



18th PRIORITY PROJECT LIST REPORT

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LOUISIANA COASTAL WETLANDS CONSERVATION AND RESTORATION
TASK FORCE

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Coastal Wetlands Planning, Protection and Restoration Act

18th 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 production and 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. Annual wetland losses in the state were 24 square miles per year from 1990 to 2000. From 2000 to 2050, 513 square miles are projected to be lost. In addition, significant land losses possibly occurred from the fall of 2004 to the fall of 2005 due to Hurricanes Katrina and Rita, a total of 118 square miles of new water appeared. 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 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. An 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 18th 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, which if all implemented could maintain a self-sustaining ecosystem along the Louisiana coast. 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

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 four regions with nine hydrologic basins (Plate 1). Plate 2 contains a listing of project names for each PPL, referenced by number and grouped by sponsoring agency. A map of the Louisiana coastal zone is presented in Plates 3-7, indicating project locations by number of Priority Project Lists 1 through 18. All Plates can be found at the end of this report.

STUDY PROCESS

The Interagency Planning Groups. Section 303(a)(1) of the CWPPRA directs the Secretary of the Army to convene the Louisiana Coastal Wetlands Conservation and Restoration Task Force (the 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 agency 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 U.S. Army Corps of Engineers (USACE) New Orleans District to act in his place as chairman of the Task Force. The other federal agencies on the CWPPRA Task Force include: U.S. Fish and Wildlife Service (USFWS) of the U.S. Department of Interior, the Natural Resources Conservation Service (NRCS) of the U.S. Department of Commerce, and the U.S. Environmental Protection Agency (USEPA).

The Governor's Office of the State of Louisiana represents the state as a Task Force member.

The Task Force established the Technical Committee and the Planning and Evaluation (P&E) 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 P&E 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 P&E 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 and design 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.

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 (WVAs). This Academic Advisory Group (AAG) also assisted 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 (LDNR)*)
- The Mississippi River Sediment, Nutrient, and Freshwater Redistribution study – March 1995 – July 2000 (managed by the USACE)

Public Involvement. 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 annually 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.

* BECAUSE OF THE DEVASTATION OF HURRICANES KATRINA AND RITA, IN DECEMBER 2005, THE LOUISIANA LEGISLATURE RESTRUCTURED THE STATE'S WETLAND CONSERVATION AND RESTORATION AUTHORITY TO FORM THE COASTAL PROTECTION AND RESTORATION AUTHORITY (CPRA). AGENCIES IN THE CPRA MEMBERSHIP INCLUDE LOUISIANA DEPARTMENT OF NATURAL RESOURCES (LDNR).

II. PLAN FORMULATION PROCESS FOR THE 18TH PRIORITY PROJECT LIST

IDENTIFICATION & SELECTION OF CANDIDATE & DEMONSTRATION PROJECTS

Regional Planning Team (RPT) meetings were held during the period of February 19 through February 21, 2008 to provide a forum for the public and their local government representatives to identify potential projects for implementation under the priority list process. The RPT met to examine basin maps, discuss areas of need and Coast 2050 strategies, and to propose projects and demonstration projects. A separate coast-wide voting meeting was held on March 5, 2008 for the 18th PPL to choose no more than two projects per hydrologic basin, as per the accepted process. In reality one project was selected from Mississippi River and Atchafalaya Basins and three projects were selected from Breton Sound, Barataria, Terrebonne, and Calcasieu/Sabine Basins because of the high loss rates in those basins. In addition, six demonstration projects were selected as nominees. A total of twenty projects and six demonstration projects were nominated. A schedule of meetings is shown in Table 1.

Table 1: RPT Meetings to Propose/Nominate Projects

Region 1: New Orleans, LA	February 21, 2008
Region 2: New Orleans, LA	February 21, 2008
Region 3: Morgan City, LA	February 20, 2008
Region 4: Rockefeller Refuge, LA	February 19, 2008
Coast-wide Voting Meeting, Baton Rouge, LA	March 5, 2008

The Engineering and Environmental Work Groups and the AAG met April 2 through April 3, 2008 to review and reach consensus on preliminary project features, benefits, and fully-funded cost estimates for the twenty nominated projects. The Engineering and Environmental Work Groups also identified any potential issues associated with each nominee. The P&E Subcommittee prepared a matrix of nominated projects' cost estimates and benefits and furnished it to the Technical Committee and Coastal Protection Restoration Authority (CPRA) on April 9, 2008. The matrix is included as Table 2.

Table 2a: 18th Project Priority List - Candidate Nominee Project Matrix by Basin

Rg.	Basin	Type	Project	Preliminary Fully-Funded Cost Range	Preliminary Benefits (Net Acres Range)	Potential Issues				
						Oysters	Land Rights	Pipelines/Utilities	O&M	Other Issues
1	PO	DV	Parish-Line Canal Freshwater and Sediment Delivery	\$30M - \$35M	400 - 450		X	X		X
1	PO	MC	Bayou Bienvenue Restoration	\$30M - \$35M	400 - 450		X	X		X
2	MR	DV/MC	Pass a Loutre Restoration Project	\$25M - \$30M	1300 - 1350			X		X
2	BS	DV	Bertrandville Siphon	\$15M - \$20M	550 - 600		X	X	X	
2	BS	MC	Breton Marsh Restoration	\$35M - \$40M	450 - 500			X		
2	BS	DV	Baptiste Collette Bayou Crevasses	\$0M - \$5M	500 - 550			X		X
2	BA	MC	Elmer's Island Headland Restoration	\$35M - \$40M	200 - 250	X		X		
2	BA	MC	Bayou L'Ours Ridge Restoration and Marsh Creation	\$20M - \$25M	150 - 200			X		
2	BA	MC	Grand Liard Marsh and Ridge Restoration	\$30M - \$35M	250 - 300		X	X		
3	TE	SP/MC	Terrebonne Bay Shoreline Protection/Marsh Creation	\$25M - \$30M	250 - 300	X		X		
3	TE	SP/MC	Lake Boudreaux-Lake Quitman Shoreline Protection/Marsh Creation	\$25M - \$30M	150 - 200			X	X	
3	TE	HR	Central Terrebonne Freshwater Enhancement	\$20M - \$25M	500 - 550			X		
3	AT	SP	Point Chevreuil Shoreline Protection	\$15M - \$20M	100 - 150			X	X	
3	TV	VP	Northwest Vermilion Bay Vegetative Planting and Maintenance	\$0M - \$5M	50 - 100		X			
3	TV	SP	Marone Point Shoreline Protection	\$15M - \$20M	200 - 250			X	X	
4	CS	DV	Cameron-Creole Freshwater Introduction	\$15M - \$20M	400 - 450					
4	CS	TR	Black Bayou Terraces	\$15M - \$20M	250 - 300					
4	CS	MC	East Cove Marsh Creation Project	\$15M - \$20M	500 - 550	X				
4	ME	MC	Freshwater Bayou Marsh Creation	\$15M - \$20M	350 - 400			X		
4	ME	TR	Terracing at Dyson's Ditch	\$10M - \$15M	150 - 200					

Basin codes are: PO=Pontchartrain; BS=Breton Sound; MR=Mississippi River Delta; BA=Barataria; TE=Terrebonne; AT=Atchafalaya; TV=Teche/Vermilion; ME=Mermentau; CS=Calcasieu/Sabine.

Type codes: CP=Conservation Plan; DM=Demo; FD=Freshwater Diversion; HC=Herbivory Control; HR=Hydrologic Restoration; MC=Marsh Creation; MM=Marsh Management; MT=Monitoring; OF=Outfall Management; O&M= Operation and Maintenance; SP=Shoreline Protection; ST=Sediment/Nutrient Trapping; TR=Terracing; BI=Barrier Island; DV=Diversion; VP=Vegetative Plantings.

Table 2b: 18th Project Priority List Demonstration Nominee Project Matrix

Demonstration Project Name	Meets Demonstration Project Criteria?	Lead Agency	Total Fully-Funded Cost	Technique Demonstrated
Benefits of Limited Design/Unconfined Disposal Demonstration	Yes	EPA	\$1,500,000	Demonstrate and quantify specific benefits of limited-design, unconfined beach/subtidal Gulf sand nourishment of barrier islands by use of sediment tracers and modeling.
EcoSystems Wave Attenuator for Shoreline Protection Demonstration	Yes	NRCS	\$1,500,000	Manufacture, deploy, and test an alternative method of shoreline protection in areas where site conditions limit or preclude traditional methods.
Submersible Concrete Barge Breakwater Demonstration	Yes	USFWS	\$2,500,000	Manufacture, deploy, and test performance of concrete breakwater structures as an alternative to rock breakwaters in areas where site conditions limit or preclude traditional methods.
Non-Rock Alternatives to Shoreline Protection Demonstration	Yes	NRCS	\$1,000,000	Manufacture, deploy, and test alternative methods of shoreline protection in areas where site conditions limit or preclude traditional methods.
BioRock Reef Demonstration	Yes	NOAA	\$866,888	Test effectiveness of initiating reef conditions using a metal mesh structure and electromagnetic currents. Test their ability to reduce shoreline erosion and to withstand coastal LA conditions.
Bayou Backer Demonstration	Yes	NOAA	\$330,000	Evaluate effectiveness of bio-grass in reducing shoreline erosion.

At the February 13, 2008 Task Force meeting, the Task Force decided to allow ten candidate projects to be considered under PPL18. The CWPPRA Technical Committee met publicly on April 16, 2008 to consider the preliminary costs, wetland benefits, and potential issues of the twenty nominees. Ten candidate projects were selected for detailed assessment by the Environmental, Engineering, and Economic Work Groups, and the AAG (Table 4).

Phase 0 analysis of the ten candidate projects took place from May 2008 through September 2008. Interagency field visits were conducted during May 2008 at each project site/area with members of the Engineering and Environmental Work Groups, and the AAG. The Environmental and Engineering Work Groups and AAG met to refine the projects and develop boundaries on June 24, 2008, based on site visits. Detailed project information packages were developed by the Environmental, Engineering, and Economics Work Groups. These packages included fact sheets addressing "compatibility with Coast 2050," Project Information Sheets containing the benefits analyses, Preliminary Engineering and Design Reports containing the preliminary design and cost estimates, and Economic Analyses containing fully-funded twenty-year project costs. On August 12 through August 14, 2008, the Engineering Work Group met to review and approve the Phase I and II cost estimates developed by the agencies for the ten PPL18 candidates and three PPL18 demonstration candidates. In September 2008, the Environmental Work Group finalized WVAs for each project. The Engineering Work Group reviewed and finalized the final project cost estimates for each project on September 17, 2008.

The Environmental and Engineering Work Groups and AAG reviewed and approved prioritization fact sheets and scores for each of the candidate projects at meetings on September 22-23, 2008. The Environmental and Engineering Work Groups and AAG also met on September 23, 2008 to evaluate and rank the three demonstration projects. The Economics Work Group reviewed cost estimates and developed annualized costs in the month of October 2008.

Demonstration projects were evaluated using defined parameters. Within each of

these parameters a project was graded as low, medium or high and assigned point scores of 1, 2, or 3, respectively. The summary of the evaluation from the Environmental and Engineering Work Groups and AAG is shown in Table 3.

The parameters used to evaluate the demonstration projects were:

(P₁) Innovativeness - The demonstration project should contain technology that has not been fully developed for routine application in coastal Louisiana or in certain regions of the coastal zone. The technology demonstrated should be unique and not duplicative in nature to traditional methods or other previously tested techniques for which the results are known. Techniques which are similar to traditional methods or other previously tested techniques should receive lower scores than those which are truly unique and innovative.

(P₂) Applicability or Transferability - Demonstration projects should contain technology which can be transferred to other areas of the coastal zone. However, this does not imply that the technology must be applicable to all areas of the coastal zone. Techniques, which can only be applied in certain wetland types or in certain coastal regions, are acceptable but may receive lower scores than techniques with broad applicability.

(P₃) Potential Cost Effectiveness - The potential cost-effectiveness of the demonstration project's method of achieving project objectives should be compared to the cost-effectiveness of traditional methods. In other words, techniques which provide substantial cost savings over traditional methods should receive higher scores than those with less substantial cost savings. Those techniques which would be more costly than traditional methods, to provide the same level of benefits, should receive the lowest scores. Information supporting any claims of potential cost savings should be provided.

(P₄) Potential Environmental Benefits - Does the demonstration project have the potential to provide environmental benefits equal to traditional methods? Somewhat less than traditional methods? Above and beyond traditional methods? Techniques with the potential to provide benefits above and beyond those provided by traditional techniques should receive the highest scores.

(P₅) Recognized Need for the Information to be Acquired - Within the restoration community, is there a recognized need for information on the technique being investigated? Demonstration projects which provide information on techniques for which there is a great need should receive the highest scores.

(P₆) Potential for Technological Advancement - Would the demonstration project significantly advance the traditional technology currently being used to achieve project objectives? Those techniques which have a high potential for completely replacing an existing technique at a lower cost and without reducing wetland benefits should receive the highest scores.

Table 3: Review of 18th Priority Project List Candidate Demonstration Projects

Demonstration Project Name	Total Fully-Funded Cost	Parameter (Pn)						Total Score
		P ₁	P ₂	P ₃	P ₄	P ₅	P ₆	
EcoSystems Wave Attenuator for Shoreline Protection Demonstration	\$1,857,009	3	3	2	2	3	2	15
Benefits of Limited Design-Unconfined Disposal Demonstration	\$1,828,708	2	2	2	1	2	2	11
Non-Rock Alternatives to Shoreline Protection Demonstration	\$1,906,237	3	3	2	2	3	2	15

Demonstration Project Parameters: (P₁) Innovativeness; (P₂) Applicability or Transferability; (P₃) Potential Cost Effectiveness; (P₄) Potential Environmental Benefits; (P₅) Recognized Need for the Information to be Acquired; (P₆) Potential for Technological Advancement. Parameter Grading as to effect: 1= low; 2 = medium; 3 = high

The Environmental and Engineering Work Groups prepared a candidate project information package for the CWPPRA Technical Committee, consisting of updated Project Information Sheets and matrix. The matrix included average annual habitat units (AAHUs), acres created, restored, and/or protected, prioritization score, and costs. The matrix is included as Table 4.

Table 4: 18th Priority Project List Candidate Project Evaluation Matrix

Project Name	AAHUs	WVA Net Acres	Prioritization Score	Total Fully-Funded Cost	Average Annual Cost (AAC)	Cost Effectiveness (AAC/AAHU)
Bayou Bienvenue Restoration	84	341	34.3	\$38,964,185	\$3,056,458	\$36,386
Bertrandville Siphon	965	1,612	60.3	\$22,578,278	\$1,703,213	\$1,765
Grand Liard Marsh and Ridge Restoration	158	286	45.8	\$31,390,699	\$2,458,912	\$15,563
Pass a Loure Restoration	724	1,133	62.3	\$34,383,309	\$2,705,229	\$3,737
Elmer's Island Headland Restoration	116	174	53.3	\$32,342,474	\$2,536,751	\$21,869
Terrebonne Bay Shoreline Protection/Marsh Creation	91	180	37.4	\$32,720,525	\$2,249,142	\$24,716
Central Terrebonne Freshwater Enhancement	470	456	57.3	\$16,640,120	\$1,242,598	\$2,644
Northwest Vermilion Bay Vegetative Plantings	27	65	38.0	\$2,562,045	\$169,090	\$6,263
Freshwater Bayou Marsh Creation	131	274	43.8	\$30,578,295	\$2,354,874	\$17,976
Cameron-Creole Freshwater Introduction	524	473	51.1	\$12,787,044	\$884,604	\$1,688

Two public meetings were held in Abbeville, LA, and New Orleans, LA, respectively, November 18 and 19, 2008, to present projects to the public for comment.

The CWPPRA Technical Committee met on December 3, 2008 to select projects for recommendation to the CWPPRA Task Force for Phase I funding. Each agency cast a total of six weighted votes, used to rank the ten candidate projects. Projects were ranked by number of agency votes first and total weighted score second. The top four projects were

selected for recommendation to the CWPPRA Task Force for Phase I funding approval. The Technical Committee also ranked the three demonstration projects. Each agency cast one weighted vote, used to rank the three demonstration projects. The Technical Committee recommended one demonstration project to the CWPPRA Task Force for funding. The results of the CWPPRA Technical Committee vote are outlined in Table 5. On January 21, 2009, the CWPPRA Task Force reviewed the Technical Committee recommendations and moved to adopt the recommendation without change.

Table 5: 18th Priority Project List Candidate Selection Process – Agency Voting Record

*Project No.	Nominee Project Name	Coast 2050 Region	COE	STATE	EPA	FWS	NRCS	NMFS	No. of Votes	Sum of Point Score
CS-49	Cameron-Creole Freshwater Introduction	R4	1	5	5	4	4	6	6	25
BA-68	Grand Liard Marsh and Ridge Restoration	R2	6	2	3	3	5	1	6	20
BS-18	Bertrandville Siphon	R2		6	6	6	6	4	5	28
TE-66	Central Terrebonne Freshwater Enhancement	R3	3	3		1	1	5	5	13
+	Freshwater Bayou Marsh Creation	R4	2	4	2			3	4	11
+	Northwest Vermilion Bay Vegetative Plantings	R3			1		3	2	3	6
+	Pass a Loutre Restoration	R2	4			5			2	9
+	Bayou Bienvenue	R1	5	1					2	6
+	Elmer's Island Headland Restoration	R2			4		2		2	6
+	Terrebonne Bay SP/MC	R3				2			1	2

Demonstration Projects

*Project No.	Demonstration Project Name	Coast 2050 Region	COE	STATE	EPA	FWS	NRCS	NMFS	No. of Votes
LA-16	Non-Rock Alternatives to Shoreline Protection Demonstration	N/A		1	1	1	1	1	5
+	Benefits of Limited Design/Unconfined Disposal Demonstration	N/A	1						1
+	EcoSystems Wave Attenuator for Shoreline Protection Demonstration	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.

