27th PRIORITY PROJECT LIST REPORT

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LOUISIANA COASTAL WETLANDS CONSERVATION AND RESTORATION TASK FORCE

September 2018

Executive Summary of PPL 27 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 27th PPL (PPL 27) and fulfills the requirements of CWPPRA Section 303(a).

Under the development of PPL 27, 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 54 project proposals and 4 demonstration project proposals, 23 projects and four demonstration projects were nominated by CWPPRA agencies and qualifying parish representatives via electronic vote on March 7, 2017. Ten candidate projects and zero candidate demonstration projects were selected from the list of nominees at the Technical Committee meeting held on April 27, 2017. These PPL 27 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 27 development process the Task Force authorized the following four new coastal restoration projects:

- Mid Breton Land Bridge Marsh Creation and Terracing (BS-32)
- Bayou Cane Marsh Creation (PO-181)
- Northeast Turtle Bay Marsh Creation and Critical Area Shoreline Protection (BA-206)
- Sabine Marsh Creation Cycles 6 and 7 (CS-81)

These PPL 27 projects will be implemented in two phases. Phase I will include data collection, engineering and design, environmental impact assessment and regulatory compliance, pre-construction monitoring, and real estate planning. The total Phase I cost for the four new PPL 27 coastal restoration

projects is estimated to be $14,732,575. Phase II would include real estate acquisition, construction, operation and maintenance, and post-construction monitoring. The total Phase II cost for these four projects is estimated to be $132,157,795. The total net wetland benefit that would be derived by implementing the four PPL 27 projects is estimated to be 1992 acres or 762 AAHUs over a 20-year period. The Task Force will consider approving Phase II funding for individual PPL 27 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 project because it did not represent the best strategy for addressing the immediate and/or long term coastal restoration needs as compared to other priority projects, and/or the project scope was beyond the funding capability of the CWPPRA program:

- Shell Beach South Marsh Creation (PO-168)

With the addition of the four new PPL 27 projects and the removal of one transferred project, there are a total of 158 active Louisiana coastal restoration projects in the CWPPRA Program. The current estimate for the 218 CWPPRA projects combined is $2.78B. The current funded estimate for approved phases for all projects is $1.75B. At the time of the production of this PPL 27 report, $1.37B has been obligated and $1.21B had been expended on all CWPPRA coastal restoration projects in Louisiana since inception of the program in 1991. Of the 158 active projects, 113 projects have completed construction, 14 projects are under construction, 26 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

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Main Report – Volume 1

I. INTRODUCTION

Approximately 90 percent of the total coastal marsh loss within the lower 48 states occurs in the State of Louisiana. These losses are due to a combination of human and natural factors, including subsidence, shoreline erosion, freshwater and sediment deprivation, saltwater intrusion, oil and gas production and canals, navigation channels, and herbivory. Louisiana'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 27th 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 27. 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 27th PRIORITY PROJECT LIST

IDENTIFICATION & SELECTION OF CANDIDATE & DEMONSTRATION PROJECTS

Regional Planning Team (RPT) meetings were held during the period of January 31 through February 2, 2017 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 2017 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 March 7, 2017 for the 27th PPL to choose four projects in Terrebonne and Barataria based on the high loss rates (1985-2006) in those basins, three projects in Pontchartrain and Breton Sound, 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 23 projects and 4 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	February 2, 2017
Region 2: Lacombe, LA	February 2, 2017
Region 3: Morgan City, LA	February 1, 2017
Region 4: Abbeville, LA	January 31, 2017
Electronic Voting	March 7, 2017

The Engineering and Environmental Work Groups and the AAG met March 22 and March 23, 2017 to review and reach consensus on preliminary project features, benefits, and fully-funded cost estimates for the twenty three nominated projects as well as evaluate the four demonstration project nominees. At this meeting, after extensive evaluation, the Environmental and Engineering Work Groups and AAG decided not to pursue any of the nominee demonstration projects for further consideration. 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 27, 2017. 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. All projects submitted for consideration adhered to these same requirements from previous PPL's to remain consistent with the guidelines of the most current State Master Plan, which was completed in 2017.

Table 2: 27th 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	SP/TR	Point aux Marchettes Shoreline Protection and Terracing	$30M - $35M	1250 - 300	X			X	X
1	PO	MC	Bayou Cane Marsh Creation	$25M - $30M	400 - 450		X	X		
1	PO	MC	Bayou Bienvenue Marsh Creation - Increment 1	$30M - $35M	250 - 300		X	X		
2	BS	MC	Breton Landbridge Marsh Creation (West)	$35M - $40M	300 - 350		X			
2	BS	MC/TR	East Delacroix Marsh Creation and Terracing	$25M - $30M	250 - 300		X	X		
2	BS	MC/TR	Mid Breton Landbridge Marsh Creation and Terracing	$35M - $40M	350 - 400		X	X		
2	BA	MC/SP	Northeast Turtle Bay MC and Critical Area SP	$30M - $35M	300 - 350	X		X		
2	BA	MC	East Bayou Lafourche Marsh Creation	$35M - $40M	300 - 350	X	X	X		
2	BA	MC/TR	Grand Bayou Ridge and Marsh Restoration	$40M - 450M	3000 - 350		X	X		
2	BA	MC	Elmer's Island Backbarrier Marsh Creation	$25M - $30M	200 - 250	X		X		X
3	TE	MC	North Bayou Decade Ridge and Marsh Creation	$35M - $40M	200 - 250	X		X		
3	TE	MC	West LA Hwy 1 Marsh Creation	$30M - $35M	250 - 300	X		X		
3	TE	FD	Bayou Terrebonne Freshwater Diversion	$20M - $25M	150 - 200				X	
3	TE	MC	North Terrebonne Marsh Creation	$45M - $50M	400 - 450	X		X		
3	TE	MC/SP	East Catfish Lake Marsh Creation and Terracing	$35M - $40M	350 - 400	X		X	X	
3	TV	MC/SP	Lake Sand Marsh Creation and Shoreline Protection	$30M - $35M	200 - 250	X		X	X	
3	TV	MC/SP	West Vermilion Marsh Creation and Shoreline Protection	$25M - $30M	300 - 350	X		X	X	
4	ME	MC/TR	Hwy 82 South Marsh Creation and Terracing	$25M - $30M	250 - 300		X	X		
4	ME	HR/MC	Deep Lake Spillway Modification	$35M - $40M	600 - 700				X	
4	CS	MC	Sabine Marsh Creation Cycles 6 & 7	$30M - $35M	800 - 900					
4	CS	SP	East Holly Beach Shoreline Protection	$30M - $35M	100 - 150			X	X	X
4	CS	MC	North Mud Lake Marsh Creation	$35M - $40M	250 - 300			X		X
	Coast wide		Feral Swine Control	$5M - $10M	250 - 300					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.

