25th PRIORITY PROJECT LIST REPORT

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LOUISIANA COASTAL WETLANDS CONSERVATION AND RESTORATION TASK FORCE

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Executive Summary of PPL 25 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 25th PPL (PPL 25) and fulfills the requirements of CWPPRA Section 303(a).

Under the development of PPL 25, 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 58 project proposals and 2 demonstration project proposals, 18 projects and one demonstration project were nominated by CWPPRA agencies and qualifying parish representatives via electronic vote on February 24, 2015. Eleven candidate projects and one candidate demonstration project was selected from the list of nominees at the Technical Committee meeting held on April 16, 2015. These PPL 25 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 25 development process the Task Force authorized the following five new coastal restoration projects and one new demonstration project:

- Fritchie Marsh Creation and Terracing (PO-173)
- Barataria Bay Rim Marsh Creation (BA-195)
- Oyster Lake Marsh Creation and Nourishment (CS-79)
- Caminada Headlands Back Barrier Marsh Creation Increment #2 (BA-193)
- East Leeville Marsh Creation and Nourishment (BA-194)
- Shoreline Protection, Preservation, & Restoration (SPPR) Panel (LA-280)

These PPL 25 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 five new PPL 25 coastal restoration projects is estimated to be $16,396,341. Phase II would include real estate acquisition, construction, operation and maintenance, and post-construction monitoring. The total Phase II cost for these five projects and 1 demonstration project is estimated to be $135,719,803. The total net wetland benefit that would be derived by implementing the five PPL 25 projects is estimated to be 1,508 acres or 884 AAHUs over a 20-year period. The Task Force will consider approving Phase II funding for individual PPL 25 projects after Phase I requirements have been met for each.

Since the last PPL report to Congress, the Task Force de-authorized or transferred the following two projects because they 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:

- Kelso Bayou Marsh Creation (CS-53)
- Southwest Louisiana Gulf Shoreline Nourishment and Protection(ME-24)

With the addition of the four new PPL 25 projects and the removal of the two transferred projects, there are a total of 153 active Louisiana coastal restoration projects in the CWPPRA Program. The current estimate for the 210 CWPPRA projects combined is $2.39B. The current funded estimate for approved phases for all projects is $1.6B. At the time of the production of this PPL 25 report, $1.28B has been obligated and $1.05B had been expended on all CWPPRA coastal restoration projects in Louisiana since inception of the program in 1991. Of the 153 active projects, 102 projects have completed construction, 23 projects are under construction, 23 projects are in various stages of planning and design, and 5 projects are general support projects to the program. 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 $73 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.

Coastal Wetlands Planning, Protection, and Restoration Act

25th Priority Project List Report

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Coastal Wetlands Planning, Protection, and Restoration Act

25th 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 25th 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 25. 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 25th PRIORITY PROJECT LIST

IDENTIFICATION & SELECTION OF CANDIDATE & DEMONSTRATION PROJECTS

Regional Planning Team (RPT) meetings were held during the period of January 27 through January 29, 2015 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 strategies, and to propose projects and demonstration projects determined to be consistent with the 2012 State Master Plan*. All projects that were deemed consistent with the State Master Plan by the CPRA staff present at the RPT meetings, were granted eligibility for voting consideration. Electronic voting was held on February 24, 2015 for the 25th PPL to choose four projects in Terrebonne and Barataria based on the high loss rates (1985-2006) in those basins, three projects in Pontchartrain, , two projects in the Teche/Vermilion, Mermentau, and Calcasieu/Sabine, and one coastwide project. In addition, four demonstration projects were selected as nominees. A total of 18 projects and two demonstration projects were nominated. A schedule of meetings is shown in Table 1.

Table 1: RPT Meetings to Propose/Nominate Projects

Region 1: Lacombe, LA	January 29, 2015
Region 2: Lacombe, LA	January 29, 2015
Region 3: Houma, LA	January 28, 2015
Region 4: Lafayette, LA	January 27, 2015
Electronic Voting	February 24, 2015

The Engineering and Environmental Work Groups and the AAG met March 19 and March 20, 2015 to review and reach consensus on preliminary project features, benefits, and fully-funded cost estimates for the eighteen nominated projects as well as evaluate the two demonstration project nominees. At this meeting, after extensive evaluation, a decision was made by the Environmental and Engineering Work Groups and AAG to pursue only one nominee demonstration project. 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 16, 2015. The matrix is included as Table 2.

*CWPPRA Task Force voted in June 2012 to approve the Technical Committee's recommendation that the PPL 23 Planning Process Standard Operating Procedures and future PPL's include selecting projects that would be consistent with the 2012 State Master Plan.

Table 2a: 25th 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	North Shell Beach Marsh Creation	$20M-$25M	200-250	X		X		X
1	PO	MC/TR	Fritchie Marsh Creation and Terracing	$25M - $30M	250-300				X	X
1	PO	MC/SP	St. Catherine Island Shoreline Protection and Marsh Creation	$35M - $40M	200-250				X	X
2	BA	MC	Caminada Headlands Back Barrier Marsh Creation #2	$25M - $30M	100-150	X		X		X
2	BA	MC	Barataria Bay Rim Marsh Creation	$25M - $30M	200-250	X		X		
2	BA	MC/TR	East Bayou Lafourche Marsh Creation and Terracing	$30M - $35M	350-400	X		X		
2	BA	MC	East Leeville Marsh Creation and Nourishment	$30M - $35M	300-350	X		X		
3	TE	MC	Bayou Dularge Ridge Restoration and Marsh Creation	$25M - $30M	200-250	X				
3	TE	MC	Bayou Terrebonne Ridge Restoration and Marsh Creation	$25M - $30M	150-200	X			X	
3	TE	MC/TR	Bayou Jean Lacroix Marsh Creation and Terracing	$30M - $35M	250-300	X				
3	TE	MC/TR	South Bayou Pointe aux Chenes Marsh Creation and Terraces	$20M - $25M	250-300	X				
3	TV	SP/MC	West Vermilion Bay Shoreline Protection and Marsh Creation	$25M - $30M	250-300			X	X	
3	TV	SP	Lake Sand Complex Shoreline Protection	$20M - $25M	150-200			X	X	
4	ME	MC/FD	Southeast Pecan Island Marsh Creation and Freshwater Enhancement	$30M - $35M	300-350			X	X	
4	ME	MC	Sweeney Tract Marsh Creation and Nourishment	$25M - $30M	500-600			X		X
4	CS	MC	Oyster Lake Marsh Creation and Nourishment	$30M - $35M	400-450					X
4	CS	SP	East Holly Beach Gulf Shoreline Protection	$30M - $35M	150-200				X	X
	Coast wide		Southwest Louisiana Salvinia Weevil Propagation	$0M - $5M	15-200				X	

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: 25th Project Priority List Demonstration Nominee Project Matrix

Demonstration Project Name	Meets Demonstration Project Criteria?	Lead Agency	Technique Demonstrated
Shoreline Protection, Preservation, and Restoration Panel (SPPR Panel)	Yes	NMFS	The demonstration project would introduce an innovative solution for shoreline protection and dredge containment projects, which can be installed at a significant savings to the project owner. The demonstration project would help reduce shoreline retreat in areas that have experienced excessive amounts of erosion and would also have the intent to collect/retain suspended sediments behind the structures.
Wave Robber (Wave Suppressor Sediment Collection System)	Yes	NMFS	The WSSC system serves as a barrier to disrupt the tidal wave flow into the shorelines and wetlands while at the same time allowing sediment to be carried through the system by the wave action and water currents. The sediment is trapped and deposited between the system and the shorelines and wetlands.

The CWPPRA Technical Committee met publicly on April 16, 2015 to consider the preliminary costs, wetland benefits, and potential issues of the eighteen 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 2015 through October 2015. The Environmental and Engineering Work Groups and AAG met to refine the projects and develop boundaries on May 16, 2015. Interagency field visits were conducted during May and June 2015 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, 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 14 through August 16, 2015, the Engineering Work Group met to review and approve the Phase I and II cost estimates developed by the agencies for the eleven PPL 25 candidates. In September 2015, 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 6, 2015. The Economics Work Group reviewed the final project cost estimates and developed annualized costs in the month of October 2015.

The Environmental and Engineering Work Groups and AAG also met on October 2, 2015 to evaluate and rank the one demonstration project. The demonstration project was 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 25th Priority Project List Candidate Demonstration Projects

Demonstration Project Name	Total Fully-Funded Cost	P1	P2	P3	P4	P5	P6	Total Score
Shoreline Protection,Preservation, andRestoration Panel (SPPR Panel)	$2,215,514	2	3	2	2	2	2	13

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: 25th 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	141	290	$27,944,102	$1,829,778	$12,977	$96,359
North Shell Beach Marsh Creation	112	220	$24,313,536	$1,591,229	$14,207	$110,516
Barataria Bay Rim Marsh Creation	158	251	$23,838,905	$1,562,085	$9,887	$94,976
East Bayou Lafourche Marsh Creation	177	330	$33,031,016	$2,173,216	$12,278	$100,094
East Leeville Marsh Creation and Nourishment	185	322	$35,066,972	$2,316,074	$12,519	$108,904
Caminada Headlands Back Barrier Marsh Creation Increment#2	142	207	$24,977,605	$1,644,442	$11,581	$120,665
Bayou Terrebonne Ridge Restoration and Marsh Creation	76	126	$36,867,892	$2,384,633	$31,377	$292,602
West Vermilion Bay Shoreline Protection and Marsh Creation	153	294	$24,975,860	$1,612,396	$10,539	$84,952
Southeast Pecan Island Marsh Creation and Freshwater Enhancement	189	301	$33,497,546	$2,172,021	$11,492	$111,288
Sweeney Tract Marsh Creation and Nourishment	274	524	$30,915,853	$2,008,392	$7,330	$59,000

Oyster Lake Marsh Creation and Nourishment	258	438	$38,073,046	$2,505,694	$9,712	$86,925

The CWPPRA Technical Committee met on December 10, 2015 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 eleven 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. The results of the CWPPRA Technical Committee vote are outlined in Table 5. On January 17, 2016, the CWPPRA Task Force reviewed the Technical Committee recommendations and moved to adopt the recommendation without change.

Table 5: 25th 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
PO-173	Fritchie Marsh Creation and Terracing	R1	6	1		6	6		4	19
BA-195	Barataria Bay Rim Marsh Creation	R2		6	2	6	2	5	4	15
CS-79	Oyster Lake Marsh Creation and Nourishment	R4	3	5		3	3	4		15
BA-193	Caminada Headlands Back Barrier Marsh Creation Increment #2	R2		2	5	5		1	4	13
BA-194	East Leeville Marsh Creation and Nourishment	R2	4	3		1	4		4	12
+	East Bayou Lafourche Marsh Creation	R2			1	4	1	2	4	8
+	West Vermilion Bay Shoreline Protection and Marsh Creation	R3	1		6			3	3	10
+	Sweeney Tract Marsh Creation and Nourishment	R4			3	2	5		3	10
+	North Shell Beach Marsh Creation	R1	5		4				2	9
+	Southeast Pecan Island Marsh Creation and Freshwater Enhancement	R4				3		6	2	9
+	Bayou Terrebonne Ridge Restoration and Marsh Creation	R3	2	4					2	6

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

EVALUATION OF CANDIDATE PROJECTS

Benefit Analysis (WVA). The WVA is a quantitative, habitat-based assessment methodology developed for use in 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

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.

