately 300 acres of intertidal, back barrier marsh would be created by semi-confined disposal and placement of dredged material to +2 ft NAVD 88 (! 0.5ft). A minimum of six 1-acre tidal ponds and 10,000 ft of tidal creeks would be constructed. The area would be planted with smooth cordgrass (*Spartina alterniflora)*. The boundary of the disposal area generally would follow the –3.5' contour. Because the project only involves marsh creation, high quality sand is not needed. This will allow sediment to be mined from a sediment source nearer the island than Ship Shoal, for example. A large area of silty sand lies directly to the south of the island, at a distance of three or four kilometers, at a depth of two to four meters.

Project Benefits: The project would benefit about 1,038 acres of barrier island habitat. Approximately 272 acres of intertidal saltmarsh would be created/protected over the 20-year project life.

Project Costs: Total fully funded cost = $21,786,300.
Fully funded first cost = $21,645,900.

Risk/Uncertainty and Longevity/Sustainability: There is a high degree of risk associated with this project because barrier islands have high loss rates due to their role in absorbing/dissipating energy from the Gulf. The project should continue providing benefits 20 – 30 years after construction.

Sponsoring Agency/Contact Person: U.S. Environmental Protection Agency
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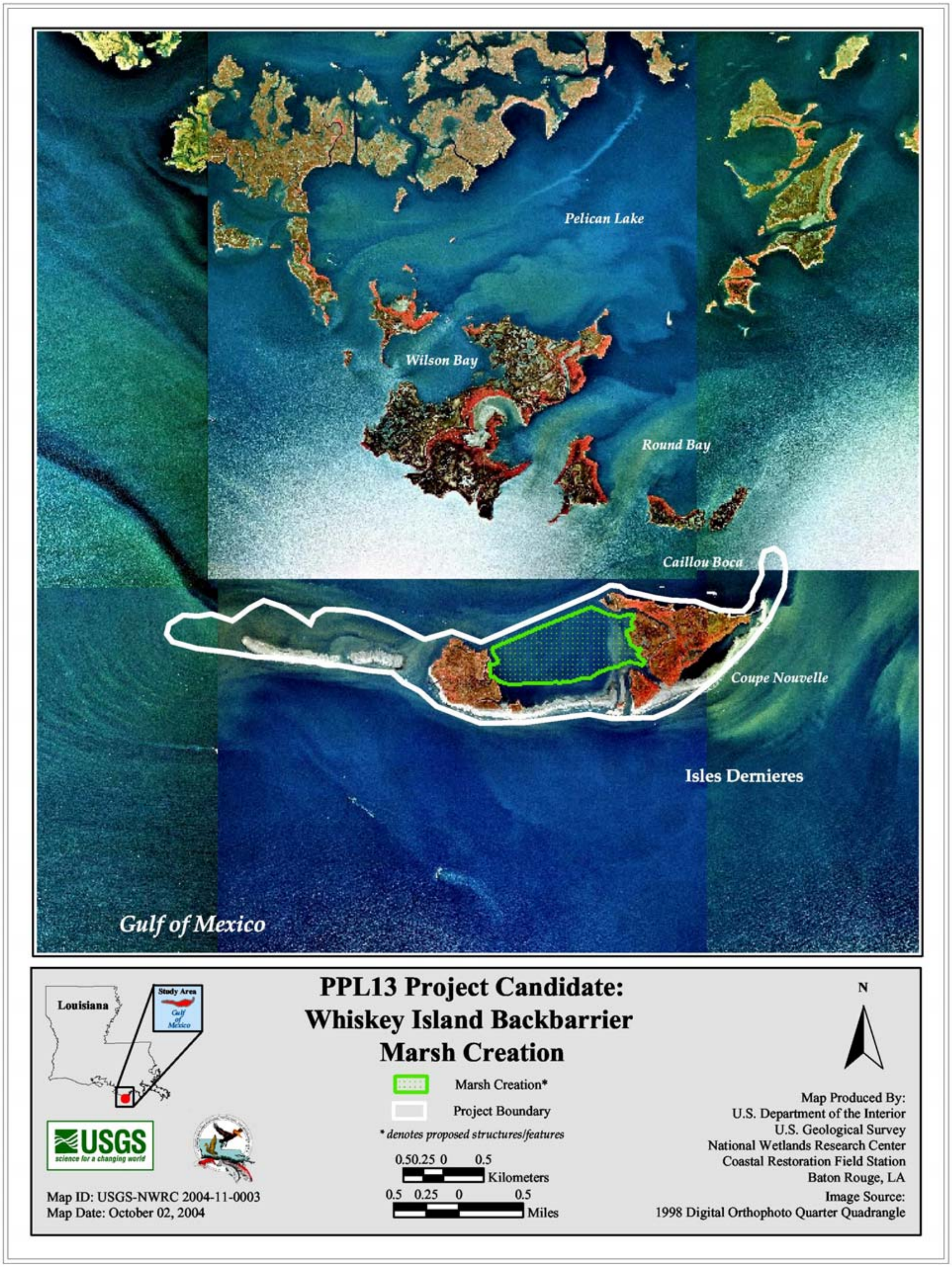
Brad Crawford (214) 665-7255; landers.timothy@epa.
Patricia Taylor (214) 665-6403; crawford.brad@epa.gov


