21st PRIORITY PROJECT LIST REPORT

PREPARED BY:

LOUISIANA COASTAL WETLANDS CONSERVATION AND RESTORATION TASK FORCE

October 2012

Coastal Wetlands Planning, Protection and Restoration Act

21st Priority Project List Report

Executive Summary of PPL 21 and Status of CWPPRA Program

In 1990, Congress established the Coastal Wetlands Planning, Protection, and Restoration Act (CWPPRA, PL 101-646, Title III) to provide for the long-term conservation of Louisiana's coastal wetlands (see Appendix A). Section 303(a) of the CWPPRA directed 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.

Section 303(a) also requires that the list of priority projects be updated and transmitted to Congress annually. According to Section 303 (a), the Task Force initiated an annual Priority Project List (PPL) process in 1991. This report transmits the 21st PPL (PPL 21) and fulfills the requirements of CWPPRA Section 303(a).

Under the development of PPL 21, the public, parish officials, along with state and federal agencies met at four regional coastal meetings to propose projects from the nine identified hydrologic basins. Of the 55 project proposals and 7 demonstration project proposals, 21 projects and 6 demonstration projects were nominated by CWPPRA agencies and qualifying parish representatives at the CWPPRA coast-wide voting meeting on February 22, 2011. Ten candidate projects and three candidate demonstration projects were selected from the list of nominees at the Technical Committee meeting held on April 8, 2011. These PPL 21 candidate projects were evaluated to determine the long-term net wetlands benefits based on a 20-year project life. Benefits were measured in both net acres and net Average Annual Habitat Units (AAHUs). The candidate projects were also evaluated to determine conceptual project designs and cost estimates. Economic analyses were conducted to determine the total fully funded cost estimate for feasibility planning, construction, and 20 years of operations and maintenance. Cost-effectiveness was calculated for each project using the fully funded cost estimate and net wetland benefits over the 20 year project life.

At the end of the PPL 21 development process the Task Force authorized the following four new coastal restoration projects:

- Oyster Bayou Marsh Restoration
- LaBranche Central Marsh Creation

- Northwest Turtle Bay Marsh Creation
- Cole's Bayou Marsh Restoration

These PPL 21 projects will be implemented in two phases. Phase I will include data collection, engineering and design, environmental impact assessment and regulatory compliance, pre-construction monitoring, and real estate planning. The total Phase I cost for the four new PPL 21 coastal restoration projects is estimated to be $12,542,213. Phase II would include real estate acquisition, construction, operation and maintenance, and post-construction monitoring. The total Phase II cost for these four projects is estimated to be $109,228,331. The total net wetland benefit that would be derived by implementing the four PPL 21 projects is estimated to be 2,025 acres or 961 AAHUs over a 20-year period. The Task Force will consider approving Phase II funding for individual PPL 21 projects after Phase I requirements have been met for each.

Since the last PPL report to Congress, the Task Force de-authorized the following project because it did not represent the best strategy for addressing the immediate and/or long term coastal restoration needs as compared to other priority projects, and/or the project scope was beyond the funding capability of the CWPPRA program:

- Riverine Sand Mining-Scofield Island Restoration (BA-40), PPL 14

With the addition of the four new PPL 21 projects and the removal of the one de-authorized project, there are a total of 151 active Louisiana coastal restoration projects in the CWPPRA Program. The current estimate for the 151 projects combined is $2.5B. The current funded estimate for approved phases for all projects is $1.3B. At the time of the production of this PPL 21 report, $1,040,594,881 has been obligated and $732,564,934 had been expended on the 151 active CWPPRA coastal restoration projects in Louisiana since inception of the program in 1991. Since the last PPL report the program has expended $35,919,683. Of the 151 active projects, 95 projects have completed construction, 10 projects are under construction, and 46 projects are in various stages of planning and design. The Task Force has determined that these active projects represent the best strategy for addressing the immediate and/or long term needs of Louisiana's coastal wetlands within the available and projected future funding limits of the CWPPRA Program. Given the significant need for coastal wetlands restoration in Louisiana, the Task Force often generates more projects than the CWPPRA program has funding in hand to build. As such, Phase II funding of projects will be based on CWPPRA program funding availability at the time of funding request. Although Congress in 2004 reauthorized CWPPRA through 2019, the program is expected to reach its capacity to authorize new PPL projects within the next few years. Even though CWPPRA has received more than $80 million each year over the last several years, there continues to be a backlog of construction-ready projects. To offset this back-log, the Task Force continues to de-authorize projects that are beyond the funding capability of the CWPPRA program or do not represent the best strategy for addressing the immediate and long term needs of Louisiana's coastal wetlands under CWPPRA.

Coastal Wetlands Planning, Protection, and Restoration Act

21st Priority Project List Report

Table of Contents

Coastal Wetlands Planning, Protection, and Restoration Act

21st Priority Project List Report

Table of Contents

MAIN REPORT – LIST OF TABLES AND FIGURES

MAIN REPORT – LIST OF PLATES

APPENDICES – VOLUME 2

Coastal Wetlands Planning, Protection, and Restoration Act

21st Priority Project List Report

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's coastal zone contains 45 percent of all intertidal coastal marshes in the lower forty-eight states; however, it is suffering 80 percent of the entire Nation's annual coastal wetland loss. Since the 1930s, coastal Louisiana has lost over 1,875 square miles, an area more than 25 times larger than Washington D.C. As recently as the year 2000, the annual loss rate was quantified as 24 square miles per year. From 2000 to 2050, 513 square miles are projected to be lost. In addition, the U.S. Geological Survey (USGS) estimated the Hurricanes Katrina and Rita (2005) alone accounted for converting 217 square miles (138,880 acres) of coastal marsh to open water along the Louisiana coast. 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 21st 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 21. 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 and the Technical Committee held six 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 21ST PRIORITY PROJECT LIST

IDENTIFICATION & SELECTION OF CANDIDATE & DEMONSTRATION PROJECTS

Regional Planning Team (RPT) meetings were held during the period of January 25 through January 27, 2011 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 February 22, 2011 for the 21st PPL to choose three projects in the Terrebonne, Barataria, Pontchartrain, and Breton Sound Basins based on the high loss rates (1985-2006) in those basins, two projects in the Teche/Vermilion, Mermentau, Calcasieu/Sabine Basins, and only one project in the Atchafalaya and Mississippi River Delta Basins because of low land loss rates and number of proposals submitted. As per the accepted PPL 21 process, the Breton Sound Basin was awarded a third project nominee, as opposed to the traditional two, due to the submittal of only one project proposal in the Mississippi River Delta Basin In addition, six demonstration projects were selected as nominees. A total of twenty-one 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	January 27, 2011
Region 2: New Orleans, LA	January 27, 2011
Region 3: Houma, LA	January 26, 2011
Region 4: Abbeville, LA	January 25, 2011
Coast-wide Voting Meeting, Baton Rouge, LA	February 22, 2011

The Engineering and Environmental Work Groups and the AAG met March 22 and March 23, 2011 to review and reach consensus on preliminary project features, benefits, and fully-funded cost estimates for the twenty-one 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 and Restoration Authority (CPRA) on April 8, 2011. The matrix is included as Table 2.

Table 2a: 21st Project Priority List - Candidate Nominee Project Matrix by Basin

						Potential Issues				
Rg	**Basin**	**Type**	**Project**	**Preliminary Fully-Funded Cost Range**	**Preliminary Benefits (Net Acres Range)**	**Oysters**	**Land Rights**	**Pipelines /Utilities**	**O&M**	**Other Issues**
1	PO	MC/TR	Fritchie Marsh Creation and Terracing	$30M - $35M	500-600				**X**	**X**
1	PO	MC	Labranche Central Marsh Creation Project	$35M - $40M	700-800					
1	PO	MC	Guste Island Marsh Creation Project	$25M - $30M	500-600					
2	MR	FD/MC	Pass a Loutre Restoration	$40M -$50M	>1000			**X**		**X**
2	BS	MC	Lake Lery Shoreline Marsh Creation	$25M - $30M	350-400			**X**		
2	BS	MC	White Ditch Marsh Creation and Sediment Delivery	$15M-$20M	300-350			**X**		
2	BS	MC	Wills Point Marsh Creation	$30M - $35M	400-450					
2	BA	MC/SP	Northwest Turtle Bay Marsh Creation and Shore Protection	$25M - $30M	350-400	**X**		**X**	**X**	
2	BA	MC	Bayou Grande Cheniere Marsh Creation	$40M - $50M	350-400			**X**		
2	BA	TR	Bayou L'Ours Terracing	$5 - $10M	50-100			**X**		
3	TE	MC	Lake Tambour Marsh Creation	$25 - $30M	400-450	**X**				
3	TE	MC	Lake Decade Marsh Creation and Nourishment	$25M - $30M	300-350			**X**		
3	TE	FD	Carencro Bayou Freshwater Introduction Project	$5M - $10M	200-250			**X**	**X**	
3	AT	FD/MC	West Wax Lake Wetlands Diversion	$10M - $15M	100-150			**X**	**X**	
3	TV	MC	Cole's Bayou Marsh Creation and Restoration	$25M - $30M	350-400	**X**		**X**	**X**	
3	TV	MC	Southeast Marsh Island Marsh Creation & Nourishment	$30 -$35M	600-700					
4	ME	MC/TR	Front Ridge Freshwater Introduction and Marsh Creation Project	$40-$50M	350-400			**X**	**X**	**X**
4	ME	SP/TR	Southwest White Lake Shoreline Protection	$40M - $50M	250-300			**X**	**X**	
4	CS	MC	Cameron Meadows Marsh Creation and Wetland Restoration	$35M-$40M	300-350	**X**		**X**	**X**	
4	CS	MC/ TR	Oyster Bayou Marsh Restoration	$30-$35M	300-350			**X**	**X**	
	Coast wide	MC	Backfilling Canals	$30M - $35M	900-1000					

Basin codes are: PO=Pontchartrain; MR=Mississippi River Delta; BS=Breton Sound; BA=Barataria; TE=Terrebonne; AT=Atchafalaya; TV=Teche/Vermilion; ME=Mermentau; CS=Calcasieu/Sabine.
Type codes: FD=Freshwater Diversion; HR=Hydrologic Restoration; MC=Marsh Creation; O&M= Operation and Maintenance; SP=Shoreline Protection; TR=Terracing; BI=Barrier Island; VP=Vegetative Plantings.

Table 2b: 21st Project Priority List Demonstration Nominee Project Matrix

Demonstration Project Name	Meets Demonstration Project Criteria?	Lead Agency	Total Fully-Funded Cost	Technique Demonstrated
Automated Marsh Planting Demo	Yes	COE	$2,000,000	Evaluate the potential of dredged material transport of plant materials to planting site via dredge pipeline as an alternative planting method.
Deltalok Demo	Yes	COE	$1,025,703	Evaluate the effectiveness of the Deltalok® Terra-Soft Block™ (TSB) System as alternative method to traditional shoreline protection methods, combining the structural stability of rip rap with the ecosytem benefits of vegetative earthen banks.
Habitat Enhancements through Vegetation Plantings Using Gulf Saver Bags	Yes	USFWS	$632,231	Evaluate the effectiveness of Gulf Saver Bags to stabilize an eroding shoreline and establish marsh vegetation.
Autoclaved Aerated Concrete for the Coastline	Yes	COE	N/A	Project Withdrawn
Bioengineering Solutions using Fascines and Coir Mattresses	Yes	EPA	$2,000,000	Evaluate the effectiveness of using natural materials to reduce shoreline retreat along bay and lake areas that have experienced excessive amounts of erosion. In addition, evaluate the ability to trap sediment and accrete land behind the shoreline protection features.
The Wave Robber	Yes	NMFS	$967,113	Evaluate the effectiveness of the Wave Robber system as an alternative method of shoreline protection equivalent to traditional methods, while trapping ambient sediments to facilitate expansion of emergent marsh.

The CWPPRA Technical Committee met publicly on April 8, 2011 to consider the preliminary costs, wetland benefits, and potential issues of the twenty nominees. Eleven 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 eleven candidate projects took place May 2011 through September 2011. The Environmental and Engineering Work Groups and AAG met to refine the projects and develop boundaries on May 18, 2011. Interagency field visits were conducted during May and June 2011 at each project site/area with members of the Engineering and Environmental Work Groups and the AAG. 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 9 through August 10, 2011, the Engineering Work Group met to review and approve the Phase I and II cost estimates developed by the agencies for the eleven PPL21 candidates and three PPL21 demonstration candidates. In September 2011, 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 9, 2011. The Economics Work Group reviewed the final project cost estimates and developed annualized costs in the month of October 2011.

The Environmental and Engineering Work Groups and AAG also evaluated and ranked the three demonstration projects. 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:

(P_1) 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.

(P_2) 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.

(P_3) 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.

(P_4) 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.

(P_5) 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.

(P_6) 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 21st Priority Project List Candidate Demonstration Projects

		Parameter (Pn)						
Demonstration Project Name	**Total Fully-Funded Cost**	**P_1**	**P_2**	**P_3**	**P_4**	**P_5**	**P_6**	**Total Score**
Automated Marsh Planting (aka "Alternative to Manual Planting")	$2,300,608	3	3	2	2	2	2	14
Deltalok	$1,750,312	2	3	3	2	2	2	14
Habitat Enhancement through Vegetative Plantings Using Gulf Saver Bags	$1,053,181	2	3	1	2	2	2	12

Demonstration Project Parameters: (P_1) Innovativeness; (P_2) Applicability or Transferability; (P_3) Potential Cost Effectiveness; (P_4) Potential Environmental Benefits; (P_5) Recognized Need for the Information to be Acquired; (P_6) 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, and costs. The matrix is included as Table 4.