Candidate Projects Located in Region 1

PPL25 Fritchie Marsh Creation and Terracing

Project Location:
Region 1, Pontchartrain Basin, St. Tammany Parish, located approximately three miles southeast of Slidell, Louisiana. A substantial portion of the project is located on Big Branch 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 limits the effectiveness of the PO-06 CWPRRA project. Wetlands in the project vicinity are being lost at the rate -1.09%/year based on USGS data from 1985 to 2015. These marshes cannot recover without replacement of lost sediment, which is critical if the northshore marshes are to be sustained.

Goals:
Project goals include restoring and nourishing marsh. Specific goals of the project are: 1) create approximately 291 acres of marsh; 2) nourish approximately 49 acres of existing marsh; and 3) construct about 36,610 feet of earthen terraces or 26 emergent acres.

Proposed Solution:
An alternatives analysis was conducted leading to the selection of features and configuration to compliment and work synergistically with the existing PO-06 project and planned mitigation and restoration projects in the Fritchie Marsh. A robust engineering cost is included to evaluate increasing the project size if costs allow or adjust the layout, if needed during Phase 1. Approximately 2 million cubic yards of material would be placed confined to restore 291 acres and nourish approximately 49 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 aquatic habitat and existing shorelines. Approximately 26 acres of earthen terraces would be constructed within various locations totaling approximately 36,610 feet or 523 acres of terrace field. All containment dikes would be gapped or degraded no later than three years after construction to facilitate the development of tidal marsh functions supportive of estuarine species. The terraces would be planted as well as 50% of the created marsh acres to expedite colonization and enhance stabilization.

Project Benefits:
The project would result in approximately 290 net acres over the 20-year project life.

Project Costs:
The total fully-funded cost is $27,944,102.

Preparer of Fact Sheet
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Fritchie Marsh Creation and Terracing (PPL25 Candidate)

Marsh Creation *
Terrace Field *
Project Boundary*

* denotes proposed features

0.5 0 0.5 Kilometers
0.5 0 0.5 Miles

Scale 1:45,000

Map ID: USGS-NWRC 2015-11-0034
Map Date: June 30, 2015

USGS science for a changing world

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

Image Source:
2013 NAIP Photography

PPL25 North Shell Beach Marsh Creation

Project Location:
Region 1, Pontchartrain Basin, St. Bernard Parish

Problem:
The landform separating Lake Borgne and the MRGO has undergone both interior and shoreline wetland losses due to subsidence, storm events, historic use of the MRGO prior to deauthorization (i.e., deep draft vessel traffic), and wave fetch. Although much of the project area is now protected from edge erosion by rock dike features, interior wetland loss attributed to subsidence continues to cause marsh fragmentation and open water conversion. Wetland loss rates in the applicable mapping unit are estimated to be -0.49%/year (1985 – 2009 LCA loss rate).

Goals:
The primary objective of this project is to create and nourish 394 acres of emergent brackish marsh to continue the ongoing efforts to stabilize the landmass separating Lake Borgne from the MRGO.

Proposed Solution:
The proposed project will create and nourish 394 acres of *Spartina* marsh by dredging sediment from designated borrow sources in Lake Borgne, and placing to a target fill elevation of +1.3 feet. Existing high shorelines along Lake Borgne and interior marsh edge could be used for containment where practical. Constructed containment features would be degraded or gapped as needed to promote tidal exchange after dewatering and consolidation of the fill material. The project would create 223 acres of marsh and nourish at least 171 acres of existing fragmented marsh. Additionally, 50% of the newly created area will include vegetative plantings.

Project Benefits:
The project would result in approximately 220 net acres over the 20-year project life.

Project Costs:
The total fully-funded cost is $24,313,536.

Preparers of Fact Sheet:
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North Shell Beach Marsh Creation
(PPL25 Candidate)

USGS
science for a changing world

Marsh Creation *

Project Boundary*

* denotes proposed features

0.5 0 0.5
Kilometers
0.5 0 0.5
Miles

Scale 1:50,000

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

Image Source:
2012 DOQQ Photography

Map ID: USGS-NWRC 2015-11-0035
Map Date: July 14, 2015

Candidate Projects Located in Region 2

PPL25 Barataria Bay Rim Marsh Creation

Project Location:
Region 2, Barataria Basin, Jefferson and Plaquemines Parish

Problem:
Historic wetland loss in the area occurs in the form of interior marsh loss and shoreline erosion along Barataria Bay. The interior loss is caused by subsidence, sediment deprivation, and construction of access and pipeline canals. Based on the hyper-temporal analysis conducted by USGS for the extended project boundary, loss rates in the project area are estimated to be -0.58% per year for the period 1984 to 2015.

Goals:
The goal of the project is to create approximately 251 acres of marsh and nourish approximately 266 acres of marsh (517 acres total) with dredged material from Barataria Bay.

Proposed Solution:
Sediments from a Barataria Bay borrow site will be hydraulically dredged and pumped via pipeline into three separate fully contained cells to create approximately 236 acres of marsh and nourish 232 acres. The proposed design is to place the dredged material to an initial fill height of +2.9 ft NAVD88, with a target marsh height of +1.6ft NAVD88. Dewatering and compaction of dredged sediments should produce marsh elevations conducive to the establishment of emergent marsh and within the intertidal range. 50% of the contained marsh creation area will be planted if needed. Containment dikes will be constructed as necessary. Perimeter containment dikes exposed to high wave energy will be planted. Containment dikes will be degraded as necessary to reestablish hydrologic connectivity with adjacent wetlands.

Additional sediments from the same borrow site will be hydraulically dredged and pumped via pipeline to a semi-contained area to create approximately 15 acres of marsh and nourish 34 acres. Segments of containment dikes will be constructed as necessary across distinct channels. The proposed design is to place the dredged material to an initial fill height of +2.9ft NAVD88 in two primary ponds and in the pipeline canal that extends toward the east. Because these ponds and pipeline canal will not have full perimeter containment, dredged material fill height is expected to slope downward with distance from their perimeter. Containment segments will be degraded as necessary to reestablish hydrologic connectivity with adjacent wetlands.

Project Benefits:
The project would result in approximately 251 net acres over the 20-year project life.

Project Costs:
The total fully-funded cost is $23,838,905.

Preparer of Fact Sheet:
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Barataria Bay Rim Marsh Creation
(PPL25 Candidate)

Marsh Creation *

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 2015-11-0030
Map Date: June 26, 2015

USGS science for a changing world

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

Image Source:
2012 DOQQ

PPL25 East Bayou Lafourche Marsh Creation

Project Location:
Region 2, Barataria Basin, Lafourche Parish

Problem:
The Leeville area has experienced extensive loss of emergent wetlands from subsidence, storms, oil/gas canal dredging, and altered hydrology. Wetland loss has increased the vulnerability of Leeville and Louisiana Highway 1 to damage from tropical storms. Based on the hyper-temporal analysis conducted by USGS for the extended project boundary, loss rates in the project area are estimated to be -1.41% per year for the period 1984 to 2015.

Goals:
The primary goal of this project is to restore marsh habitat in open water and in deteriorated marsh via hydraulic dredging and placement of dredged material.

The specific goal of the project is create approximately 417 acres (374 acres of marsh creation and 43 acres of marsh nourishment) of marsh with dredged material.

Proposed Solution:
Sediments from a Little Lake borrow site will be hydraulically dredged and pumped via pipeline to create/nourish approximately 417 acres of marsh (Figure 1). Dewatering and compaction of dredged sediments should produce elevations conducive to the establishment of emergent marsh and within the intertidal range. Perimeter containment dikes will be constructed. Containment dikes exposed to open water will be planted with appropriate vegetation. Containment dikes will be gapped at the end of construction or by target year 3.

Project Benefits:
The project would result in approximately 330 net acres over the 20-year project life.

Project Costs:
The total fully-funded cost is $33,031,016.

Preparer of Fact Sheet:
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East Bayou Lafourche Marsh Creation
(PPL25 Candidate)

USGS
science for a changing world

N

Louisiana

Project Location

Marsh Creation *

Project Boundary

* denotes proposed features

0.5 0 0.5 Kilometers

0.5 0 0.5 Miles

Scale 1:35,000

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

Image Source:
2012 DOQQ

Map ID: USGS-NWRC 2015-11-0029
Map Date: August 25, 2015

PPL25 East Leeville Marsh Creation and Nourishment

Project Location:
Region 2, Barataria Basin, Lafourche Parish (primary)
Region 3, Terrebonne Basin, Lafourche Parish

Problem:
There is widespread historic and continued rapid land loss within the project site and surrounding areas resulting from subsidence, wind erosion, storms, and altered hydrology. The wetland loss rate for is -1.53%/year based on USGS data from 1984 to 2015. Furthermore, the limits of Southwestern Louisiana Canal are difficult to determine in some areas because land loss is causing the coalescence of the canal with adjacent water bodies. Natural tidal flow and drainage patterns which once existed are currently circumvented by the increasing area of open water. Data suggests that from 1932 to 1990, the basin lost over 245,000 ac of marsh, and from 1978 to 1990, Barataria Basin experienced the highest rate of wetland loss along the entire coast.

Goals:
The project goal is to create approximately 358 acres and nourish 124 acres of saline marsh east of Leeville.

Proposed Solution:
After consideration of three potential alternatives, features and an alignment were selected to establish an arc of wetlands along the north side of Southwestern Canal, Lake Jesse, and the west side of South Lake. This is to begin rebuilding the structural framework of wetlands east of Leeville and provide protection for Leeville from southeasterly winds and tides. A robust engineering and design cost was included for full flexibility during Phase 1 to expand the project if cost allows or to assess alternative configurations, if necessary. The proposed features consist of hydraulically mining sediment from a borrow source in Little Lake west of Leeville and pumping dredged material to create and nourish marsh east of Leeville. The disposal areas would be fully contained during construction and gapped no later than three years post construction to facilitate establishment of tidal connection and function. Additionally, a portion of the created marsh acres would be planted with smooth cordgrass following construction to help stabilize the created platform by increasing the rate of colonization.

Project Benefits:
The project would result in approximately 322 net acres over the 20-year project life.

Project Costs:
The total fully-funded cost is $35,066,972.

Preparer of Fact Sheet
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East Leeville Marsh Creation and Nourishment (PPL25 Candidate)

USGS science for a changing world

Marsh Creation *

Project Boundary

* denotes proposed features

0.5 0 0.5 Kilometers

0.5 0 0.5 Miles

Scale 1:35,000

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

Image Source:
2012 DOQQ

Map ID: USGS-NWRC 2015-11-0028
Map Date: June 26, 2015

PPL25 Caminada Headlands Back Barrier Marsh Creation Increment #2

Project Location:
Region 2, Barataria Basin, Lafourche & Jefferson Parishes

Problem:
The Caminada Headland has experienced some of the highest shoreline retreat rates in Louisiana. Historically the shoreline has migrated landward at about 40 feet per year. Between 2006 and 2011, shoreline migration increased dramatically, exceeding 80 feet per year in near Bay Champagne and 110 feet per year in the Bayou Moreau area. The increased losses occurred in the wake of Hurricanes Katrina and Rita in 2005 as the breaches remained open for an extended length of time. The losses were exacerbated by Tropical Storm Fay and Hurricanes Gustav and Ike in 2008. Significant prolonged breaches greatly increase the net export of sediment from the headland.

In addition to the shoreline migration, the area is also experiencing high loss rates of interior marshes. As the beach and dune continue to migrate landward, overwashed sediment will be lost into newly formed open water and land loss rates will be exacerbated. The continued deterioration of Caminada headland threatens thousands of acres of wetland habitat as well as critical infrastructure, including Port Fourchon, LA Highway 1, and the lower Lafourche levee system.