Projects below bolded line were not selected for funding.

+ 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 analyzing benefits of 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 USFWS (USFWS, 1980). HEP is widely used by the USFWS 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, cypress-tupelo swamp, barrier headland, barrier island, coastal chenier ridge, and bottomland hardwoods. 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 (Federal and Non-Federal)
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.

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

When reviewing the construction cost estimates, the Engineering 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 Engineering Work Group reviewed the design of the projects to determine whether the method of construction was appropriate and the design was feasible.

A 25% contingency was applied to construction, operations and maintenance costs on all projects because detailed project specific information such as soil borings, surveys, and hydrologic data were not collected. Construction unit costs, engineering and design, environmental compliance, real estate acquisition, supervision and administration, and supervision and inspection costs were reviewed for reasonableness.

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 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 three additional authorizations resulting in authority through 2019. The Consolidated Appropriations Act of 2005 (signed on December 8, 2004) provided a ten year extension of the Breaux Act Authority from 2009-2019. Prior to this ten year extension, it was expected that the funding requirements of all projects on the first 13 PPLs would exceed the anticipated funding available in the program, with a projected shortfall of nearly \$400 million. The initial purpose of the prioritization effort was to develop a process to prioritize those projects on PPLs 1-13 for which construction had not been authorized. The CWPPRA Task Force will continue to 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 is discussed in more detail in Appendix F.

- 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

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, sponsoring agency and contact persons, and a map identifying the project area and features if applicable.

Project Name: Bayou Bienvenue Restoration

Coast 2050 Strategy:

- Management of pump outfall for wetland benefits and hurricane protection
- Dedicated dredging, to create, restore, or protect wetlands;
- Dedicated delivery of sediment for building bald cypress – water tupelo swamp.

Project Location: Region 1, Pontchartrain Basin, Orleans Parish, just east of the Industrial Canal. The Bayou Bienvenue project area is approximately 348 acres, of which 340 are open water. An 85-acre tract was removed from the proposed CWPPRA project as it will be restored through the mitigation for the Inner Harbor Navigation Canal Lock Replacement.

Problem: Over the past years the wetlands in the area have been lost because of altered hydrology due to impoundment, subsidence, and saltwater intrusion. The majority of the area is very shallow open water littered with cypress logs and stumps.

Goals: The objective of this project is to create wetlands in the triangular area adjacent to the headwaters of Bayou Bienvenue. Project goals include: 1) Restoration of 348 acres of bald cypress – water tupelo swamp via dedicated dredging and planting of saplings, 2) Restoring the historic bankline along Bayou Bienvenue, and 3) Diverting treated municipal effluent from the local treatment plant to enhance the created swamp.

Proposed Solution: Dedicated dredging of sediments from Lake Borgne to create emergent wetlands in the triangular area adjacent to the headwaters of Bayou Bienvenue. Following the placement of dredged sediments and freshening through beneficial use of disinfected, secondarily treated sewage effluent, the area would be planted with bald cypress and water tupelo. The treated effluent would be provided by the New Orleans Sewage and Water Board (S&WB) sewage treatment plant, contiguous with the restoration site. The area will be monitored to optimize the correct water levels and salinities for bald cypress and water tupelo growth and regeneration. Saltwater should have less influence with the closure of Mississippi River Gulf Outlet (MRGO), and the construction of the storm gate in the triangle area of MRGO and the Gulf Intracoastal Waterway (GIWW) Individual Environmental Report (IER) 11.

Project Benefits: The project would benefit 348 acres of bald cypress – water tupelo swamp. A total of 341 net acres of wetlands would be protected/created over the 20-year project life.

Project Costs: The total fully-funded cost is \$38,964,185.




Preparer of Fact Sheet:

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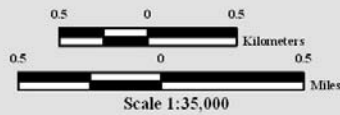


Bayou Bienvenue Restoration (PPL18 Candidate)



-  Dike *
-  Project Boundary
-  Vegetative Plantings and Marsh Creation *

* denotes proposed features



Map ID: USGS-NWRC 2009-11-0015
Map Date: October 16, 2008

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:
2005 Digital Orthophoto Quarter Quadrangles

Project Name: Bertrandville Siphon

Coast 2050 Strategy:

- Coastwide Common Strategies: Diversions and river discharge; Management of diversion outfall for wetland benefits
- Region 2 Regional Ecosystem Strategies: Strategy 8: Restore and Sustain Marshes: Construct most effective small diversions

Project Location: Region 2, Breton Sound Basin, Plaquemines Parish, near Woodlawn School

Problem: Some of the marsh lost in this area may be due to failed agricultural impoundments. In addition, this area has been disconnected from the Mississippi River since levees were constructed during the early 20th century. The lack of overbank flooding/crevasses ensures that wetlands here do not have sufficient sediment input to maintain elevation against subsidence. In addition, drainage canals, oil and gas canals and associated spoil banks probably create some undesirable impoundment and tidal scour/saltwater intrusion in the area. Finally, after Hurricane Katrina seriously damaged this area, small remnant stands of cypress trees were killed by trapped saltwater. In addition to impoundment caused by canals and spoil banks, the area is probably somewhat naturally impounded due to a natural ridge. Aerial photography clearly demonstrates the significant loss of marsh in this area. Anecdotal evidence from parish staff and photographs document the recent loss of cypress in the area.

Goals: Eliminate future wetland loss. Convert approximately 50% of the existing intermediate marsh to fresh marsh. Increase submerged aquatic vegetation in the project area by 20%.

Proposed Solution: Construct a siphon from the Mississippi River, with 2,000 cubic feet per second (cfs) maximum capacity with limited outfall management.

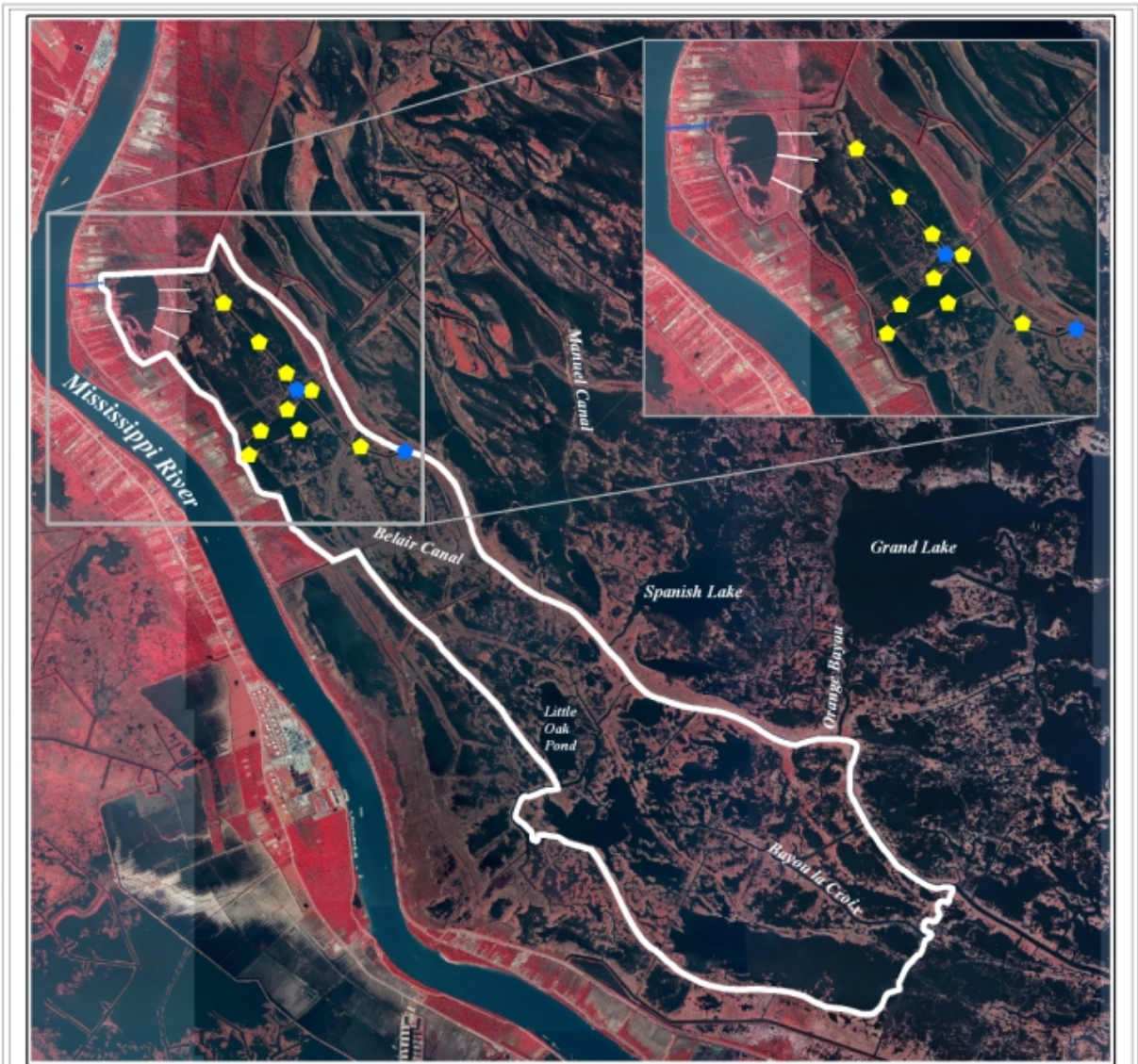
Project Benefits: The total acreage benefited directly and indirectly is estimated to be 14,574 acres. It is estimated 1,612 net acres will be created/protected over life of the project. The anticipated loss rate reduction throughout the area of direct benefits over the project life is greater than 75%. No project features maintain or restore structural components of the coastal ecosystem. The project may have a significant positive net impact on the Mississippi River levee, which is critical infrastructure. The project will provide a synergistic effect with the Caernarvon Diversion project, Caernarvon Diversion Outfall Management (BS-03a) and Caernarvon Outfall Management/Lake Lery SR (BS-16).

Project Costs: The total fully-funded cost for the project is \$22,578,278.






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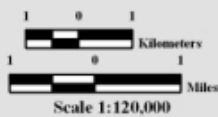
Brad Crawford, USEPA, (214) 665-7255, Crawford.Brad@epa.gov



Bertrandville Siphon (PPL18 Candidate)

-  Plug *
-  Cut *
-  Cut Through Ridge *
-  Siphon Right of Way *
-  Project Boundary

* denotes proposed features



Map ID: USGS-NWRC 2008-11-0344
Map Date: July 22, 2008



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:
2005 Digital Orthophoto Quarter Quadrangles

Project Name: Grand Liard Marsh and Ridge Restoration

Coast 2050 Strategy:

- Coastwide Common Strategies: Dedicated dredging to create, restore or protect wetlands; off-shore and riverine sand and sediment delivery systems; vegetative plantings

Project Location: Region 2, Barataria Basin, Plaquemines Parish, Bastian Bay and Grand Liard mapping units, vicinity of Triumph

Problem: The Bastian Bay and Grand Liard mapping units were historically structured by a series of north/south bayous and associated ridges (i.e., Bayou Long, Dry Cypress Bayou). Over the preceding decades the majority of these bayou ridges and the marshes flanking them have disappeared. The Grand Liard ridge is the most prominent remaining ridge and separates the open bays of the Bastian Bay and Grand Liard mapping units. Land loss projections suggest that the remaining bayou bank wetlands will be completely converted to open water by 2050. The Coast 2050 1983 to 1990 loss rate for the Grand Liard mapping unit is 1.7% per year, whereas the 1988 to 2007 loss rate for the extended project boundary is -3.3% per year and its rate of subsidence is 2.1 to 3.5 feet per century.

Goals: Project goals include 1) creating/nourishing marsh and associated edge habitat for aquatic species through pipeline sediment delivery, and 2) restoring the Grand Liard ridge to reduce wave and tidal setup and provide fallout habitat for neotropical migrant birds. Specific phase 0 goals include creating 328 acres saline marsh, nourishing 140 acres of saline marsh and constructing about 20,000 linear feet or 34 acres of maritime ridge habitat.

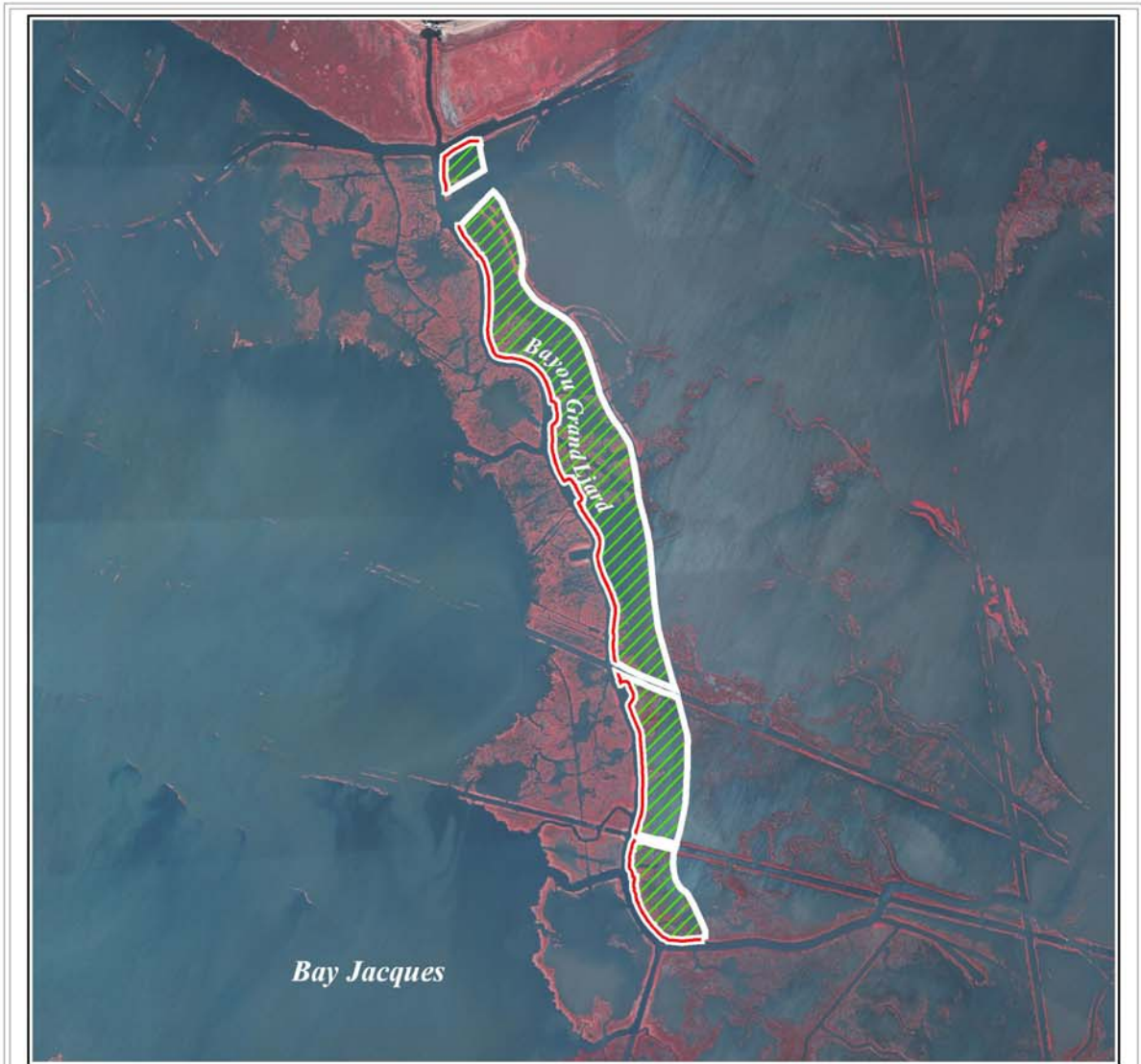
Proposed Solution: Approximately 328 acres of marsh would be created and 140 acres nourished with sediment dredged from the Mississippi River. A bucket dredge would construct approximately 34 acres on the east bank of Grand Liard Bayou with sediment dredged from the bayou. Approximately 50% of the created marsh would be planted upon construction with plugs of smooth cordgrass. The entire ridge would be planted with appropriate woody vegetation. Planting of woody species would occur after construction once appropriate soil salinities become established. High marsh species would be planted on the slopes of the ridge. After settlement containment dikes would be gapped to encourage establishment of natural marsh hydrology and fisheries support functions.

Project Benefits: The project would benefit 502 acres of saline marsh and open water. A net of approximately 252 acres of saline marsh and 34 acres of ridge would be created/protected over the 20-year project life.

Project Costs: The total fully-funded cost for the project is \$31,390,699.