The CWPPRA Technical Committee met publicly on April 27, 2017 to consider the preliminary costs, wetland benefits, and potential issues of the twenty three nominees. Ten candidate projects were selected for detailed assessment by the Environmental, Engineering, and Economic Work Groups, and the AAG (Table 3).

Phase 0 analysis of the ten candidate projects took place May 2017 through October 2017. The Environmental and Engineering Work Groups and AAG met to refine the projects and develop boundaries on May 19, 2017. Interagency field visits were conducted during May and June 2017 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 11 through August 13, 2017, the Engineering Work Group met to review and approve the Phase I and II cost estimates developed by the agencies for the eleven PPL 27 candidates. In September 2017, 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, 2017. The Economics Work Group reviewed the final project cost estimates and developed annualized costs in the month of October 2017.

The Environmental and Engineering Work Groups then 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 3.

Table 3: 27th 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)
Point aux Marchettes Shoreline Protection Marsh Creation	34	138	$42,889,765	$2,214,676	$65,138	$310,795
Bayou Cane Marsh Creation Protection	112	3564	$33,991,838	$2,118,309	$18,913	$95,483
East Delacroix Marsh Creation and Terracing	138	307	$35,821,393	$2,245,088	$16,269	$116,682
Mid Breton Land Bridge Marsh Creation and Terracing	121	364	$40,874,564	$2,544,825	$21,032	$112,293
Breton Landbridge Marsh Creation (West)	122	282	$34,661,276	$2,199,458	$18,028	$122,912
Grand Bayou Ridge and Marsh Restoration	155	304	$40,122,416	$2,501,288	$16,137	$131,982
Northeast Turtle Bay Marsh Creation and Critical Area Shoreline Protection	183	372	$44,109,317	$2,743,290	$14,991	$118,573
East Catfish Lake Marsh Creation and Terracing	129	243	$38,312,892	$2,324,662	$18,021	$157,666
North Bayou DeCade Ridge and Marsh Creation	90	267	$36,196,906	$2,253,022	$25,034	$135,569
Sabine Marsh Creation Cycles 6 & 7	346	900	$27,914,651	$1,672,868	$4,835	$31,016

The CWPPRA Technical Committee met on December 7, 2017 to select projects for recommendation to the CWPPRA Task Force for Phase I funding. Each agency cast a total of six weighted votes, used to rank the ten candidate projects. Projects were ranked by number of agency votes first and total weighted score second. The top four projects were selected for recommendation to the CWPPRA Task Force for Phase I funding approval. The Technical Committee did not rank or recommend any demonstration projects for the CWPPRA Task Force to approve funding. The results of the CWPPRA Technical Committee vote are outlined in Table 5. On January 20, 2018, the CWPPRA Task Force reviewed the Technical Committee recommendations and moved to adopt the recommendation without change.

Table 4: 27th Priority Project List Candidate Selection Process – Agency Voting Record

*Project No.	Nominee Project Name	Region	USACE	STATE	EPA	FWS	NMFS	NRCS	No. of Votes	Sum of Point Score
BS-32	Mid Breton Land Bridge Marsh Creation and Terracing	R2	3	6		6	5	4	5	24
PO-181	Bayou Cane Marsh Creation Protection	R1	4	3	5		3	1	5	16
BA-206	Northeast Turtle Bay Marsh Creation and Critical Area Shoreline Protection	R2	1	1	2	2		6	5	12
CS-81	Sabine Marsh Creation Cycles 6 & 7	R4	6	5	6			3	4	20
+	East Delacroix Marsh Creation and Terracing	R2	5	4			4	2	4	15
+	Grand Bayou Ridge and Marsh Restoration	R2		2	4	5	1		4	12
+	Breton Landbridge Marsh Creation (West)	R2			3	3	6		3	12
+	East Catfish Lake Marsh Creation and Terracing	R3	2			4			3	8
+	North Bayou DeCade Ridge and Marsh Creation	R3			1	1		5	3	7
+	Point aux Marchettes Shoreline Protection Marsh Creation	R1							0	0

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

EVALUATION OF CANDIDATE PROJECTS

Benefit Analysis (WVA). The WVA is a quantitative, habitat-based assessment methodology developed for use in analyzing benefits of project proposals submitted for funding under the Breaux Act. The WVA quantifies changes in fish and wildlife habitat quality and quantity that are projected to emerge or develop as a result of a proposed wetland enhancement project. The results of the WVA, measured in AAHUs, can be combined with economic data to provide a measure of the effectiveness of a proposed project in terms of annualized cost per AAHU protected and/or gained.

The Environmental Work Group developed a WVA for each project. The WVA has been developed strictly for use in ranking proposed CWPPRA projects; it is not intended to provide a detailed, comprehensive methodology for establishing baseline conditions within a project area. It is a modification of the Habitat Evaluation Procedures (HEP) developed by the USFWS (USFWS, 1980). HEP is widely used by the USFWS and other federal and state agencies in evaluating the impacts of development projects on fish and wildlife resources. A notable difference exists between the two methodologies. The HEP generally uses a species-oriented approach, whereas the WVA uses a community approach.

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

These models operate under the assumption that optimal conditions for fish and wildlife habitat within a given coastal wetland type can be characterized, and that existing or predicted conditions can be compared to that optimum to provide an index of habitat quality. Habitat quality is estimated or expressed through the use of a mathematical model developed specifically for each wetland type. Each model consists of the following components:

1. A list of variables that are considered important in characterizing fish and wildlife habitat:
    a. V_1--percent of wetland covered by emergent vegetation,
    b. V_2--percent open water dominated by submerged aquatic vegetation,
    c. V_3--marsh edge and interspersion,
    d. V_4--percent open water less than or equal to 1.5 feet deep,
    e. V_5--salinity, and
    f. V_6--aquatic organism access.
2. A Suitability Index graph for each variable, which defines the assumed relationship between habitat quality (Suitability Index) and different variable values; and
3. A mathematical formula that combines the Suitability Index for each variable into a single value for wetland habitat quality; that single value is referred to as the Habitat Suitability Index, or HSI.

The WVA models have been developed for determining the suitability of Louisiana coastal wetlands for providing resting, foraging, breeding, and nursery habitat to a diverse assemblage of fish and wildlife species. Models have been designed to function at a community level and therefore attempt to define an optimum combination of habitat conditions for all fish and wildlife species utilizing a given marsh type over a year or longer.

The output of each model (the HSI) is assumed to have a linear relationship with the suitability of a coastal wetland system in providing fish and wildlife habitat. A comprehensive discussion of the WVA methodology is presented in Appendix B.