Goals:
The goals of this project are to: 1) Create and/or nourish 444 acres of back barrier marsh, by pumping sediment from an offshore borrow site; 2) Create a platform upon which the beach and dune can migrate, reducing the likelihood of breaching, improving the longevity of the barrier shoreline, and protecting wetlands and infrastructure to the north and west. The proposed project is expected to slow the current trend of degradation in the headland.

Proposed Solution:
This project would create 246 acres of back barrier intertidal marsh and nourish 198 acres of emergent marsh using material dredged from the Gulf of Mexico. The marsh creation and nourishment cells are designed to minimize impacts on existing marsh and mangroves. Assuming some natural vegetative recruitment, vegetative plantings are planned at a 50% density, with half planned at project year one and half planned at project year 3. Containment dikes will be degraded or gapped by year three to allow access for estuarine organisms.

Project Benefits:
The project would result in approximately 207 net acres over the 20-year project life.

Project Costs:
The total fully-funded cost is $24,977,605.

Preparers of Fact Sheet:
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Caminada Headlands Back Barrier Marsh Creation, Increment #2 (PPL25 Candidate)

N

Louisiana

Project Location

Marsh Creation *

Project Boundary

Back Barrier Marsh Creation

Beach & Dune Restoration

* denotes proposed features

1 0 1 Kilometers

1 0 1 Miles

Scale 1:110,000

USGS science for a changing world

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

Image Source:
2012 DOQQ

Map ID: USGS-NWRC 2015-11-0033
Map Date: September 29, 2015

Candidate Projects Located in Region 3

PPL25 Bayou Terrebonne Ridge Restoration and Marsh Creation

Project Location:
Region 3, Terrebonne Basin, Terrebonne Parish

Problem:
The Terrebonne Basin was historically structured by a series of remnant north-south ridges of the many distributaries of Bayou Lafourche. Much of the habitat function of these ridges has been lost over the last half-century to erosion, subsidence, and development. Based on the hyper-temporal analysis conducted by USGS for the extended project boundary, loss rates in the project area are estimated to be -0.73% per year for the period 1984 to 2015. Land loss projections predict that the ridge and surrounding marshes will be converted to open water by 2050.

Goals:
The primary goals of this project are; 1) restore both the structural and habitat functions of several miles of Bayou Terrebonne ridge; 2) restore marsh habitat via marsh creation and nourishment and 3) protect the existing and newly created marsh and ridge with artificial oyster reefs. Specific goals of the project are: 1) restore approximately 5.4 miles of ridge habitat; 2) create/nourish 135 acres of marsh habitat with material dredged from Terrebonne Bay; and 3) install approximately 24,692 linear feet of artificial oyster reef/ridge armoring to provide habitat and protect the existing/newly created marsh and ridge.

Proposed Solution:
Approximately 28,501 linear feet (25 acres) of ridge will be constructed/restored on the east side of Bayou Terrebonne. The ridge will be constructed with borrow material from Bayou Terrebonne via bucket dredge. The ridge will be planted with seashore paspalum immediately post construction and with seedlings and saplings of appropriate species at TY3.

Sediments from a Terrebonne Bay borrow site will be hydraulically dredged and pumped via pipeline to create/nourish approximately 123 acres of marsh. The proposed design is to place the dredged material to an initial target elevation of +1.7 ft NAVD88. Dewatering and compaction of dredged sediments should produce marsh elevations conducive to the establishment of emergent marsh and within the intertidal range. Created marsh will be 100% planted with smooth cordgrass. Containment dikes will be constructed as necessary. Open water containment dike will be armored with gabion mats.

Gabion mats will be utilized to create approximately 24,692 linear feet of artificial oyster reef, ridge armoring, and shoreline protection.

Project Benefits:
The project would result in approximately 126 net acres of marsh (101 acres) and ridge (25 acres) habitats over the 20-year project life.

Project Costs:
The total fully-funded cost is $36,867,892.

Preparer of Fact Sheet:
John Savell, FWS, John_Savell@fws.gov, 337-291-3144

Bayou Terrebonne Ridge Restoration and Marsh Creation (PPL25 Candidate)

Ridge Protection *
Oyster Reef *
Ridge Restoration *
Marsh Creation *
Project Boundary

* denotes proposed features

1 0 1 Kilometers
1 0 1 Miles

Scale 1:75,000

USGS science for a changing world

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

Image Source:
2012 DOQQ

Map ID: USGS-NWRC 2015-11-0038
Map Date: September 21, 2015

PPL25 West Vermilion Bay Shoreline Protection and Marsh Creation

Project Location:
Region 3, Teche-Vermilion Basin, Vermilion Parish

Problem:
Over the past decades, the project area has experienced wetland loss, primarily due to geomorphologic and hydrologic conditions being altered due to dredging of navigation and petroleum access canals and the construction of spoil banks and levees, and shoreline erosion along Vermilion Bay caused primarily by natural wave energy. Wave energy in the bay has gradually increased over the centuries because the bay is naturally getting deeper due to a slight yet constant subsidence and global sea-level rise. Recent loss rates (2003-2013) were calculated from aerial photography at 6.0 ft/yr.

Goals:
The goals of this project are to: 1) Create and/or nourish 769 acres of marsh, by pumping sediment from Vermilion Bay; 2) Protect/armor the western shoreline of Vermilion Bay between Bayou Prien and Hog Bayou and the Vermilion Bay shoreline adjacent to the proposed marsh creation cell near North Lake.

Proposed Solution:
The project proposes to create a total of 303 acres and nourish a total of 374 acres of emergent marsh by dredging sediment from Vermilion Bay. Approximately 23 acres would be confined marsh creation, and 280 acres would be unconfined marsh creation. Three acres would be confined marsh nourishment on North Lake and approximately 371 acres would be unconfined marsh nourishment in the southern project cell. The project also includes armoring approximately 18,352 linear feet of shoreline (2,474 LF of shoreline protection plus 15,878 LF of gabion mats) along Vermilion Bay between Bayou Prien and Hog Bayou and adjacent to the proposed marsh creation cell located near North Lake. Assuming some natural vegetative recruitment, vegetative plantings are planned at a 50% density at project year one. Containment dikes will be degraded or gapped by year three to allow access for estuarine organisms.

Project Benefits:
The project would result in approximately 317 net acres over the 20-year project life.

Project Costs:
The total fully-funded cost is $24,975,860.

Preparers of Fact Sheet:
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West Vermilion Bay Shoreline Protection and Marsh Creation (PPL25 Candidate)

Armored Protection *
Shoreline Protection *
Marsh Creation *
Marsh Nourishment*
Project Boundary

* denotes proposed features

0.75 0 0.75 Kilometers
0.75 0 0.75 Miles

Scale 1:55,000

USGS science for a changing world

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

Image Source:
2013 NAIP

Map ID: USGS-NWRC 2015-11-0039
Map Date: August 19, 2015

Candidate Projects Located in Region 4

PPL25 Southeast Pecan Island Marsh Creation and Freshwater Enhancement

Project Location:
Region 4, Mermentau Basin, Vermilion Parish, east of Pecan Island and south of Highway 82.

Problem:
The Southeast Pecan Island project area and surrounding marshes have experienced significant land loss from storm impacts, increased tidal exchange, saltwater intrusion, and reduced freshwater retention. Based on USGS data from 1984 to 2010, the wetland loss rate for the proposed project area is 0.99 %/year. Recent land loss, resulting from Hurricanes Rita and Ike, left Louisiana State Highway 3147 and Front Ridge Road exposed to open water wave action and vulnerable to additional storms.

Currently, Highway 82 forms a hydrologic barrier that isolates the Chenier Subbasin from freshwater associated with the Grand and White Lakes Subbasin. Highway 82 traverses cheniers wherever possible, however, low spots between cheniers historically allowed drainage from the Lakes Subbasin south into the Chenier Subbasin.

Goals:
The project goals are to restore/improve hydrologic conditions and increase emergent marsh vegetation throughout the project area. The project would help restore drainage of excess freshwater from the Lakes Subbasin into the Chenier Subbasin. Restoring the hydrology would reduce the exposure of fragile interior marsh to seasonal salinity spikes and increase productivity of marshes.

Proposed Solution:
The project would create/nourish approximately 253 acres of emergent marsh; create 55,000 linear feet (41 acres) of terraces; and promote growth of submerged aquatic vegetation.

The freshwater enhancement feature would improve hydrologic conditions by allowing water from the Lakes Subbasin to drain south into the Chenier Subbasin. The majority of the necessary infrastructure exists and would require channel clean out and the construction of two outlet structures, replacement of four sets of culverts along the conveyance channel, and the potential cleanout of culverts under Highway 82.

Project Benefits:
The project would result in approximately 301 net acres over the 20-year project life.

Project Costs:
The total fully-funded cost is $33,497,546.

Preparers of Fact Sheet:
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Southeast Pecan Island Marsh Creation and Freshwater Enhancement (PPL25 Candidate)

Culvert with Flapgate *
Freshwater Introduction *
Terraces *
Marsh Creation *
Terrace Field *
Influence Area/Project Boundary *
* denotes proposed features

1 0 1 Kilometers
1 0 1 Miles
Scale 1:100,000

USGS science for a changing world

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

Image Source:
2012 DOQQ

Map ID: USGS-NWRC 2015-11-0032
Map Date: June 29, 2015

PPL25 Sweeney Tract Marsh Creation and Nourishment

Project Location:
Region 4, Mermentau Basin, Cameron Parish

Problem:
Marshes within the Hog Bayou Watershed mapping unit are stressed due to limited freshwater input and seasonal salinity spikes exacerbated by construction of the Mermentau Ship Channel. Other contributors to land loss in the area are subsidence, inundation, compaction, and erosion of organic soils. Currently, the project area is characterized as large, open water with degraded areas of wetland vegetation. The dredging of the Mermentau Ship Channel increased tidal amplitude and saltwater intrusion into the watershed. In addition to these direct losses, significant interior marsh loss has resulted from saltwater intrusion and hydrologic changes associated with storm damage and blocked drainages (inundation). The 1984 to 2014 interior marsh loss rate derived from USGS for the area is -1.50 % per year. The subsidence rate provided by the 2012 Louisiana State Master Plan Appendix C indicates a loss of 0.24 ft. of elevation within the 20-yr project life.

Goals:
The primary goals of this project are to restore marsh habitat in open water areas via marsh creation. Specific goals are: 1) Create and nourish approximately 730 acres of saline marsh, and 2) Create approximately 13,000 linear feet (6.9 acres) of tidal creeks to facilitate intertidal flow.

Proposed Solution:
Sediment mined from offshore would be placed to create 590 acres of saline marsh and nourish 133 acres of existing marsh. Material would be placed to achieve a settled target elevation of +1.27 feet NAVD88 (GEOID99) based on CRMS station 0614. Temporary containment dikes will be constructed to contain the fill material. To help facilitate estuarine fisheries access, containment dikes will be degraded within three years if the dikes do not naturally degrade, and approximately 13,000 linear feet (6.9 acres) of tidal creeks will be constructed. To improve hydrology of the area, two 48-inch flap-gated culverts would be installed to replace nonfunctional structures northwest of Second Lake and about 500 linear feet of closed conveyance channel would be cleaned out to facilitate water flow to and from the structures.

Project Benefits:
The project would result in approximately 524 net acres over the 20-year project life.

Project Costs:
The total fully funded cost is $30,915,853.