Preparer of Fact Sheet:

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**Grand Liard Marsh and Ridge Restoration
(PPL18 Candidate)**



-  Ridge Restoration *
-  Marsh Creation *
-  Project Boundary

* denotes proposed features



Scale: 1:42,500



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

Map ID: USGS-NWRC 2008-11-0323
Map Date: September 18, 2008

Image Source:
2005 Digital Orthophoto Quarter Quadrangle

Project Name: Pass a Loutre Restoration

Coast 2050 Strategy:

- Regional Strategy: Continue building and maintaining delta splays

Project Location: Region 2, Mississippi River Delta Basin, Plaquemines Parish, north and south of Pass a Loutre on the Delta National Wildlife Refuge (NWR) and Pass a Loutre Wildlife Management Area (WMA).

Problem: Historically, Pass a Loutre was a major distributary of the Mississippi River at Head of Passes. This pass carried sediments that created and maintained in excess of 120,000 acres of marsh. Pass a Loutre is not a maintained navigation channel and over time has filled in considerably and carries much less flow than it did historically. As a result, much of the historic Pass a Loutre channel has silted in and is now very shallow and narrow. The decreased channel size has much less capacity to carry fresh water and sediments and marshes historically nourished by the channel are now being starved and are subsiding at an alarming rate. In addition, a hopper dredge disposal site located at the beginning of Pass a Loutre at Head of Passes has contributed to the infilling of the channel.

Goals: The goal of this project is to restore an important distributary of the Mississippi River so that it will once again create new wetlands and nourish existing marsh. Dredged material would create marsh immediately and the increased fresh water and sediment carrying capacity of the channel would create marsh over time and increase the abundance and diversity of submerged aquatic vegetation.

Proposed Solution: Pass a Loutre would be dredged for approximately 5.6 miles from Head of Passes to Southeast Pass to restore channel flow to historic levels. Approximately 5 million cubic yards of material would be dredged and used to create approximately 587 acres of marsh on Delta NWR and Pass a Loutre WMA. Preliminary design includes a channel with a 300 feet bottom width and 30 feet depth. Eleven crevasses and cleanout of one existing crevasse are also proposed on Pass a Loutre WMA.

Project Benefits: The project would benefit 26,849 acres of marsh and open water habitats. A total of 1,133 net acres of marsh would be protected/created over the 20-year project life.

Project Costs: The total fully-funded cost is \$34,383,309.

Preparer of Fact Sheet:

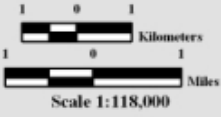
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**Pass a Loutre Restoration
(PPL18 Candidate)**



-  Crevasse *
 -  Dredged Channel *
 -  Marsh Creation *
 -  Project Boundary
- * denotes proposed features



Map ID: USGS-NWRC 2008-11-0340
Map Date: July 10, 2008



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:
2005 Digital Orthophoto Quarter Quadrangles

Project Name: Elmer’s Island Barrier Headland and Marsh Restoration Project

Coast 2050 Strategy:

- Coastwide Strategy: Dedicated dredging to create, restore, or protect wetlands
- Regional Strategy 22: Restore and maintain barrier islands and barrier shorelines

Project Location: Region 2, Barataria Basin, Jefferson Parish, located at the eastern end of the Caminada Moreau Headland and bordered by Caminada Pass on the east and the Gulf of Mexico to the south.

Problem: The Caminada-Moreau Headland is an erosive headland that experiences long-term erosion of over 40 feet per year. As the availability of sediment from long-shore transport decreases, the headland at Elmer’s Island continues to narrow. Consequently, the shoreface is mostly eroding rather than undergoing landward retreat, and is not maintaining a significant back-barrier platform to support continued landward migration. This is evident by the numerous breaches that are occurring along the Elmer’s Island shoreline as the headland continues to deteriorate.

Goals: The goals of this project are to prohibit breaches and tidal inlets in the shoreline and to reinforce the existing shoreline with sand placement, fencing, and vegetative plantings. The design approach is to maximize surface area for island stabilization and dune, supratidal (i.e., swale), and intertidal marsh creation by preventing a shoreline breach (i.e., tidal inlet) with a 20-year or lesser storm event.

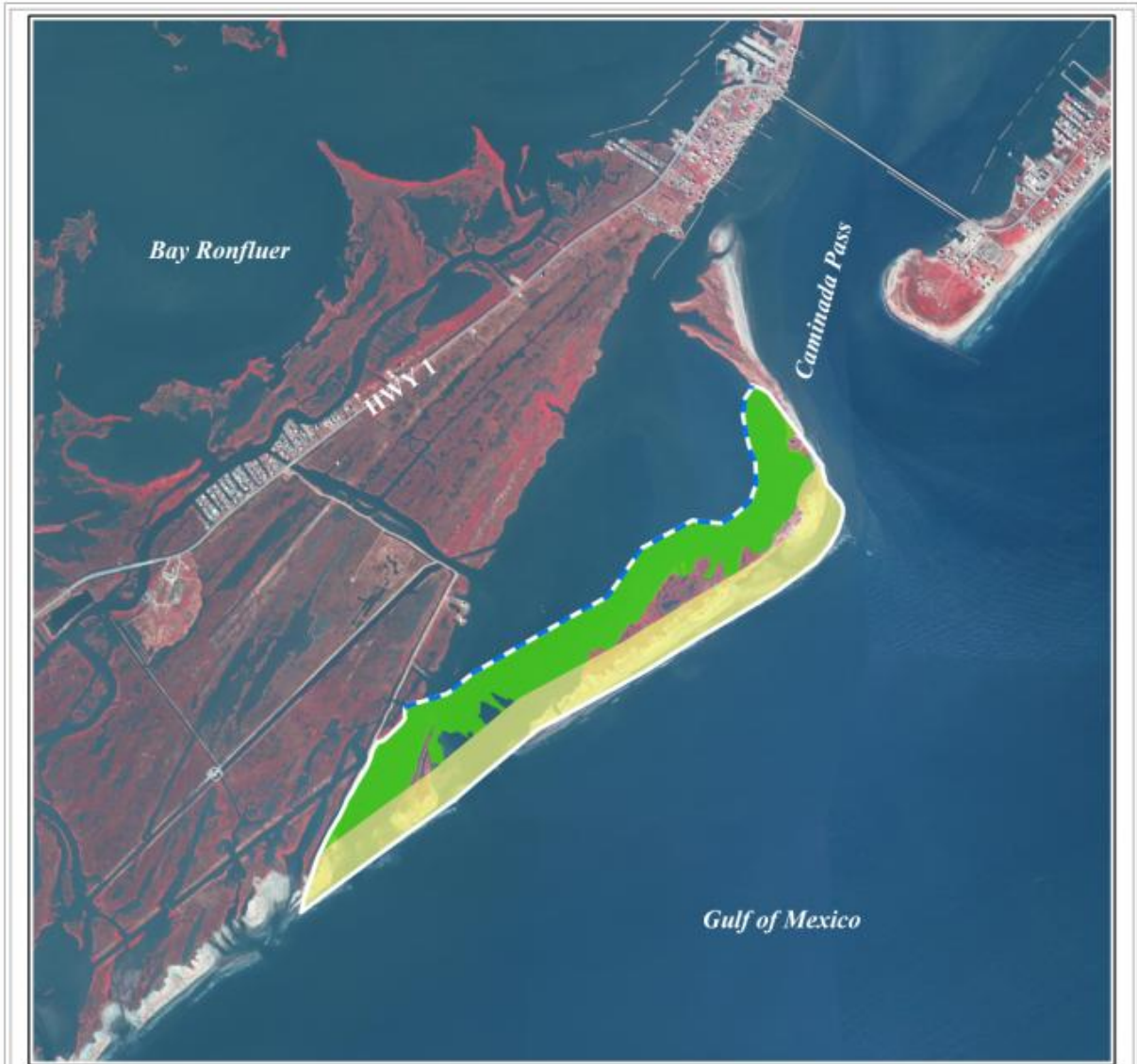
Proposed Solution: The project would rebuild 353 acres of the Elmer’s Island shoreline via reconstruction of a dune, beach, and back-barrier marsh system. The project would place sediment, via hydraulic dredging, along 2 miles of the Elmer’s Island shoreline. Approximately 145 acres of dune and beach would be built with a cross section of +6 feet North American Vertical Datum (NAVD) dune height, 300 feet dune crest width, and 1 Vertical to 30 Horizontal side slopes. Dune vegetation and sand fencing would be installed post construction and maintained throughout the life of the project. Additionally, 175 acres of back-barrier, intertidal marsh would be created. In total, approximately 1.9 million cubic yards of sediment would be placed for all features. Upon completion, the marsh platform would be planted with black mangrove and indigenous marsh species to predominantly include Spartina alterniflora.

Project Benefits: The project would benefit about 353 acres of created dune, beach, and marsh. Approximately 174 net acres of marsh, dune, and beach habitat would remain at the end of the 20-year project life.

Project Costs: The total fully-funded cost for the project is \$32,342,474.

Preparer of Fact Sheet:

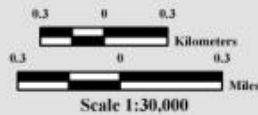
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Elmer's Island Headland Restoration (PPL18 Candidate)



-  Containment *
 -  Beach/Dune *
 -  Marsh Creation *
 -  Project Boundary
- * denotes proposed features



Map ID: USGS-NWRC 2008-11-0393
Map Date: August 15, 2008



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:
2005 Digital Orthophoto Quarter Quadrangles

Project Name: Terrebonne Bay Shoreline Protection and Marsh Creation

Coast 2050 Strategy:

- Coastwide Strategy: Dedicated dredging to create, restore, or protect wetlands and maintenance of bay and lake shoreline integrity
- Region 3 Strategy 11: Maintain shoreline integrity of marshes adjacent to Caillou, Terrebonne, and Timbalier Bays

Project Location: Region 3, Terrebonne Basin, Terrebonne Parish. Northern shoreline of Terrebonne Bay.

Problem: There is widespread historic and continued rapid land loss in the project area due to altered hydrology, wind induced wave erosion, and subsidence. Interior wetlands in the project vicinity are being lost at the rate of -2.05% per year based on US Geological Society (USGS) data from 1988 to 2005 and shoreline losses have been calculated to 6 feet per year based on USGS data from 1988 to 2007. This rapid loss of land has dramatically increased the tidal prism north of the bay and directly contributes to the ongoing flooding problems of many communities along Bayou Terrebonne including the town of Montegut.

Goals: Project goals include: 1) Reducing the hydrologic connections between Terrebonne Bay and the marshes to the north by closing shoreline breaches and the protection of the Terrebonne Bay shoreline. This would help with flooding in the communities north of Terrebonne Bay and would also reduce interior land loss from tidal scouring. Specific project goals: 1) Halting shoreline erosion within the project area and 2) Creating 163 acres of emergent marsh and nourishing an additional 91 acres of marsh which would help reduce water exchange between Terrebonne Bay and interior ponds during normal tidal events and small storm events.

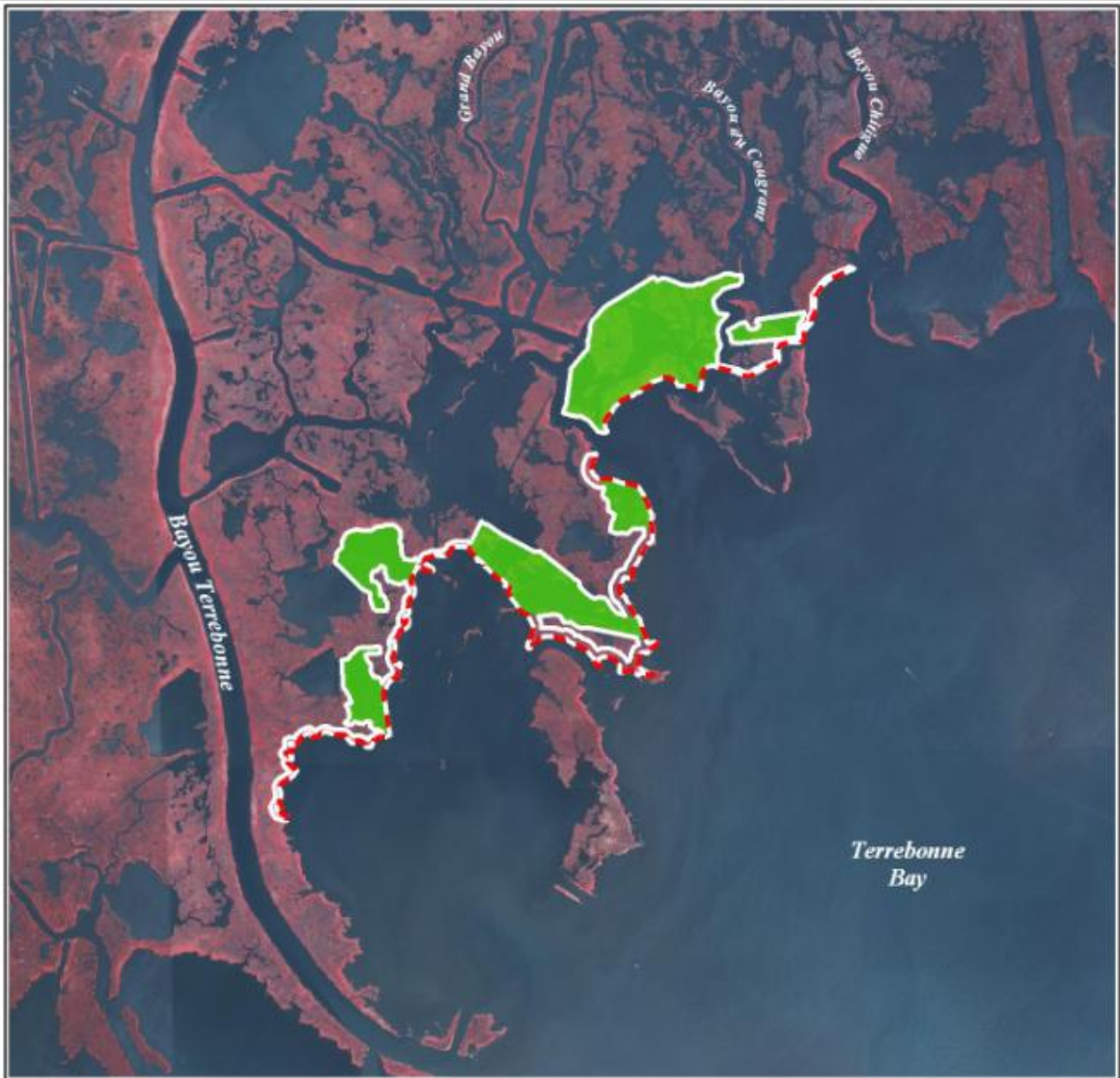
Proposed Solution: Approximately 163 acres of marsh would be created and 91 acres of existing marsh would be nourished via confined disposal of sediment dredged from Terrebonne Bay. Containment dikes would be breached no later than three years after construction. Approximately 25,550 feet of Terrebonne Bay shoreline would be protected with the construction of a +3.0 feet earthen dike topped with concrete matting. Collectively, this would be the first step to restoring the banklines of Terrebonne Bay.

Project Benefits: The project would benefit 303 acres of saline marsh and open water. Approximately 180 acres of saline marsh would be created/protected over the 20-year project life.

Project Costs: The total fully-funded cost for the project is \$32,720,525.




Preparer of Fact Sheet:

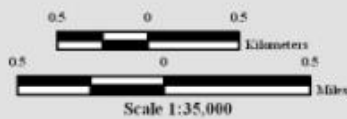
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Terrebonne Bay Shoreline Protection and Marsh Creation (PPL18 Candidate)



-  Shoreline Protection *
 -  Marsh Creation *
 -  Project Boundary
- * denotes proposed features



Map ID: USGS-NWEC 2005-11-0428
Map Date: August 02, 2008

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:
2005 Digital Orthophoto Quarter Quadrangles

Project Name: Central Terrebonne Freshwater Enhancement Project

Coast 2050 Strategy:

- Region 3, Strategy 4: Enhance Atchafalaya River influence to Terrebonne marshes, excluding upper Penchant marshes.

Project Location: Region 3, Terrebonne Basin, Terrebonne Parish, Central Terrebonne marshes extending from South of Lake Decade through Lake Mechant south to Bayou Dularge Ridge.

Problem: The Bayou Dularge Ridge historically restricted the Gulf marine influence into Central Terrebonne marshes forming a diagonal restriction extending from northeast to southwest, where the Atchafalaya influence is prominent. The Grand Pass is currently a 900 feet wide artificial cut through the Bayou Dularge Ridge south of Lake Mechant. The Pass is mainly used by commercial and recreational fisherman as a shortcut to the Gulf and has greatly eroded to a point of approximately 36 feet deep that well exceeds optimal utility. The expansion of the pass to its current size has allowed for a substantial alteration of historic salinity and hydrology and consequently a broad area of the Central Terrebonne marshes are currently suffering some of the highest loss rates in the state.

Goals: The project would reestablish historic hydrologic and salinity conditions by reducing the artificial intrusion of Gulf marine waters via the Grand Pass into the Central Terrebonne marshes while enhancing the influence of the Atchafalaya River waters into the area.