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

1. Construction Cost
2. Contingencies Cost (25%)
3. Engineering and Design
4. Environmental Compliance
5. Supervision and Administration (Federal and Non-Federal)
6. Supervision and Inspection (Construction Contract)
7. Real Estate
8. Operations and Maintenance
9. Monitoring

In addition, each lead agency provided a detailed itemized construction cost estimate for each project.

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

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

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

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

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

Financial costs chiefly consist of the resources needed to plan, design, construct, operate,

monitor, and maintain the project. These are the costs, when adjusted for inflation, which the Task Force uses in budgeting decisions.

The 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

PPL27 Pointe aux Marchettes Shoreline Protection

Project Location:
Region 1, Pontchartrain Basin, St. Bernard Parish, Lake Borgne and Biloxi Marshes

Problem:
Historic wetland loss in the area was mainly caused by shoreline erosion. Based on the hyper-temporal analysis conducted by USGS to detect land change trends from 1984 to 2016, the interior loss rate for the Biloxi Marsh area was calculated to be -0.48 %/yr. Using maps from 1998 and 2016, Lake Borgne shoreline erosion rates were calculated along the Biloxi Marshes Wildlife Management Area in the vicinity of Point aux Marchettes between Lakeshore Bayou and Bayou Grande. Shoreline erosion rates in that area average from 23 ft./yr. to 32 ft./yr. A 23,783 LF section of shoreline was estimated to have an average erosion rate of 29 ft./yr. It is estimated that without the project there would be loss of 275 acres of pristine natural marsh, bayous and associated ridges, shallow open water and ponds due to shoreline erosion.

Goals:
The project goals are to 1) protect approximately 23,783 feet of critical shoreline, 2) protect approximately 138 acres of natural highly productive brackish and saline marsh and ridge habitat, and 3) protect 124 acres of bayous and small marsh ponds.

Proposed Solution:
The proposed project would: 1) Construct approximately 20,947 LF of a foreshore rock dike along a portion of the southern Lake Borgne shoreline. Rock would be placed on geotextile cloth at the -2ft contour and stacked to a settled height of +2.5 ft. above existing marsh (+0.68 ft. NAVD 88 Geoid12A).

Project Benefits:
The project would result in approximately 138 net acres over the 20-year project life.

Project Costs:
The total fully-funded cost is $42,889,765.

Preparer of Fact Sheet:
Robert Dubois, FWS, Robert_Dubois@fws.gov, 337-291-3127

Pointe aux Marchettes Shoreline Protection (PPL27 Candidate)

USGS science for a changing world

Shoreline Protection *

Project Boundary

* denotes proposed features

Scale: 1:50,000

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

Image Source:
2016 DOQQ

Map ID: 2017-11-0043
Map Date: September 18, 2017

PPL27 Bayou Cane Marsh Creation

Project Location:
Region 1, Lake Pontchartrain Basin, St. Tammany Parish (on Big Branch NWR)

Problem:
The marshes along the north shore of Lake Pontchartrain have experienced substantial losses during recent hurricanes. Based on the hyper-temporal analysis conducted by USGS for the extended project boundary, loss rates in the project area are estimated to be -0.91% per year for the period 1984 to 2016.

Goals:
The primary goal of this project is to restore marsh habitat in large open water areas located adjacent to the edge of Lake Pontchartrain to preclude future breaching of the lake into those interior waters.

The specific goal of the project is create 384 acres of marsh and nourish 65 acres of existing marsh with material dredged nearby from Lake Pontchartrain.

Proposed Solution:
Sediments from Lake Pontchartrain will be hydraulically dredged and pumped via pipeline to create/nourish approximately 499 acres of marsh located in 7 separate cells. 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 will be gapped at the end of construction or by target year 3.

Project Benefits:
The project would result in approximately 356 net acres over the 20-year project life.

Project Costs:
The total fully-funded cost is $33,991,838

Preparer of Fact Sheet:
Ronny Paille, FWS, Ronald_Paille@fws.gov, 337-291-3117

Bayou Cane Marsh Creation
(PPL27 Candidate)

N

Marsh Creation *

Project Boundary

* denotes proposed features

1 0 1 Kilometers

1 0 1 Miles

Scale 1:60,000

USGS science for a changing world

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

Image Source:
2016 DOQQ

Map ID: USGS-NWRC 2017-11-0035
Map Date: July 13, 2017

Candidate Projects Located in Region 2

PPL27 East Delacroix Marsh Creation and Terracing

Project Location
Region 2, Breton Basin, St. Bernard Parish

Problem
Hurricanes Katrina and Rita caused the majority of wetland loss in the project area. Wind erosion and saltwater intrusion have resulted in loss of marsh vegetation and wetland soils. Marsh loss has increased exposure of Delacroix to flooding from the east/southeast. The 1984 to 2016 USGS loss rate is -1.72%/yr for the extended project boundary area.

Goals
The project goal is to create and nourish approximately 406 acres of marsh (347 acres creation 59 acres nourishment) and construct approximately 12,950 linear feet of terraces (approximately 8 acres) utilizing a layout to help protect the community of Delacroix.

Proposed Solution
Sediment would be hydraulically dredged from Lake Lery and placed in two confined disposal areas creating 347 acres of marsh and nourishing 59 acres of existing marsh. Two creation cells allow a channel for the existing pump station. Approximately 12,950 ft of earthen terraces would be constructed and planted in one row per side and on the crown. Created marsh will not be planted. Containment dikes will be gapped no later than three years after construction. The cost includes maintenance dredging of the pump station channel at year 10. Material would be stacked on remnant dikes along the channel so as not to fill marsh.

Project Benefits:
The project would result in approximately 307 net acres over the 20-year project life.

Project Costs:
The total fully funded cost is $35,821,393.

Preparer(s) of Fact Sheet:
Twyla Cheatwood, NOAA Fisheries, 225-389-0508, twyla.cheatwood@noaa.gov

East Delacroix Marsh Creation and Terracing (PPL27 Candidate)

Marsh Creation *

Terrace Field *

Project Boundary

* denotes proposed features

0.25 0 0.25 0.5 Kilometers

0.25 0 0.25 0.5 Miles

Scale: 1:35,000

USGS science for a changing world

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

Image Source:
2016 DOQQ

Map ID: 2017-11-0041
Map Date: August 14, 2017

PPL27 Mid Breton Land Bridge Marsh Creation and Terracing

Project Location:
Region 2, Breton Sound Basin, Plaquemines Parish, west of Delacroix along Bayou Gentilly

Problem:
From 1932 to 1990, the Caernarvon Mapping Unit lost 14,240 acres of its marsh. Prior to Hurricane Katrina, the greatest lost documented occurred between 1956 and 1974 and coincided with Hurricane Betsy and extensive canal building. Hurricane Katrina in 2005 devastated the area resulting in substantial marsh loss. According to USGS Open File Report (2006-1274), approximately 39 square miles of marsh around the upper and central portions of Breton Sound were converted to open water by mechanical removal of the marsh or by marsh submergence. Based on the hyper-temporal analysis conducted by USGS for the extended project boundary, the loss rate in the project area is estimated to be –1.99 %/year for the period 1984 to 2016.