Preparer(s) of Fact Sheet:
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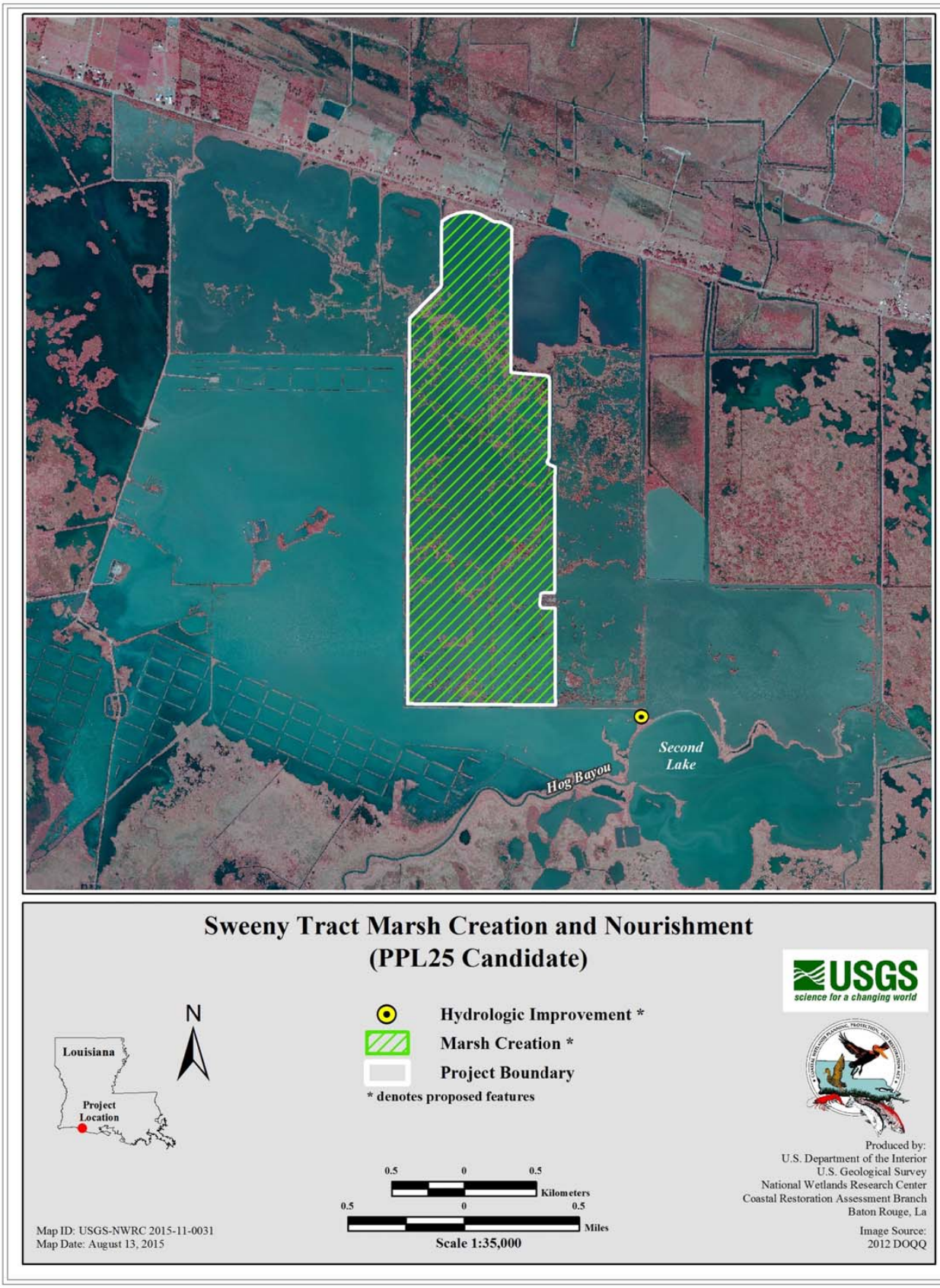

Second Lake
Hog Bayou
Sweeny Tract Marsh Creation and Nourishment
(PPL25 Candidate)
USGS
science for a changing world
N
Louisiana
Project Location
Hydrologic Improvement *
Marsh Creation *
Project Boundary
* denotes proposed features
0.5 0 0.5
Kilometers
0.5 0 0.5
Miles
Scale 1:35,000
Produced by:
U.S. Department of the Interior
U.S. Geological Survey
National Wetlands Research Center
Coastal Restoration Assessment Branch
Baton Rouge, La
Image Source:
2012 DOQQ
Map ID: USGS-NWRC 2015-11-0031
Map Date: August 13, 2015

PPL25 Oyster Lake Marsh Creation and Nourishment

Project Location:
Region 4, Calcasieu-Sabine Basin, Cameron Parish

Problem:
Altered hydrology, drought stress, saltwater intrusion and hurricane induced wetland losses have caused the area to undergo interior marsh breakup. 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 2014), land loss for the area is -1.28% per year. The subsidence rate is estimated at 3.8 mm per year according to the 2012 Louisiana State Master Plan Appendix C.

Goals:
The primary goals of the project are to create and nourish approximately 661 acres of saline marsh. Half of the created acres will be planted with smooth cordgrass vegetation.

Proposed Solution:
Sediment would be mined from the offshore disposal area used for CS-59 and placed in the project area to create approximately 476 acres and nourish approximately 185 acres of saline marsh. Disposal areas would be constructed between the CS-59 marsh creation areas and terrace field, and extend eastward. Material would be placed to achieve a settled target elevation of +1.4 feet NAVD 88, GEOID 99 based on CRMS station 0655. Temporary dikes, where necessary, would be constructed to contain the fill. If the dikes do not naturally degrade to marsh elevation within three years, they would be gapped. Half of the created elevations (237 acres) would be planted with smooth cordgrass plugs. Although marsh creation via dedicated dredging of sediment is the primary technique, opportunities may exist to include some terracing where warranted, but not included in the benefit/cost estimates at this time.

Project Benefits:
The project would result in approximately 438 net acres over the 20-year project life.

Project Costs:
The total fully-funded cost is $38,073,046.

Preparer(s) of Fact Sheet:
John Foret, NOAA's National Marine Fisheries Service, (337) 291-3107; john.foret@noaa.gov.
Kimberly Clements, NOAA's National Marine Fisheries Service, (225) 389-0508, ext. 204; Kimberly.clements@noaa.gov

Oyster Lake Marsh Creation and Nourishment (PPL25 Candidate)

Marsh Creation/Nourishment *
Project Boundary *
CS-59 Project Boundary
* denotes proposed features

0.5 0 0.5 Kilometers
0.5 0 0.5 Miles
Scale 1:35,000

USGS science for a changing world

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

Image Source:
2013 NAIP Photography

Map ID: USGS-NWRC 2015-11-0027
Map Date: june 26, 2015

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, cost sponsoring agency, and contact persons.

Candidate Demonstration Project

PPL25 Demonstration Project Shoreline Protection, Preservation, and Restoration Panel (*SPPR Panel*)

Project Location:
Coastwide: Navigation Channels/Estuary Shorelines

Problem:
Historically Louisiana's coastal shoreline, bays, and lake rims have experience high levels of retreat and land loss. The approach to repairing these areas have utilized heavy, hard engineering methods that eventually settle into the substrate, which has not achieved the goal and even presented additional hazards. Through the use of pre-fabrication of the proposed units, the landowner will see a 60%-80% reduction in installation costs when compared to typical rock rip-rap construction.

Goals:
The proposed demonstration project would stabilize existing shoreline features and attenuate shoreline retreat and potentially enhance interior marshes and an accretion platform behind the structure. The goal of the proposed demonstration project is to provide a cost effective construction alternative to rip rap for shoreline protection.

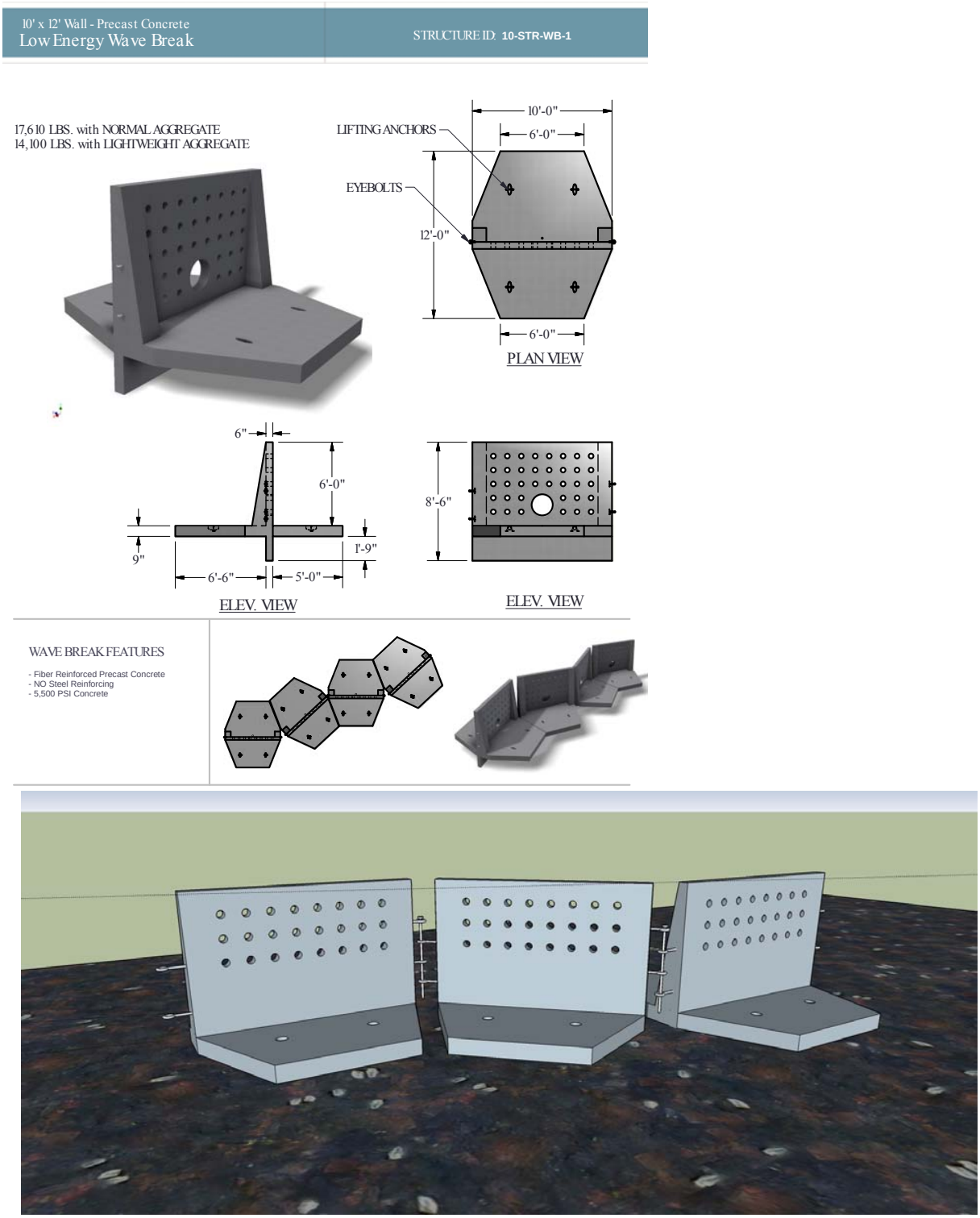
Proposed Solution:
The SPPR Panel is a pre-cast, saltwater tolerant concrete panel system (with ***no carbon steel reinforcement***), the dimensions and density of which can be adjusted to site conditions. The SPPR Panel units resemble a chain when joined together allowing for on site adjustments to irregular shorelines, and has planned openings with the face of the unit that allows for some sediment to penetrate, along with providing ingress/egress of aquatic organisms.