Proposed Solution: Structure consisting of rock barge bay would be constructed to reduce the size of the opening by up to 90% to 150 feet wide and 15 feet deep. The project would reestablish the historic ridge function of Bayou Dularge that separated Lake Mechant from the Gulf and moderate salinities that have greatly impacted the marshes to the north of Lake Mechant. The project would also increase the Atchafalaya influence in the area by modifying the current structure located in Liners Canal north of Lake Decade to increase freshwater introduction to Lake Decade by an estimated 500 cubic feet per second (cfs) and provide maintenance dredging at Minors Canal to maintain optimal freshwater conveyance from the GIWW into Lake Decade.

Project Benefits: The project would benefit 48,446 acres of fresh intermediate, brackish and saline marsh and open water. The acres of wetlands created/protected over the project life are estimated at 456 acres from the combination of salinity reduction and increased freshwater introduction.

Project Costs: The total fully-funded cost for the project is \$16,640,120.






Preparer of Fact Sheet:

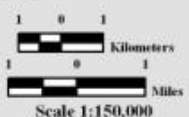
Ron Boustany, USDA NRCS, Lafayette, LA (337) 291-3067, Ron.Boustany@la.usda.gov



Central Terrebonne Freshwater Enhancement (PPL18 Candidate)



-  Rock Barge Bay *
 -  Improved Structure *
 -  Plug *
 -  Channel Maintenance *
 -  Project Boundary
- * denotes proposed features



Map ID: USGS-NWRC 2008-11-0496
Map Date: September 17, 2008

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:
2005 Digital Orthophoto Quarter Quadrangles

Project Name: Northwest Vermilion Bay Shoreline Planting and Maintenance Project

Coast 2050 Strategy:

- Region 3, Strategy 12: Maintain shoreline integrity and stabilize critical areas.

Project Location: Region 3, Teche/Vermilion, Vermilion Parish, Northeastern shore of Vermilion Bay extending from Mud Point, around Little Vermilion Bay to State Wildlife Refuge, totaling 31,415 linear feet of shoreline.

Problem: Continued shoreline retreat in Vermilion Bay is threatening the integrity of the Bay rim, which if compromised would expose surrounding marsh to open bay energies. Comparing 1998 and 2007 photography of three locations within the project area estimated an average annual weighted shoreline loss of 3.77 feet per year for this area.

Goals: Project goals include: 1) Abating wind-driven wave erosion along Vermilion Bay; 2) Stabilizing approximately 31,400 linear feet of bay shoreline through five years of intensive vegetative plantings; and 3) Creating approximately 11 acres of emergent marsh through the expansion of vegetative plantings.

Proposed Solution: Vegetative planting would be installed along 31,415 linear feet along the Vermilion Bay shoreline 5 rows at 2 feet-on-center multiplied by 31,415 linear feet of shoreline ~ 79,000 plugs of smooth chord grass. During the next four years, maintenance plantings (assume replacement of 15%, or 11,800 plugs). An Operations and Maintenance (O&M) event planned for 50% of shoreline to be replanted (15,700 linear feet).

Project Benefits: The project would benefit 65 acres of brackish intermediate marsh and open water. Approximately 65 net acres of brackish marsh would be created/protected over the 20-year project life.

Project Costs: The total fully-funded cost for the project is \$2,562,045.

Preparer of Fact Sheet:

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Northwest Vermilion Bay Vegetative Planting and Maintenance (PPL18 Candidate)



Vegetative Plantings *

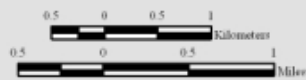


Possible Project Location

* denotes proposed features



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



Scale: 1:60,000

Map ID: USGS-NWRC 2008-11-0376
Map Date: July 18, 2008

Image Source:
2005 Digital Orthophoto Quarter Quadrangle

Project Name: Freshwater Bayou Marsh Creation Project

Coast 2050 Strategy:

- Regional Strategy 6: Marsh creation by sediment delivery or dedicated dredging.

Project Location: Region 4, Mermentau Basin, Vermilion Parish, Big Marsh Mapping Unit, area west of Freshwater Bayou and north of the Freshwater Bayou lock.

Problem: The project area was damaged by Hurricane Rita. Currently, Freshwater Bayou threatens to breach into the large interior open water and establish a hydrologic connection that previously did not exist. This would exacerbate the environmental problems affecting marshes in this area. Interior marsh loss would likely increase without construction of the proposed project.

Goals: The goal of the project is to create approximately 274 net acres of marsh via dedicated dredging or beneficial use of maintenance dredged material from the Freshwater Bayou Canal and nourish additional low elevation marsh that has been severely damaged by recent hurricanes.

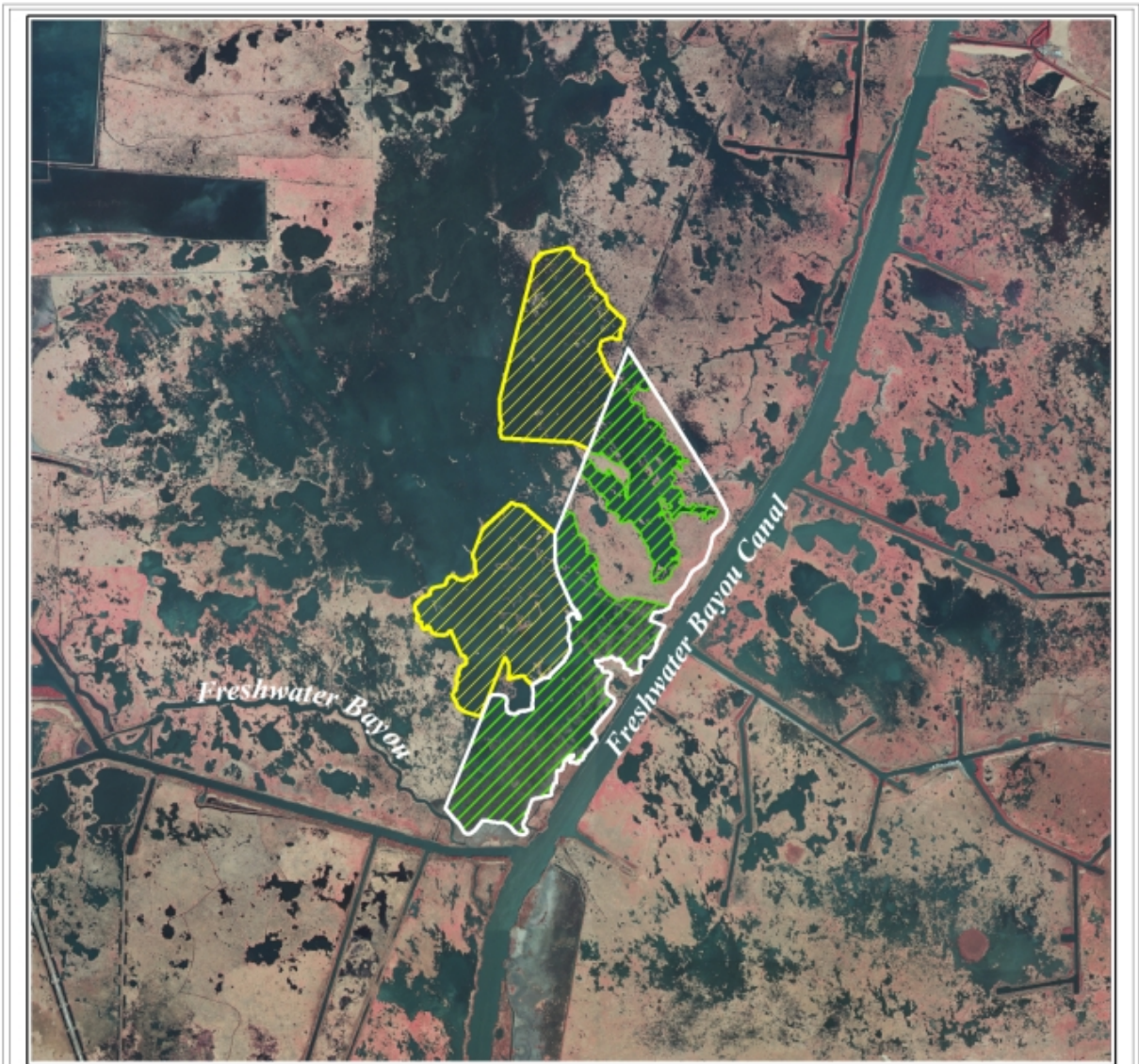
Proposed Solutions: The proposed project would use material from dedicated dredging offshore and/or from normal maintenance dredging of the Lower Freshwater Bayou Canal to create marsh. The plan would be to transport approximately 1.2 million cubic yards of dredged material to two hurricane damaged areas (North Area and South Area) in the Big Marsh unit.

Preliminary Project Benefits: The proposed project would create marsh by filling 537 acres of open water and low-elevation, hurricane damaged marsh. The project would result in 274 net acres of marsh. The restoration of marsh in this area would restore and maintain a wetland buffer between the open water of the Mermentau Basin and Freshwater Bayou.

Project Cost: The total fully-funded cost of the project is \$30,578,295.




Preparer of Fact Sheet:

Troy Mallach, USDA NRCS, (337) 291-3064, Troy.Mallach@la.usda.gov

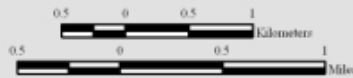


Freshwater Bayou Marsh Creation (PPL18 Candidate)



-  Marsh Creation *
-  Contingency Area *
-  Project Boundary

* denotes proposed features



Scale: 1:50,000



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

Image Source:
2005 Digital Orthophoto Quarter Quadrangle

Map ID: USGS-NWRC 2008-11-0336
Map Date: July 10, 2008

Project Name: Cameron-Creole Freshwater Introduction Project

Coast 2050 Strategy:

- Regional Strategy 8: Restore historic hydrologic and salinity conditions throughout Region 4 to protect wetlands from hydrologic modification. Maintain estuarine gradient to achieve diversity.

Project Location: Region 4, Calcasieu/Sabine Basin, Cameron Parish, east of Calcasieu Lake west of Gibbstown Bridge and Highway 27.

Problem: Virtually all of the project area marshes have experienced increased tidal exchange, saltwater intrusion, and reduced freshwater retention associated with the Calcasieu Ship Channel and the GIWW. Between 1952 and 1974 this area is thought to have had some of the highest loss rates of any area in coastal Louisiana. Some of that loss is linked to natural disturbances, mainly hurricanes, but much is attributable to man-made alterations to the hydrology. The Cameron-Creole Watershed Project was completed in 1974 to reduce salinity impacts associated with the Ship Channel. That project has successfully reduced salinities and increased marsh productivity; however, the project area continues to be isolated from sources of freshwater, sediment, and nutrients.

Goals: The project would restore the function, value, and sustainability to approximately 22,247 acres of marsh and open water.

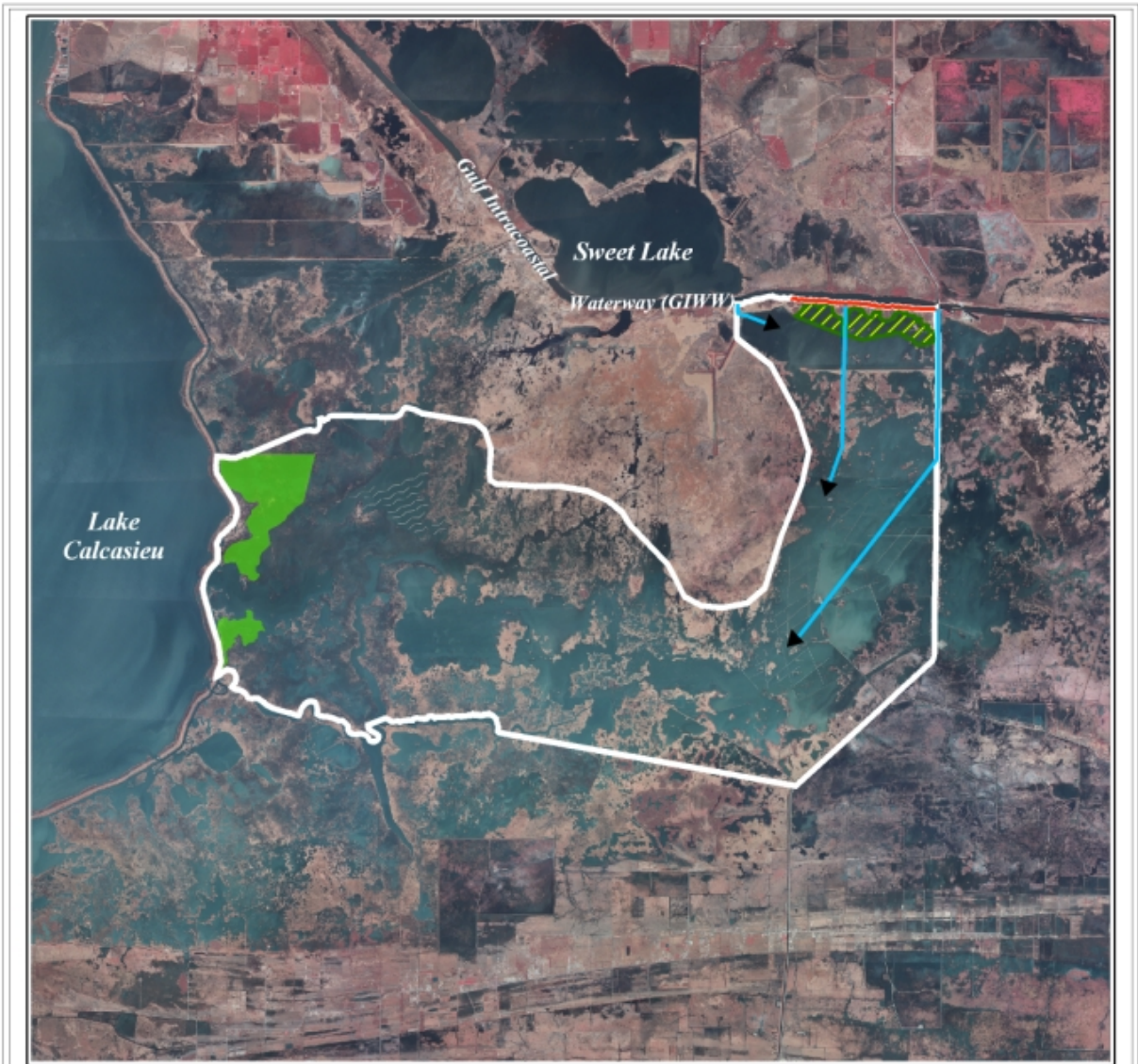
Proposed Solutions: Placement of ten 48-inch culverts in the bank of the GIWW to establish approximately 400 cubic feet per second (cfs) of freshwater from the GIWW into the Cameron-Creole marshes. Construction of approximately 65,000 linear feet of terracing in the immediate outfall area along with 8,000 linear feet of shoreline protection along the bank of the GIWW. Two hundred acres of plantings would be allocated in areas hard hit by recent hurricanes to prevent further erosion.

Project Benefits: The proposed freshwater introduction project would provide increased organic productivity and sediment to the project area as well as restore/improve hydrologic conditions. The project area consisting of 22,247 acres would benefit by a net 473 acres from freshwater introduction, terracing and vegetative plantings.

Project Costs: The total fully-funded cost for the project is \$12,787,044.





Preparer of Fact Sheet:

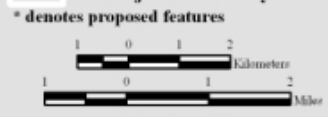
Troy Mallach, USDA NRCS, (337) 291-3064, Troy.Mallach@la.usda.gov



Cameron-Creole Freshwater Introduction (PPL18 Candidate)



-  Shoreline Protection *
-  Freshwater Introduction *
-  Vegetative Plantings *
-  Terrace Field *
-  Project Boundary



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

Map ID: USGS-NWRC 2008-11-0383
Map Date: July 21, 2008

Scale: 1:125,000

Image Source:
2005 Digital Orthophoto Quarter Quadrangle

IV. DESCRIPTION OF CANDIDATE DEMONSTRATION PROJECTS

This section provides a concise narrative of each demonstration project. The project details provided include the Coast 2050 strategy, project location, problem, goals, proposed solution, benefits, costs, sponsoring agency, and contact persons.

Project Name: EcoSystems Wave Attenuator for Shoreline Protection Demonstration Project

Coast 2050 Strategy:

- Coastwide Strategy: Maintenance of Gulf, bay and lake shoreline integrity

Potential Demonstration Project Location(s): Gulf, bay, or lake shorelines; specific site to be determined later. Applicable Statewide.

Problem: Coastal Louisiana consists of areas with unstable soil conditions, subsurface obstructions, accessibility limitations, etc., which limit the types of shoreline protection suitable to provide adequate relief of shoreline erosion. Traditional methods have shown the most success are through the use of rock riprap. The major advantages of rock are the effectiveness and durability of protection that is provided. The disadvantages are the cost, supply, and site specific problems with placement and handling of the material. However, the same problems are also associated with other “non-rock” alternatives that have been tried as substitutes to provide equivalent protection against shoreline erosion.

Goals: The primary goal is to manufacture, deploy and test an alternative method of shoreline protection equivalent to traditional methods in areas where site conditions limit or preclude traditional methods.