Table 4: 21st Priority Project List Candidate Project Evaluation Matrix

Project Name	**AAHUs**	**WVA Net Acres**	**Total Fully-Funded Cost**	**Average Annual Cost (AAC)**	**Cost Effectiveness (AAC/AAHU)**	**Cost Effectiveness (Cost/Net Acre)**
Fritchie Marsh Creation and Terracing	209	575	$46,080,753	$3,344,557	$16,003	$80,140
Labranche Central Marsh Creation	309	731	$42,159,208	$3,065,695	$9,921	$57,673
Lake Lery Shoreline Marsh Creation	172	412	$31,278,012	$2,271,516	$13,206	$75,918
White Ditch Marsh Creation	119	331	$30,520,482	$2,211,330	$18,583	$92,207
Bayou Grande Cheniere Marsh Creation and	190	419	$48,646,882	$3,532,709	$18,593	$116,102
Northwest Turtle Bay Marsh Creation	187	407	$23,198,757	$1,683,220	$9,001	$56,999
Bayou L'Ours Terracing	32	58	$5,447,519	$385,639	$12,051	$93,923
Southeast Marsh Island Marsh Creation	216	338	$22,532,305	$1,632,615	$7,558	$66,664
Cole's Bayou Marsh Restoration	234	398	$26,631,224	$1,922,965	$8,218	$66,913
Oyster Bayou Marsh Restoration	231	489	$29,781,355	$2,162,912	$9,363	$60,903

Two public meetings were held in Abbeville, LA, and New Orleans, LA, respectively, November 16 and 17, 2011, to present projects to the public for comment.

The CWPPRA Technical Committee met on December 13, 2011 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 did not rank or recommend any demonstration projects for the CWPPRA Task Force to approve funding. Due to a three-way tie for the 4th and final candidate selection, a tie-breaking re-vote among all agencies for just those three tying candidates, was conducted, yielding Cole's Bayou Marsh Restoration as the final selection. The results of the CWPPRA Technical Committee vote are outlined in Table 5. On January 19, 2012, the CWPPRA Task Force reviewed the Technical Committee recommendations and moved to adopt the recommendation without change.

Table 5: 21st Priority Project List Candidate Selection Process – Agency Voting Record

*Project No.	Nominee Project Name	Coast 2050 Region	USACE	STATE	EPA	FWS	NMFS	NRCS	No. of Votes	Sum of Point Score
CS-59	Oyster Bayou Marsh Restoration	R4	3	6	3	2	6	4	6	24
PO-133	Labranche Central Marsh Creation	R1	6		4	1	2	3	5	16
BA-125	Northwest Turtle Bay Marsh Creation	R2	5			3	5	6	4	19
+	Lake Lery Shoreline Marsh Creation	R2	2	2		4	4		4	12
+	Bayou L'Ours Terracing	R2	1	4	2			5	4	12
TV-63	Cole's Bayou Marsh Restoration	R3	4	3			3	2	4	12
+	Fritchie Marsh Creation and Terracing	R1		5		6	1		3	12
+	Southeast Marsh Island Marsh Creation	R3		1	6			1	3	8
+	Bayou Grande Cheniere Marsh Creation and Terracing	R2			1	5			2	6
+	White Ditch Marsh Creation	R2			5				1	5

*Each selected project received a two-letter code to identify its basin; these codes are: PO-Ponchartrain; BS-Breton Sound, MR- Mississippi River Delta; BA-Barataria; TE-Terrebonne; AT-Atchafalaya; TV-Teche/Vermilion; ME-Mermentau; CS-Calcasieu/Sabine.
+ These projects were not selected for funding.

Table 5: 21st Priority Project List Candidate Selection Process – Agency Voting Record (Tie-Break)

Nominee Project Name	COE	State	EPA	FWS	NMFS	NRCS	No. of votes	Sum of Point Score
Lake Lery Shoreline Marsh Creation	2	1	1	3	2	1	6	10
Bayou L'Ours Terracing	1	3	3	1	1	3	6	12
Cole's Bayou Marsh Restoration	3	2	2	2	3	2	6	14

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 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. Fully-funded cost estimates are developed for each project to determine how many projects could be supported through the Authorized program lifetime.

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.

PPL21 Fritchie Marsh Creation and Terracing

Coast 2050 Strategy:
Coastwide: Dedicated dredging to create, restore, or protect wetlands

Project Location:
Region 1, Pontchartrain Basin, St. Tammany Parish, located approximately 3 miles southeast of Slidell, Louisiana. Portions of the project are located on Big Branch Marsh National Wildlife Refuge.

Problem:
A significant portion of the Fritchie Marsh was lost due to Hurricane Katrina. Post storm shallow open water areas dominate the landscape which reduces the effectiveness of the PO-06 project. Wetlands in the project vicinity are being lost at the rate -0.92%/yr based on the extended boundary during 1984 to 2011. These marshes cannot recover without replacement of lost sediment, which is critical if the northshore marshes are to be sustained. Marshes near the intersection of Highways 433 and 90 are semi-impounded with substantially limited tidal exchange.

Goals:
Project goals include restoring and nourishing marsh, maintaining the structural integrity of Salt Bayou, creating edge and reducing wave erosion, and improving tidal exchange to created and existing marshes south of Prevost Island. Specific goals of the project are: 1) create 580 acres of marsh including 10,000 feet of tidal creeks and 10 acres of ponds; 2) nourish an additional 20 acres or marsh, and 3) create 36 acres of emergent habitat by constructing 50,000 linear feet of earthen terraces.

Proposed Solution:
Approximately 4.5 million cubic yards of material would be placed into two marsh creation areas to restore 580 acres and nourish 20 acres of brackish marsh. Material would be dredged from a borrow site in Lake Pontchartrain. The borrow site would be designed to avoid and minimize impacts to sensitive aquatic habitat and existing banklines. Tidal creeks and ponds would be constructed prior to placement of dredged material and retention levees would be gapped to support estuarine fisheries access to achieve a functional marsh. Culverts would be installed to improve tidal exchange to marsh located south of Prevost Island. Approximately 50,000 linear feet of earthen terraces would be constructed and planted.

Project Benefits:
The project would result in approximately 575 net acres of marsh over the 20-year project life.

Project Costs:
The total fully-funded cost is $46,080,753.

Preparers of Fact Sheet:
Patrick Williams, NOAA's National Marine Fisheries Service, (225) 389-0508, ext 208
patrick.williams@noaa.gov

Fritchie Marsh Creation and Terracing (PPL21 Candidate)

N

Culverts *

Marsh Creation *

Terrace Field (see note)*

Project Boundary*

* denotes proposed features

Note: lines do not represent terrace alignments

0.8 0 0.8 Kilometers

0.8 0 0.8 Miles

Scale 1:45,000

USGS science for a changing world

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:
2010 NAIP Photography

Map ID: USGS-NWRC 2011-11-0055
Map Date: September 21, 2011

PPL21 LaBranche Central Marsh Creation

Coast 2050 Strategy:
Coastwide: Dedicated Dredging for Wetland Creation

Project Location:
Region 4, Pontchartrain Basin, St. Charles Parish, bounded to the North by the railroad running parallel to I-10, to the west by the marsh fringe just east of Bayou LaBranche, to the south by Bayou Traverse and to the east by marsh fringe west of a pipeline canal.

Problem:
Dredging of access/flotation canals for construction of I-10 resulted in increased salinity & altered hydrology that exacerbated conversion of wetland vegetation into shallow open water bodies. Land loss is estimated to be -0.543 percent/year based on USGS data from 1984 to 2011 within the extended project boundary.

Goals:
The primary goal is to restore marsh that converted to shallow open water. Project implementation would result in an increase of fisheries and wildlife habitat, acreage, and diversity along with improving water quality. The proposed project would provide a protective wetland buffer to the railroad and I-10, the region's primary westward hurricane evacuation route, and complement hurricane protection measures in the area.

Proposed Solution:
The proposed solution consists of the creation of 762 acres of emergent wetlands and the nourishment of 140 acres of existing wetlands using dedicated dredging from Lake Pontchartrain. The marsh creation area would have a target elevation the same as average healthy marsh. It is proposed to place the dredge material in the target area with the use of retention dikes along the edge of the project area. If degradation of the containment dikes has not occurred naturally by TY3, gapping of the dikes will be mechanically performed. Successful wetland restoration in the immediate area (PO-17 constructed in 1994) clearly demonstrates the ability for these wetlands to be restored using material from a sustainable borrow area (outlet end of Bonnet Carre Spillway). Engineering monitoring surveys of the marsh creation area and borrow area are planned as well.

Project Benefits:
The project would result in approximately 731 net acres of marsh over the 20-year project life.

Project Costs:
The total fully-funded cost is $42,159,208.

Preparer of Fact Sheet:
Jason Kroll, USDA-NRCS, 225-389-0347 jason.kroll@la.usda.gov

LaBranche Central Marsh Creation
(PPL21 Candidate)

USGS
science for a changing world

Marsh Creation *

Project Boundary

* denotes proposed features

0.3 0 0.3 Kilometers

0.3 0 0.3 Miles

Scale 1:20,000

Map ID: USGS-NWRC 2011-11-0056
Map Date: July 12, 2011

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:
2010 NAIP Photography

PPL21 Lake Lery Shoreline Marsh Creation

Coast 2050 Strategy:
Coastwide: Dedicated Dredging to Create, Restore, or Protect Wetlands; and, Maintenance of Lake Shoreline Integrity.

Project Location:
Region 2, Breton Sound Basin, along the northern and eastern rim of Lake Lery in St. Bernard Parish

Problem:
The marshes forming the northern and eastern shoreline of Lake Lery were severely damaged by Hurricane Katrina. Wind-induced waves within Lake Lery could further damage the shoreline and cause accelerated interior marsh loss. Without directly rebuilding these marshes, the lake itself will likely continue to grow and will coalesce with Bayou Terre aux Boeufs and recently formed open water areas north of the lake. Based on USGS hyper temporal data analysis (1984 to 2011), land loss for the area is -1.42% per year. The subsidence rate is estimated at 1.1 to 2.0 ft per century (Coast 2050, Lake Lery mapping unit).

Goals:
The project area encompasses 589 acres. The primary goals of the project are to 1) create/nourish 557 acres of marsh through dedicated dredging: and, 2) restore/stabilize approximately 3 miles of Lake Lery shoreline.

Proposed Solution:
Create 432 acres and nourish 125 acres of intermediate marsh via dedicated dredging with borrow from nearby Lake Lery. Containment dikes will be constructed in situ and will be gapped within 3 years of construction to allow greater tidal exchange and estuarine fisheries access. Restore 15,911 feet of the lake rim by constructing a lakeshore berm feature, designed to reduce shoreline erosion. Approximately 17 acres will be constructed above water and will settle to intertidal elevation by year 5. The berm will be vegetated to stabilize the feature and reduce shoreline erosion.

Project Benefits:
The project would result in approximately 412 net acres of marsh over the 20-year project life.

Project Costs:
The total fully-funded cost is $31,278,012.

Preparers of Fact Sheet:
Kimberly Clements, NOAA's National Marine Fisheries Service, (225) 389-0508, ext 204
kimberly.clements@noaa.gov;
Stuart Brown, Coastal Protection and Restoration Authority; (225) 342-4596
stuart.brown@la.gov

Lake Lery Shoreline Marsh Creation (PPL21 Candidate)

Shoreline Berm*
Marsh Creation/Nourishment *
Borrow *
Project Boundary *
* denotes proposed features

0.8 0 0.8 Kilometers
0.8 0 0.8 Miles

Scale 1:45,000

Map ID: USGS-NWRC 2011-11-0047
Map Date: September 07, 2011

USGS science for a changing world

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:
2010 NAIP Photography

PPL21 White Ditch Marsh Creation

Coast 2050 Strategy:
Coastwide: Dedicated Dredging to Create, Restore, or Protect Wetlands; Off-shore and Riverine Sand and Sediment Resources.
Region 2 Regional Ecosystem Strategies: Restore and Sustain Marshes.

Project Location:
Region 2, Breton Sound Basin, Plaquemines Parish, South of the White Ditch Siphon canal

Problem:
The project area is an open water body immediately adjacent to the east bank of the Mississippi River levee. The area is a failed former agricultural impoundment that has also been cut off from the Mississippi River effectively eliminating any input of sediment or nutrients from the River. Surrounding marshes have changed from fresh marsh and possibly swamp, to intermediate marsh due to the elimination of freshwater inputs from the Mississippi River. High levels of subsidence (2.1 to 3.5 ft/century) have further exacerbated land loss and have increased water depths because of the lack of sediment input from the Mississippi River. The project area encompasses 380 acres. Land loss rates in the area are estimated at -0.79% per year between 1984 and 2011.

Goals:
The primary goal of this project is to create/nourish emergent intermediate marsh habitat using dedicated renewable dredged sediment from the Mississippi River. Specific project goals include (1) creating 357 acres of marsh habitat, (2) nourishing 23 acres of existing marsh habitat, and (3) creating approximately 9,500 linear feet of tidal creeks.

Proposed Solution:
Hydraulically dredge and place approximately 2 million cubic yards of renewable sediments from the Mississippi River to create 357 acres of marsh habitat, nourish 23 acres of existing marsh habitat, create approximately 9,500 linear feet of tidal creeks, and plant 50% of the created marsh area using the appropriate intermediate species. The project would complement the White Ditch Resurrection and Outfall Management project (BS-12) intended to provide increased freshwater inputs through the existing siphon at White Ditch. Freshwater input would work synergistically to help sustain the marsh created via sediment delivery from the Mississippi River.