The demonstration would include the selection of 2 diverse application sites for treatment with water depths ranging from 2 to 5 feet. Each treatment would include 3 replicate 260-foot sections for a total project installation of 1,600 linear feet. Project effectiveness would be monitored and evaluated after construction according to the CWPPRA workgroups' recommendation for this product in Phase 0. The conceptual treatment is shown in Figure 1.

Project Costs:
The total fully-funded cost is $2,215,514.

Preparer(s) of Fact Sheet:
John D. Foret, Ph.D. (NMFS), 337.291.2107, John.foret@noaa.gov
Kimberly Clements (NMFS), 225.389.0508, Kimberly.Clements@noaa.gov

Figure: 1. Example SPPR Panel dimensions, layout, and vent placement.



V. Project Selection

On January 21st, 2016 the CWPPRA Task Force made its selection for the 25th PPL. The CWPPRA Task Force selection for the 25th PPL is shown in Table 6.

Table 6: The 25th 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)
PO-173	Fritchie Marsh Creation and Terracing	MC /TR	NMFS	$27,944,102	$3,033,294	$24,910,808	141
BA-195	Barataria Bay Rim Marsh Creation	MC	NRCS	$23,838,905	$2,693,708	$21,145,197	158
CS-79	Oyster Lake Marsh Creation and Nourishment	MC	NMFS	$38,073,046	$3,608,939	$34,464,107	258
BA-193	Caminada Headlands Back Barrier Marsh Creation Increment #2	MC	EPA	$24,977,605	$3,034,310	$21,943,295	142
BA-194	East Leeville Marsh Creation and Nourishment	MC	NMFS	$35,066,972	$4,026,090	$31,040,882	185
TOTALS				$149,900,630	$16,396,341	$133,504,289	884

Project Physical Type:
MC = Marsh Creation
TR = Terracing

Sponsoring Agencies:
EPA = Environmental Protection Agency
NMFS = National Marine Fisheries Service
NRCS = Natural Resources Conservation 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 project location, problem, goals, solution, benefits, costs, sponsoring agency and contact persons and a map identifying the project area and features if applicable.

PPL25 Fritchie Marsh Creation and Terracing

Project Location:
Region 1, Pontchartrain Basin, St. Tammany Parish, located approximately three miles southeast of Slidell, Louisiana. A substantial portion of the project is located on Big Branch 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 limits the effectiveness of the PO-06 CWPRRA project. Wetlands in the project vicinity are being lost at the rate -1.09%/year based on USGS data from 1985 to 2015. These marshes cannot recover without replacement of lost sediment, which is critical if the northshore marshes are to be sustained.

Goals:
Project goals include restoring and nourishing marsh. Specific goals of the project are: 1) create approximately 291 acres of marsh; 2) nourish approximately 49 acres of existing marsh; and 3) construct about 36,610 feet of earthen terraces or 26 emergent acres.

Proposed Solution:
An alternatives analysis was conducted leading to the selection of features and configuration to compliment and work synergistically with the existing PO-06 project and planned mitigation and restoration projects in the Fritchie Marsh. A robust engineering cost is included to evaluate increasing the project size if costs allow or adjust the layout, if needed during Phase 1. Approximately 2 million cubic yards of material would be placed confined to restore 291 acres and nourish approximately 49 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 aquatic habitat and existing shorelines. Approximately 26 acres of earthen terraces would be constructed within various locations totaling approximately 36,610 feet or 523 acres of terrace field. All containment dikes would be gapped or degraded no later than three years after construction to facilitate the development of tidal marsh functions supportive of estuarine species. The terraces would be planted as well as 50% of the created marsh acres to expedite colonization and enhance stabilization.

Project Benefits:
The project would result in approximately 290 net acres over the 20-year project life.

Project Costs:
The total fully-funded cost is $27,944,102.

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

Fritchie Marsh Creation and Terracing
(PPL25 Candidate)

Marsh Creation *
Terrace Field *
Project Boundary*

* denotes proposed features

0.5 0 0.5 Kilometers
0.5 0 0.5 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 Assessment Branch
Baton Rouge, La

Image Source:
2013 NAIP Photography

Map ID: USGS-NWRC 2015-11-0034
Map Date: June 30, 2015

PPL25 Barataria Bay Rim Marsh Creation

Project Location:
Region 2, Barataria Basin, Jefferson and Plaquemines Parish

Problem:
Historic wetland loss in the area occurs in the form of interior marsh loss and shoreline erosion along Barataria Bay. The interior loss is caused by subsidence, sediment deprivation, and construction of access and pipeline canals. Based on the hyper-temporal analysis conducted by USGS for the extended project boundary, loss rates in the project area are estimated to be -0.58% per year for the period 1984 to 2015.

Goals:
The goal of the project is to create approximately 251 acres of marsh and nourish approximately 266 acres of marsh (517 acres total) with dredged material from Barataria Bay.

Proposed Solution:
Sediments from a Barataria Bay borrow site will be hydraulically dredged and pumped via pipeline into three separate fully contained cells to create approximately 236 acres of marsh and nourish 232 acres. The proposed design is to place the dredged material to an initial fill height of +2.9 ft NAVD88, with a target marsh height of +1.6ft NAVD88. Dewatering and compaction of dredged sediments should produce marsh elevations conducive to the establishment of emergent marsh and within the intertidal range. 50% of the contained marsh creation area will be planted if needed. Containment dikes will be constructed as necessary. Perimeter containment dikes exposed to high wave energy will be planted. Containment dikes will be degraded as necessary to reestablish hydrologic connectivity with adjacent wetlands.

Additional sediments from the same borrow site will be hydraulically dredged and pumped via pipeline to a semi-contained area to create approximately 15 acres of marsh and nourish 34 acres. Segments of containment dikes will be constructed as necessary across distinct channels. The proposed design is to place the dredged material to an initial fill height of +2.9ft NAVD88 in two primary ponds and in the pipeline canal that extends toward the east. Because these ponds and pipeline canal will not have full perimeter containment, dredged material fill height is expected to slope downward with distance from their perimeter. Containment segments will be degraded as necessary to reestablish hydrologic connectivity with adjacent wetlands.

Project Benefits:
The project would result in approximately 251 net acres over the 20-year project life.

Project Costs:
The total fully-funded cost is $23,838,905.

Preparer of Fact Sheet:
Quin Kinler, NRCS, quin.kinler@la.usda.gov (225-665-4253 ext. 110)


Mud Lake
Barataria
Bay
Barataria Bay Rim Marsh Creation
(PPL25 Candidate)
USGS
science for a changing world
N
Louisiana
Project
Location
Marsh Creation *
Project Boundary
* denotes proposed features
0.5 0 0.5
Kilometers
0.5 0 0.5
Miles
Scale 1:35,000
Produced by:
U.S. Department of the Interior
U.S. Geological Survey
National Wetlands Research Center
Coastal Restoration Assessment Branch
Baton Rouge, La
Image Source:
2012 DOQQ
Map ID: USGS-NWRC 2015-11-0030
Map Date: June 26, 2015

PPL25 Oyster Lake Marsh Creation and Nourishment

Project Location:
Region 4, Calcasieu-Sabine Basin, Cameron Parish

Problem:
Altered hydrology, drought stress, saltwater intrusion and hurricane induced wetland losses have caused the area to undergo interior marsh breakup. 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 2014), land loss for the area is -1.28% per year. The subsidence rate is estimated at 3.8 mm per year according to the 2012 Louisiana State Master Plan Appendix C.

Goals:
The primary goals of the project are to create and nourish approximately 661 acres of saline marsh. Half of the created acres will be planted with smooth cordgrass vegetation.

Proposed Solution:
Sediment would be mined from the offshore disposal area used for CS-59 and placed in the project area to create approximately 476 acres and nourish approximately 185 acres of saline marsh. Disposal areas would be constructed between the CS-59 marsh creation areas and terrace field, and extend eastward. Material would be placed to achieve a settled target elevation of +1.4 feet NAVD 88, GEOID 99 based on CRMS station 0655. Temporary dikes, where necessary, would be constructed to contain the fill. If the dikes do not naturally degrade to marsh elevation within three years, they would be gapped. Half of the created elevations (237 acres) would be planted with smooth cordgrass plugs. Although marsh creation via dedicated dredging of sediment is the primary technique, opportunities may exist to include some terracing where warranted, but not included in the benefit/cost estimates at this time.

Project Benefits:
The project would result in approximately 438 net acres over the 20-year project life.

Project Costs:
The total fully-funded cost is $38,073,046.

Preparer(s) of Fact Sheet:
John Foret, NOAA's National Marine Fisheries Service, (337) 291-3107; john.foret@noaa.gov.
Kimberly Clements, NOAA's National Marine Fisheries Service, (225) 389-0508, ext. 204; Kimberly.clements@noaa.gov

Oyster Lake Marsh Creation and Nourishment (PPL25 Candidate)

Marsh Creation/Nourishment *
Project Boundary *
CS-59 Project Boundary
* denotes proposed features

0.5 0 0.5
Kilometers
0.5 0 0.5
Miles
Scale 1:35,000

USGS science for a changing world

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

Image Source:
2013 NAIP Photography

Map ID: USGS-NWRC 2015-11-0027
Map Date: june 26, 2015

PPL25 Caminada Headlands Back Barrier Marsh Creation Increment #2

Project Location:
Region 2, Barataria Basin, Lafourche & Jefferson Parishes

Problem:
The Caminada Headland has experienced some of the highest shoreline retreat rates in Louisiana. Historically the shoreline has migrated landward at about 40 feet per year. Between 2006 and 2011, shoreline migration increased dramatically, exceeding 80 feet per year in near Bay Champagne and 110 feet per year in the Bayou Moreau area. The increased losses occurred in the wake of Hurricanes Katrina and Rita in 2005 as the breaches remained open for an extended length of time. The losses were exacerbated by Tropical Storm Fay and Hurricanes Gustav and Ike in 2008. Significant prolonged breaches greatly increase the net export of sediment from the headland.

In addition to the shoreline migration, the area is also experiencing high loss rates of interior marshes. As the beach and dune continue to migrate landward, overwashed sediment will be lost into newly formed open water and land loss rates will be exacerbated. The continued deterioration of Caminada headland threatens thousands of acres of wetland habitat as well as critical infrastructure, including Port Fourchon, LA Highway 1, and the lower Lafourche levee system.

Goals:
The goals of this project are to: 1) Create and/or nourish 444 acres of back barrier marsh, by pumping sediment from an offshore borrow site; 2) Create a platform upon which the beach and dune can migrate, reducing the likelihood of breaching, improving the longevity of the barrier shoreline, and protecting wetlands and infrastructure to the north and west. The proposed project is expected to slow the current trend of degradation in the headland.

Proposed Solution:
This project would create 246 acres of back barrier intertidal marsh and nourish 198 acres of emergent marsh using material dredged from the Gulf of Mexico. The marsh creation and nourishment cells are designed to minimize impacts on existing marsh and mangroves. Assuming some natural vegetative recruitment, vegetative plantings are planned at a 50% density, with half planned at project year one and half planned at project year 3. Containment dikes will be degraded or gapped by year three to allow access for estuarine organisms.

Project Benefits:
The project would result in approximately 207 net acres over the 20-year project life.

Project Costs:
The total fully-funded cost is $24,977,605.