Goals:
The primary goal of this project is to restore marsh habitat in open water and in deteriorated marsh between the Bayou Terre aux Boeufs and River aux Chenes ridges through placement of sediment via hydraulic dredging.

Specific Goals: 1) create approximately 421 acres of intertidal marsh and nourish an additional 30 acres with material dredged from Lake Lery, and 2) create approximately 22,960 LF of terraces (17 acres of marsh) in strategic areas to reduce erosion due to wind induced waves and trap sediments from Caernarvon Freshwater Diversion that pass through Lake Lery and into Lost Lake.

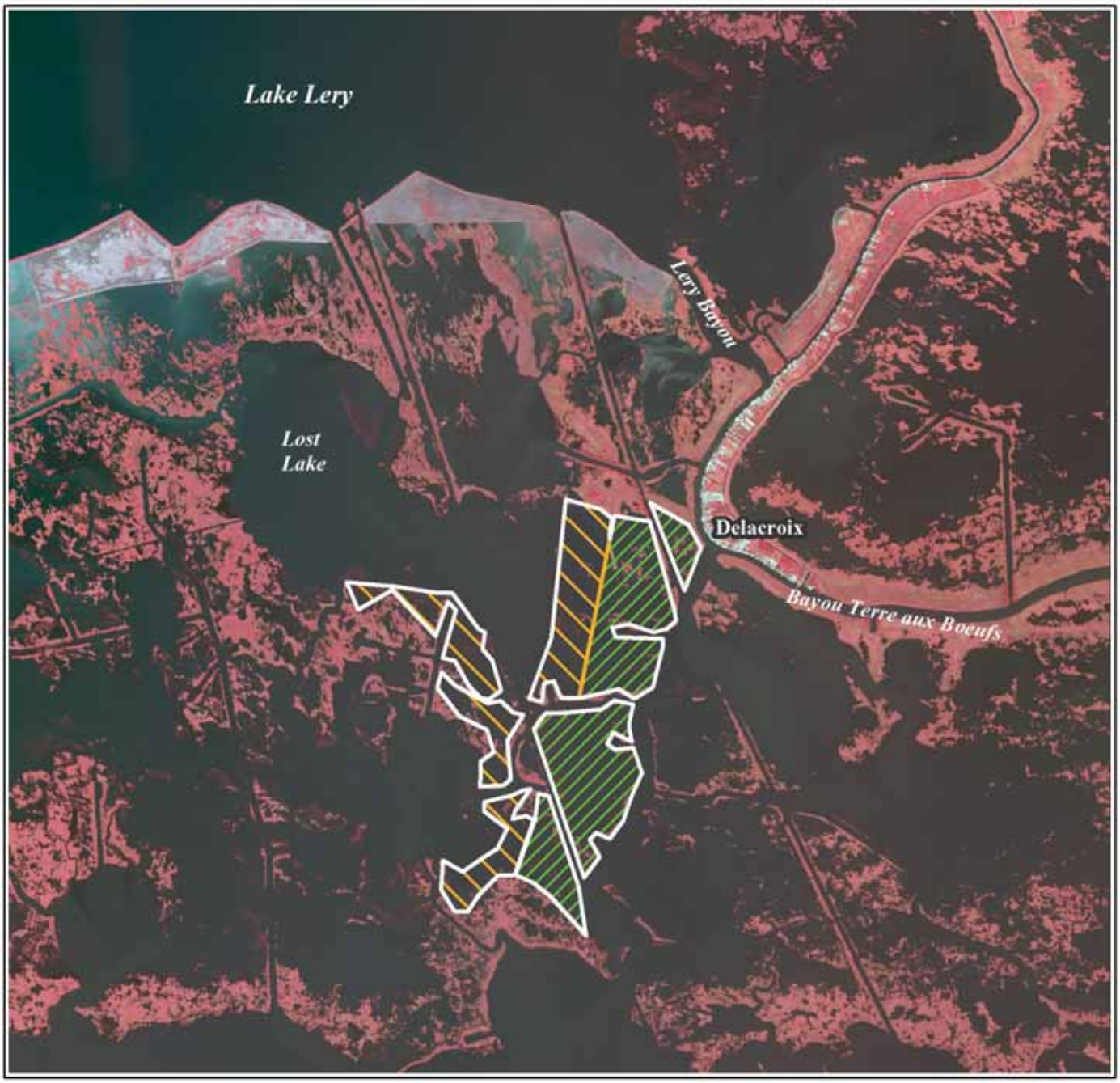
Proposed Solution:
Sediments from a Lake Lery borrow site will be hydraulically dredged and pumped via pipeline to create/nourish approximately 451 acres of marsh. Dewatering and compaction of dredged sediments should produce elevations conducive to the establishment of emergent marsh and within the intertidal range. Perimeter containment dikes will be constructed. Containment dikes will be gapped at the end of construction or by target year 3.

Approximately 22,960 LF of terraces (17 acres of marsh) will be created with long reach excavators in strategic areas. This will reduce erosion due to wind induced waves and help trap sediments that flow through Lake Lery and Lost Lake.

Project Benefits:
The project would result in approximately 364 net acres over the 20-year project life.

Project Costs:
The total fully-funded cost is $40,874,564.

Preparer of Fact Sheet:
Robert Dubois, FWS, Robert_Dubois@fws.gov, 337-291-3127



Mid-Breton Land Bridge Marsh Creation and Terracing (PPL27 Candidate)

USGS science for a changing world

Marsh Creation *

Terrace Field *

Project Boundary

* denotes proposed features

0.5 0 0.5 1 Kilometers

0.5 0 0.5 1 Miles

Scale: 1:50,000

Map 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:
2016 DOQQ

Map ID: 2017-11-0042
Map Date: September 07, 2017

PPL27 Breton Landbridge Marsh Creation (West), River aux Chenes to Grand Lake

Project Location:
Region 2, Breton Basin, Plaquemines Parish

Problem:
Historically, this area was nourished by the freshwater delivered by the Mississippi River until the creation of the levees along the lower river. In 1991, the Caernarvon Freshwater Diversion began delivering freshwater to the marshes in the area. The major cause of wetland loss has been to storm activity (i.e. Hurricanes Betsy and Katrina), causing both storm-induced scouring and salt water intrusion. Altered hydrology and oil/gas development have exacerbated this loss. High subsidence rates range from 2.1-3.5 ft/century. Natural lakes and bays increase in size due to coalescence with marsh lost to water and increased wave fetch. The 1984 to 2016 USGS loss rate is -1.58%/yr for the extended boundary area.