Project Benefits:
The project would result in approximately 331 net acres of marsh over the 20-year project life.

Project Costs:
The total fully-funded cost is $30,520,482.

Preparers of Fact Sheet:
Paul Kaspar, EPA (214) 665-7459; kaspar.paul@epa.gov
Adrian Chavarria, EPA (214) 665-3103; chavarria.adrian@epa.gov
Chris Llewellyn, EPA (214) 665-7239, llewellyn.chris@epa.gov

White Ditch Marsh Creation Sediment Delivery (PPL21 Candidate)

Marsh Creation/Nourishment *

Project Boundary *

* denotes proposed features

0.5 0 0.5 Kilometers

0.5 0 0.5 Miles

Scale 1:30,000

USGS science for a changing world

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:
2010 NAIP Photography

Map ID: USGS-NWRC 2011-11-0054
Map Date: June 15, 2011

PPL21 Bayou Grande Cheniere Marsh Creation and Terracing

Coast 2050 Strategy:
Coastwide: Dedicated Dredging for Wetland Creation

Project Location:
Region 2, Barataria Basin, Plaquemines Parish, near Lake Hermitage, along Bayou Grande Cheniere ridge

Problem:
Significant marsh loss has occurred south of Lake Hermitage with the construction of numerous oil and gas canals, subsidence, and sediment deprivation. Based on the hyper-temporal analysis conducted by USGS for the extended project boundary, loss rates in the area are estimated to be -0.66% per year for the period 1984 to 2011.

Goals:
The primary goal is to re-create marsh habitat in the open water areas and nourish marsh along the eastern side of the Bayou Grande Cheniere ridge. Terraces are proposed to reduce fetch in several large open water bodies and to capture suspended sediment delivered via the West Pointe a la Hache siphons. Specific goals of the project are: 1) Create approximately 509 acres (383 acres of marsh creation and 126 acres of marsh nourishment) of marsh with dredged material from the Mississippi River; 2) create 85,600 linear feet (55 acres of marsh) of terraces.

Proposed Solution:
Riverine sediments will be hydraulically dredged and pumped via pipeline to create/nourish approximately 509 acres of marsh in the project area. Containment dikes will be constructed as necessary. The proposed design is to place the dredged material to a fill height of +2.0 ft NAVD88. Dewatering and compaction of dredged sediments should produce marsh elevations conducive to the establishment of emergent marsh and within the intertidal range.

Approximately 85,600 linear feet of terraces (55 acres subaerial) will be constructed. The terraces will be 500 to 700 feet long, have a 20 ft crown width, an initial constructed height of +3.5 ft NAVD88 (settled height of +2.5ft), side slopes of 1(V):3(H), and 300 to 500-ft gaps between terraces. Terrace rows will be staggered and 250 feet apart. The terrace slopes will be planted with two staggered rows of smooth cordgrass, on 5-ft centers. The terrace crowns will be planted with two rows of seashore paspalum on 5-ft centers.

Project Benefits:
The project would result in approximately 419 net acres of marsh over the 20-year project life.

Project Costs:
The total fully-funded cost is $48,646,882.

Preparer of Fact Sheet
Kevin Roy, USFWS, (337) 291-3120, Kevin_Roy@fws.gov

Bayou Grande Cheniere Marsh Creation and Terracing (PPL21 Candidate)

USGS science for a changing world

Marsh Creation *
Terrace Field *
Project Boundary
* denotes proposed features

0.6 0 0.6 Kilometers
0.6 0 0.6 Miles
Scale 1:35,000

Map ID: USGS-NWRC 2011-11-0049
Map Date: May 19, 2011

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:
2010 NAIP Photography

PPL21 Northwest Turtle Bay Marsh Creation

Coast 2050 Strategy:
Coastwide: Dedicated Dredging for Wetland Creation

Project Location:
Region 2, Barataria Basin, Jefferson Parish, northwest of Turtle Bay

Problem:
Historic wetland loss in the area stems from shoreline erosion along Turtle Bay and interior marsh loss from subsidence, sediment deprivation, and construction of oil and gas canals. Based on the hyper-temporal analysis conducted by USGS for the extended project boundary, loss rates in the area are estimated to be -0.61% per year for the period 1984 to 2011.

Goals:
The primary goal is to re-create marsh habitat in the open water areas and nourish existing marsh within the project area. The specific goal of the project is to create approximately 760 acres (423 acres of marsh creation and 337 acres of marsh nourishment) of marsh with dredged material from Turtle Bay or Little Lake.

Proposed Solution:
The proposed project would create approximately 423 acres (90% of the 470 open water acres) and nourish approximately 337 acres of marsh using sediment dredged from Turtle Bay or Little Lake. Existing canal spoil banks, emergent marsh, and limited segments of containment dikes will be used to guide the distribution of the dredged material. Containment dikes will be degraded as necessary to reestablish hydrologic connectivity with adjacent wetlands.

Project Benefits:
The project would result in approximately 407 net acres of marsh over the 20-year project life.

Project Costs:
The total fully-funded cost is $23,198,757.

Preparers of Fact Sheet
Kevin Roy, USFWS, (337) 291-3120, Kevin_Roy@fws.gov
Jason Kroll, NRCS, (225) 389-0347, Jason.Kroll@la.usda.gov
Quin Kinler, NRCS, (225) 342-2047, Quin.Kinler@la.usda.gov

Northwest Turtle Bay Marsh Creation
(PPL21 Candidate)

USGS science for a changing world

Marsh Creation/Nourishment *

Project Boundary *

* denotes proposed features

0.3 0 0.3 Kilometers

0.3 0 0.3 Miles

Scale 1:20,000

Map ID: USGS-NWRC 2011-11-0048
Map Date: August 11, 2011

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:
2010 NAIP Photography

PPL21 Bayou L'Ours Terracing

Coast 2050 Strategy:
Coastwide: Terracing, Vegetative Plantings, Maintain or Restore Ridge Functions
Local and Common Strategies: Maintain function of Bayou L'Ours Ridge

Project Location:
Region 2, Barataria Basin, Lafourche Parish, east of Galliano and south of Little Lake

Problem:
Areas located north and south of Bayou L'Ours and adjacent to the East Golden Meadow Hurricane Protection Levee have experienced marsh loss in the range of 8,000 to 10,000 acres. Because this location is a great distance from preferred sediment sources such as the Mississippi River, Gulf of Mexico, and even large bays and lakes, the now-customary practice of marsh creation using hydraulically dredged and deposited material presently does not seem feasible. And the use of more local borrow sources has not gained significant support. Thus, this critical area has been neglected from a restoration standpoint.

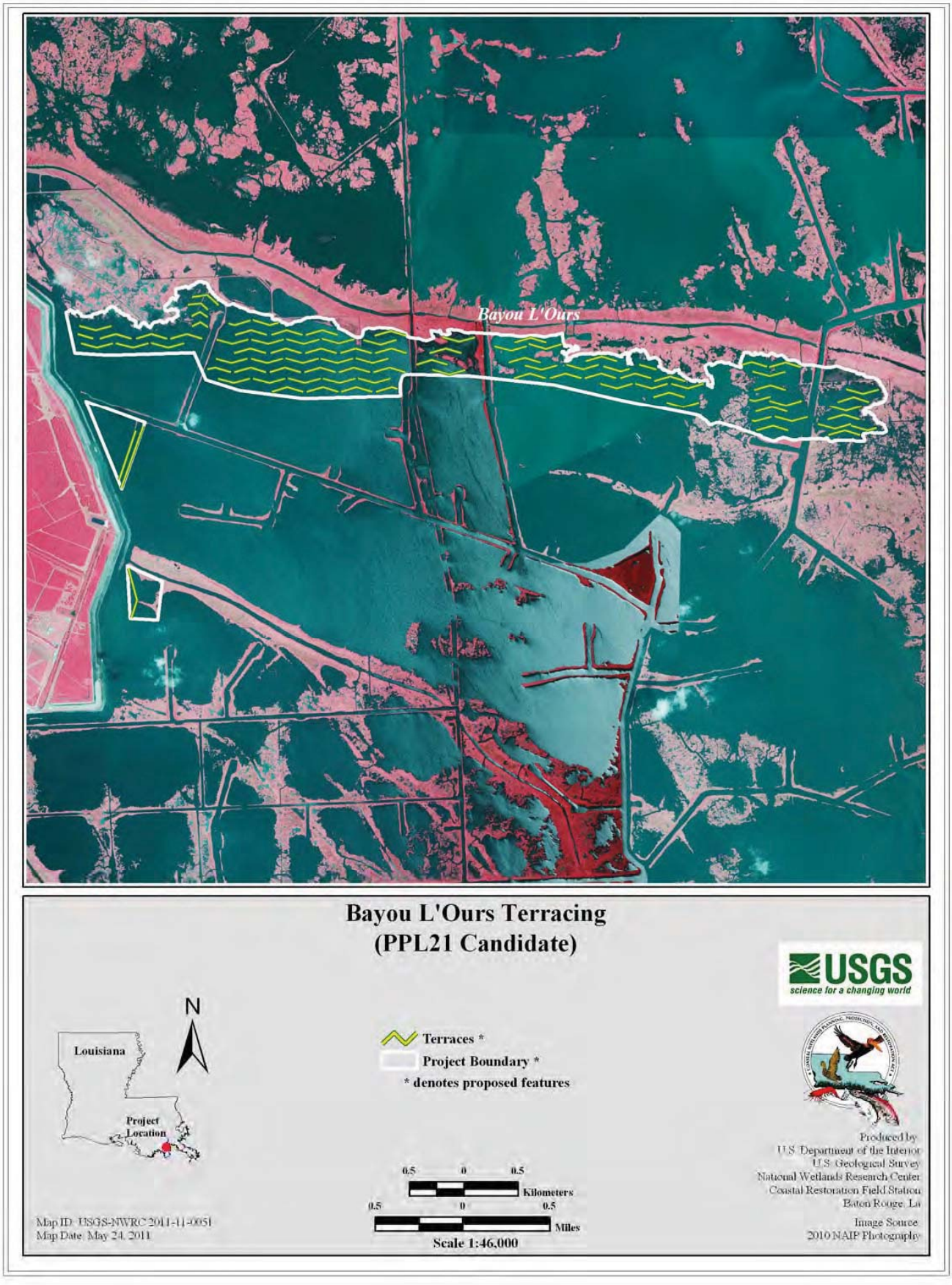
Goals:
The proposed project would re-establish landmass in an area where land mass is scarce. This added landmass will help protect, extend the life expectancy, and help maintain the current function of the Bayou L'Ours ridge. The proposed project would also offer a small degree of protection to a portion of the Larose to Golden Meadow Hurricane Protection Levee.

Proposed Solution:
The proposed solution is to construct 93,250 linear feet of terraces. The terraces would have a target elevation of +2.0 NAVD88, 15-foot top width, and 5:1 side slopes. The terraces will be planted with a row of plants on the crest and a row of plants on each side; spacing between plants will be 2.5 feet.

Project Benefits:
The project would result in approximately 58 net acres of marsh over the 20-year project life.

Project Costs:
The total fully-funded cost is $ $5,447,519.

Preparer of Fact Sheet:
Quin Kinler, USDA-NRCS, 225-382-2047, quin.kinler@la.usda.gov


Bayou L'Ours
Bayou L'Ours Terracing
(PPL21 Candidate)
USGS
science for a changing world
N
Louisiana
Project Location
Terraces *
Project Boundary *
* denotes proposed features
0.5 0 0.5
Kilometers
0.5 0 0.5
Miles
Scale 1:46,000
Map ID: USGS-NWRC 2011-11-0051
Map Date: May 24, 2011
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
2010 NAIP Photography

PPL21 Southeast Marsh Island Marsh Creation

Coast 2050 Strategy:
Coastwide Common Strategies: Dedicated dredging to create, restore, or protect wetlands; Offshore and riverine sand and sediment resources.
Region 2 Regional Ecosystem Strategies: Restore and Sustain Marshes.

Project Location:
Region 3, Teche-Vermillion Basin, Iberia Parish, Southeast end of Marsh Island Wildlife Refuge

Problem:
Areas of interior emergent marsh on Marsh Island have been converted to open water, primarily due to hurricane activity and subsidence. Marsh Island has been projected to lose 12.9% of its marsh habitat through 2050. Areas targeted by this project are those with the greatest historic land loss and are proximal to East Cote Blanche Bay. The project area encompasses 610 acres. Within the project area, 270 acres were marsh and the remaining 340 acres were open water as of 2010. Land loss rates in the area are estimated at -0.46 percent/year based on USGS data from 1985 – 2010.