Pelican Lake
Wilson Bay
Round Bay
Caillou Boca
Coupe Nouvelle
Isles Dernieres
Gulf of Mexico
PPL13 Project Candidate:
Whiskey Island Backbarrier
Marsh Creation
Louisiana
Study Area
N
Marsh Creation*
Project Boundary
* denotes proposed structures/features
0.50.25 0 0.5
Kilometers
0.5 0.25 0 0.5
Miles
USGS
science for a changing world
Map ID: USGS-NWRC 2004-11-0003
Map Date: October 02, 2004
Map Produced By:
U.S. Department of the Interior
U.S. Geological Survey
National Wetlands Research Center
Coastal Restoration Field Station
Baton Rouge, LA
Image Source:
1998 Digital Orthophoto Quarter Quadrangle

Project Name: Shoreline Protection Foundation Improvements Demonstration Project (LA-06)

Coast 2050 Strategy: n/a

Project Location: n/a

Problem: Poor soil conditions in coastal Louisiana limit the effectiveness of shoreline protection dikes because of high rates of subsidence. High subsidence rates require frequent and expensive project maintenance, lowering overall project cost effectiveness.

Goals: The goal of the project is to bring shoreline protection into the realm of feasibility by investigating a ground improvement method to reduce subsidence. Shoreline protection is currently challenged in terms of cost effectiveness over a 20-yr project life cycle.

Proposed Solution: The objective is to develop foundation improvements using a sand foundation beneath rock dikes for application in coastal Louisiana to demonstrate alternative means to achieve bearing capacity and consolidation settlement design tolerances in ways that lessen 20-year project life cycle costs, as compared to traditional approaches. This demonstration project is proposed to "piggy back" on a funded shoreline protection project, to be selected by the Task Force, which uses a traditionally designed and constructed rock dike section. The potential test region would be in an environment where soil conditions are very poor, the wave climate is harsh, and wetland loss is high. This demonstration project proposes seven sections, which would each be approximately 300 feet long. The first section is a reference section to the ground improvement test sections, having an unimproved foundation. The remaining six sections would consist of a sand foundation involving two construction methods. In the first construction case, containing 3 sections, the sand will displace the soft material near the surface. In the second construction case, containing 3 sections, the soft material near the surface will be dredged prior to sand placement. All of these sections will be instrumented with settlement plates, inclinometers, and extensometers to determine the effectiveness of these foundation improvements.

Project Benefits: From the results of this proposed demonstration project, a more effective and economical method can be established in the design and construction of shoreline protection. Therefore, shoreline protection could be provided in areas not currently protected due to project cost limitations, thus protecting precious wetlands by preventing coastal erosion and aiding in marsh creation.