Goals:
The project goals are to restore 423 acres of marshes and bank lines along the south side of Grand Lake. The proposed first phase would address the critical reach of the landbridge by restoring the Grand Lake shoreline. This project is part of an overall, long-range, restoration goal which would create/nourish 1,000 to 2,000 acres of intermediate marsh across 7 miles of the Breton Basin from River aux Chenes to Bayou Terre aux Bouefs.

Proposed Solution:
There will be 315 and 108 acres of marsh creation and marsh nourishment, respectively, via confined disposal in four disposal areas of sediment dredged from Grand Lake. Three disposal areas will be fronted by constructing a lakeside berm. The berm would be constructed with a combination of bucket dredge and marsh buggies. The lakeside slope of the berm would be planted with appropriate vegetation. The marsh creation acres would not be planted. The non-lakeside portions of the dikes will be gapped no later than three years post construction (i.e., the lakeshore berm would not be gapped). Data will be acquired from 224 additional acres to allow for robust alternatives analysis and/or upscaling the project during engineering and design.

The overall landbridge concept incorporates marsh and shoreline restoration in a west-to-east configuration across the basin to be completed in two to four phases. Once restored, the land-bridge would reduce the potential for coalescence of Lake Lery with Grand Lake and Lake Petit.

Project Benefits:
The project would result in approximately 282 net acres over the 20-year project life.

Project Costs:
The total fully-funded cost is $ 34,661,276.

Preparer of Fact Sheet:
Dawn Davis, NOAA-Fisheries, Dawn.Davis@noaa.gov, 225-389-0508

Breton Landbridge Marsh Creation (West), River aux Chenes to Grand Lake (PPL27 Candidate)

N

Earthen Berm *

Marsh Creation *

Project Boundary

* denotes proposed features

0.5 0 0.5 1 Kilometers

0.5 0 0.5 1 Miles

Scale: 1:40,000

USGS science for a changing world

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

Image Source:
2016 DOQQ

Map ID: 2017-11-0040
Map Date: August 31, 2017

PPL27 Grand Bayou Ridge and Marsh Restoration

Project Location:
Region 2, Barataria Basin, Plaquemines Parish

Problem:
Within the Lake Hermitage basin, between Bayou Grande Cheniere and the Mississippi River, significant marsh loss has occurred with the construction of oil/gas canals, subsidence, and sediment deprivation. From examination of aerial photography, the majority of this loss occurred during the 1960s and 1970s when numerous oil/gas canals were dredged in the area. Based on the hyper-temporal analysis conducted by USGS for the extended project boundary, the land loss rate in the project area is -1.65% per year for the period 1984 to 2016.

Goals:
The primary goals of this project are; 1) restore marsh habitat in the open water areas via marsh creation and terracing and 2) restore forested ridge habitat along Grand Bayou.

Specific goals of the project are: 1) Create approximately 356 acres (344 acres of creation; 12 acres of nourishment) of marsh with dredged material from the Mississippi River; 2) create 25,000 linear feet (19 acres) of terraces; 3) Create 10,657 linear feet (13 acres) of forested ridge habitat.

Proposed Solution:
Sediments from the Mississippi River will be hydraulically dredged and pumped via pipeline to create/nourish approximately 356 acres of marsh. The proposed design is to place the dredged material to a fill height of +1.1 ft NAVD88 (per the BA-42 Lake Hermitage Marsh Creation Project). Containment dikes will be gapped at the end of construction.

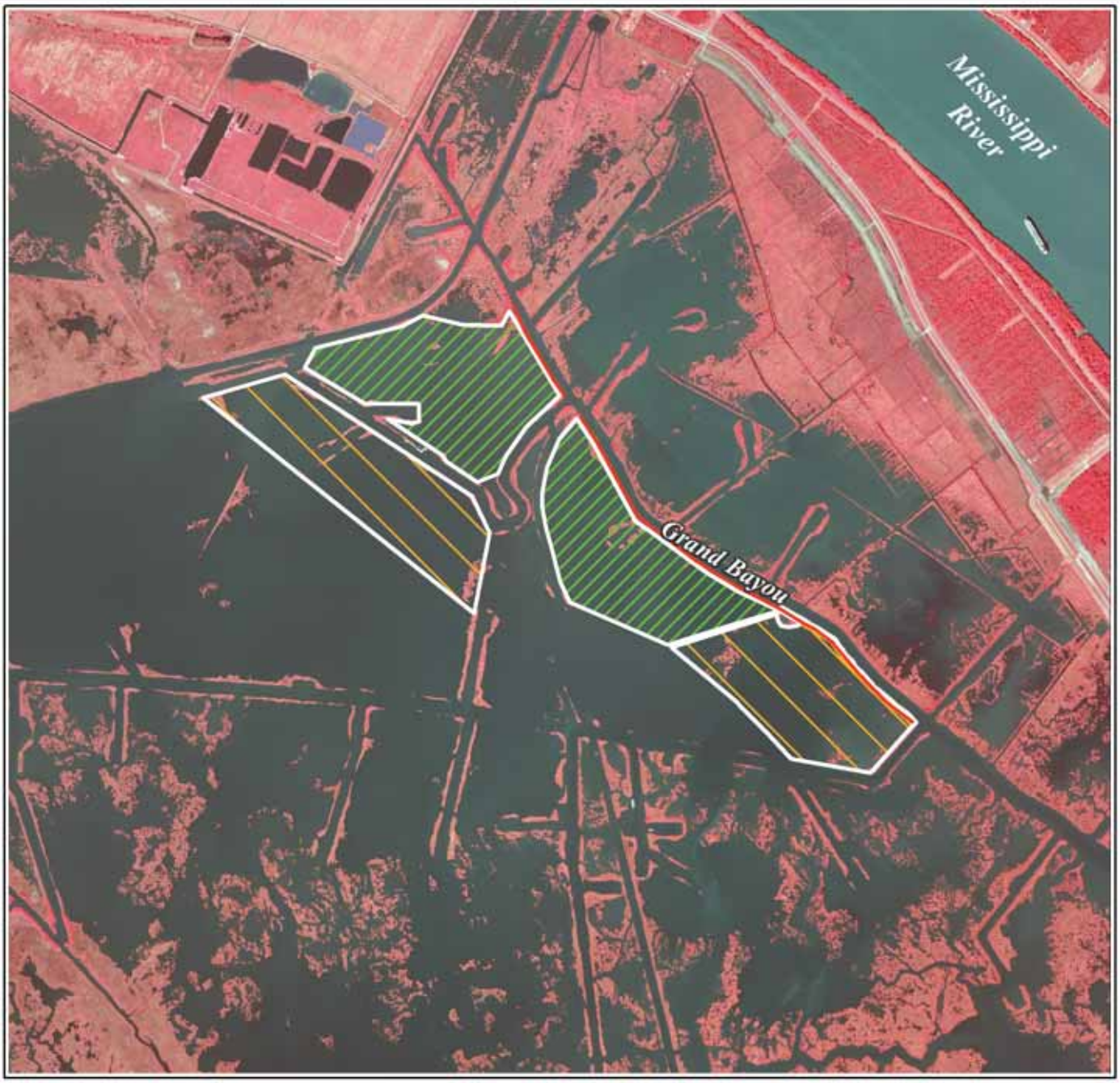
Approximately 25,000 linear feet of terraces (19 acres) will be constructed in open water areas west of Grand Bayou (Figure 1). Terraces will have a 15-ft crown width, a height of +2.5 ft NAVD88, and side slopes of 1(V):4(H). The terraces will be planted with seashore paspalum on the crown and smooth cordgrass on the side slopes.