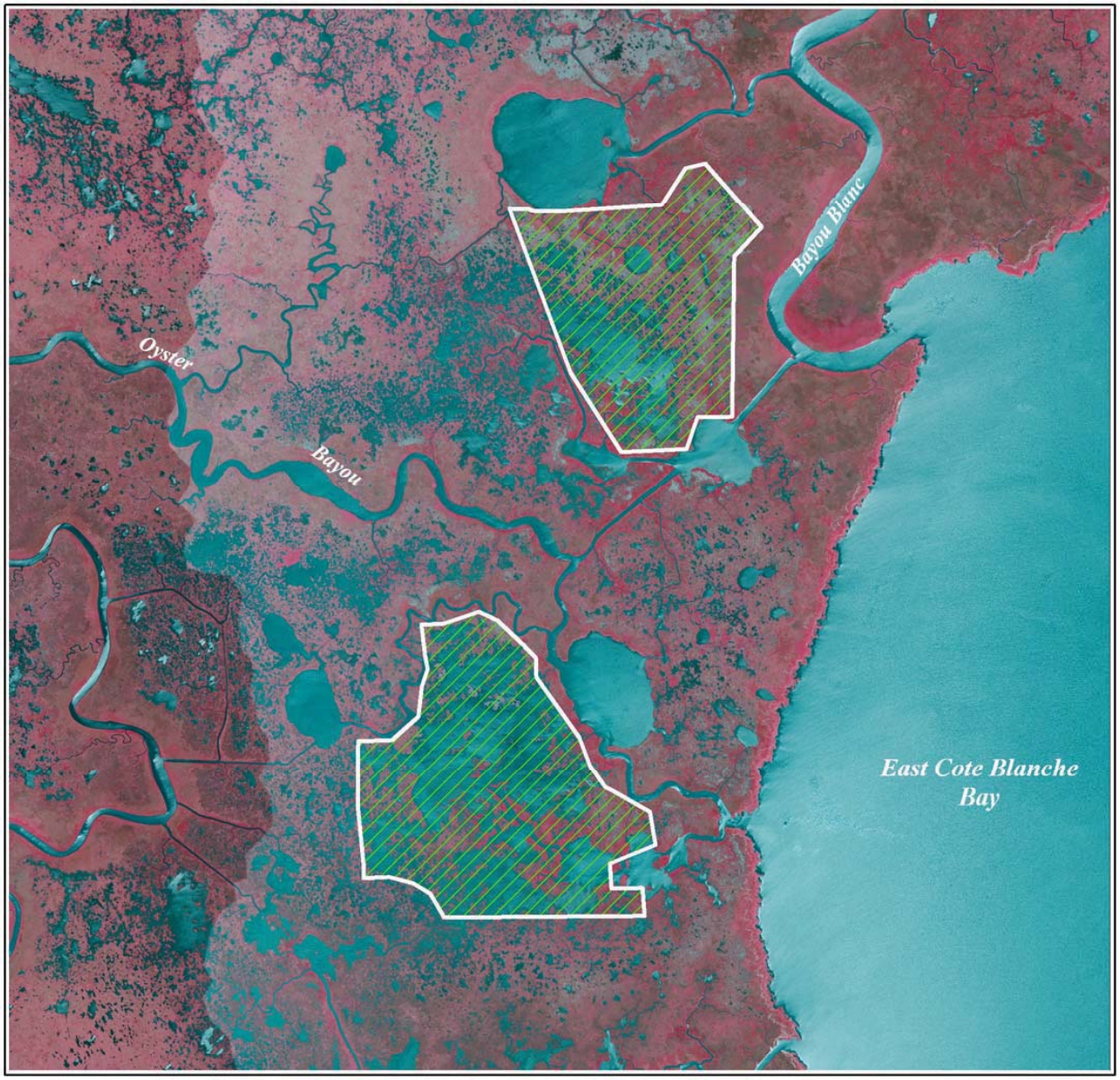
Goals:
The primary goal of this project is to create/nourish brackish marsh habitat using dedicated dredging of offshore sediment. Borrow material will be targeted from the state offshore area to limit water quality impacts, avoid *in situ* deltaic sediments, and minimize impacts to potential oyster lease areas. Specific project goals include (1) creating 341 acres of marsh habitat, (2) nourishing 269 acres of marsh habitat, and (3) creating approximately 10,000 linear feet of tidal creeks.

Proposed Solution:
Hydraulically dredge and place approximately 1.3 million cubic yards of offshore sediments into two marsh creation areas to create 341 acres of marsh habitat, nourish 269 acres of marsh habitat, create approximately 10,000 linear feet of tidal creeks, and plant 50% of the created marsh area using the appropriate brackish species. The project would complement the constructed Marsh Island Hydrologic Restoration (TV-14) and the East Marsh Island Marsh Creation (TV-21) projects.

Project Benefits:
The project would result in approximately 338 net acres over the 20-year project life.

Project Costs:
The total fully-funded cost is $22,532,305.

Preparers of Fact Sheet:
Paul Kaspar, EPA, (214) 665-7459; kaspar.paul@epa.gov
Chris Llewellyn, EPA, (214) 665-7239; llewellyn.chris@epa.gov
Adrian Chavarria, EPA, (214) 665-3103; Chavarria.adrian@epa.gov



Southeast Marsh Island Marsh Creation and Nourishment (PPL21 Candidate)

USGS science for a changing world

N

Louisiana

Project Location

Marsh Creation/Nourishment *

Project Boundary *

* denotes proposed features

0.4 0 0.4 Kilometers

0.4 0 0.4 Miles

Scale 1:30,000

Map ID: USGS-NWRC 2011-11-0053
Map Date: August 11, 2011

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:
2010 NAIP Photography

PPL21 Cole's Bayou Marsh Restoration

Coast 2050 Strategy:
Coastwide: Dedicated Dredging to Create, Restore, or Protect Wetlands
Regional: Restore and Sustain Wetlands

Project Location:
Region 3, Teche/Vermilion Basin, Vermilion Parish, east of Freshwater Bayou Canal

Problem:
Project area wetlands are undergoing loss at -0.42 %/year based on 1983 to 2011 USGS data from the extended boundary. Wetland loss processes in this area include subsidence/sediment deficit, interior ponding and pond enlargement, and storm impacts resulting in rapid episodic losses. In addition, significant interior marsh loss has resulted from salt water intrusion and hydrologic changes associated with increasing tidal influence. As hydrology in this area has been modified, habitats have shifted to more of a floatant marsh type, resulting in increased susceptibility to tidal energy and storm damages. Habitat shifts and hydrologic stress reduce marsh productivity, a critical component of vertical accretion in wetlands.

Goals:
Specific goals of the project are: 1) create 365 acres of brackish marsh in recently formed shallow open water; 2) nourish 53 acres of existing brackish marsh; and, 3) increase freshwater and sediment inflow into interior wetlands by improving project area hydrology.

Proposed Solution:
Create 365 acres and nourish 53 acres of brackish marsh via dedicated dredging with borrow from nearby Vermilion Bay. Although this is not considered an "external" source of material, significant sediment inflows into this area may result in some borrow area infilling. Half of the marsh creation acres would be planted. Encourage additional freshwater nutrient and sediment inflow from Freshwater Bayou Canal by dredging a portion of Cole's Bayou; and, installing a series of culverts throughout the project area. North structures are envisioned to allow the ingress of sediment, water, and fisheries organisms into the semi-impounded project area, but avoid backflow of water and potential loss of interior marsh sediment (i.e., north to south flow only). Southern structures are envisioned to allow water to drain out of the marsh.

Project Benefits:
The project would result in approximately 398 net acres of marsh over the 20-year project life.

Project Costs:
The total fully-funded cost is $26,631,224.

Preparer of Fact Sheet:
Kimberly Clements, NOAA's National Marine Fisheries Service, (225) 389-0508, ext 204
kimberly.clements@noaa.gov

Cole's Bayou Restoration
(PPL21 Candidate)

- Channel Improvement *
- 1, 48" cluvert with sluice and flap gates *
- 2, 48" cluverts with flag-gates *
- Marsh Creation/Nourishment *
- Project Boundary *

* denotes proposed features

0.5 0 0.5 Kilometers

0.5 0 0.5 Miles

Scale 1:35,000

Map ID: USGS-NWRC 2011-11-0044
Map Date: October 18, 2011

USGS science for a changing world

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:
2010 NAIP Photography

PPL21 Oyster Bayou Marsh Restoration

Coast 2050 Strategy:
Coastwide: Dedicated Dredging to Create, Restore, or Protect Wetlands

Project Location:
Region 4, Calcasieu-Sabine Basin, located west of the Calcasieu Ship Channel and south of the west fork of the Calcasieu River

Problem:
Altered hydrology, drought stress, saltwater intrusion and hurricane induced wetland losses have caused the area to undergo interior marsh breakup. Recent impacts from Hurricane Rita in 2005 and Hurricane Ike in 2008 have resulted in the coalescence of Oyster Lake with interior water bodies increasing wave/wake related erosion. Based on USGS hyper temporal data analysis (1984 to 2011), land loss for the area is -0.75% per year. The subsidence rate is estimated at 0.0 to1.0 ft per century (Coast 2050, Mud Lake mapping unit).

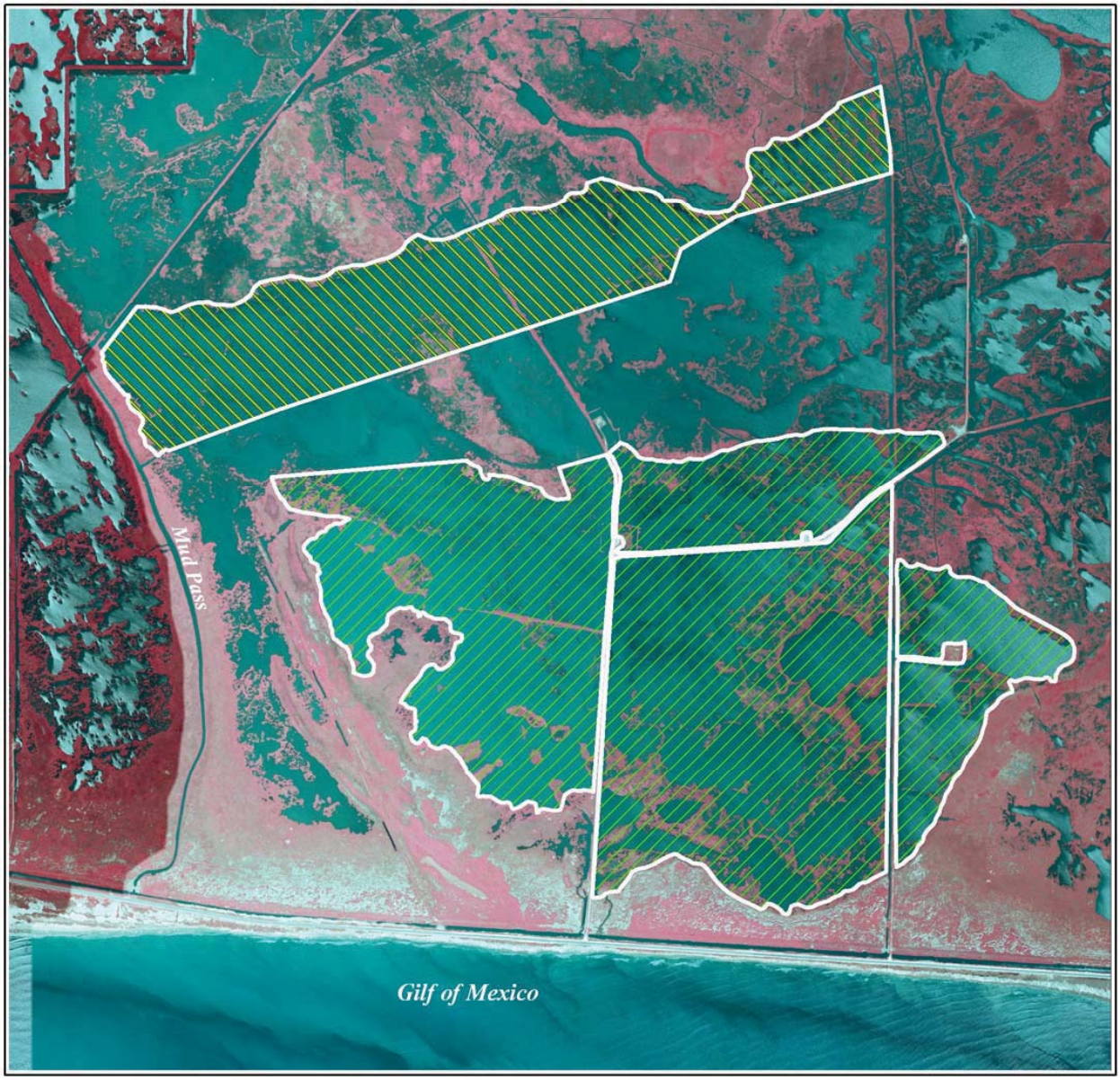
Goals:
The project boundary encompasses 809 acres. Specific goals of the project are: 1) create 510 acres of saline marsh in recently formed shallow open water; 2) nourish 90 acres of existing saline marsh; 3) create 14,140 linear feet of terraces; and, 4) reduce wave/wake erosion.

Proposed Solution:
Approximately 510 acres of marsh would be created and 90 acres would be nourished. Sediment needed for the fill would be mined approximately one and a half miles offshore in the Gulf of Mexico. Half of the created acres would be planted. Tidal creeks and ponds would be constructed prior to placement of dredged material and retention levees would be gapped to support estuarine fisheries access to achieve a functional marsh. Approximately 14,140 linear feet of earthen terraces would be constructed and planted.

Project Benefits:
The project would result in approximately 489 net acres of marsh over the 20-year project life.

Project Costs:
The total fully-funded cost is $29,781,355.

Preparer of Fact Sheet:
Kimberly Clements, NOAA's National Marine Fisheries Service, (225) 389-0508, ext 204
kimberly.clements@noaa.gov



Oyster Bayou Restoration
(PPL21 Candidate)

Marsh Creation/Nourishment *
Terrace Field *
Project Boundary *
* denotes proposed features

0.3 0 0.3 Kilometers
0.3 0 0.3 Miles
Scale 1:20,000

Map ID: USGS-NWRC 2011-11-0045
Map Date: September 02, 2011

USGS science for a changing world

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:
2010 NAIP Photography

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.