Project Costs: Total fully funded cost = $1,000,000.
Fully funded first cost = $1,000,000.

Sponsoring Agency/Contact Person: U.S. Army Corps of Engineers
Chris Monnerjahn (504) 862-2415; chris.j.monnerjahn@mvn02.usace.army.mil
Julie L. Oliphant (504) 862-2035; julie.l.oliphant@mvn02.usace.army.mil
Gretchen S. Hammond (504) 862-1659; gretchen.s.hammond@mvn02.usace.army.mil

VI. SUMMARY AND CONCLUSIONS

The 13th PPL consists of 4 projects, for a Phase I cost of $7,616,745 and a Phase II cost of $81,947,755, which will be funded as these projects mature. The total benefits of the projects are estimated to be 821 AAHUs, based on a comparison of future with and without-project conditions over the 20 year project life. The 13th PPL also includes one demonstration project with a fully funded cost of $1,000,000.

The CWPPRA Task Force believes the recommended projects represent the best strategy for addressing the immediate needs of Louisiana's coastal wetlands. The CWPPRA 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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PLATE 1. SUMMARY OF PROJECTS 1-13 PRIORITY PROJECT LIST

1st Priority Project List (deauthorized = underlined)

Environmental Protection Agency
TE-20 Eastern Isle Derniers Barrier Island Restoration Demonstration
U.S. Department of the Army
MR-3 West Bay Sediment Diversion
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

2nd Priority Project List

Environmental Protection Agency
XTE-41 Isle Derniers 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 Vermilion Bay / Boston Canal Shoreline Stabilization
BS-3a Caernarvon Diversion Outfall Management
U.S. Department of the Interior
XPO-52b Bayou Sauvage NWR Hydrologic Restoration

3rd 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 Timabalier Sediment Restoration
PTE-23 Lake Chapeau Marsh Creation and Hydrologic Restoration, Pointe au Fer Isl
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

4th 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

5th Priority Project List

Environmental Protection Agency

PBA-20 Bayou Lafourche Siphon Inc. (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 Vermilion 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

6th 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 E. of the Atchafalaya River – Avoca Island (increment II)

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 Crevasses

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

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

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

Te-36 Thin Mat Flotant Marsh (DEMO)

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, Shoreline Protection, Phase 2 Increment A

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

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

(These projects were merged with XBA-63 after PPL 8 approval and are subsequently numbered as XBA-63)

PME-15 Humble Canal Hydrologic Restoration

PBS-1 Upper Oak River Freshwater Introduction Siphon

PTV-20 Lake Portage Land Bridge Phase 1

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. Phillip

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. Phillip

CS-32 East Sabine Lake Hydrologic Restoration (with Terraces)

11th Priority Project List

Environmental Protection Agency

PO-29 Diversion into Maurepas Swamp
PO-31 or PO-11-1 Lake Borgne Shoreline Protection at Bayou Dupre
(This project was merged with PO-30 after PPL 11 approval and is subsequently numbered as PO-30)
TE-47 Ship Shoal: West Flank Restoration

U.S. Department of the Army

ME-21 Grand Lake Shore Protection

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
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

12th Priority Project List

Environmental Protection Agency

BA-39 Bayou Dupont Marsh Creation

U.S. Department of the Army

TE-49 Avoca Island Diversion and Land Building
PO-32 Lake Borgne and MRGO Shoreline Protection
ME-22 South White Lake Shoreline Protection
MR-12 Mississippi River Sediment Trap

U.S. Department of Agriculture

LA-05 Freshwater Floating Marsh Demonstration

13th Priority Project List

Environmental Protection Agency

TE-50 Whiskey Island Back Barrier Marsh Creation

U.S. Department of the Army

MR-14 Spanish Pass Division
LA-06 Shoreline Protection Foundation Improvements Demonstration