Proposed Solution: Walter Marine has developed a method of protection against shoreline erosion using the EcoSystems Wave Attenuator. This product is a unit of Ecosystems discs mounted on a piling with an innovative anchoring system, which dissipates wave action. The Ecosystems Wave Attenuator could be applicable for use as a shoreline protection or in place of a channel plug. The intent of this demonstration project is to place the Ecosystems Wave Attenuator in area where traditional restoration strategy would have used a rock plug or sheetpile for a channel closure. The project will evaluate the effectiveness of reducing wave energy and shoreline erosion.

Project Benefits: Project benefits include: 1) reduction in shoreline erosion associated with wave energy, 2) information regarding deployment and installation of Ecosystems Wave Attenuator, 3) information obtained would allow a comparison with riprap structures, and 4) identification of other applications of Ecosystems Wave Attenuators.

Project Costs: The total fully-funded cost for the project is \$1,857,009.

Preparers of Fact Sheet:

John Jurgensen, USDA NRCS, (318) 473-7694, John.Jurgensen@la.usda.gov

Mary Kelly, Walter Marine, (985) 705-5326, marycampokelly@yahoo.com

Project Name: Benefits of Limited Design-Unconfined Disposal Demonstration Project

Coast 2050 Strategy:

- Region 2 Ecosystem Strategies. Strategy 21: Restore/maintain barrier headlands, islands and shorelines; Strategy 22: Extend and maintain barrier headlands, islands, and shorelines. Extend and maintain barrier shoreline from Sandy Point to Southwest Pass
- Region 2 Mapping Unit Strategies. Barataria Barrier Islands: Strategy 19: Beneficial use of dredged material (e.g. Dredging offshore to build barrier island back marshes); Barataria Barrier Shorelines Strategy 23: Restore Barrier Islands
- Region 3 Ecosystem Strategy. Restore Barrier Islands and Gulf Shorelines: Strategy 14: Restore and maintain the barrier islands and gulf shoreline such as Isles Dernieres, Timbalier barrier island chains, Marsh Island, Point au Fer and Cheniere au Tigre.
- Region 3 Mapping Unit Strategy. Isles Dernieres Shorelines: Strategy 33: Protect bay/Gulf shorelines

Project Location: To be determined, but probably Isles Dernieres or Timbalier island chain.

Problem: Louisiana's barrier islands are critical as basic physical determinants of the seaward boundaries of the coastal basins. They also reduce energies in the estuaries and coastal basins, and help limit the tidal prism. Without massive-scale restoration of the Delta cycle, artificial nourishment of the barrier islands is necessary to prevent their complete disappearance within years to decades. However, nourishment of the barrier islands with offshore sand is expensive, particularly when detailed engineering plans and specifications, and precise sculpting of dune and supratidal habitats, is required, as is the case now.

Goals: Demonstrate and quantify specific benefits of limited-design, unconfined beach/subtidal Gulf sand nourishment of Louisiana barrier islands.

Proposed Solutions: The "ideal" demonstration approach to this problem would be to simply deposit unconfined fill sufficient to expect a detectable habitat change and then monitor it. However, given the high cost of dredging and transporting sand from a borrow area to a barrier island, the CWPPRA ceiling on costs of Demonstration Projects (\$2 million) would seem to be an insurmountable obstacle to that approach. It seems very unlikely that for under \$2 million, sufficient sand could be dredged, transported, and placed unconfined, and be able to detect associated habitat changes. Basically, this is a funding problem, a detection problem, or both. An alternate approach would be to use sediment "tracers" and modeling to estimate benefits. A small quantity of representative beach (or subtidal Gulf) fill (sand) would be "labeled" using an appropriate tracer. The sand would be deposited on the beach and/or in the subtidal Gulf in front of a barrier island. Measurements would be made to estimate the fate of the "labeled" sand. In addition, an appropriate simulation model of barrier island dynamics would be run using the data obtained in the tracer studies, to estimate changes in barrier island habitats, with and without one or more hypothetical restoration projects involving unconfined beach/gulf fill.

Project Benefits: Estimates of potential benefits (Wetland Value Assessments) of unconfined beach/gulf fill on Louisiana barrier islands.

Project Costs: The total fully-funded cost for the project is \$1,828,708.

Preparer of Fact Sheet: Kenneth Teague, USEPA, (214) 665-6687, Teague.Kenneth@epa.gov

Project Name: Non-Rock Alternatives to Shoreline Protection Demo

Coast 2050 Strategy:

- Coastwide Strategy: Maintenance of Gulf, bay and lake shoreline integrity

Project Location: Applicable Statewide

Problem: Several shoreline areas within coastal Louisiana consist of unstable soil conditions, subsurface obstructions, accessibility problems, etc., which severely limit the alternatives of shoreline protection. The adopted standard across the state, where conditions allow, is the use of rock aggregate in either a revetment or foreshore installation. The major advantages of using rock are durability, longevity, and effectiveness. However, in areas where rock is not conducive for use and site limitations exist, current “proven” alternatives that provide equivalent advantages are limited.

Goals: The goal is to develop an alternative method(s) of shoreline protection that would be used in areas facing one or more limitation factors which preclude the use of currently adopted standards (i.e. rock, concrete panels, bulkheads, etc.).

Proposed Solution: Several “new” concepts of providing shoreline protection have surfaced in the last couple of years. These concepts however, have not been researched or installed due mainly to budget limitations or the apprehension of industry, landowners, and others to “try” an unproven product. The intent of this demonstration project would be to provide a funding mechanism to research, install, and monitor various shoreline protection alternatives in an area(s) of the state where physical, logistical and environmental limitations preclude the use of current adopted methods.

Project Benefits: The primary benefit expected from this project would be to find a product(s) that effectively reduces or eliminates shoreline erosion in site conditions with severe limitations where current standards are either non-acceptable or not economically justified.

Project Costs: The total fully-funded cost for the project is \$1,906,237.

Preparer of Fact Sheet:

Loland Broussard, USDA NRCS, (337) 291-3060, Loland.Broussard@la.usda.gov



HESCO Baskets



SUBMAR Matting



WADS

Non-Rock Alternatives
To
Shoreline Protection

PPL 18 Demonstration Project



A-Jacks



WhisperWave



Viper-Wall

V. PROJECT SELECTION

On January 21, 2009, the CWPPRA Task Force made its selection for the 18th PPL. The CWPPRA Task Force selection for the 18th PPL is shown in Table 6.

Table 6: The 18th 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/Increment I Total Cost (3 yr. C&QRM&M)	Cumulative Phase II/Increment I	Average Annual Habitat Units (AAHUs)
CS-49	Cameron-Creole Freshwater Introduction	DV	NRCS	\$12,787,044	\$1,549,832	\$1,549,832	\$11,237,212	\$11,237,212	\$8,815,217	\$8,815,217	524
BA-68	Grand Liard Marsh and Ridge Restoration	MC	NMFS	\$31,390,699	\$3,271,287	\$4,821,119	\$28,119,412	\$39,356,624	\$27,615,636	\$36,430,853	158
BS-18	Bertrandville Siphon	DV	USEPA	\$22,578,278	\$2,129,816	\$6,950,935	\$20,448,462	\$59,805,086	\$18,717,313	\$55,148,166	965
TE-66	Central Terrebonne Freshwater Enhancement	HR	NRCS	\$16,640,120	\$2,326,289	\$9,277,224	\$14,313,831	\$74,118,917	\$13,502,303	\$68,650,469	470
TOTALS						\$9,277,224		\$74,118,917		\$68,650,469	2117

Demonstration Projects

LA-16	Non-Rock Alternatives to Shoreline Protection Demonstration	DE	NRCS	\$1,906,237	\$266,813		\$1,639,424				N/A
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Project Physical Type:
 HR=Hydrologic Restoration
 MC=Marsh Creation
 SP=Shoreline Protection
 DE=Demonstration Project
 DV=Diversion

Sponsoring Agencies:
 USACE=US Army Corps of Engineers
 USEPA=Environmental Protection Agency
 NMFS=National Marine Fisheries Service
 NRCS=Natural Resources Conservation Service
 USFWS=US Fish and Wildlife Service

VI. 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, sponsoring agency and contact persons, and a map identifying the project area and features if applicable.

Project Name: Cameron-Creole Freshwater Introduction Project

Coast 2050 Strategy:

- Regional Strategy 8: Restore historic hydrologic and salinity conditions throughout Region 4 to protect wetlands from hydrologic modification. Maintain estuarine gradient to achieve diversity.

Project Location: Region 4, Calcasieu/Sabine Basin, Cameron Parish, east of Calcasieu Lake west of Gibbstown Bridge and Highway 27.

Problem: Virtually all of the project area marshes have experienced increased tidal exchange, saltwater intrusion, and reduced freshwater retention associated with the Calcasieu Ship Channel and the GIWW. Between 1952 and 1974 this area is thought to have had some of the highest loss rates of any area in coastal Louisiana. Some of that loss is linked to natural disturbances, mainly hurricanes, but much is attributable to man-made alterations to the hydrology. The Cameron-Creole Watershed Project was completed in 1974 to reduce salinity impacts associated with the Ship Channel. That project has successfully reduced salinities and increased marsh productivity; however, the project area continues to be isolated from sources of freshwater, sediment, and nutrients.

Goals: The project would restore the function, value, and sustainability to approximately 22,247 acres of marsh and open water.

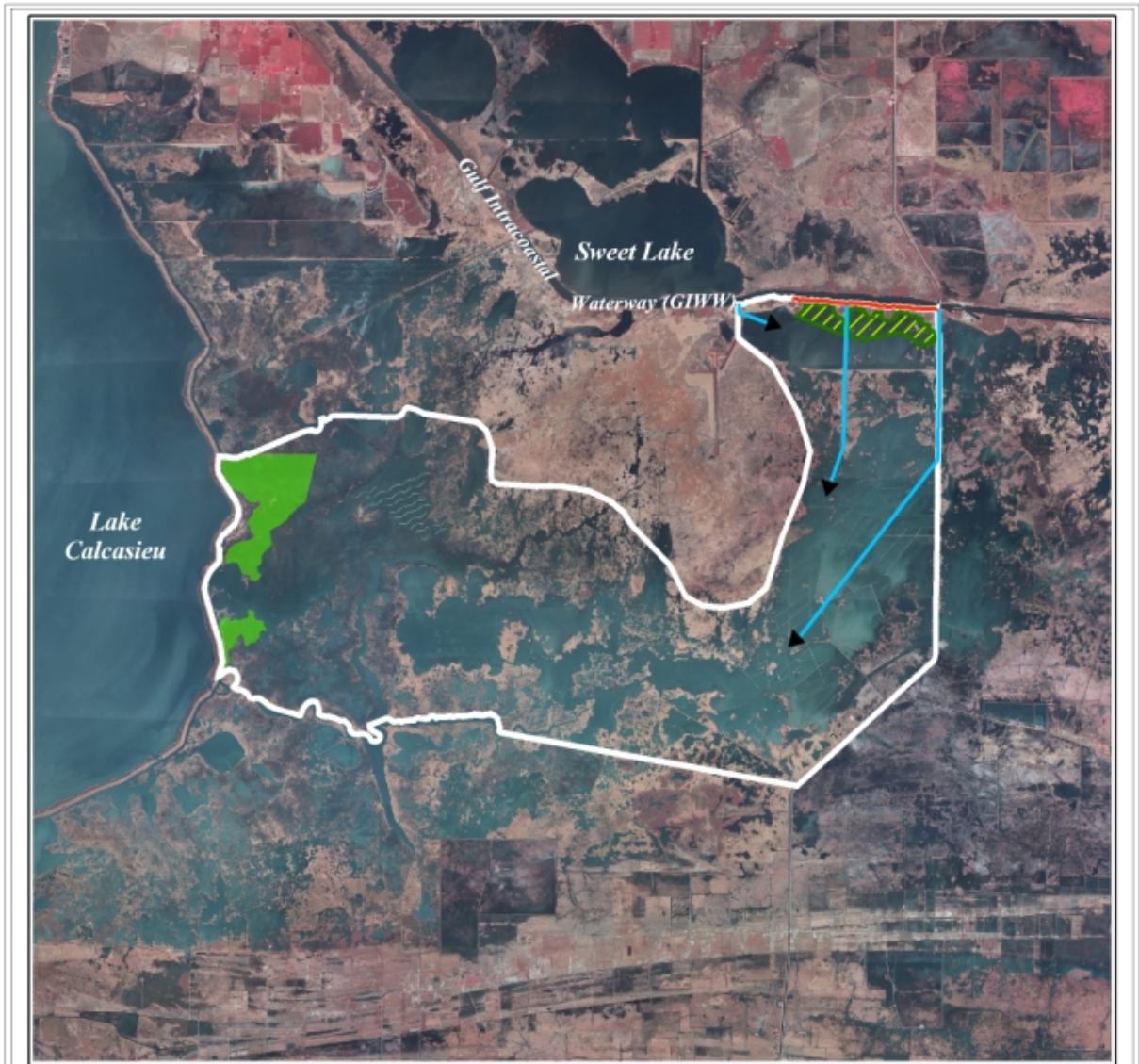
Proposed Solutions: Placement of ten 48-inch culverts in the bank of the GIWW to establish approximately 400 cubic feet per second (cfs) of freshwater from the GIWW into the Cameron-Creole marshes. Construction of approximately 65,000 linear feet of terracing in the immediate outfall area along with 8,000 linear feet of shoreline protection along the bank of the GIWW. Two hundred acres of plantings would be allocated in areas hard hit by recent hurricanes to prevent further erosion.

Project Benefits: The proposed freshwater introduction project would provide increased organic productivity and sediment to the project area as well as restore/improve hydrologic conditions. The project area consisting of 22,247 acres would benefit by a net 473 acres from freshwater introduction, terracing and vegetative plantings.

Project Costs: The total fully-funded cost for the project is \$12,787,044.




Preparer of Fact Sheet:

Troy Mallach, USDA NRCS, (337) 291-3064, Troy.Mallach@la.usda.gov

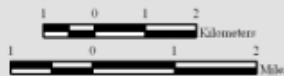


Cameron-Creole Freshwater Introduction (PPL18 Candidate)



-  Shoreline Protection *
-  Freshwater Introduction *
-  Vegetative Plantings *
-  Terrace Field *
-  Project Boundary

* denotes proposed features



Scale: 1:125,000



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

Image Source:
2005 Digital Orthophoto Quarter Quadrangle

Map ID: USGS-NWRC 2008-11-0383
Map Date: July 21, 2008

Project Name: Grand Liard Marsh and Ridge Restoration

Coast 2050 Strategy:

- Coastwide Common Strategies: Dedicated dredging to create, restore or protect wetlands; off-shore and riverine sand and sediment delivery systems; vegetative plantings

Project Location: Region 2, Barataria Basin, Plaquemines Parish, Bastian Bay and Grand Liard mapping units, vicinity of Triumph

Problem: The Bastian Bay and Grand Liard mapping units were historically structured by a series of north/south bayous and associated ridges (i.e., Bayou Long, Dry Cypress Bayou). Over the preceding decades the majority of these bayou ridges and the marshes flanking them have disappeared. The Grand Liard ridge is the most prominent remaining ridge and separates the open bays of the Bastian Bay and Grand Liard mapping units. Land loss projections suggest that the remaining bayou bank wetlands will be completely converted to open water by 2050. The Coast 2050 1983 to 1990 loss rate for the Grand Liard mapping unit is 1.7% per year, whereas the 1988 to 2007 loss rate for the extended project boundary is -3.3% per year and its rate of subsidence is 2.1 to 3.5 feet per century.

Goals: Project goals include 1) creating/nourishing marsh and associated edge habitat for aquatic species through pipeline sediment delivery, and 2) restoring the Grand Liard ridge to reduce wave and tidal setup and provide fallout habitat for neotropical migrant birds. Specific phase 0 goals include creating 328 acres saline marsh, nourishing 140 acres of saline marsh and constructing about 20,000 linear feet or 34 acres of maritime ridge habitat.