Approximately 10,657 linear feet (13 acres) of forested ridge will be created along the western bank of Grand Bayou using material from the bayou. The ridge will be constructed to a crown elevation of +4.0 feet NAVD88, 25 feet wide, and will be planted on the crown and slopes.

Project Benefits:
The project would result in approximately 304 net acres over the 20-year project life.

Project Costs:
The total fully-funded cost is $40,122,416.

Preparer of Fact Sheet:
Kevin Roy, FWS, Kevin_Roy@fws.gov, 337-291-3120



Grand Bayou Ridge and Marsh Restoration (PPL27 Candidate)

Ridge Restoration *

Marsh Creation *

Terrace Field *

Project Boundary

* denotes proposed features

0.25 0 0.25 0.5 Kilometers

0.25 0 0.25 0.5 Miles

Scale: 1:35,000

USGS science for a changing world

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

Image Source:
2016 DOQQ

Map ID: 2017-11-0039
Map Date: August 08, 2017

PPL27 Northeast Turtle Bay Marsh Creation and Critical Area Shoreline Protection

Project Location:
Region 2, Barataria Basin, Jefferson Parish

Problem:
Historic wetland loss in the area occurs in the form of shoreline erosion along Turtle Bay and interior marsh loss. The interior loss is caused by subsidence, sediment deprivation, and construction of access and pipeline canals. Based on the USGS analysis of the project's extended boundary, the land loss rate for the area is estimated to be -0.97% per year. Shoreline erosion along the northeast shore of Turtle Bay, in the area proposed to be addressed by this project, is approximately 5 feet per year. While this rate may not seem excessive, this reach of shoreline is very narrow and loss of this shoreline would connect Turtle Bay to a large lagoon, greatly altering the hydrology of the marsh.

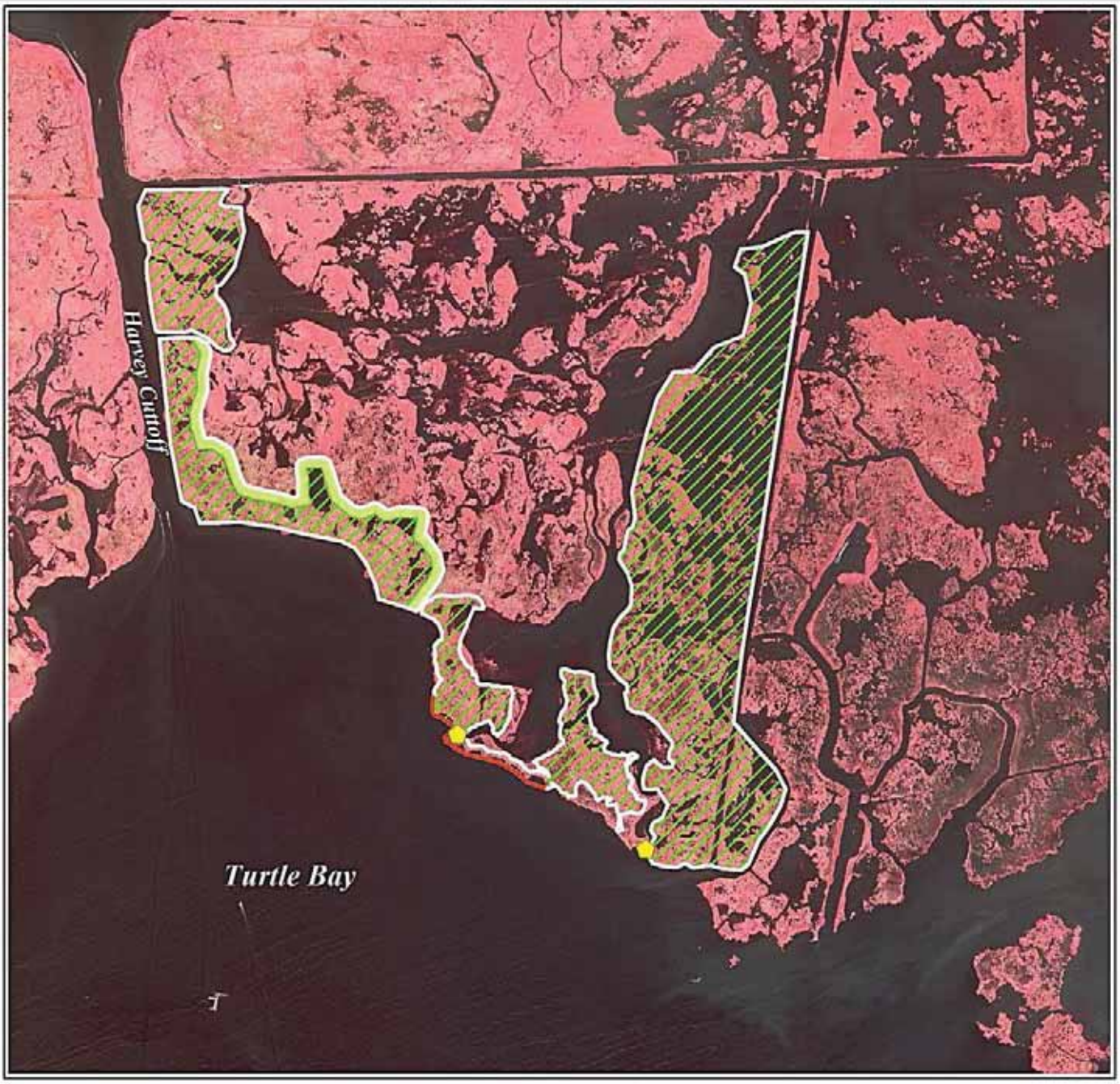
Goals:
The goals of the project are to 1) create approximately 377 acres of marsh and nourish approximately 300 acres of marsh (677 acres total) with dredged material from Turtle Bay, 2) protect approximately 2,870 feet of critical shoreline (5 acres saved over 20 years), and 3) prevent further enlargement of two primary water exchange points.