PPL21 Automated Marsh Planting Demonstration Project

(formerly called "Alternative to Manual Planting")

Coast 2050 Strategy:
Coastwide: Dedicated dredging for wetland creation; Wetlands Vegetation Plantings
Regional: Dedicated delivery of sediment for marsh building by any means feasible; Habitat Diversification and Vegetation Planting

Potential Demonstration Project Location:
This demonstration project could be done at any dedicated or beneficial use of dredged material site creating a marsh platform.

Problem:
Though wetland restoration with grass plugs is being done in some areas, success of re-establishing vegetation is limited in many challenged sites. New technologies and applications are needed to achieve greater stabilization, higher survivability, and integration of diverse species back into these areas. Hand planting is costly and time consuming.

Goals:
The goal of this project is to demonstrate a possible alternative to manual plantings at dredged material placement sites. *Specific goals*: 1) To test if "plant parts" (not limited to rhizomes, seeds, stolons, stem cuttings, etc.) can survive passing through a dredge pipe; 2) To determine if this method gives an acceptable distribution of plants; and, 3) To determine the optimal time to input the "plant parts" for maximum growth and distribution.

Proposed Solution:
Install a hopper on the dredge pipe allowing "plant parts" to be carried to the dredged material placement site through the pipeline. The demo would consist of 3 replicates of 4 separate treatments: *Concept 1* – three flagged-off areas of the dredged material placement site to be the "natural recruitment" area; *Concept 2* – three flagged-off areas of the dredged material placement site to be the typical "hand planted" area; *Concept 3* – three cells having dredged material pre-loaded thru the dredge pipe with "plant parts" at "time/dredged quantity interval 1"; and *Concept 4* – three cells having dredged material pre-loaded thru the dredged pipe with "plant parts" at "time/dredged quantity interval 2".

Project Benefits:
Potential project benefits include: 1) reduce the cost of planting and 2) increase habitat value.

Project Costs:
The total fully funded cost is $2,300,608.

Preparers of Fact Sheet:
Nathan Dayan, USACE. 504-862-2530, nathan.s.dayan@usace.army.mil
Susan Hennington, USACE, 504-862-2504, susan.m.hennington@usace.army.mil
John Petitbon, USACE, 504-862-2732, john.b.petitbon@usace.army.mil
Steve Roberts, USACE, 504-862-2517, steve.w.roberts@usace.army.mil


Tests (3 replicates):
1. No Planting
2. Hopper Release Time Interval 1
3. Hopper Release Time Interval 2
4. Manual Planting
Hopper filled with Plant Parts
Dredge Pipe
Marsh Platform

PPL21 Deltalok® Coastline Stabilization Demonstration Project

Coast 2050 Strategy:
Coastwide Strategy: Maintain, Protect or Restore Ridge Functions; Vegetation Planting;
Regional Strategies: Protect Bay, Lake and Shorelines; Restore and Maintain Barrier Islands and Critical Land Forms

Potential Demonstration Project Location:
Coastwide

Problem:
Marsh and wetland loss occurs throughout coastal Louisiana due to shoreline erosion. The loss of vegetation has accelerated the rate of erosion, and reducing this loss is proving difficult and costly. Shore stabilization is crucially needed to prevent the eroding marsh footprint. Though wetland restoration with grass plugs is being done in some areas, it is limited in scope. Shoreline and ridge stabilization is still needed to prevent the eroding marsh footprint.

Goals:
The goal of this project is demonstrate the successful use of the Deltalok® Terra-Soft Block™ (TSB) System to both armor and repair shorelines, and serve as a viable planting ground for marsh vegetation.

Proposed Solution:
This project proposes shoreline protection and stabilization treatments with vegetative plantings utilizing the Deltalok® TSB System. Two different applications of the Deltalok® Terra-Soft Block™ (TSB) System will be constructed: 3-700ft Shoreline Protection treatments at 2 separate locations/environments; and 3 Shoreline Repair treatments due to washouts. The Shoreline Protection treatments will total 4,200 feet and be constructed to a height of 4 feet. The Shoreline Repair treatments have designed cross-sections of 30 foot wide double-wall washout closures, with a maximum depth of 4 feet in center, and an average depth of 3 feet, with the double wall to be approximately 12-18 inches above water at average tide. Assumptions of water depth, weather, and tide conditions will be subject to actual conditions once the project location is chosen.

Project Benefits:
1) Reduce the cost of shoreline stabilization (2/3 the cost of riprap)
2) Rapid, efficient, and effective construction
3) Durable structure which resists differential settlement and seismic activity
4) Achieves 100% system strength on installation, does not rely on root strength/reinforcement

Project Costs
The total fully funded cost is $1,750,312.

Preparer of Fact Sheet:
Scott Wandell, USACE, 504-862-1878, scott.f.wandell@usace.army.mil

System Components

TSBs ready to install

Empty TSB ready for fill material

Deltalok Interlocking Plate

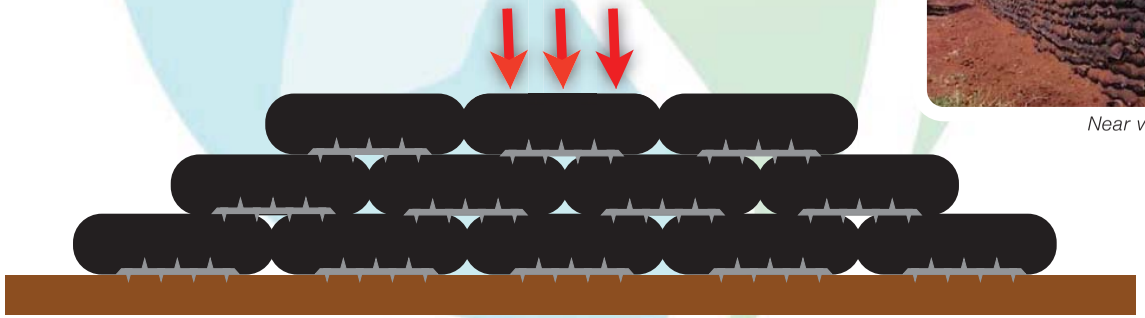
- Deltalok® Terra-Soft Block™ (TSB)
  - Soft, earthen building block, Terra-Soft Block™
  - Made from geotextile material (5 micron mesh)
  - Material filters soil particles
  - Water permeable and root friendly
- Deltalok® Interlocking Plate
  - 100% recycled plastic, made in USA
  - Interlocks Deltalok® TSB's
  - Provides mechanical connection to geogrid for backfill reinforcement

Construction

- Surface is leveled
- A Deltalok® Interlocking Plate secures first layer of Terra-Soft Blocks to the ground
- Build wall like a block & mortar wall
- Tamp TSB's down to engage with interlocking plate

Deltalok® reinforced slope

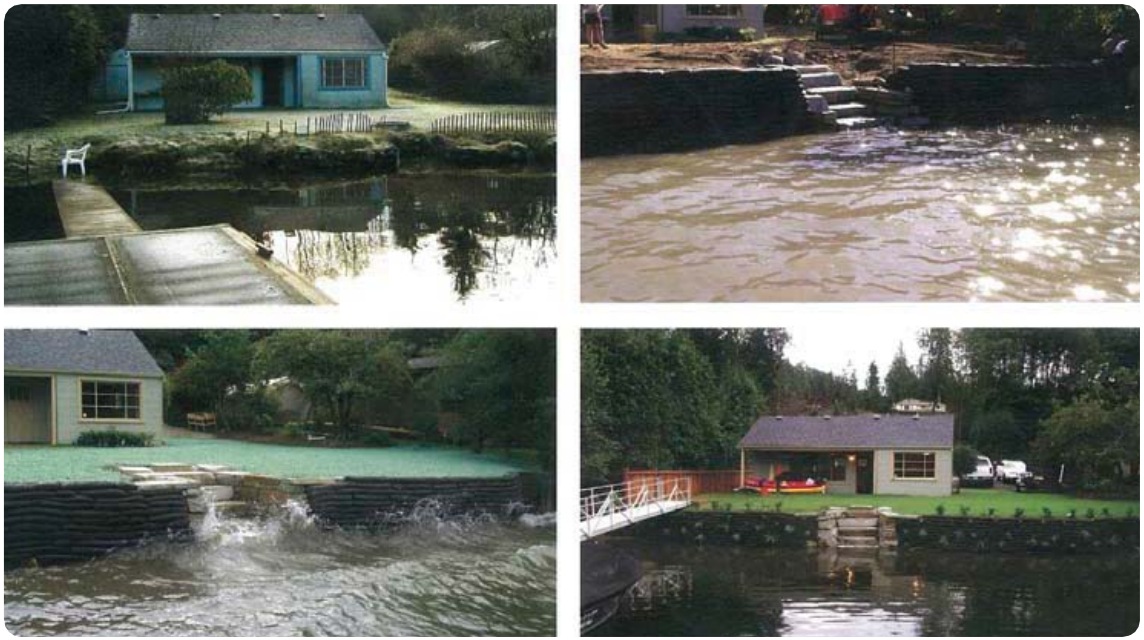
Near vertical Deltalok® wall



Building a Deltalok® TSB Wall

Coastal Erosion Control -
Newcastle Island, BC Canada

Riverbank protection - UK



Lakeside erosion control - Great Lakes

PPL21 Gulf Saver Bags Demonstration Project

Coast 2050 Strategy:
Maintenance of Bay and Lake Shoreline Integrity; Vegetative Planting

Potential Demonstration Project Location:
Coastwide

Problem:
Shoreline erosion is one of the primary causes of loss in Louisiana's coastal marshes. Vegetative plantings are frequently used to combat shoreline erosion, especially in areas where funding or poor soils limit the use of hard structures (e.g., rock dikes). Though wetland restoration with grass plugs is being done, success is limited in many challenged sites. New technologies and applications are needed to achieve greater stabilization, higher survivability, and integration of diverse species back into to these areas, particularly where invasive species like roseau cane (*Phragmites sp.*) have become excessively dominant.

Goals:
The goal of this project is to demonstrate the applicability of Gulf Saver Bags for long term stabilization and reestablishment of coastal vegetation. Specifically, the project goal is to demonstrate the effectiveness of Gulf Saver Bags to provide a more efficient, reliable, and cost effective vegetative planting technique for shoreline stabilization.

Proposed Solution:
The Gulf Saver Bag is a biodegradable burlap bag filled with an all natural humus mix. The humus is a mixture of all natural organic nutrients that support maximum plant growth and survivability and custom mixed to be site specific. The plants "plugged" into the Gulf Saver Bag are native species such as smooth cordgrass.

Three shoreline stabilization treatments will be evaluated. The treatments will consist of different alignments and spacing along the shoreline. Each treatment will be employed along 750 feet of shoreline and will consist of three replicates for a total of 6,750 feet. Plant growth, survival, and shoreline position will be monitored.

Project Benefits:
Potential project benefits include; 1) establishment of vegetation in eroding areas, 2) reduction in shoreline erosion, 3) increased habitat value through increased species diversity.

Project Costs:
The total fully funded cost is $1,053,181.

Preparers of Fact Sheet
Kevin Roy, USFWS, Kevin_Roy@fws.gov
Don Blancher, Sustainable Ecosystem Restoration, LLC, blancher@restoreecosystems.com
P.J. Marshall, Restore the Earth Foundation Inc, pjm@gulfsaversolutions.com
Leslie Carrere, Gulf Saver Solutions, lc@gulfsaversolutions.com

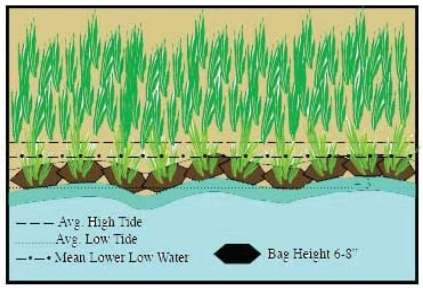

Gulf Saver Bags
Demonstration Project

Habitat Enhancement through Vegetative Plantings Using Gulf Saver Bags
Conceptual Treatments

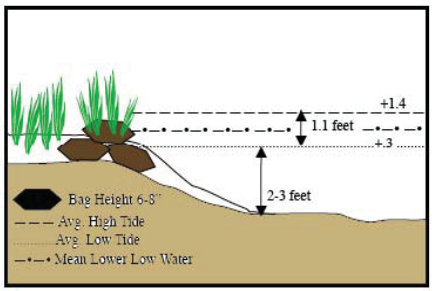
Each treatment will be 750 ft long with 3 replicates

Marsh Shoreline

Shallow water-shoreline treatment
Single row of Gulf Saver Bags
Along vegetated edge of shoreline



Foreshore treatment
Distance from shoreline-TBD
3 bags stacked to increase height



Staggered row treatment
Spacing and distance from shoreline-TBD
3 bags stacked in outer row

Final dimensions and spacing for treatments to be determined during engineering and design

V. PROJECT SELECTION

On June 5, 2012 the CWPPRA Task Force made its selection for the 21st PPL. The CWPPRA Task Force selection for the 21st PPL is shown in Table 6.