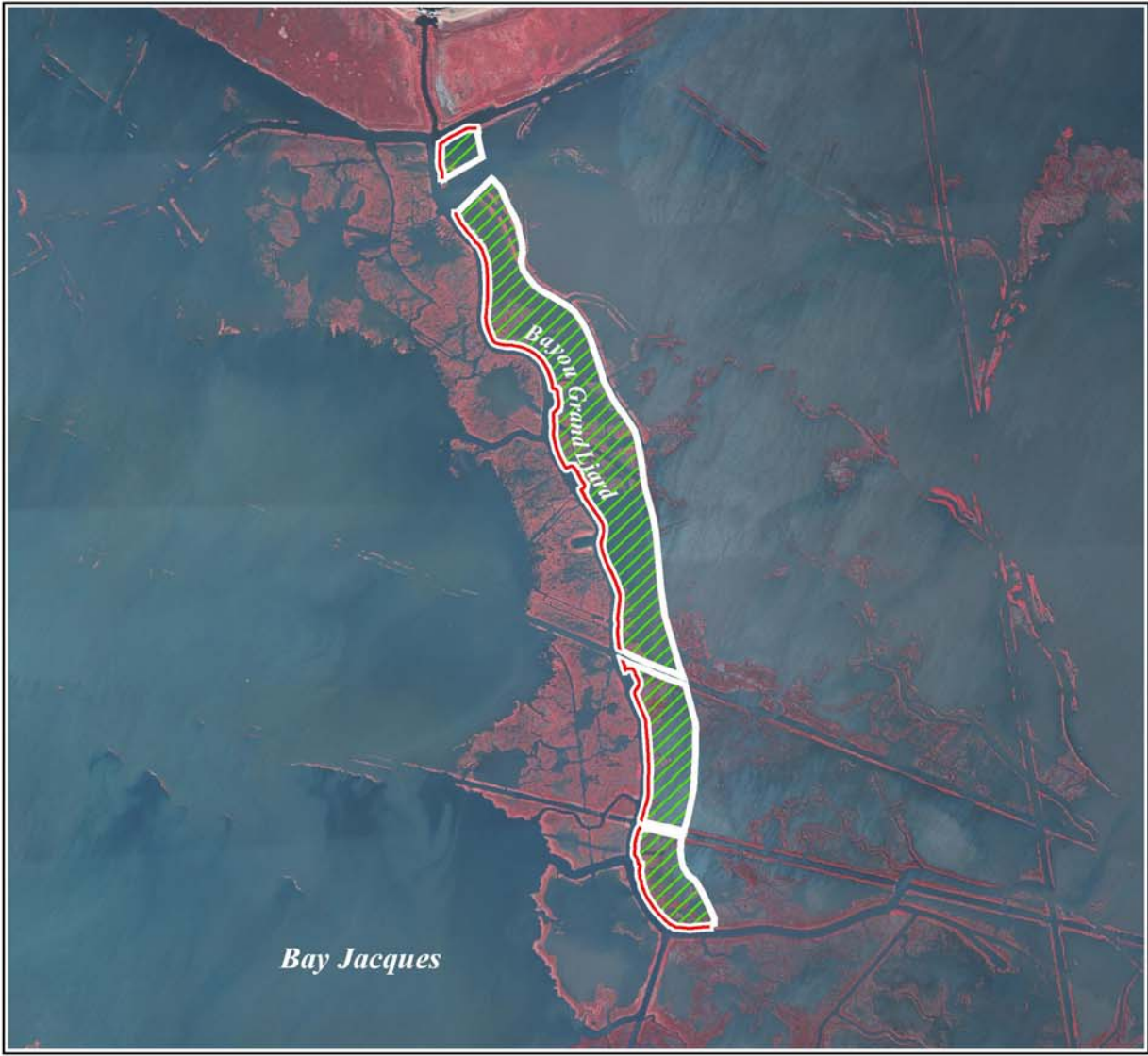
Proposed Solution: Approximately 328 acres of marsh would be created and 140 acres nourished with sediment dredged from the Mississippi River. A bucket dredge would construct approximately 34 acres on the east bank of Grand Liard Bayou with sediment dredged from the bayou. Approximately 50% of the created marsh would be planted upon construction with plugs of smooth cordgrass. The entire ridge would be planted with appropriate woody vegetation. Planting of woody species would occur after construction once appropriate soil salinities become established. High marsh species would be planted on the slopes of the ridge. After settlement containment dikes would be gapped to encourage establishment of natural marsh hydrology and fisheries support functions.

Project Benefits: The project would benefit 502 acres of saline marsh and open water. A net of approximately 252 acres of saline marsh and 34 acres of ridge would be created/protected over the 20-year project life.

Project Costs: The total fully-funded cost for the project is \$31,390,699.



Preparer of Fact Sheet:

Patrick Williams, NOAA NMFS, (225) 389-0508, ext 208, Patrick.Williams@noaa.gov



Grand Liard Marsh and Ridge Restoration (PPL18 Candidate)



-  Ridge Restoration *
-  Marsh Creation *
-  Project Boundary

* denotes proposed features



Scale: 1:42,500



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

Map ID: USGS-NWRC 2008-11-0323
Map Date: September 18, 2008

Image Source:
2005 Digital Orthophoto Quarter Quadrangle

Project Name: Bertrandville Siphon

Coast 2050 Strategy:

- Coastwide Common Strategies: Diversions and river discharge; Management of diversion outfall for wetland benefits
- Region 2 Regional Ecosystem Strategies: Restore and Sustain Marshes: Strategy 8: Construct most effective small diversions

Project Location: Region 2, Breton Sound Basin, Plaquemines Parish, near Woodlawn School

Problem: Some of the marsh lost in this area may be due to failed agricultural impoundments. In addition, this area has been disconnected from the Mississippi River since levees were constructed during the early 20th century. The lack of overbank flooding/crevasses ensures that wetlands here do not have sufficient sediment input to maintain elevation against subsidence. In addition, drainage canals, oil and gas canals and associated spoil banks probably create some undesirable impoundment and tidal scour/saltwater intrusion in the area. Finally, after Hurricane Katrina seriously damaged this area, small remnant stands of cypress trees were killed by trapped saltwater. In addition to impoundment caused by canals and spoil banks, the area is probably somewhat naturally impounded due to a natural ridge. Aerial photography clearly demonstrates the significant loss of marsh in this area. Anecdotal evidence from parish staff and photographs document the recent loss of cypress in the area.

Goals: Eliminate future wetland loss. Convert approximately 50% of the existing intermediate marsh to fresh marsh. Increase submerged aquatic vegetation in the project area by 20%.

Proposed Solution: Construct a siphon from the Mississippi River, with 2,000 cubic feet per second (cfs) maximum capacity with limited outfall management.

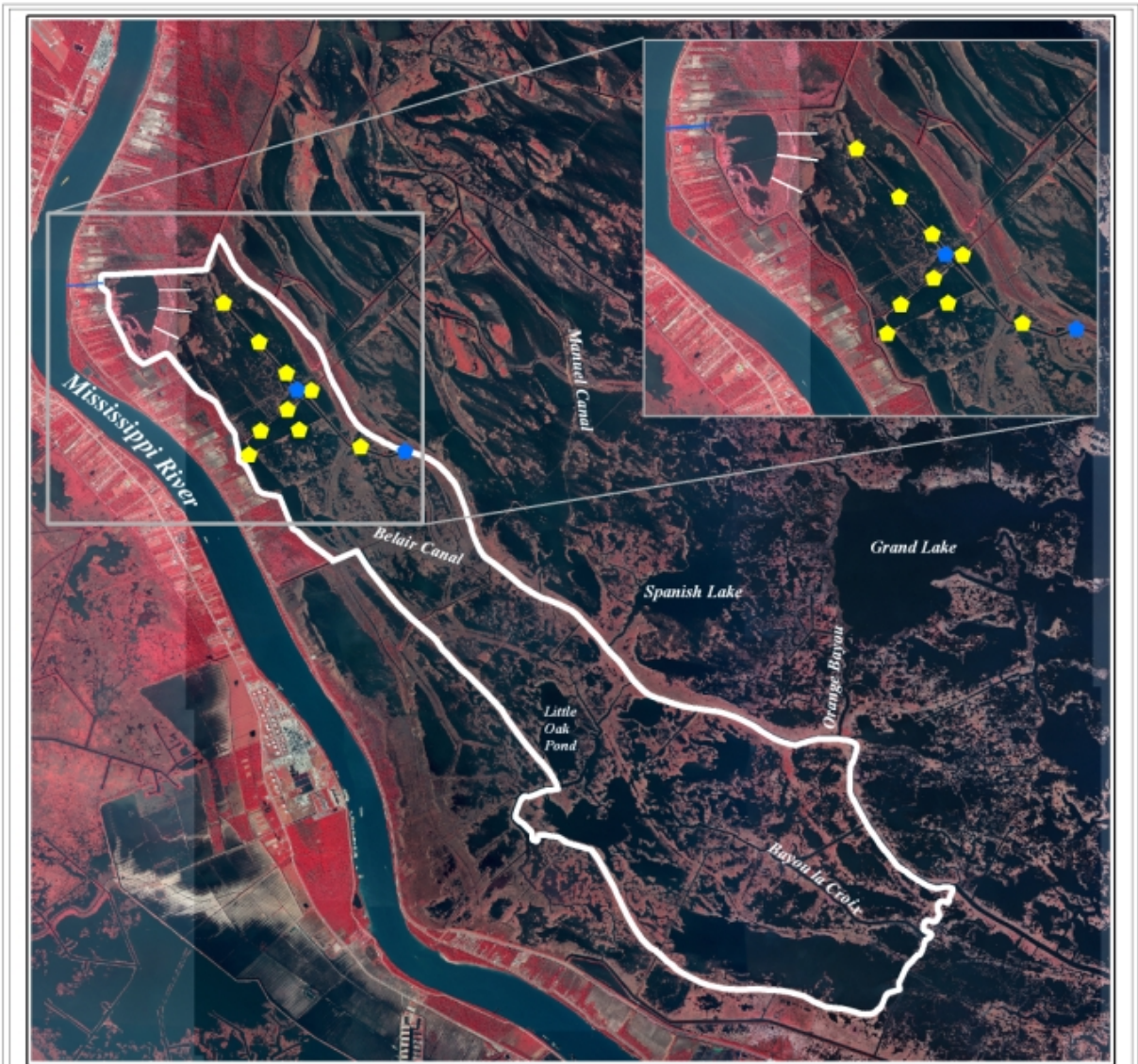
Project Benefits: The total acreage benefited directly and indirectly is estimated to be 14,574 acres. It is estimated 1,612 net acres will be created/protected over life of the project. The anticipated loss rate reduction throughout the area of direct benefits over the project life is greater than 75%. No project features maintain or restore structural components of the coastal ecosystem. The project may have a significant positive net impact on the Mississippi River levee, which is critical infrastructure. The project will provide a synergistic effect with the Caernarvon Diversion project, Caernarvon Diversion Outfall Management (BS-03a) and Caernarvon Outfall Management/Lake Lery SR (BS-16).

Project Costs: The total fully-funded cost for the project is \$22,578,278.






Preparers of Fact Sheet:

Kenneth Teague, USEPA, (214) 665-6687, Teague.Kenneth@epa.gov

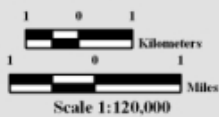
Brad Crawford, USEPA, (214) 665-7255, Crawford.Brad@epa.gov



Bertrandville Siphon (PPL18 Candidate)

-  Plug *
-  Cut *
-  Cut Through Ridge *
-  Siphon Right of Way *
-  Project Boundary

* denotes proposed features



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:
2005 Digital Orthophoto Quarter Quadrangles



Map ID: USGS-NWRC 2008-11-0344
Map Date: July 22, 2008

Project Name: Central Terrebonne Freshwater Enhancement Project

Coast 2050 Strategy:

- Region 3, Strategy 4: Enhance Atchafalaya River influence to Terrebonne marshes, excluding upper Penchant marshes.

Project Location: Region 3, Terrebonne Basin, Terrebonne Parish, Central Terrebonne marshes extending from South of Lake Decade through Lake Mechant south to Bayou Dularge Ridge.

Problem: The Bayou Dularge Ridge historically restricted the Gulf marine influence into Central Terrebonne marshes forming a diagonal restriction extending from northeast to southwest, where the Atchafalaya influence is prominent. The Grand Pass is currently a 900 feet wide artificial cut through the Bayou Dularge Ridge south of Lake Mechant. The Pass is mainly used by commercial and recreational fisherman as a shortcut to the Gulf and has greatly eroded to a point of approximately 36 feet deep that well exceeds optimal utility. The expansion of the pass to its current size has allowed for a substantial alteration of historic salinity and hydrology and consequently a broad area of the Central Terrebonne marshes are currently suffering some of the highest loss rates in the state.

Goals: The project would reestablish historic hydrologic and salinity conditions by reducing the artificial intrusion of Gulf marine waters via the Grand Pass into the Central Terrebonne marshes while enhancing the influence of the Atchafalaya River waters into the area.

Proposed Solution: Structure consisting of rock barge bay would be constructed to reduce the size of the opening by up to 90% to 150 feet wide and 15 feet deep. The project would reestablish the historic ridge function of Bayou Dularge that separated Lake Mechant from the Gulf and moderate salinities that have greatly impacted the marshes to the north of Lake Mechant. The project would also increase the Atchafalaya influence in the area by modifying the current structure located in Liners Canal north of Lake Decade to increase freshwater introduction to Lake Decade by an estimated 500 cubic feet per second (cfs) and provide maintenance dredging at Minors Canal to maintain optimal freshwater conveyance from the GIWW into Lake Decade.

Project Benefits: The project would benefit 48,446 acres of fresh intermediate, brackish and saline marsh and open water. The acres of wetlands created/protected over the project life are estimated at 456 acres from the combination of salinity reduction and increased freshwater introduction.

Project Costs: The total fully-funded cost for the project is \$16,640,120.






Preparer of Fact Sheet:

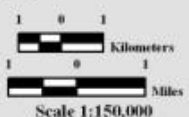
Ron Boustany, USDA NRCS, Lafayette, LA (337) 291-3067, Ron.Boustany@la.usda.gov



Central Terrebonne Freshwater Enhancement (PPL18 Candidate)



-  Rock Barge Bay *
 -  Improved Structure *
 -  Plug *
 -  Channel Maintenance *
 -  Project Boundary
- * denotes proposed features



Map ID: USGS-NWRC 2008-11-0496
Map Date: September 17, 2008

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:
2005 Digital Orthophoto Quarter Quadrangles

Project Name: Non-Rock Alternatives to Shoreline Protection Demo

Coast 2050 Strategy:

- Coastwide Strategy: Maintenance of Gulf, bay and lake shoreline integrity

Project Location: Applicable Statewide

Problem: Several shoreline areas within coastal Louisiana consist of unstable soil conditions, subsurface obstructions, accessibility problems, etc., which severely limit the alternatives of shoreline protection. The adopted standard across the state, where conditions allow, is the use of rock aggregate in either a revetment or foreshore installation. The major advantages of using rock are durability, longevity, and effectiveness. However, in areas where rock is not conducive for use and site limitations exist, current “proven” alternatives that provide equivalent advantages are limited.

Goals: The goal is to develop an alternative method(s) of shoreline protection that would be used in areas facing one or more limitation factors which preclude the use of currently adopted standards (i.e. rock, concrete panels, bulkheads, etc.).

Proposed Solution: Several “new” concepts of providing shoreline protection have surfaced in the last couple of years. These concepts however, have not been researched or installed due mainly to budget limitations or the apprehension of industry, landowners, and others to “try” an unproven product. The intent of this demonstration project would be to provide a funding mechanism to research, install, and monitor various shoreline protection alternatives in an area(s) of the state where physical, logistical and environmental limitations preclude the use of current adopted methods.

Project Benefits: The primary benefit expected from this project would be to find a product(s) that effectively reduces or eliminates shoreline erosion in site conditions with severe limitations where current standards are either non-acceptable or not economically justified.

Project Costs: The total fully-funded cost for the project is \$1,906,237.

Preparer of Fact Sheet:

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HESCO Baskets



SUBMAR Matting



WADS

Non-Rock Alternatives
To
Shoreline Protection

PPL 18 Demonstration Project



A-Jacks



WhisprWave



Viper-Wall

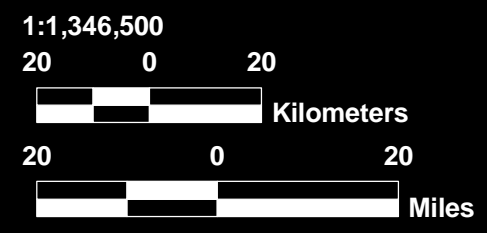
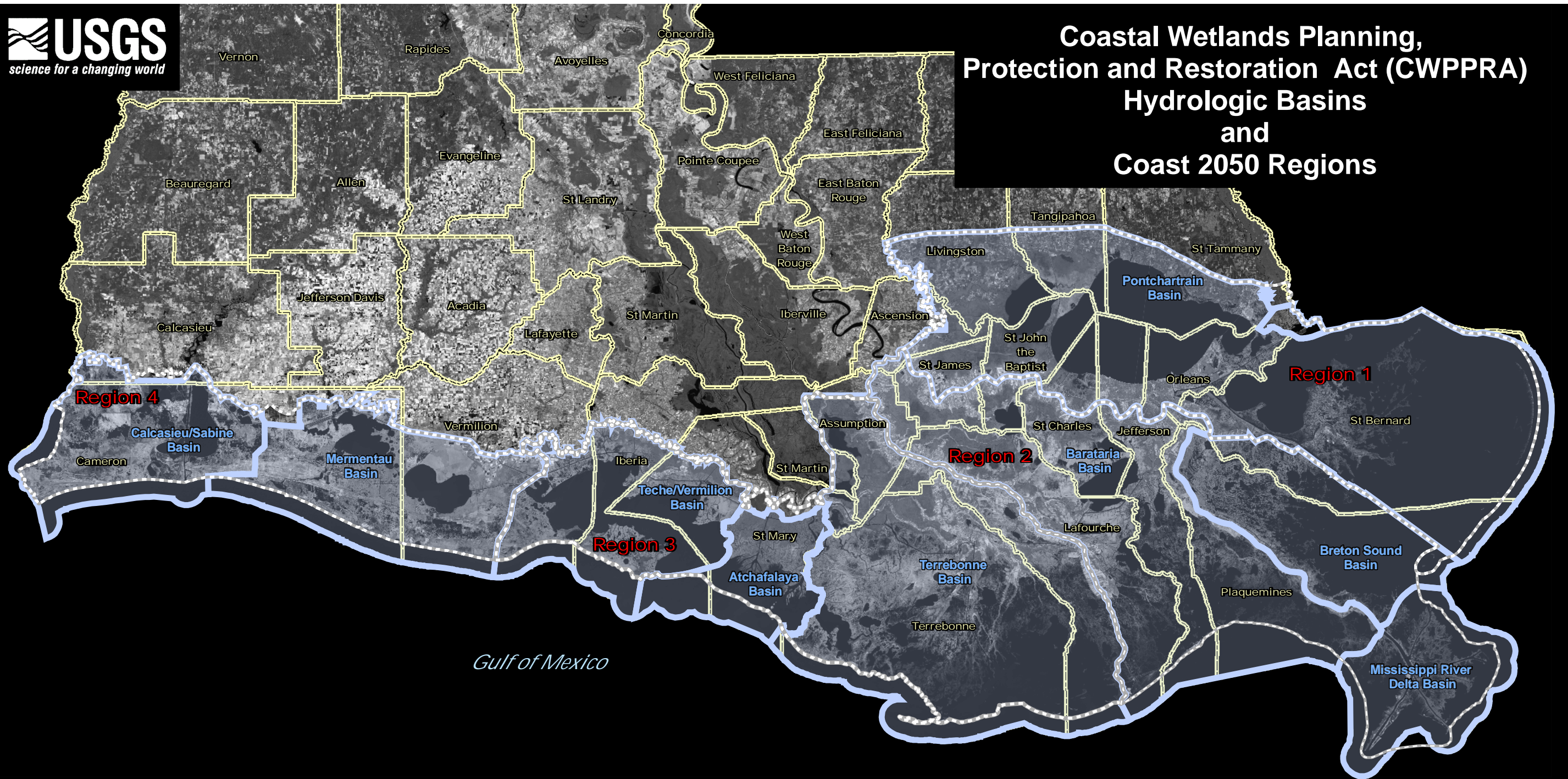
VII. SUMMARY AND CONCLUSIONS

The 18th PPL consists of 4 projects, for a Phase I cost of \$9,277,224 and a Phase II cost of \$74,118,917, which will be funded as these projects mature. The total benefits of the projects are estimated to be 2117 AAHUs, based on a comparison of future with and without-project conditions over the 20-year project life. The 18th PPL also includes one demonstration project with a total fully-funded cost of \$1.91 million.