Proposed Solution:
The proposed project would create approximately 377 acres and nourish approximately 300 acres of marsh using sediment dredged from Turtle Bay. Two types of containment will be utilized for this project: semi-contained and fully contained. For the semi-contained portion, there will be approximately 42 acres of marsh creation and 86 acres of marsh nourishment. For the fully contained portion, there will be approximately 335 acres of marsh creation and 214 acres of marsh nourishment. Containment dikes will be degraded as necessary to reestablish hydrologic connectivity with adjacent wetlands. Approximately 2,870 feet of critical shoreline would be protected and two channel liners would be installed to prevent further enlargement of two primary water exchange points. Maintenance of the shoreline protection feature and channel liners would be included. In case the area does not re-vegetate on its own, the maintenance cost estimate includes funds to plant 25% of the created marsh at Year 3.

Project Benefits:
The project would result in approximately 372 net acres over the 20-year project life.

Project Costs:
The total fully-funded cost is $44,109,317.

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



NE Turtle Bay Marsh Creation and Critical Shoreline Protection (PPL27 Candidate)

N

- Channel Liner *
- Shoreline Protection *
- Marsh Creation *
- Marsh Nourishment *
- Project Boundary

* denotes proposed features

0.25 0 0.25 0.5 Kilometers

0.25 0 0.25 0.5 Miles

Scale: 1:30,000

USGS science for a changing world

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

Image Source:
2016 DOQQ

Map ID: 2017-11-0018
Map Date: July 27, 2017

Candidate Projects Located in Region 3

PPL27 East Catfish Lake Marsh Creation and Shoreline Protection

Project Location:
Region 3, Terrebonne Basin, Lafourche Parish

Problem:
Significant marsh loss has occurred east and south of Catfish Lake. Causes of marsh loss include the construction of numerous oil/gas canals, subsidence, and sediment deprivation. Between Catfish Lake and the Golden Meadow Hurricane Protection Levee, very little marsh remains after the construction of an extensive network of oil/gas canals. Much of the remaining land in this area consists of spoil banks and isolated patches of marsh. From examination of aerial photography, the majority of this loss occurred during the 1960s and 1970s. Based on the hyper-temporal analysis conducted by USGS for the extended project boundary, the land loss rate in the project area is -1.11% per year for the period 1984 to 2016. Shoreline erosion rates (1998-2015) range from 10 ft/yr along the eastern lake shoreline to 23 ft/yr along the southern lake shoreline.

Goals:
The primary goals of this project are; 1) restore marsh habitat in the open water areas east and south of Catfish Lake, and 2) restore and protect the eastern and southern Catfish Lake shoreline.

The specific goals of this project are; 1) create 231 acres of marsh, 2) nourish 75 acres of marsh, 3) protect the marsh creation cells from shoreline erosion.

Proposed Solution:
Sediments from Catfish Lake will be hydraulically dredged and pumped via pipeline to create/nourish 306 acres of marsh. Dewatering and compaction of dredged sediments should produce elevations conducive to the establishment of emergent marsh and within the intertidal range. Containment dikes will be constructed around each marsh creation cell. Where practicable, material will be borrowed from perimeter oil/gas canals. Containment dikes will be gapped at the end of construction or by TY3. Approximately 2,566 linear feet of sheet pile wall will also be installed as a containment feature.

Approximately 12,479 linear feet of shoreline protection (gabion mattresses) will be installed along the lakeside boundary of the marsh creation cells on the constructed containment dikes.

Project Benefits:
The project would result in approximately 243 net acres over the 20-year project life.

Project Costs:
The total fully-funded cost is $38,312,892.

Preparer of Fact Sheet:
Kevin Roy, FWS, Kevin_Roy@fws.gov, 337-291-3120

East Catfish Lake Marsh Creation and Shoreline Protection (PPL27 Candidate)

USGS
science for a changing world

Shoreline Protection *

Marsh Creation *

Project Boundary

* denotes proposed features

0.25 0 0.25 0.5 Kilometers

0.25 0 0.25 0.5 Miles

Scale: 1:35,000

Map ID: 2017-11-0038
Map Date: September 06, 2017

Map 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:
2016 DOQQ

PPL27 North Bayou Decade Ridge Restoration and Marsh Creation

Project Location:
Region 3, Terrebonne Basin, Terrebonne Parish

Problem:
The marshes along Bayou Decade have deteriorated dramatically over the past few decades. Coastal restoration actions have focused on improving hydrologic conditions in the area to reduce salinities and improve freshwater flows from the Atchafalaya River. Significant improvements have been made yet there are some areas of large open water that are slow to improve. Land loss in the project area is estimated to be -0.92%/y. Marsh creation would rapidly recover marshes along with protection afforded by elevation of ridge features on the north bank of the bayou.

Goals:
The goal of the project is to create a ridge feature on the north bank of Bayou Decade and create adjacent marsh in a vast expanse of open water where marsh once existed.

Proposed Solution:
The proposed project will create approximately 18,987 linear feet of ridge along north bank of Bayou Decade from Turtle Bayou to Voss Canal and create 20 acres of maritime forest habitat. The ridge habitat will be built behind an existing rock bankline that separates the bayou from the marsh creation cells. The structure will have a +4.0 elevation with a 7:1 slope on the bayou side and 5:1 slope on the marsh side. Additionally the newly created ridge will include herbaceous and woody plantings. Marsh creation will create approximately 280 acres and nourish approximately 19 acres of marsh using sediment dredged from Lake Mechant. Containment will be degraded as necessary to re-establish hydrologic connectivity with adjacent wetlands.

Project Benefits:
The project would result in approximately 267 net acres over the 20-year project life.

Project Costs:
The total fully-funded cost is $36,196,906.

Preparer of Fact Sheet:
Ron Boustany, ron.boustany@la.usda.gov, 337-291-3067

North Bayou Decade Ridge and Marsh Creation (PPL27 Candidate)

USGS science for a changing world

N

Louisiana

Project Location

Ridge Restoration *

Marsh Creation *

Project Boundary

* denotes proposed features

0.75 0 0.75 Kilometers

0.75 0 0.75 Miles

Scale 1:50,000

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

Image Source:
2016 DOQQ

Map ID: USGS-NWRC 2017-11-0036
Map Date: July 27, 2017

Candidate Projects Located in Region 4

PPL27 Sabine Marsh Creation Cycles 6 & 7

Project Location:
Region 4, Calcasieu/Sabine Basin, Cameron Parish, Sabine National Wildlife Refuge

Problem:
The area in the vicinity of Browns Lake within the Sabine National Wildlife Refuge experienced extensive loss of emergent wetlands directly related to hurricane activity in the 1950's and 1960's. Also the proximity of this area to the Calcasieu River Ship Channel (Ship Channel) has allowed saltwater intrusion and increased tidal exchange which has contributed to the more saline conditions and loss of emergent wetlands. More recently land loss rates within the project area have slowed and in some cases reversed. This is evidenced by the hyper-temporal analysis conducted by USGS for the extended project boundary, which shows a land gain in the project area estimated to be +0.62% per year for the period 1984 to 2016. This land gain was probably along the more western side of the projects extended boundary. The project area probably has some land loss due to the larger open water areas on the eastern side.