Table 6: The 21st Priority Project List

Project Number	Project Name	Physical Type	Sponsoring Agency	Total Fully Funded Cost	Fully-Funded Phase I Cost	Fully-Funded Phase II Cost	Average Annual Habitat Units (AAHU)
CS-59	Oyster Bayou Marsh Restoration	MC/ TR	NMFS	$29,781,355	$3,165,322	$26,616,033	231
PO-133	Labranche Central Marsh Creation	MC	NRCS	$42,159,208	$3,885,298	$38,273,910	309
BA-125	Northwest Turtle Bay Marsh Creation	MC/ SP	USFWS	$23,198,757	$2,354,788	$20,843,969	187
TV-63	Cole's Bayou Marsh Restoration	MC	NMFS	$26,631,224	$3,136,805	$23,494,419	234
TOTALS				$121,770,544	$12,542,213	$109,228,331	961

Project Physical Type:
BI=Barrier Island
HR=Hydrologic Restoration
MC=Marsh Creation

SP=Shoreline Protection
VP=Vegetative Plantings

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.

PPL21 Oyster Bayou Marsh Restoration

Coast 2050 Strategy:
Coastwide: Dedicated Dredging to Create, Restore, or Protect Wetlands

Project Location:
Region 4, Calcasieu-Sabine Basin, located west of the Calcasieu Ship Channel and south of the west fork of the Calcasieu River

Problem:
Altered hydrology, drought stress, saltwater intrusion and hurricane induced wetland losses have caused the area to undergo interior marsh breakup. Recent impacts from Hurricane Rita in 2005 and Hurricane Ike in 2008 have resulted in the coalescence of Oyster Lake with interior water bodies increasing wave/wake related erosion. Based on USGS hyper temporal data analysis (1984 to 2011), land loss for the area is -0.75% per year. The subsidence rate is estimated at 0.0 to1.0 ft per century (Coast 2050, Mud Lake mapping unit).

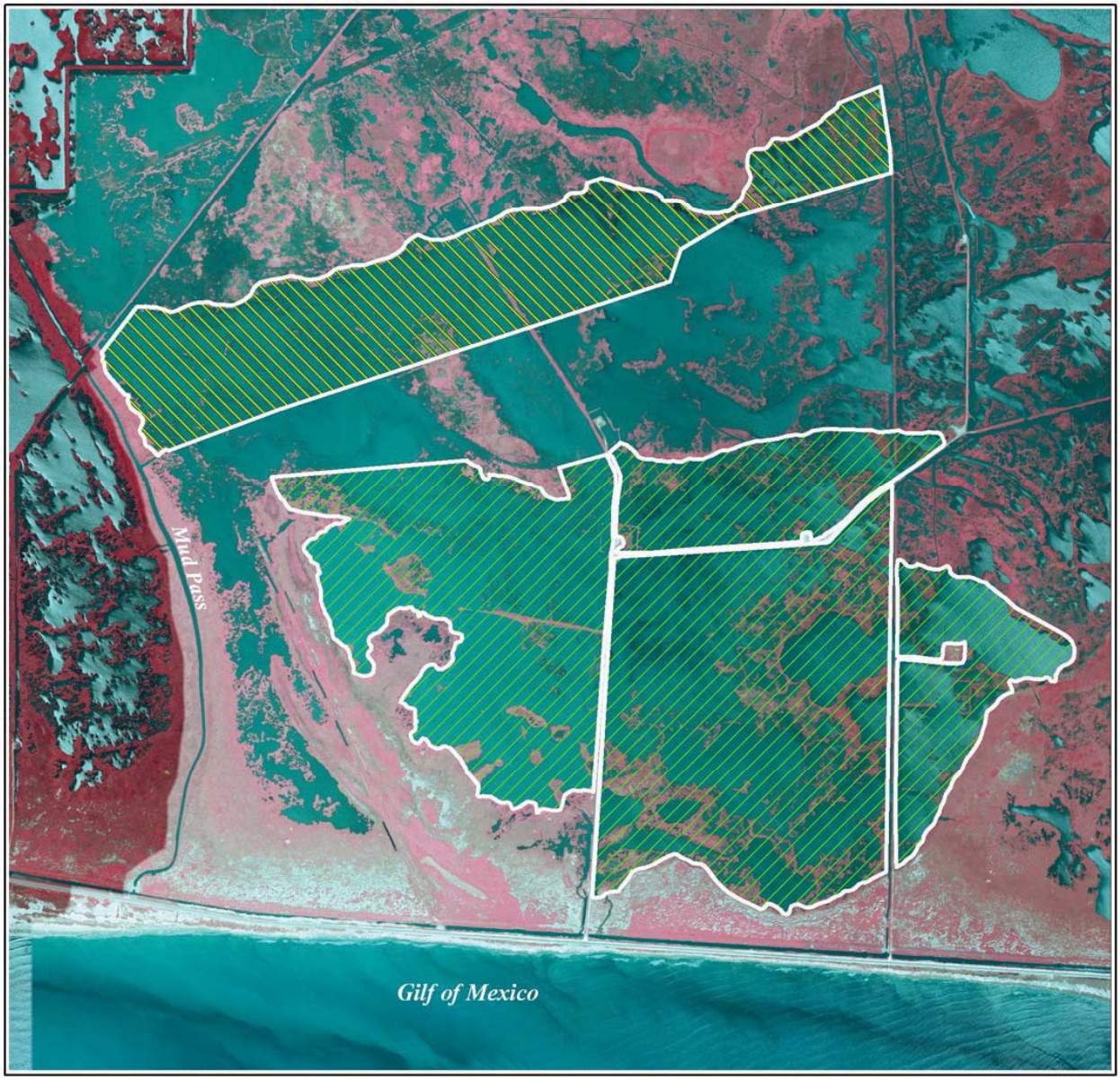
Goals:
The project boundary encompasses 809 acres. Specific goals of the project are: 1) create 510 acres of saline marsh in recently formed shallow open water; 2) nourish 90 acres of existing saline marsh; 3) create 14,140 linear feet of terraces; and, 4) reduce wave/wake erosion.

Proposed Solution:
Approximately 510 acres of marsh would be created and 90 acres would be nourished. Sediment needed for the fill would be mined approximately one and a half miles offshore in the Gulf of Mexico. Half of the created acres would be planted. Tidal creeks and ponds would be constructed prior to placement of dredged material and retention levees would be gapped to support estuarine fisheries access to achieve a functional marsh. Approximately 14,140 linear feet of earthen terraces would be constructed and planted.

Project Benefits:
The project would result in approximately 489 net acres of marsh over the 20-year project life.

Project Costs:
The total fully-funded cost is $29,781,355.

Preparer of Fact Sheet:
Kimberly Clements, NOAA's National Marine Fisheries Service, (225) 389-0508, ext 204
kimberly.clements@noaa.gov



Oyster Bayou Restoration
(PPL21 Candidate)

Marsh Creation/Nourishment *
Terrace Field *
Project Boundary *
* denotes proposed features

0.3 0 0.3 Kilometers
0.3 0 0.3 Miles
Scale 1:20,000

USGS science for a changing world

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:
2010 NAIP Photography

Map ID: USGS-NWRC 2011-11-0045
Map Date: September 02, 2011

PPL21 LaBranche Central Marsh Creation

Coast 2050 Strategy:
Coastwide: Dedicated Dredging for Wetland Creation

Project Location:
Region 4, Pontchartrain Basin, St. Charles Parish, bounded to the North by the railroad running parallel to I-10, to the west by the marsh fringe just east of Bayou LaBranche, to the south by Bayou Traverse and to the east by marsh fringe west of a pipeline canal.

Problem:
Dredging of access/flotation canals for construction of I-10 resulted in increased salinity & altered hydrology that exacerbated conversion of wetland vegetation into shallow open water bodies. Land loss is estimated to be -0.543 percent/year based on USGS data from 1984 to 2011 within the extended project boundary.

Goals:
The primary goal is to restore marsh that converted to shallow open water. Project implementation would result in an increase of fisheries and wildlife habitat, acreage, and diversity along with improving water quality. The proposed project would provide a protective wetland buffer to the railroad and I-10, the region's primary westward hurricane evacuation route, and complement hurricane protection measures in the area.

Proposed Solution:
The proposed solution consists of the creation of 762 acres of emergent wetlands and the nourishment of 140 acres of existing wetlands using dedicated dredging from Lake Pontchartrain. The marsh creation area would have a target elevation the same as average healthy marsh. It is proposed to place the dredge material in the target area with the use of retention dikes along the edge of the project area. If degradation of the containment dikes has not occurred naturally by TY3, gapping of the dikes will be mechanically performed. Successful wetland restoration in the immediate area (PO-17 constructed in 1994) clearly demonstrates the ability for these wetlands to be restored using material from a sustainable borrow area (outlet end of Bonnet Carre Spillway). Engineering monitoring surveys of the marsh creation area and borrow area are planned as well.

Project Benefits:
The project would result in approximately 731 net acres of marsh over the 20-year project life.

Project Costs:
The total fully-funded cost is $42,159,208.

Preparer of Fact Sheet:
Jason Kroll, USDA-NRCS, 225-389-0347 jason.kroll@la.usda.gov

LaBranche Central Marsh Creation
(PPL21 Candidate)

USGS
science for a changing world

Marsh Creation *

Project Boundary

* denotes proposed features

0.3 0 0.3 Kilometers

0.3 0 0.3 Miles

Scale 1:20,000

Map ID: USGS-NWRC 2011-11-0056
Map Date: July 12, 2011

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:
2010 NAIP Photography

PPL21 Northwest Turtle Bay Marsh Creation

Coast 2050 Strategy:
Coastwide: Dedicated Dredging for Wetland Creation

Project Location:
Region 2, Barataria Basin, Jefferson Parish, northwest of Turtle Bay

Problem:
Historic wetland loss in the area stems from shoreline erosion along Turtle Bay and interior marsh loss from subsidence, sediment deprivation, and construction of oil and gas canals. Based on the hyper-temporal analysis conducted by USGS for the extended project boundary, loss rates in the area are estimated to be -0.61% per year for the period 1984 to 2011.

Goals:
The primary goal is to re-create marsh habitat in the open water areas and nourish existing marsh within the project area. The specific goal of the project is to create approximately 760 acres (423 acres of marsh creation and 337 acres of marsh nourishment) of marsh with dredged material from Turtle Bay or Little Lake.

Proposed Solution:
The proposed project would create approximately 423 acres (90% of the 470 open water acres) and nourish approximately 337 acres of marsh using sediment dredged from Turtle Bay or Little Lake. Existing canal spoil banks, emergent marsh, and limited segments of containment dikes will be used to guide the distribution of the dredged material. Containment dikes will be degraded as necessary to reestablish hydrologic connectivity with adjacent wetlands.

Project Benefits:
The project would result in approximately 407 net acres of marsh over the 20-year project life.

Project Costs:
The total fully-funded cost is $23,198,757.

Preparers of Fact Sheet
Kevin Roy, USFWS, (337) 291-3120, Kevin_Roy@fws.gov
Jason Kroll, NRCS, (225) 389-0347, Jason.Kroll@la.usda.gov
Quin Kinler, NRCS, (225) 342-2047, Quin.Kinler@la.usda.gov

Northwest Turtle Bay Marsh Creation
(PPL21 Candidate)

Marsh Creation/Nourishment *

Project Boundary *

* denotes proposed features

0.3 0 0.3 Kilometers

0.3 0 0.3 Miles

Scale 1:20,000

USGS science for a changing world

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:
2010 NAIP Photography

Map ID: USGS-NWRC 2011-11-0048
Map Date: August 11, 2011

PPL21 Cole's Bayou Marsh Restoration

Coast 2050 Strategy:
Coastwide: Dedicated Dredging to Create, Restore, or Protect Wetlands
Regional: Restore and Sustain Wetlands

Project Location:
Region 3, Teche/Vermilion Basin, Vermilion Parish, east of Freshwater Bayou Canal

Problem:
Project area wetlands are undergoing loss at -0.42 %/year based on 1983 to 2011 USGS data from the extended boundary. Wetland loss processes in this area include subsidence/sediment deficit, interior ponding and pond enlargement, and storm impacts resulting in rapid episodic losses. In addition, significant interior marsh loss has resulted from salt water intrusion and hydrologic changes associated with increasing tidal influence. As hydrology in this area has been modified, habitats have shifted to more of a floatant marsh type, resulting in increased susceptibility to tidal energy and storm damages. Habitat shifts and hydrologic stress reduce marsh productivity, a critical component of vertical accretion in wetlands.

Goals:
Specific goals of the project are: 1) create 365 acres of brackish marsh in recently formed shallow open water; 2) nourish 53 acres of existing brackish marsh; and, 3) increase freshwater and sediment inflow into interior wetlands by improving project area hydrology.

Proposed Solution:
Create 365 acres and nourish 53 acres of brackish marsh via dedicated dredging with borrow from nearby Vermilion Bay. Although this is not considered an "external" source of material, significant sediment inflows into this area may result in some borrow area infilling. Half of the marsh creation acres would be planted. Encourage additional freshwater nutrient and sediment inflow from Freshwater Bayou Canal by dredging a portion of Cole's Bayou; and, installing a series of culverts throughout the project area. North structures are envisioned to allow the ingress of sediment, water, and fisheries organisms into the semi-impounded project area, but avoid backflow of water and potential loss of interior marsh sediment (i.e., north to south flow only). Southern structures are envisioned to allow water to drain out of the marsh.

Project Benefits:
The project would result in approximately 398 net acres of marsh over the 20-year project life.

Project Costs:
The total fully-funded cost is $26,631,224.