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.



Coastal Wetlands Planning, Protection and Restoration Act (CWPPRA) Hydrologic Basins and Coast 2050 Regions






-  Region Boundary
-  Hydrologic Basin
-  Parish Boundary

Image Source:
2000 Thematic Mapper Imagery

Produced by:
U.S. Department of the Interior
U.S. Geological Survey
National Wetlands Research Center
Coastal Restoration Field Station
Baton Rouge, LA

Map ID: USGS-NWRC 2005-11-0319
Map Date: August 17, 2005

PLATE 2. SUMMARY OF PROJECTS 1-18 PRIORITY PROJECT LISTS

Deauthorized = underlined; Coastal Impact Assistance Program (CIAP) = *italics*

1st Priority Project List

U.S. Environmental Protection Agency

TE-20 Isles Dernieres Restoration East Island

U.S. Department of the Army

MR-03 West Bay Sediment Diversion

PO-17 Bayou LaBranche Wetland Creation

BA-19 Barataria Bay Waterway Wetland Creation

TV-03 Vermilion River Cutoff Bank Protection

U.S. Department of Commerce

BA-18 Fourchon Hydrologic Restoration

TE-19 Lower Bayou laChache Hydrologic Restoration

U.S. Department of Agriculture

BA-02 GIWW to Clovelly Hydrologic Restoration

TE-18 Vegetative Plantings - Timbalier Island Planting Demonstration

TE-17 Vegetative Plantings - Falgout Canal Planting Demonstration

CS-19 Vegetative Plantings - West Hackberry Planting Demonstration

ME-08 Vegetative Plantings - Dewitt-Rollover Planting Demonstration

U.S. Department of the Interior

PO-16 Bayou Sauvage National Wildlife Refuge Hydrologic Restoration, Phase 1

ME-09 Cameron Prairie Refuge National Wildlife Refuge Shoreline Protection

CS-18 Sabine National Wildlife Refuge Erosion Protection

CS-17 Cameron Creole Plugs

2nd Priority Project List

U.S. Environmental Protection Agency

TE-24 Isles Dernieres Restoration Trinity Island

U.S. Department of the Army

TE-23 West Belle Pass Headland Restoration

CS-22 Clear Marais Bank Protection

U.S. Department of Commerce

AT-02 Atchafalaya Sediment Delivery

TE-22 Point Au Fer Canal Plugs

AT-03 Big Island Mining

U.S. Department of Agriculture

CS-09 Brown Lake Hydrologic Restoration

ME-04 Freshwater Bayou Wetland Protection

BA-20 Jonathan Davis Wetland Restoration

CS-20 East Mud Lake Marsh Management

CS-21 Hwy. 384 Hydrologic Restoration

PO-06 Fritchie Marsh Creation

TV-09 Vermilion Bay/Boston Canal Shoreline Stabilization

BS-03a Caernarvon Diversion Outfall Management

U.S. Department of the Interior

PO-18 Bayou Sauvage National Wildlife Refuge Hydrologic Restoration, Phase 2

3rd Priority Project List

U.S. Environmental Protection Agency

TE-27 Whiskey Island Restoration

PO-20 Red Mud Demonstration

U.S. Department of the Army

PO-19 MRGO Disposal Area Marsh Protection

MR-06 Channel Armor Gap Crevasse

MR-07 Pass-a-Loutre Crevasse

U.S. Department of Commerce

BA-21 Bayou Perot/Bayou Rigolettes Marsh Restoration

TE-25 East Timaballier Island Sediment Restoration, Phase 1

TE-26 Lake Chapeau Sediment Input and Hydrologic Restoration

BA-15 Lake Salvador Shore Protection Demonstration

U.S. Department of Agriculture

BA-04c West Pointe-a la Hache Outfall Management

TV-04 Cote Blanche Hydrologic Restoration

CS-04a Cameron - Creole Maintenance

BS-04a White's Ditch Outfall Management

TE-28 Brady Canal Hydrologic Restoration

PO-9a Violet Freshwater Distribution

ME-12 Southwest Shore White Lake Demonstration

U.S. Department of the Interior

CS-23 Sabine Refuge Structure Replacement (Hog Island)

4th Priority Project List

U.S. Environmental Protection Agency

CS-26 Compost Demonstration

U.S. Department of the Army

BS-07 Grand Bay Crevasse

MR-08 Beneficial Use of Hopper Dredge Material Demonstration

U.S. Department of Commerce

PO-21 Eden Isles East Marsh Restoration

TE-30 East Timbalier Island Sediment Restoration, Phase 2

U.S. Department of Agriculture

CS-24 Perry Ridge Shore Protection

BA-22 Bayou L'Ours Ridge Hydrologic Restoration

BA-23 Baratavia Bay Waterway West Side Shoreline Protection

CS-25 Plowed Terraces Demonstration

TE-31 Flotant Marsh Fencing Demonstration

5th Priority Project List

U.S. Environmental Protection Agency

BA-25b Mississippi River Reintroduction into Bayou Lafourche

U.S. Department of the Army

PO-22 Bayou Chevee Shoreline Protection

U.S. Department of Commerce

TV-12 Little Vermilion Bay Sediment Trapping

BA-03c Myrtle Grove Siphon

U.S. Department of Agriculture

BA-03c Naomi Outfall Management

CS-11b Sweet Lake/ Willow Lake Hydrologic Restoration

TE-29 Raccoon Island Breakwaters Demonstration

ME-13 Freshwater Bayou Bank Stabilization

U.S. Department of the Interior

TE-10 Grand Bayou Hydrologic Restoration

6th Priority Project List

U.S. Environmental Protection Agency

TE-33 Bayou Boeuf Pump Station

U.S. Department of the Army

TV-14 Marsh Island Hydrologic Restoration

TE-35 Marsh Creation East of the Atchafalaya River – Avoca Island

MR-10 Flexible Dustpan Demo at Head of Passes (Demo)

U.S. Department of Commerce

CS-27 Black Bayou Hydrologic Restoration

MR-09 Delta-Wide Crevasses

TV-15 Sediment Trapping at “The Jaws”

U.S. Department of Agriculture

TE-34 Penchant Basin Natural Resources Plan, Increment 1

TV-13a Oaks/Avery Canal Hydrologic Restoration Increment 1

BA-26 Barataria Bay Waterway East Side Shoreline Protection

TV-16 Cheniere au Tigre Sediment Trapping Demonstration

U.S. Department of the Interior

TE-32a Lake Boudreaux Freshwater Introduction

LA-03a Nutria Harvest for Wetland Restoration

7th Priority Project List

U.S. Department of Commerce

BA-28 Grand Terre Vegetative Plantings

ME-14 Pecan Island Terracing

U.S. Department of Agriculture

BA-27 Barataria Basin Landbridge Shoreline Protection, Phase 1 and 2

TE-36 Thin Mat Floating Marsh Enhancement Demonstration

8th Priority Project List

U.S. Department of the Army

CS-28-1 Sabine Refuge Marsh Creation, Cycle 1

CS-28-2 Sabine Refuge Marsh Creation, Cycle 2

CS-28-3 Sabine Refuge Marsh Creation, Cycle 3

CS-28-4 Sabine Refuge Marsh Creation, Cycle 4

CS-28-5 Sabine Refuge Marsh Creation, Cycle 5

U.S. Department of Commerce

PO-25 Bayou Bienvenue Pump Station Diversion and Terracing

PO-24 Hopedale Hydrologic Restoration

U.S. Department of Agriculture

BA-27 Barataria Basin Landbridge, Shoreline Protection, Phase 2 Increment A

BA-27 Barataria Basin Landbridge, Shoreline Protection, Phase 2 Increment B

BA-27 Barataria Basin Landbridge, Shoreline Protection, Phase 2 Increment C

(These projects were merged with BA-27 after PPL 8 approval and are subsequently numbered as BA-27)

ME-11 Humble Canal Hydrologic Restoration

BS-09 Upper Oak River Freshwater Siphon

TV-17 Lake Portage Landbridge

9th Priority Project List

U.S. Environmental Protection Agency

BA-29 LA Highway 1 Marsh Creation

TE-40 Timbalier Island Dune and Marsh Restoration

TE-37 New Cut Dune and Marsh Restoration

U.S. Department of the Army

PO-26 Opportunistic Use of the Bonnet Carre Spillway

TV-11b Freshwater Bayou Bank Stabilization - Belle Isle Canal to Lock

MR-11 Periodic Introduction of Sediment and Nutrients at Selected Diversion Sites Demonstration

TV-19 Weeks Bay MC and SP/Commercial Canal/Freshwater Redirection

U.S. Department of Commerce

PO-27 Chandeleur Islands Marsh Restoration

TV-18 Four Mile Canal Terracing and Sediment Trapping

AT-04 Castille Pass Channel Sediment Delivery

PO-28 LaBranche Wetlands Terracing, Planting, and Shoreline Protection

BA-30 East Grand Terre Islands Restoration

U.S. Department of Agriculture

TE-39 South Lake Decade Freshwater Introduction

CS-29 Black Bayou Bypass Culverts Hydrologic Restoration

CS-30 Perry Ridge West Bank Stabilization

ME-17 Little Pecan Bayou Hydrologic Restoration

BA-27c Barataria Basin Landbridge Shoreline Protection, Phase 3

U.S. Department of the Interior

ME-16 Freshwater Introduction South of Hwy. 82

TE-41 Mandalay Bank Protection Demonstration

10th Priority Project List

U.S. Environmental Protection Agency

- PO-30 Lake Borgne Shoreline Protection
- BA-34 Small Freshwater Diversion to the Northwestern Barataria Basin

U.S. Department of the Army

- MR-13 Benneys Bay 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 Landbridge Restoration
- TE-44 North Lake Mechant Landbridge Restoration
- BS-11 Delta Management at Fort St. Phillip
- CS-32 East Sabine Lake Hydrologic Restoration
- TE-45 Terrebonne Bay Shore Protection Demonstration

11th Priority Project List

U.S. Environmental Protection Agency

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

U.S. Department of the Army

- ME-21a Grand Lake Shoreline Protection, Tebo Point
- ME-21b Grand Lake Shoreline Protection, O&M Only (Transferred)

U.S. Department of Commerce

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

U.S. Department of Agriculture

- BA-27d Barataria Basin Landbridge Shoreline Protection, Phase 4
- LA-03b Coastwide Nutria Control Program
- CS-31 Holly Beach Sand Management
- TE-48 Raccoon Island Shoreline Protection/Marsh Creation, Ph 2

U.S. Department of the Interior

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

12th Priority Project List

U.S. Environmental Protection Agency

- BA-39 Bayou Dupont Sediment Delivery System

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 Creation Demonstration

13th Priority Project List

U.S. Environmental Protection Agency

- TE-50 Whiskey Island Back Barrier Marsh Creation

U.S. Department of the Army

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

U.S. Department of Agriculture

- TV-20 Bayou Sale Ridge Protection

U.S. Department of the Interior

- PO-33 Goose Point/Point Platte Marsh Creation

14th Priority Project List

U.S. Environmental Protection Agency

TV-21 East Marsh Island Marsh Creation

U.S. Department of Commerce

BA-40 Riverine Sand Mining/Scofield Island Restoration

U.S. Department of Agriculture

BS-12 White Ditch Resurrection

BA-41 South Shore of the Pen Shoreline Protection and Marsh Creation

15th Priority Project List

U.S. Department of the Army/ U.S. Environmental Protection Agency

BS-13 *Bayou Lamoque Freshwater Diversion*

MR-15 Venice Ponds Marsh Creation and Crevasses

U.S. Department of the Interior

BA-42 Lake Hermitage Marsh Creation

U.S. Department of Commerce

ME-23 South Pecan Island Freshwater Introduction

16th Priority Project List

U.S. Environmental Protection Agency

TE-53 Enhancement of Barrier Island Vegetation Demonstration

U.S. Department of the Army

PO-34 Alligator Bend Marsh Restoration and Shoreline Protection

ME-24 Southwest Louisiana Gulf Shoreline Nourishment and Protection

U.S. Department of Commerce

TE-51 Madison Bay Marsh Creation and Terracing

TE-52 West Belle Pass Barrier Headland Restoration Project

17th Priority Project List

U.S. Environmental Protection Agency

BS-15 Bohemia Mississippi River Reintroduction

U.S. Department of the Interior

BS-16 Caernarvon Outfall Management/Lake Lery Shoreline Restoration

U.S. Department of Agriculture

LA-09 Sediment Containment System for Marsh Creation Demonstration

BA-47 West Pointe a la Hache Marsh Creation

U.S. Department of Commerce

BA-48 Bayou Dupont Ridge Creation and Marsh Restoration

LA-08 Bioengineered Oyster Reef Demonstration

18th Priority Project List

U.S. Environmental Protection Agency

BS-18 Bertrandville Siphon

U.S. Department of Agriculture

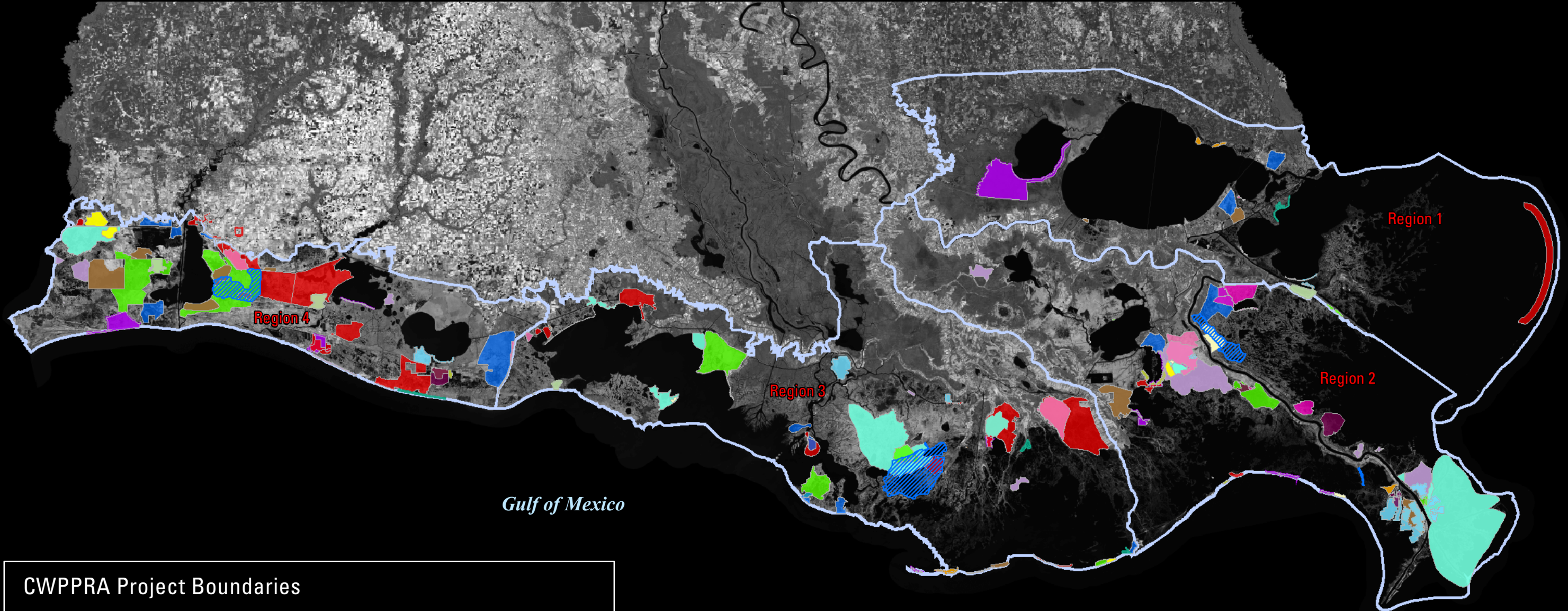
TE-66 Central Terrebonne Freshwater Enhancement

CS-49 Cameron-Creole Freshwater Introduction

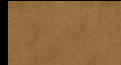













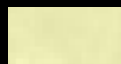



LA-16 Non-Rock Alternatives to Shoreline Protection Demonstration

U.S. Department of Commerce

BA-68 Grand Liard Marsh and Ridge Restoration



CWPPRA Project Boundaries

	PPL 1		PPL 6		PPL 11		PPL 16
	PPL 2		PPL 7		PPL 12		PPL 17
	PPL 3		PPL 8		PPL 13		PPL 18
	PPL 4		PPL 9		PPL 14		
	PPL 5		PPL 10		PPL 15		

 Region Boundary

1:1,275,000

10 0 10 20

 Kilometers

10 0 10 20

 Miles



Image Source:
2000 Thematic Mapper Imagery

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National Wetlands Research Center
Coastal Restoration Field Station
Baton Rouge, La.