Preparers of Fact Sheet:
Brad Crawford (EPA) (214) 665-7255
Sharon Osowski, Ph.D. (EPA), (214) 665-7506

Caminada Headlands Back Barrier Marsh Creation, Increment #2 (PPL25 Candidate)

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N

Louisiana

Project Location

Marsh Creation *

Project Boundary

Back Barrier Marsh Creation

Beach & Dune Restoration

* denotes proposed features

1 0 1 Kilometers

1 0 1 Miles

Scale 1:110,000

Map ID: USGS-NWRC 2015-11-0033
Map Date: September 29, 2015

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

Image Source:
2012 DOQQ

PPL25 East Leeville Marsh Creation and Nourishment

Project Location:
Region 2, Barataria Basin, Lafourche Parish (primary)
Region 3, Terrebonne Basin, Lafourche Parish

Problem:
There is widespread historic and continued rapid land loss within the project site and surrounding areas resulting from subsidence, wind erosion, storms, and altered hydrology. The wetland loss rate for is -1.53%/year based on USGS data from 1984 to 2015. Furthermore, the limits of Southwestern Louisiana Canal are difficult to determine in some areas because land loss is causing the coalescence of the canal with adjacent water bodies. Natural tidal flow and drainage patterns which once existed are currently circumvented by the increasing area of open water. Data suggests that from 1932 to 1990, the basin lost over 245,000 ac of marsh, and from 1978 to 1990, Barataria Basin experienced the highest rate of wetland loss along the entire coast.

Goals:
The project goal is to create approximately 358 acres and nourish 124 acres of saline marsh east of Leeville.

Proposed Solution:
After consideration of three potential alternatives, features and an alignment were selected to establish an arc of wetlands along the north side of Southwestern Canal, Lake Jesse, and the west side of South Lake. This is to begin rebuilding the structural framework of wetlands east of Leeville and provide protection for Leeville from southeasterly winds and tides. A robust engineering and design cost was included for full flexibility during Phase 1 to expand the project if cost allows or to assess alternative configurations, if necessary. The proposed features consist of hydraulically mining sediment from a borrow source in Little Lake west of Leeville and pumping dredged material to create and nourish marsh east of Leeville. The disposal areas would be fully contained during construction and gapped no later than three years post construction to facilitate establishment of tidal connection and function. Additionally, a portion of the created marsh acres would be planted with smooth cordgrass following construction to help stabilize the created platform by increasing the rate of colonization.

Project Benefits:
The project would result in approximately 322 net acres over the 20-year project life.

Project Costs:
The total fully-funded cost is $35,066,972.

Preparer of Fact Sheet
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East Leeville Marsh Creation and Nourishment (PPL25 Candidate)

USGS science for a changing world

N

Marsh Creation *

Project Boundary

* denotes proposed features

0.5 0 0.5 Kilometers

0.5 0 0.5 Miles

Scale 1:35,000

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

Image Source:
2012 DOQQ

Map ID: USGS-NWRC 2015-11-0028
Map Date: June 26, 2015

VII. SUMMARY AND CONCLUSIONS

The 25th PPL consists of 5 projects and 1 demonstration project, for a Phase I cost of $16,396,341 and a Phase II cost of $135,719,803 which will be funded as these projects mature. The total net wetland benefits of the implementing the five PPL 25 projects is estimate to be 1,508 acres or 884 AAHUs, based on a comparison of future with and without-project conditions over the 20-year project life.

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.

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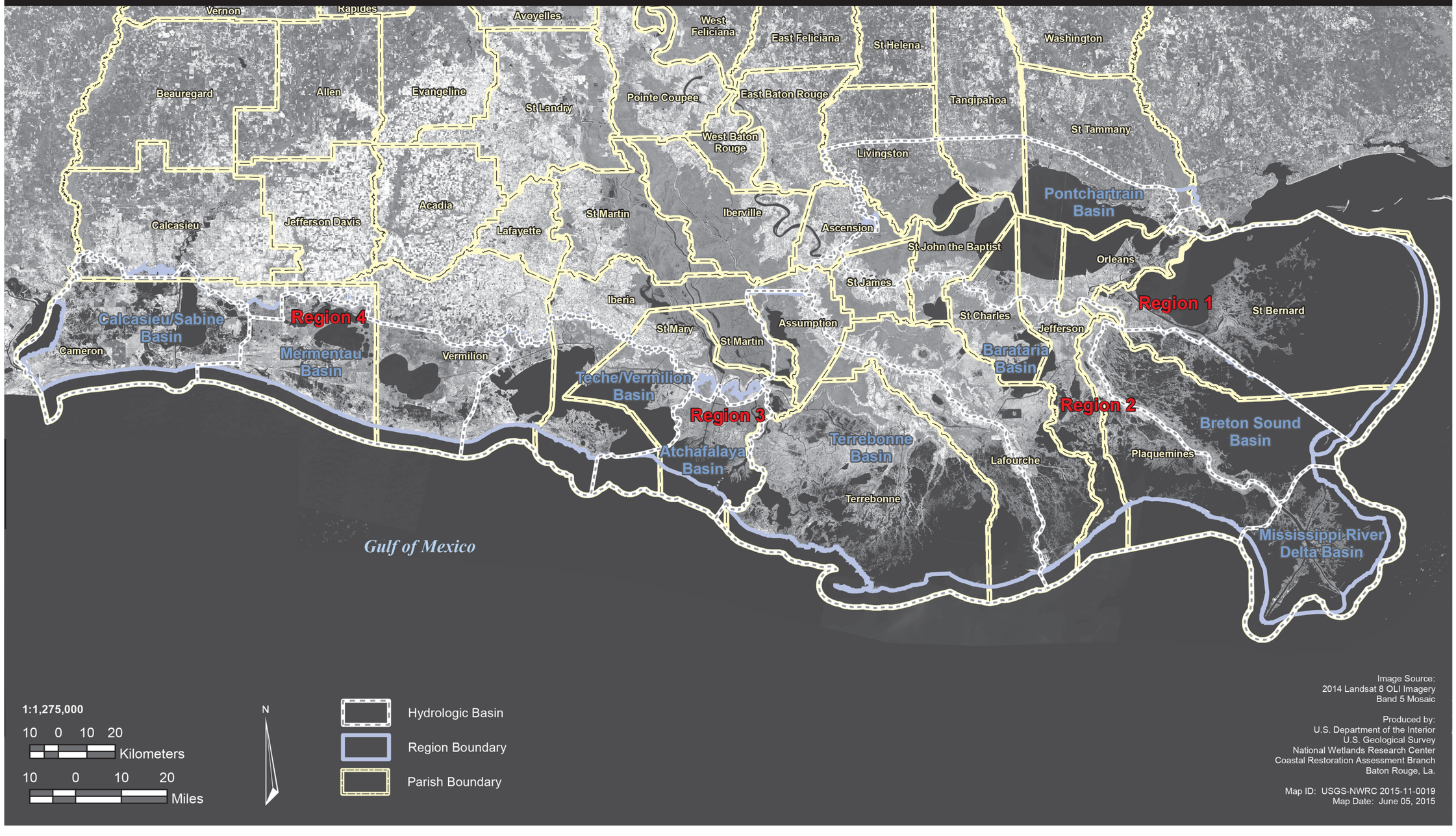
Coastal Wetlands Planning, Protection and Restoration Act (CWPPRA)
Hydrologic Basins and Coast 2050 Regions



1:1,275,000

10 0 10 20 Kilometers

10 0 10 20 Miles

N

Hydrologic Basin

Region Boundary

Parish Boundary

Image Source:
2014 Landsat 8 OLI 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 2015-11-0019
Map Date: June 05, 2015

PLATE 2. SUMMARY OF PROJECTS 1-25 PRIORITY PROJECT LISTS

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

1st Priority Project List

U.S. Environmental Protection Agency

TE-20	Isles Dernieres Restoration East Island

U.S. Department of the Army

MR-03	West Bay Sediment Diversion
PO-17	Bayou LaBranche Wetland Creation
BA-19	Barataria Bay Waterway Wetland Creation
TV-03	Vermilion River Cutoff Bank Protection

U.S. Department of Commerce

BA-18	Fourchon Hydrologic Restoration
TE-19	Lower Bayou laChache Hydrologic Restoration

U.S. Department of Agriculture

BA-02	GIWW to Clovelly Hydrologic Restoration
TE-18	Vegetative Plantings - Timbalier Island Planting Demonstration
TE-17	Vegetative Plantings - Falgout Canal Planting Demonstration
CS-19	Vegetative Plantings - West Hackberry Planting Demonstration
ME-08	Vegetative Plantings - Dewitt-Rollover Planting Demonstration

U.S. Department of the Interior

PO-16	Bayou Sauvage National Wildlife Refuge Hydrologic Restoration, Phase 1
ME-09	Cameron Prairie Refuge National Wildlife Refuge Shoreline Protection
CS-18	Sabine National Wildlife Refuge Erosion Protection
CS-17	Cameron Creole Plugs

2nd Priority Project List

U.S. Environmental Protection Agency

TE-24	Isles Dernieres Restoration Trinity Island

U.S. Department of the Army

TE-23	West Belle Pass Headland Restoration
CS-22	Clear Marais Bank Protection

U.S. Department of Commerce

AT-02	Atchafalaya Sediment Delivery
TE-22	Point Au Fer Canal Plugs
AT-03	Big Island Mining

U.S. Department of Agriculture

ME-04	Freshwater Bayou Wetland Protection
CS-09	Brown Lake Hydrologic Restoration
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-26	Lake Chapeau Sediment Input and Hydrologic Restoration
TE-25	East Timbalier Island Sediment Restoration, Phase 1
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-09a	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
AT-04	Castille Pass Channel Sediment Delivery
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

22nd Priority Project List

U.S. Environmental Protection Agency

BA-164	Bayou Dupont Sediment Delivery- Marsh Creation #3

U.S. Department of Commerce

CS-66	Cameron Meadows Marsh Creation and Terracing

U.S. Department of Agriculture

TE-112	North Catfish Lake Marsh Creation

U.S. Department of the Interior

BS-24	Terracing and Marsh Creation South of Big Mar

23rd Priority Project List

U.S. Department of Commerce

TE-117	Island Road Marsh Creation and Nourishment

U.S. Environmental Protection Agency

BA-171	Caminada Headlands Back Barrier Marsh Creation

U.S. Department of the Interior

BA-173	Bayou Grande Cheniere Marsh & Ridge Restoration

U.S. Department of Agriculture

ME-32	South Grand Chenier Marsh Creation - Baker Tract

24th Priority Project List

U.S. Department of Commerce

CS-78	No Name Bayou Marsh Creation and Nourishment
TE-134	West Fourchon Marsh Creation and Marsh Nourishment

U.S. Environmental Protection Agency

PO-168	Shell Beach South Marsh Creation

U.S. Department of the Interior

PO-169	New Orleans Landbridge Shoreline Stabilization and Marsh Creation

25th Priority Project List

U.S. Department of Commerce

PO-173	Fritchie Marsh Creation and Terracing
CS-79	Oyster Lake Marsh Creation and Nourishment
BA-194	East Leeville Marsh Creation and Nourishment

U.S. Environmental Protection Agency

BA-193	Caminada Headlands Back Barrier Marsh Creation Increment #2

U.S. Department of Agriculture

BA-195	Barataria Bay Rim Marsh Creation

Coastal Wetlands Planning, Protection and Restoration Act (CWPPRA) Priority Project Lists 1-25