Preparer of Fact Sheet:
Kimberly Clements, NOAA's National Marine Fisheries Service, (225) 389-0508, ext 204
kimberly.clements@noaa.gov

Cole's Bayou Restoration
(PPL21 Candidate)

- Channel Improvement *
- 1, 48" cluvert with sluice and flap gates *
- 2, 48" cluverts with flag-gates *
- Marsh Creation/Nourishment *
- Project Boundary *

* denotes proposed features

0.5 0 0.5 Kilometers

0.5 0 0.5 Miles

Scale 1:35,000

Map ID: USGS-NWRC 2011-11-0044
Map Date: October 18, 2011

USGS science for a changing world

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:
2010 NAIP Photography

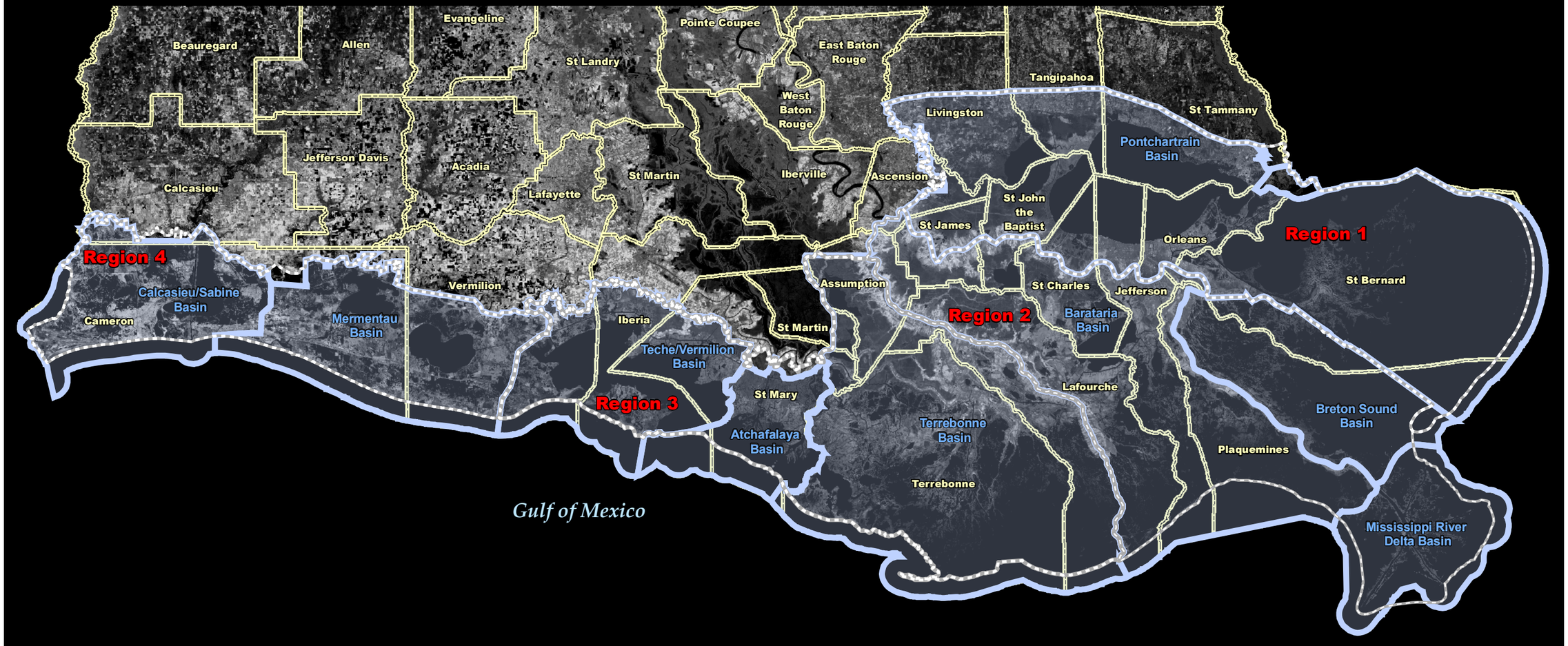
VII. SUMMARY AND CONCLUSIONS

The 21st PPL consists of 4 projects, for a Phase I cost of $12,542,213 and a Phase II cost of $109,228,331, which will be funded as these projects mature. The total benefits of the projects are estimated to be 961 AAHUs, based on a comparison of future with and without-project conditions over the 20-year project life. The Task Force selected 3 demonstration projects for the 21st PPL.

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.

USGS
science for a changing world

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



1:1,346,496
20 0 20
Kilometers
20 0 20
Miles

N

Region Boundary
Hydrologic Basin
Parish Boundary

Image Source:
2009 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: July 14, 2010

PLATE 1

PLATE 2. SUMMARY OF PROJECTS 1-21 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 Waterwa 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	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	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	Barataria 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-25a	Bayou Lafourche Siphon
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-24	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 Demonstration

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. Environmental Protection Agency

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 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
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 Chaland 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 Chaland 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, Phase 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. 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
TV-21	East Marsh Island Marsh Creation

15th Priority Project List

U.S. Environmental Protection Agency
MR-15 Venice Ponds Marsh Creation and Crevasses
U.S. Department of the Army
BS-13 *Bayou Lamoque Freshwater Diversion*
U.S. Department of Commerce
ME-23 South Pecan Island Freshwater Introduction
U.S. Department of Interior
BA-42 Lake Hermitage Marsh Creation

16th Priority Project List

U.S. Environmental Protection Agency
TE-53 Enhancement of Barrier Island Vegetation Demonstration
U.S. Department of the Army
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
U.S. Department of Agriculture
PO-34 Alligator Bend Marsh Restoration and Shoreline Protection

17th Priority Project List

U.S. Environmental Protection Agency
BS-15 Bohemia Mississippi River Reintroduction
U.S. Department of Commerce
BA-48 Bayou Dupont Ridge Creation and Marsh Restoration
LA-08 Bioengineered Oyster Reef Demonstration
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 the Interior
BS-16 Caernarvon Outfall Management/Lake Lery Shoreline Restoration

18th Priority Project List

U.S. Environmental Protection Agency
BS-18 Bertrandville Siphon
U.S. Department of Commerce
BA-68 Grand Liard Marsh and Ridge Restoration
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

19th Priority Project List

U.S. Department of Commerce
BA-76 Cheniere Ronquille Barrier Island Restoration
U.S. Department of Agriculture
ME-31 Freshwater Bayou Marsh Creation
PO-75 LaBranche East Marsh Creation
U.S. Department of the Interior
TE-72 Lost Lake Marsh Creation and Hydrologic Restoration

20th Priority Project List

U.S. Department of Agriculture

LA-39	Coastwide Planting
CS-53	Kelso Bayou Marsh Creation

U.S. Department of the Interior

PO-104	Bayou Bonfouca Marsh Creation
CS-54	Cameron-Creole Watershed Grand Bayou Marsh Creation
TE-83	Terrebonne Bay Marsh Creation - Nourishment

21st Priority Project List

U.S. Department of Commerce

CS-59	Oyster Bayou Marsh Restoration
TV-63	Cole's Bayou Marsh Restoration

U.S. Department of Agriculture

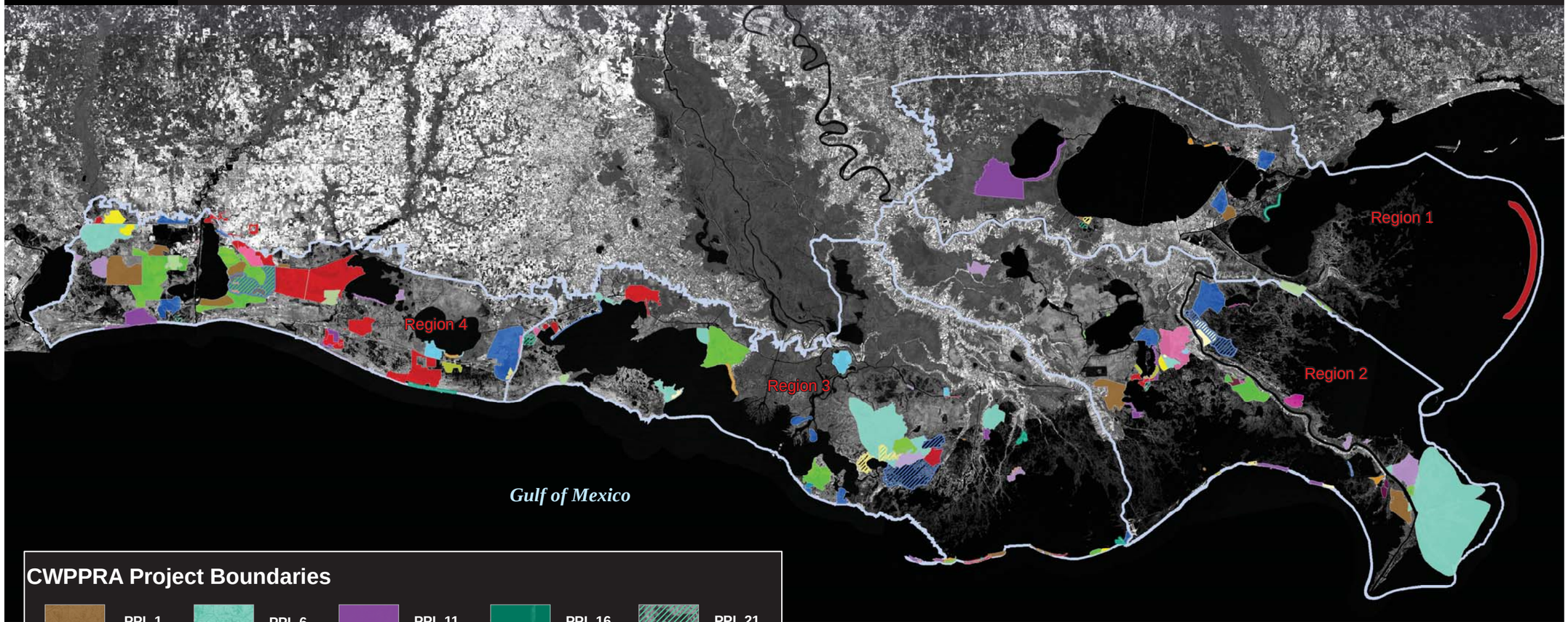
PO-133	LaBranche Central Marsh Creation

U.S. Department of the Interior

BA-125	Northwest Turtle Bay Marsh Creation

Coastal Wetlands Planning, Protection and Restoration Act (CWPPRA) Priority Project Lists 1-21

USGS science for a changing world



CWPPRA Project Boundaries

PPL 1	PPL 6	PPL 11	PPL 16	PPL 21
PPL 2	PPL 7	PPL 12	PPL 17	
PPL 3	PPL 8	PPL 13	PPL 18	
PPL 4	PPL 9	PPL 14	PPL 19	
PPL 5	PPL 10	PPL 15	PPL 20	

Region Boundary

N

1:1,275,000

10 0 10 20 Kilometers

10 0 10 20 Miles

Image Source:
2010 Landsat Thematic Mapper 5 Imagery
Band 5 Mosaic

Produced by:
U.S. Department of the Interior
U.S. Geological Survey
National Wetlands Research Center
Coastal Restoration Assessment Branch
Baton Rouge, La.

Map ID: USGS-NWRC 2012-11-0028
Map Date: July 30, 2012
Data accurate as of July 05, 2012

Coastal Wetlands Planning, Protection and Restoration Act (CWPPRA) Priority Project Lists 1-21 Coast 2050 Region 1

USGS science for a changing world

St. Tammany
Livingston
Tangipahoa
East Baton Rouge
Pontchartrain Basin
Lake Maurepas
Iberville
Lake Pontchartrain
PO-33
PO-104
PO-06
Ascension
PO-18
PO-22
PO-29
St. John the Baptist
St. James
PO-17
PO-75
PO-27
PO-34
PO-16
Orleans
Lake Borgne
PO-133
PO-30
St. Bernard
PO-30
Assumption
St. Charles
Chandeleur Sound
Jefferson
PO-24
PO-19
Lafourche
Lake Salvador
Mississippi River
Plaquemines
Gulf of Mexico
Breton Sound

CWPPRA Project Boundaries

PPL 1 PO-16, PO-17	PPL 9 PO-27	PPL 17 None
PPL 2 PO-06, PO-18	PPL 10 PO-30	PPL 18 None
PPL 3 PO-19	PPL 11 PO-29	PPL 19 PO-75
PPL 4 None	PPL 12 None	PPL 20 PO-104
PPL 5 PO-22	PPL 13 PO-33	PPL 21 PO-133
PPL 6 None	PPL 14 None	
PPL 7 None	PPL 15 None	
PPL 8 PO-24	PPL 16 PO-34	

1:584,000

7.5 0 7.5 15 Kilometers

8 0 8 16 Miles

N

CWPPRA Hydrologic Basin Boundary

Region 1 Boundary

Parish Boundary

Image Source:
2010 Landsat Thematic Mapper 5 Imagery
Band 5 Mosaic

Produced by:
U.S. Department of the Interior
U.S. Geological Survey
National Wetlands Research Center
Coastal Restoration Assessment Branch
Baton Rouge, La.