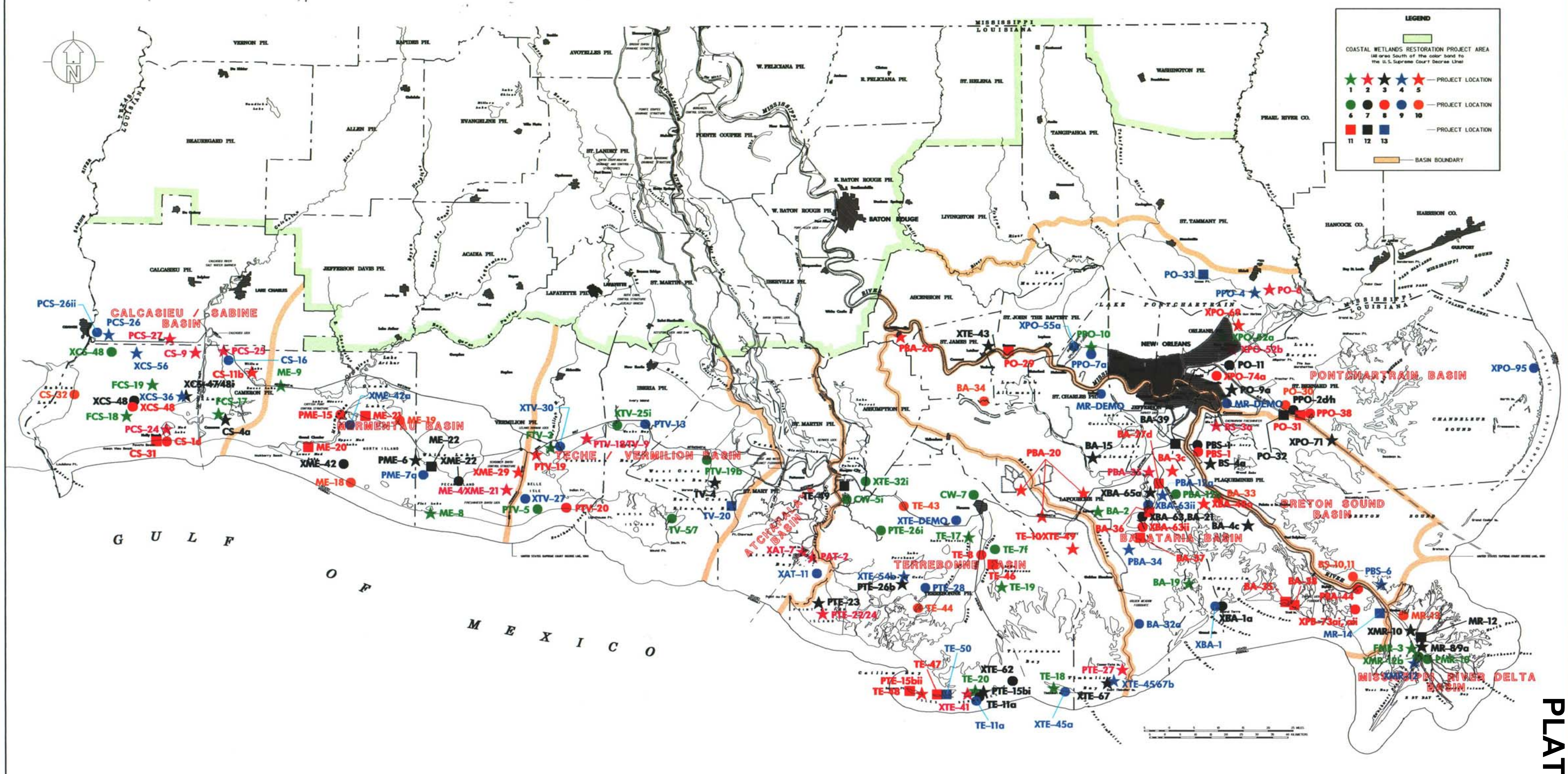
U.S. Department of Agriculture

T/V-20 Bayou Sale Ridge Protection

U.S. Department of the Interior

PO-33 Goose Point/Point Platte Marsh Creation

PLATE 2



1st thru 13th Priority Project List

COASTAL WETLANDS PLANNING, PROTECTION AND RESTORATION ACT