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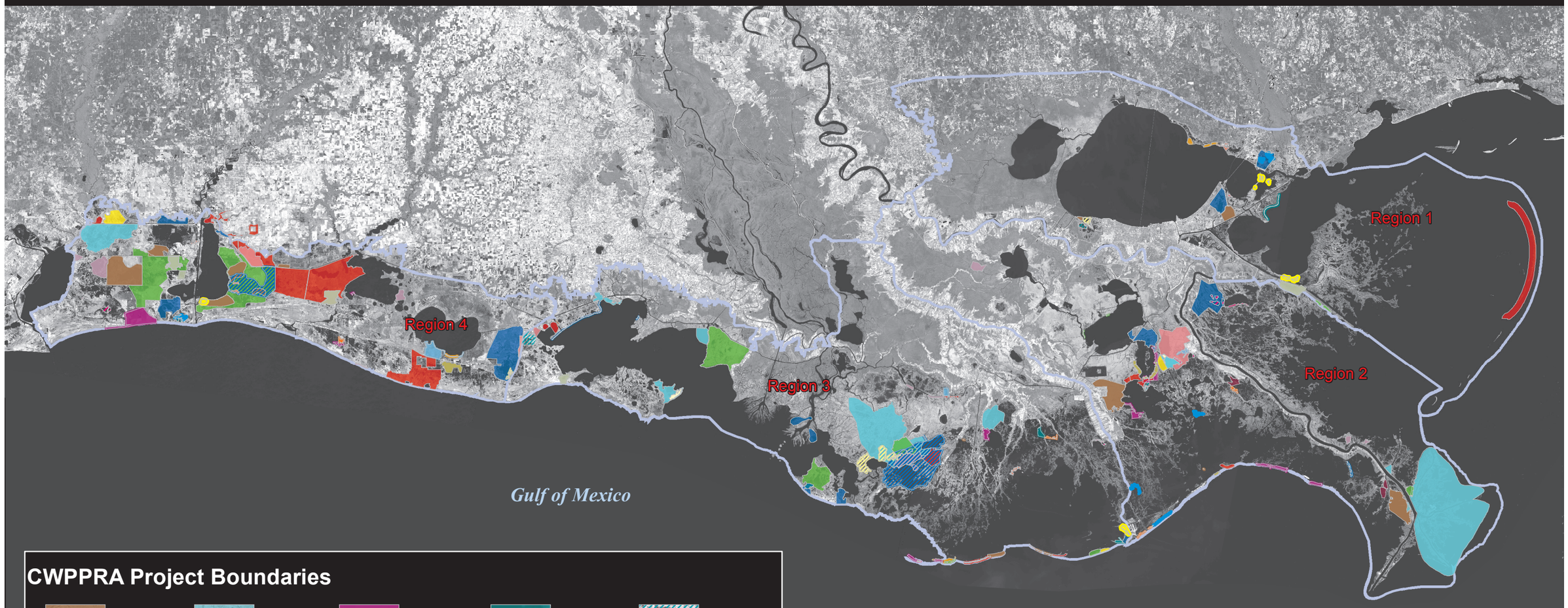

CWPPRA Project Boundaries

PPL 1	PPL 6	PPL 11	PPL 16	PPL 21
PPL 2	PPL 7	PPL 12	PPL 17	PPL 22
PPL 3	PPL 8	PPL 13	PPL 18	PPL 23
PPL 4	PPL 9	PPL 14	PPL 19	PPL 24
PPL 5	PPL 10	PPL 15	PPL 20	PPL 25

Region Boundary

N

1:1,275,000

10 0 10 20 Kilometers

10 0 10 20 Miles

Image Source:
2014 Landsat 8 OLI 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 2016-11-0012
Map Date: February 01, 2016
Data accurate as of January 29, 2016

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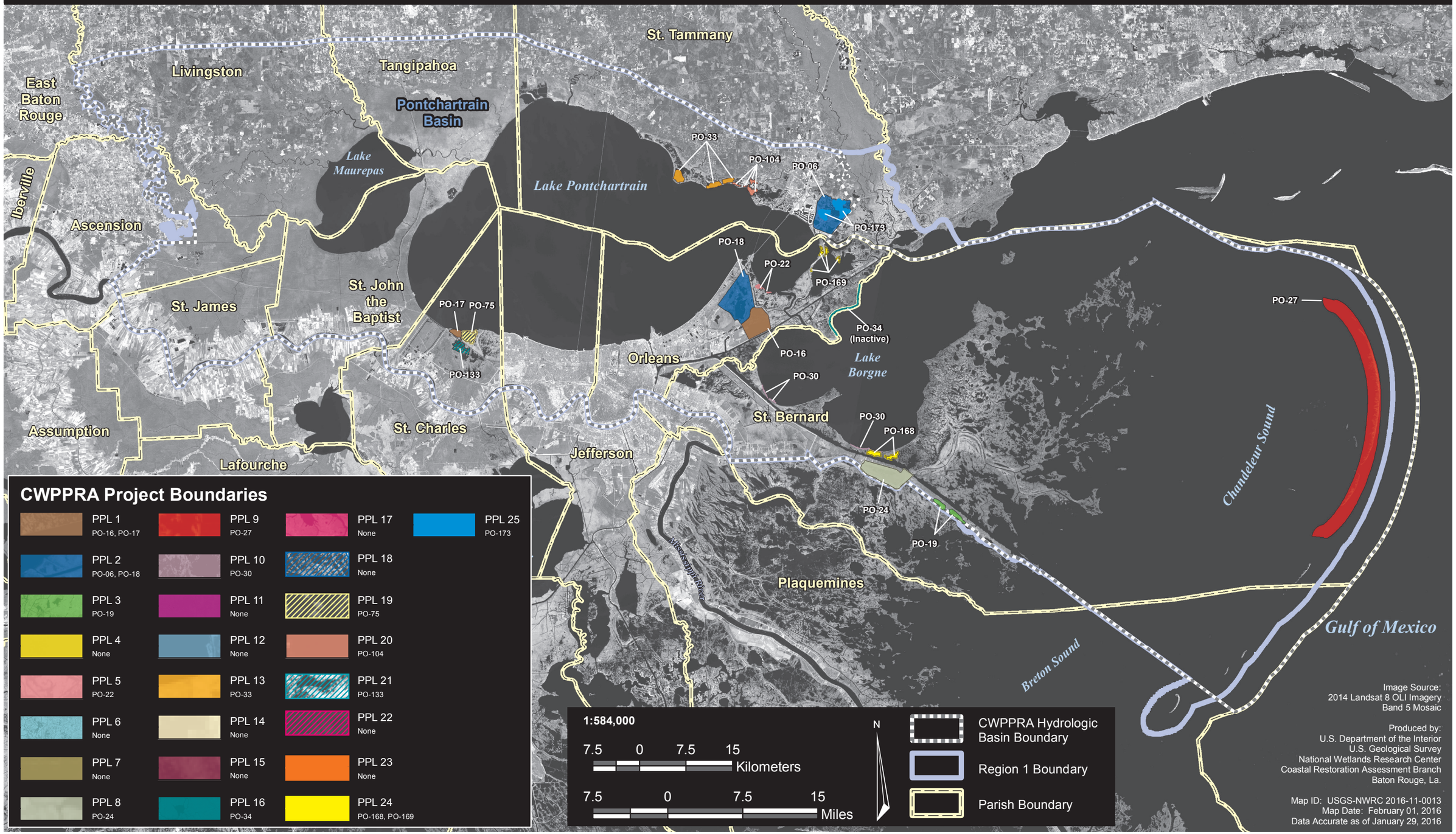
Coastal Wetlands Planning, Protection and Restoration Act (CWPPRA) Priority Project Lists 1-25 Coast 2050 Region 1



CWPPRA Project Boundaries

PPL 1 PO-16, PO-17	PPL 9 PO-27	PPL 17 None	PPL 25 PO-173
PPL 2 PO-06, PO-18	PPL 10 PO-30	PPL 18 None	
PPL 3 PO-19	PPL 11 None	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 22 None	
PPL 7 None	PPL 15 None	PPL 23 None	
PPL 8 PO-24	PPL 16 PO-34	PPL 24 PO-168, PO-169	

1:584,000

7.5 0 7.5 15 Kilometers

7.5 0 7.5 15 Miles

N

CWPPRA Hydrologic Basin Boundary

Region 1 Boundary

Parish Boundary

Image Source:
2014 Landsat 8 OLI 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 2016-11-0013
Map Date: February 01, 2016
Data Accurate as of January 29, 2016

Coastal Wetlands Planning, Protection and Restoration Act (CWPPRA) Priority Project Lists 1-25 Coast 2050 Region 2

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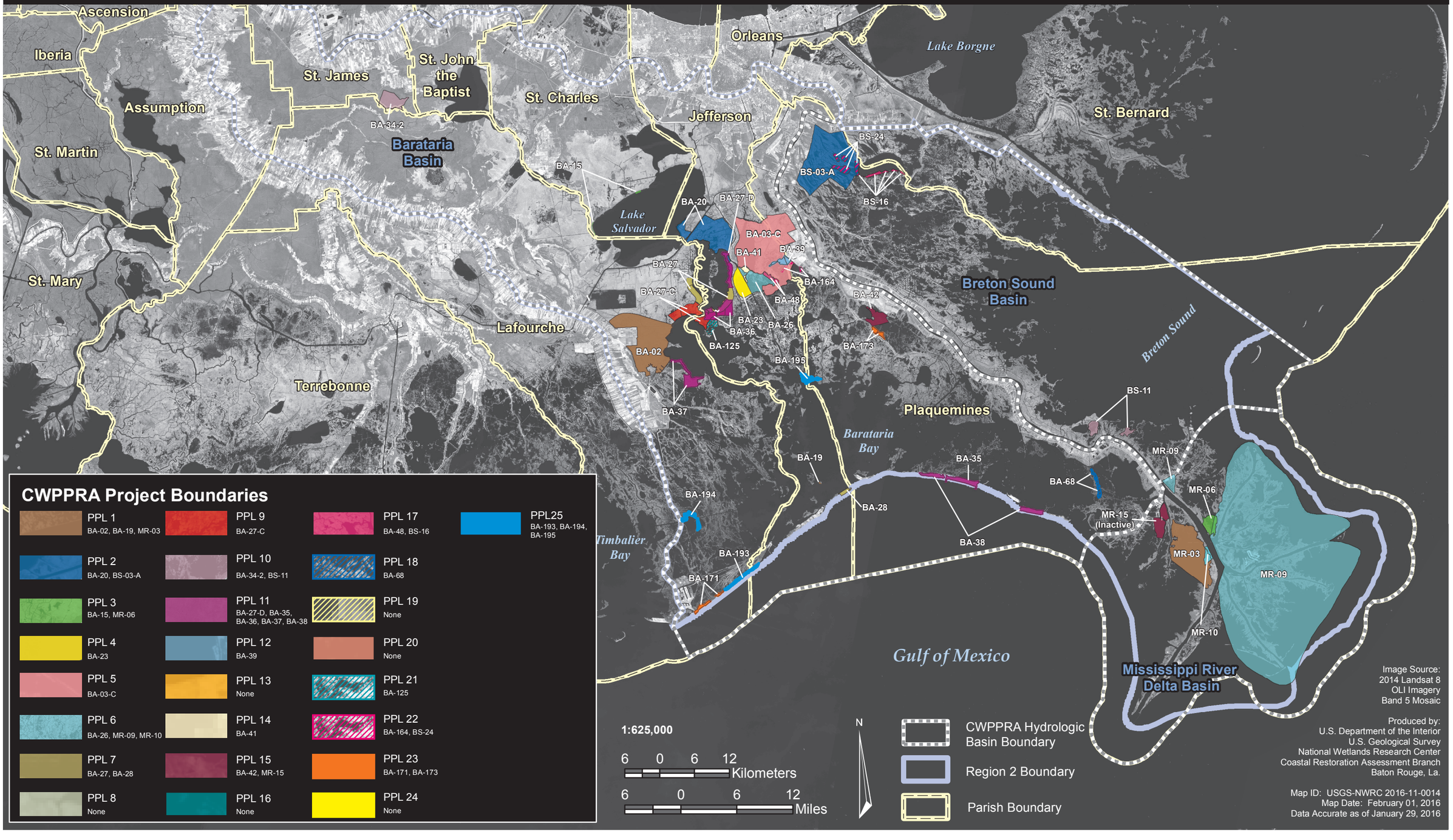