Map ID: USGS-NWRC 2012-11-0029
Map Date: July 30, 2012
Data Accurate as of July 05, 2012

PLATE 4

USGS
science for a changing world

Coastal Wetlands Planning, Protection and Restoration Act (CWPPRA) Priority Project Lists 1-21 Coast 2050 Region 2

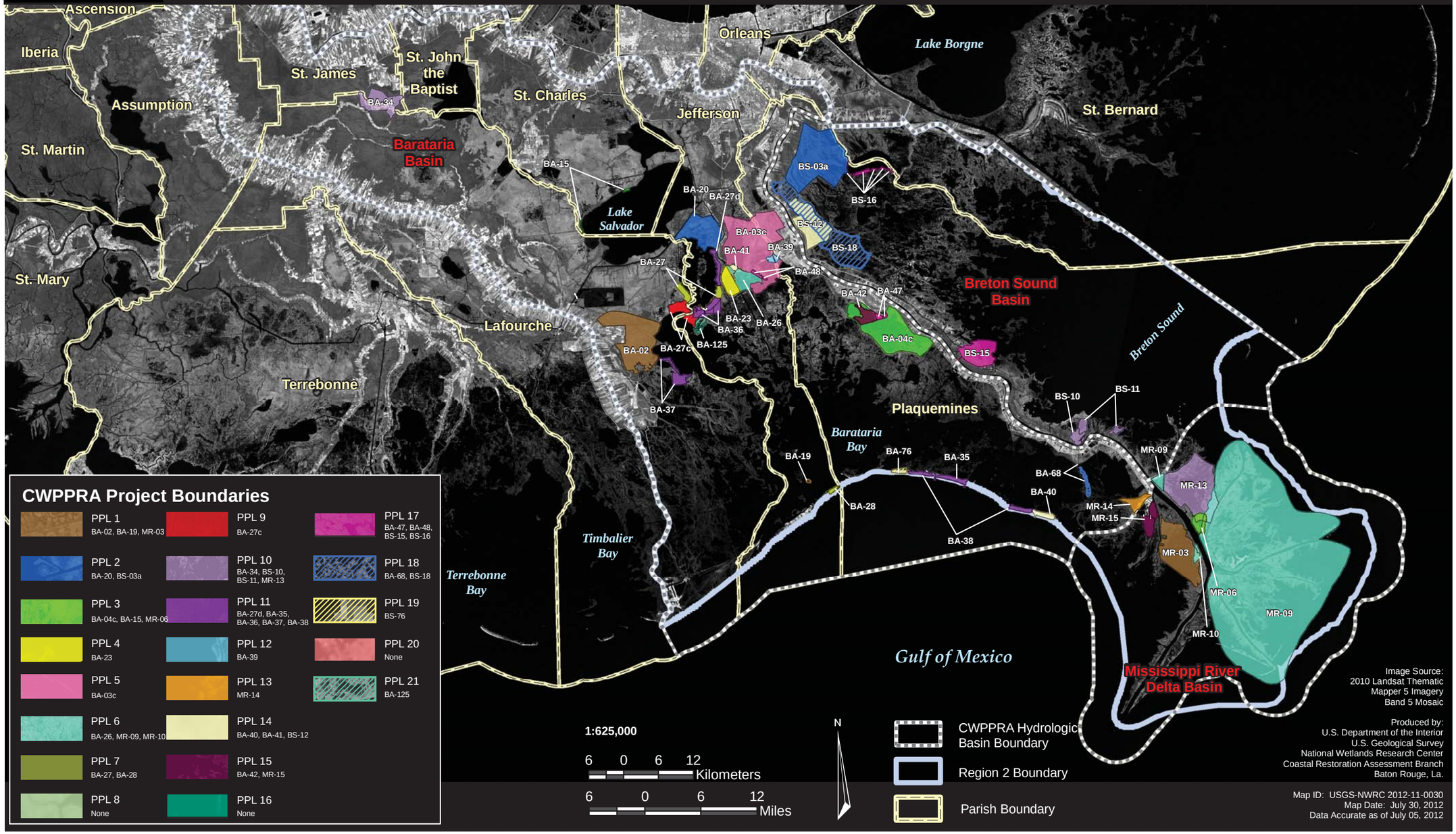
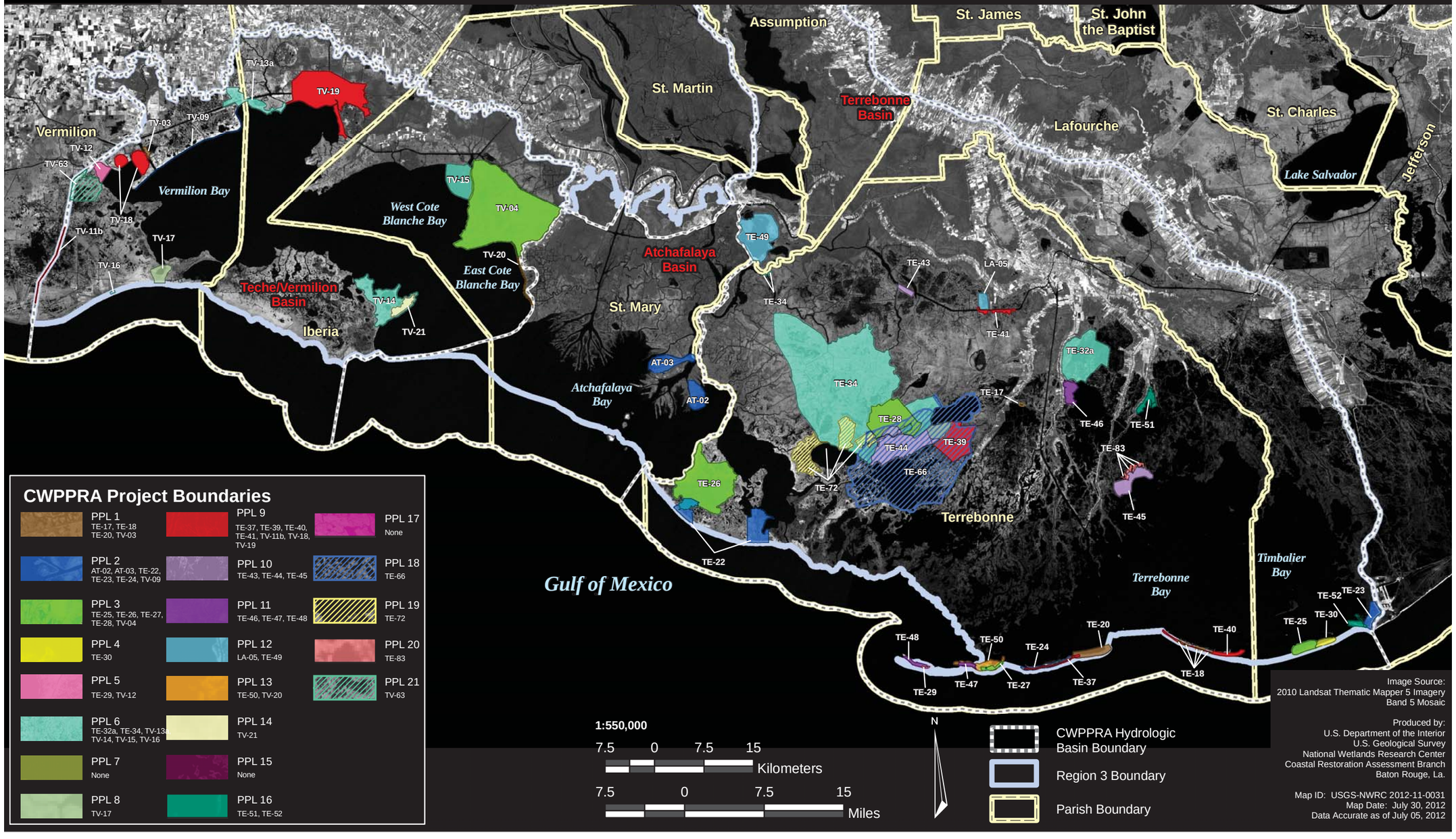


PLATE 5

Coastal Wetlands Planning, Protection and Restoration Act (CWPPRA) Priority Project Lists 1-21 Coast 2050 Region 3

USGS science for a changing world



CWPPRA Project Boundaries

PPL 1: TE-17, TE-18, TE-20, TV-03	PPL 9: TE-37, TE-39, TE-40, TE-41, TV-11b, TV-18, TV-19	PPL 17: None
PPL 2: AT-02, AT-03, TE-22, TE-23, TE-24, TV-09	PPL 10: TE-43, TE-44, TE-45	PPL 18: TE-66
PPL 3: TE-25, TE-26, TE-27, TE-28, TV-04	PPL 11: TE-46, TE-47, TE-48	PPL 19: TE-72
PPL 4: TE-30	PPL 12: LA-05, TE-49	PPL 20: TE-83
PPL 5: TE-29, TV-12	PPL 13: TE-50, TV-20	PPL 21: TV-63
PPL 6: TE-32a, TE-34, TV-13a, TV-14, TV-15, TV-16	PPL 14: TV-21	
PPL 7: None	PPL 15: None	
PPL 8: TV-17	PPL 16: TE-51, TE-52	

1:550,000

7.5 0 7.5 15 Kilometers

7.5 0 7.5 15 Miles

N

CWPPRA Hydrologic Basin Boundary

Region 3 Boundary

Parish Boundary

Image Source:
2010 Landsat Thematic Mapper 5 Imagery
Band 5 Mosaic

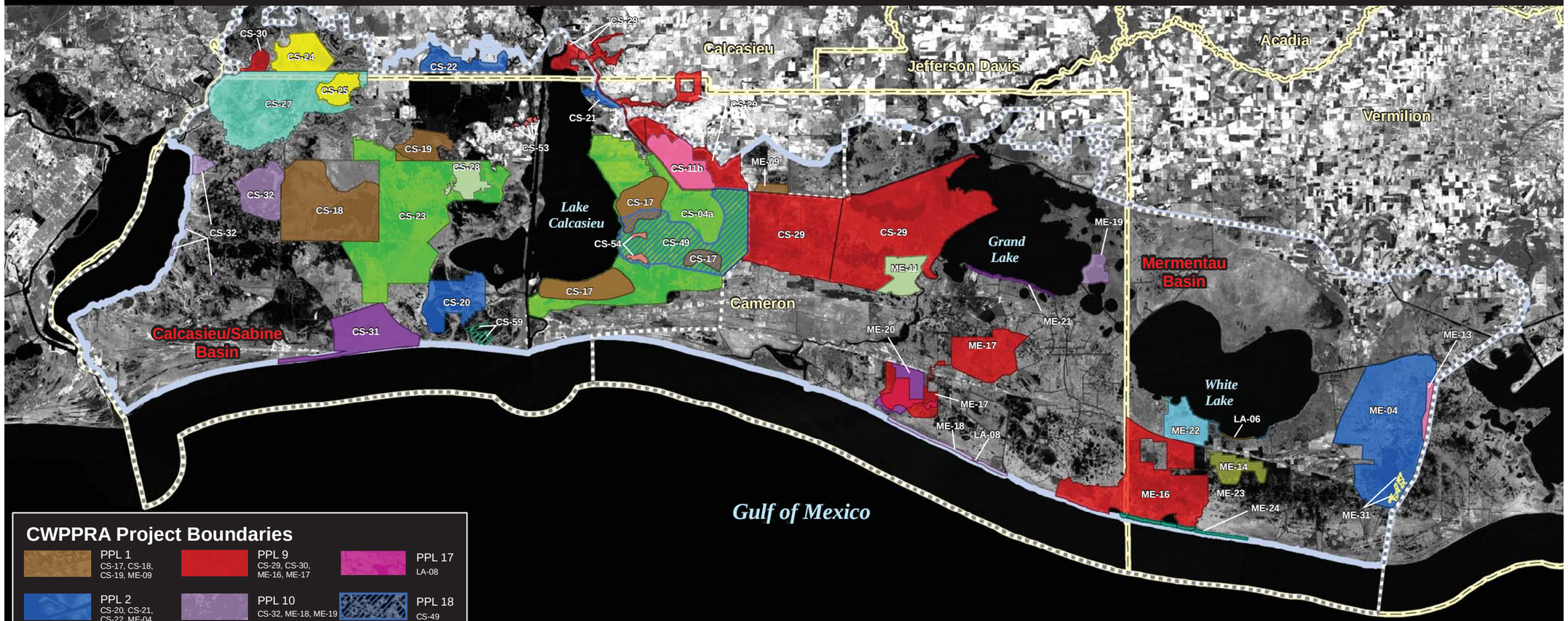
Produced by:
U.S. Department of the Interior
U.S. Geological Survey
National Wetlands Research Center
Coastal Restoration Assessment Branch
Baton Rouge, La.

Map ID: USGS-NWRC 2012-11-0031
Map Date: July 30, 2012
Data Accurate as of July 05, 2012

PLATE 6

Coastal Wetlands Planning, Protection and Restoration Act (CWPPRA) Priority Project Lists 1-21 Coast 2050 Region 4

USGS science for a changing world



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-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 19 — ME-31
PPL 4 — CS-24, CS-25	PPL 12 — ME-22	PPL 20 — CS-53, CS-54
PPL 5 — CS-11b, ME-13	PPL 13 — LA-06	PPL 21 — CS-59
PPL 6 — CS-27	PPL 14 — None	
PPL 7 — ME-14	PPL 15 — ME-23	
PPL 8 — CS-28, ME-11	PPL 16 — ME-24	

1:460,000

7 0 7 14 Kilometers

7 0 7 14 Miles

N

CWPPRA Hydrologic Basin Boundary

Region 4 Boundary

Parish Boundary

Image Source:
2010 Landsat Thematic Mapper 5 Imagery Band 5 Mosaic

Produced by:
U.S. Department of the Interior
U.S. Geological Survey
National Wetlands Research Center
Coastal Restoration Assessment Branch
Baton Rouge, La.

Map ID: USGS-NWRC 2012-11-0032
Map Date: July 30, 2012
Data Accurate as of July 05, 2012