Map ID: USGS-NWRC 2009-11-0196
Map Date: May 12, 2009

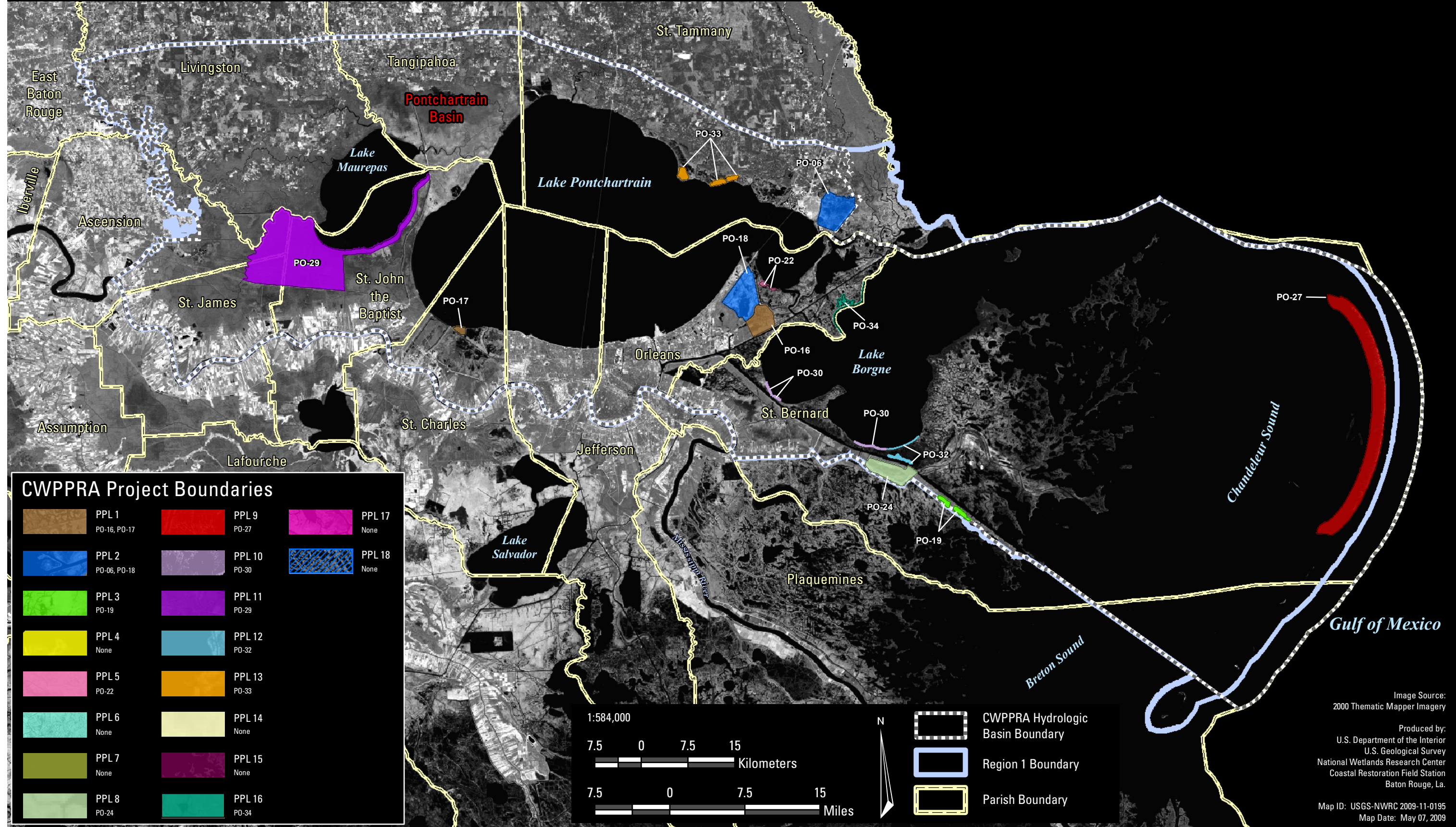
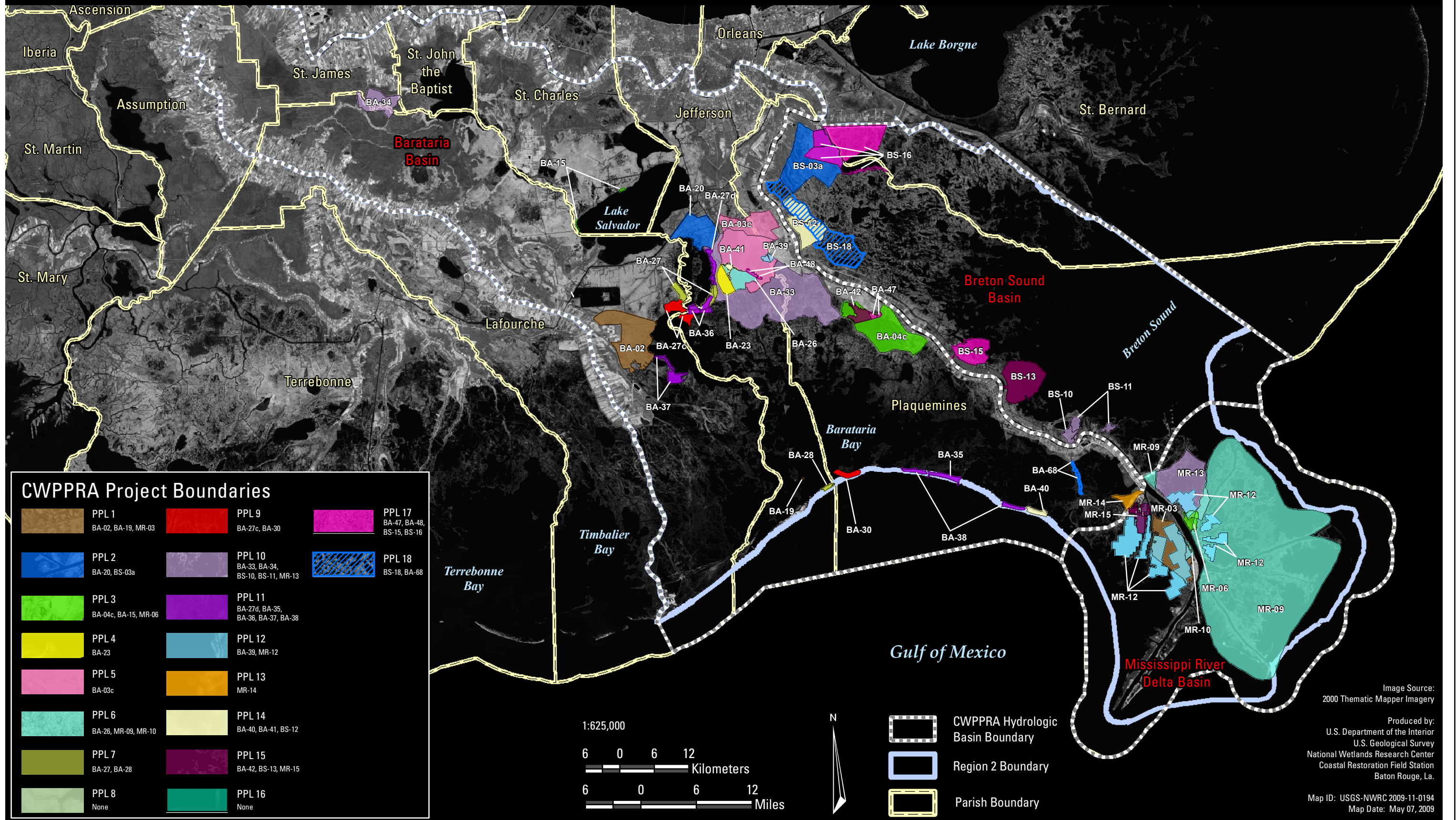
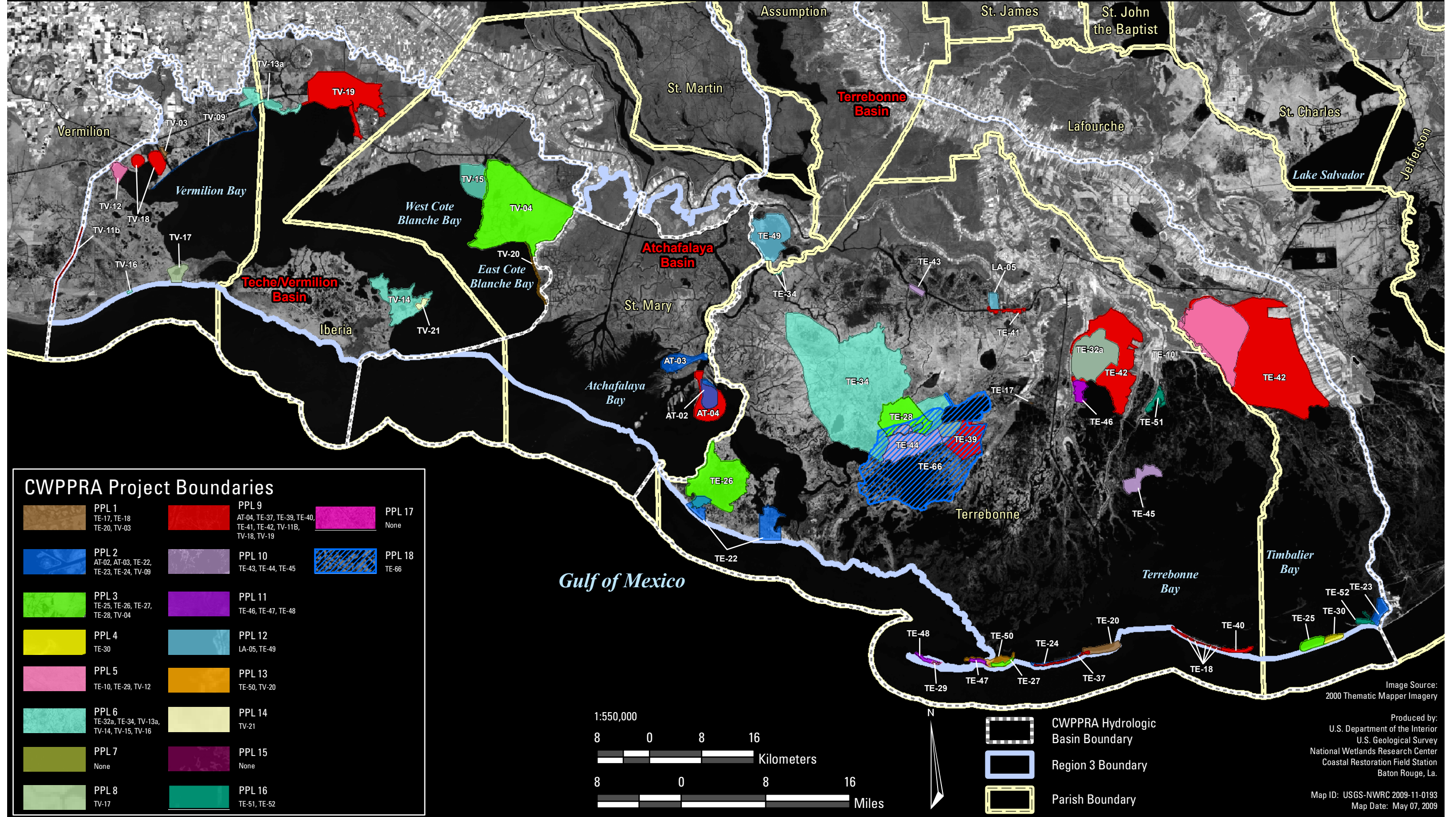


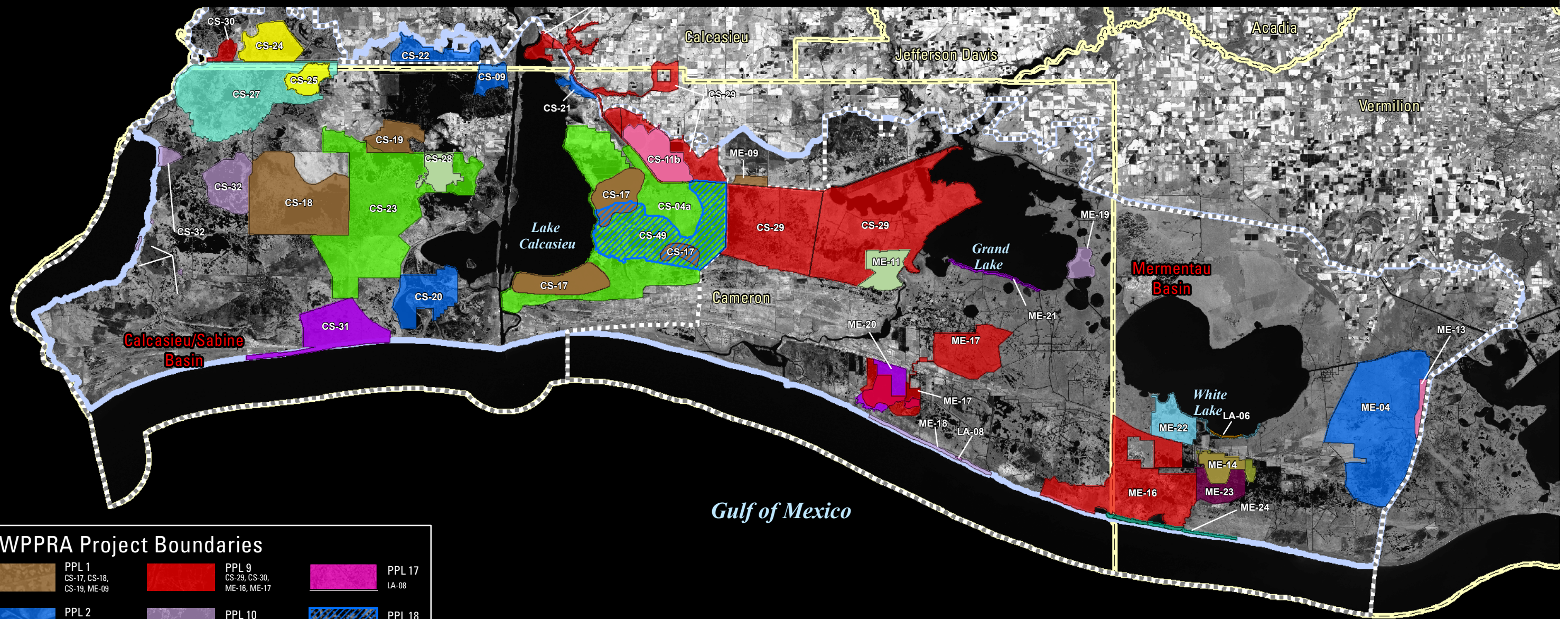
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Baton Rouge, La.

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Map Date: May 07, 2009







CWPPRA Project Boundaries

	PPL 1 CS-17, CS-18, CS-19, ME-09		PPL 9 CS-29, CS-30, ME-16, ME-17		PPL 17 LA-08
	PPL 2 CS-09, CS-20, CS-21, CS-22, ME-04		PPL 10 CS-32, ME-18, ME-19		PPL 18 CS-49
	PPL 3 CS-04a, CS-23		PPL 11 CS-31, ME-20, ME-21		
	PPL 4 CS-24, CS-25		PPL 12 ME-22		
	PPL 5 CS-11b, ME-13		PPL 13 LA-06		
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	PPL 7 ME-14		PPL 15 ME-23		
	PPL 8 CS-28, ME-11		PPL 16 ME-24		

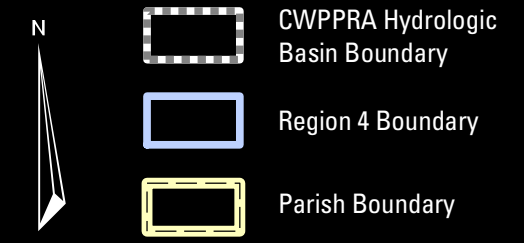


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Map Date: May 22, 2009