CWPPRA Project Boundaries

PPL 1: BA-02, BA-19, MR-03	PPL 9: BA-27-C	PPL 17: BA-48, BS-16	PPL25: BA-193, BA-194, BA-195
PPL 2: BA-20, BS-03-A	PPL 10: BA-34-2, BS-11	PPL 18: BA-68	
PPL 3: BA-15, MR-06	PPL 11: BA-27-D, BA-35, BA-36, BA-37, BA-38	PPL 19: None	
PPL 4: BA-23	PPL 12: BA-39	PPL 20: None	
PPL 5: BA-03-C	PPL 13: None	PPL 21: BA-125	
PPL 6: BA-26, MR-09, MR-10	PPL 14: BA-41	PPL 22: BA-164, BS-24	
PPL 7: BA-27, BA-28	PPL 15: BA-42, MR-15	PPL 23: BA-171, BA-173	
PPL 8: None	PPL 16: None	PPL 24: None	

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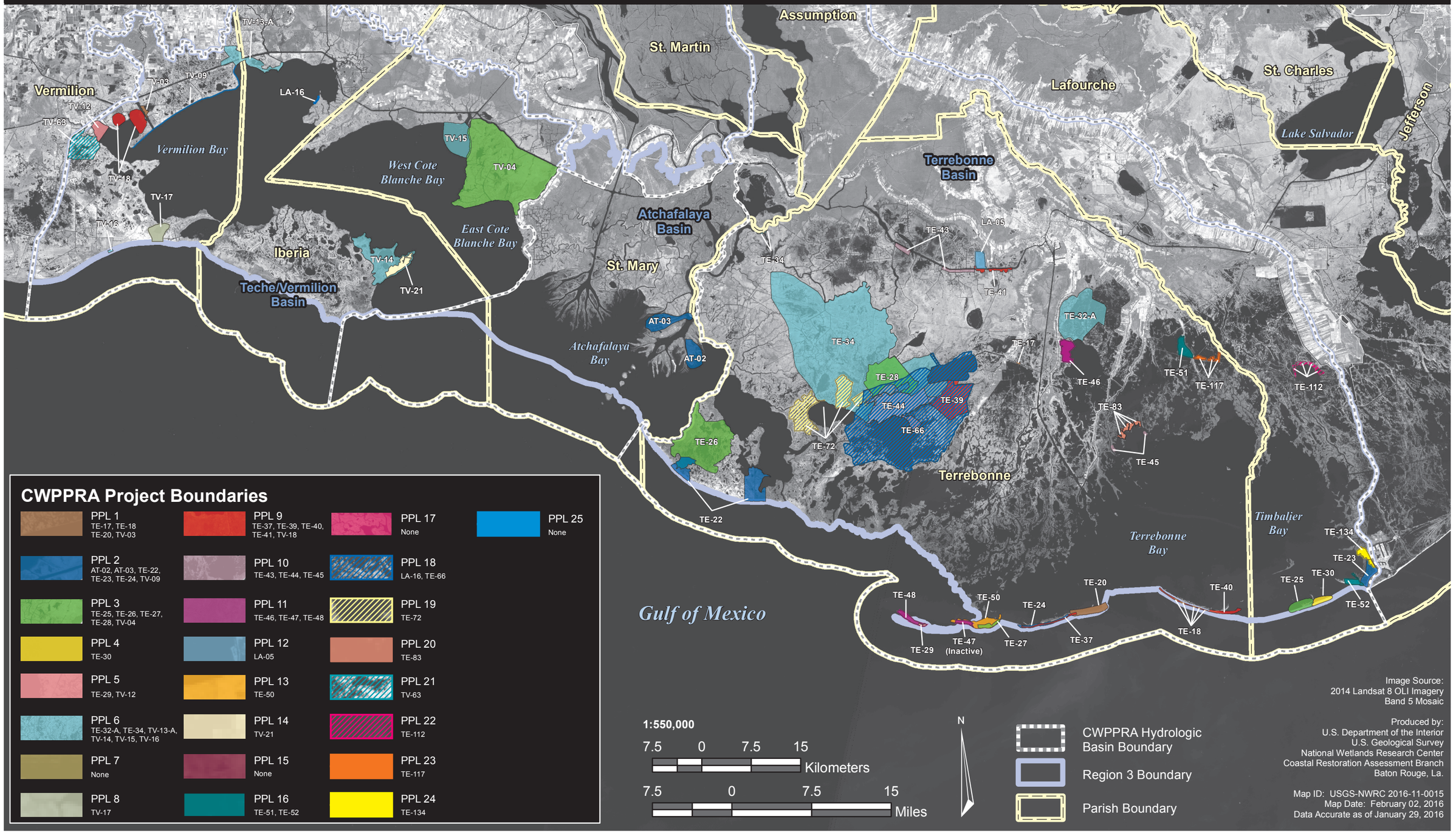
Coastal Wetlands Planning, Protection and Restoration Act (CWPPRA) Priority Project Lists 1-25 Coast 2050 Region 3



CWPPRA Project Boundaries

PPL 1 TE-17, TE-18 TE-20, TV-03	PPL 9 TE-37, TE-39, TE-40, TE-41, TV-18	PPL 17 None	PPL 25 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 LA-16, 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	PPL 20 TE-83	
PPL 5 TE-29, TV-12	PPL 13 TE-50	PPL 21 TV-63	
PPL 6 TE-32-A, TE-34, TV-13-A, TV-14, TV-15, TV-16	PPL 14 TV-21	PPL 22 TE-112	
PPL 7 None	PPL 15 None	PPL 23 TE-117	
PPL 8 TV-17	PPL 16 TE-51, TE-52	PPL 24 TE-134	

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:
2014 Landsat 8 OLI Imagery
Band 5 Mosaic

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

Map ID: USGS-NWRC 2016-11-0015
Map Date: February 02, 2016
Data Accurate as of January 29, 2016

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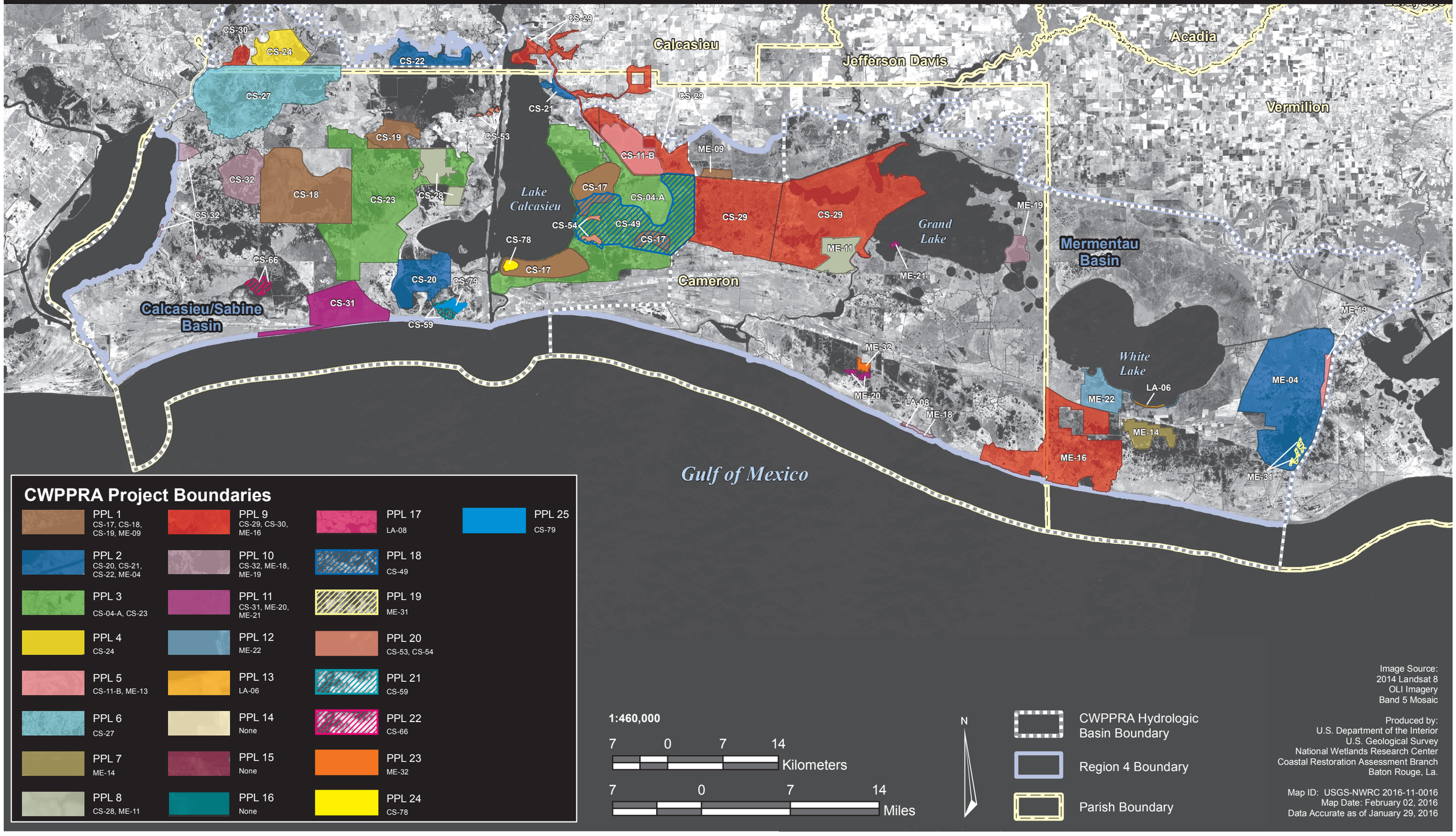
Coastal Wetlands Planning, Protection and Restoration Act (CWPPRA) Priority Project Lists 1-25 Coast 2050 Region 4



CWPPRA Project Boundaries

PPL 1	CS-17, CS-18, CS-19, ME-09	PPL 9	CS-29, CS-30, ME-16	PPL 17	LA-08	PPL 25	CS-79
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-04-A, CS-23	PPL 11	CS-31, ME-20, ME-21	PPL 19	ME-31		
PPL 4	CS-24	PPL 12	ME-22	PPL 20	CS-53, CS-54		
PPL 5	CS-11-B, ME-13	PPL 13	LA-06	PPL 21	CS-59		
PPL 6	CS-27	PPL 14	None	PPL 22	CS-66		
PPL 7	ME-14	PPL 15	None	PPL 23	ME-32		
PPL 8	CS-28, ME-11	PPL 16	None	PPL 24	CS-78		

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:
2014 Landsat 8
OLI 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 2016-11-0016
Map Date: February 02, 2016
Data Accurate as of January 29, 2016