Goals:
The primary goal of this project is to restore marsh habitat in open water and in deteriorated marsh by beneficially using material hydraulically dredged from the Ship Channel during the Corps routine maintenance events.

The specific goal of the project is to create approximately 900 acres of marsh and nourish 29 acres of marsh with material dredged from the Ship Channel in two Corps maintenance events.

Proposed Solution:
This project consists of the creation of 900 acres and nourishment of 29 acres of marsh using material dredged from the Ship Channel. Marsh would be created during two Corps maintenance dredging events, each consisting of two marsh creation sites (Cycle 6 A&B – 478 ac and Cycle 7 A&B – 451 ac). Dredge material would be transported to the marsh creation sites utilizing the permanent pipeline that extends from the Ship Channel to the Sabine NWR. Earthen containment dikes and lower level earthen overflow weirs will be constructed to assist in the dewatering of each marsh creation disposal area and to create fringe marsh. Containment dikes will be gapped at the end of construction or by target year 3. The dredged slurry will be placed between elevations +4.0' and +4.5' MLG (consistent with the completed CS-28 Cycles 1-5) which have produced elevations conducive to the establishment of intertidal emergent marsh.

Project Benefits:
The project would result in approximately 900 net acres over the 20-year project life.

Project Costs:
The total fully-funded cost is $27,914,651.

Preparer of Fact Sheet:
Robert Dubois, FWS, Robert_Dubois@fws.gov, 337-291-3127

Sabine Marsh Creation Cycles 6&7
(PPL27 Candidate)

N

CS-28 Pipeline Corridor

Marsh Creation *

CS-28 Marsh Creation Cycles

Project Boundary

* denotes proposed features

1 0 1 Kilometers

1 0 1 Miles

Scale 1:80,000

USGS science for a changing world

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

Image Source:
2015 DOQQ

Map ID: USGS-NWRC 2017-11-0034
Map Date: July 11, 2017

IV. Project Selection

On January 20th, 2018 the CWPPRA Task Force made its selection for the 27th PPL. The CWPPRA Task Force selection for the 27th PPL is shown in Table 5.

Table 5: The 27th 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)
BS-32	Mid Breton Land Bridge Marsh Creation and Terracing	MC/ TR	FWS	$40,874,564	$3,715,463	$37,159,101	121.25
PO-181	Bayou Cane Marsh Creation	MC	FWS	$33,991,838	$3,239,930	$30,751,908	111.75
BA-206	Northeast Turtle Bay Marsh Creation and Critical Area Shoreline Protection	MC/ SP	NRCS	$44,109,317	$3,952,451	$40,156,866	182.98
CS-81	Sabine Marsh Creation Cycles 6 and 7	MC	FWS	$27,914,651	$3,824,731	$24,089,920	345.74
TOTALS				$146,890,370	$14,732,575	$132,157,795	761.72

Project Physical Type:
MC = Marsh Creation
SP = Shoreline Protection
TR = Terracing

Sponsoring Agencies:
NRCS = National Resources Conservation Service
FWS = U.S. Fish and Wildlife Service

V. DESCRIPTION OF PROJECTS SELECTED FOR PHASE I FUNDING

This section provides a concise narrative of each selected project that was funded for Phase I. The project details provided include the project location, problem, goals, solution, benefits, costs, sponsoring agency and contact persons and a map identifying the project area and features if applicable.

PPL27 Bayou Cane Marsh Creation

Project Location:
Region 1, Lake Pontchartrain Basin, St. Tammany Parish (on Big Branch NWR)

Problem:
The marshes along the north shore of Lake Pontchartrain have experienced substantial losses during recent hurricanes. Based on the hyper-temporal analysis conducted by USGS for the extended project boundary, loss rates in the project area are estimated to be -0.91% per year for the period 1984 to 2016.

Goals:
The primary goal of this project is to restore marsh habitat in large open water areas located adjacent to the edge of Lake Pontchartrain to preclude future breaching of the lake into those interior waters.

The specific goal of the project is create 384 acres of marsh and nourish 65 acres of existing marsh with material dredged nearby from Lake Pontchartrain.

Proposed Solution:
Sediments from Lake Pontchartrain will be hydraulically dredged and pumped via pipeline to create/nourish approximately 499 acres of marsh located in 7 separate cells. 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 will be gapped at the end of construction or by target year 3.

Project Benefits:
The project would result in approximately 356 net acres over the 20-year project life.

Project Costs:
The total fully-funded cost is $33,991,838

Preparer of Fact Sheet:
Ronny Paille, FWS, Ronald_Paille@fws.gov, 337-291-3117

Bayou Cane Marsh Creation
(PPL27 Candidate)

Marsh Creation *

Project Boundary

* denotes proposed features

1 0 1 Kilometers

1 0 1 Miles

Scale 1:60,000

Map ID: USGS-NWRC 2017-11-0035
Map Date: July 13, 2017

USGS science for a changing world

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

Image Source:
2016 DOQQ

PPL27 Mid Breton Land Bridge Marsh Creation and Terracing

Project Location:
Region 2, Breton Sound Basin, Plaquemines Parish, west of Delacroix along Bayou Gentilly

Problem:
From 1932 to 1990, the Caernarvon Mapping Unit lost 14,240 acres of its marsh. Prior to Hurricane Katrina, the greatest lost documented occurred between 1956 and 1974 and coincided with Hurricane Betsy and extensive canal building. Hurricane Katrina in 2005 devastated the area resulting in substantial marsh loss. According to USGS Open File Report (2006-1274), approximately 39 square miles of marsh around the upper and central portions of Breton Sound were converted to open water by mechanical removal of the marsh or by marsh submergence. Based on the hyper-temporal analysis conducted by USGS for the extended project boundary, the loss rate in the project area is estimated to be –1.99 %/year for the period 1984 to 2016.

Goals:
The primary goal of this project is to restore marsh habitat in open water and in deteriorated marsh between the Bayou Terre aux Boeufs and River aux Chenes ridges through placement of sediment via hydraulic dredging.

Specific Goals: 1) create approximately 421 acres of intertidal marsh and nourish an additional 30 acres with material dredged from Lake Lery, and 2) create approximately 22,960 LF of terraces (17 acres of marsh) in strategic areas to reduce erosion due to wind induced waves and trap sediments from Caernarvon Freshwater Diversion that pass through Lake Lery and into Lost Lake.

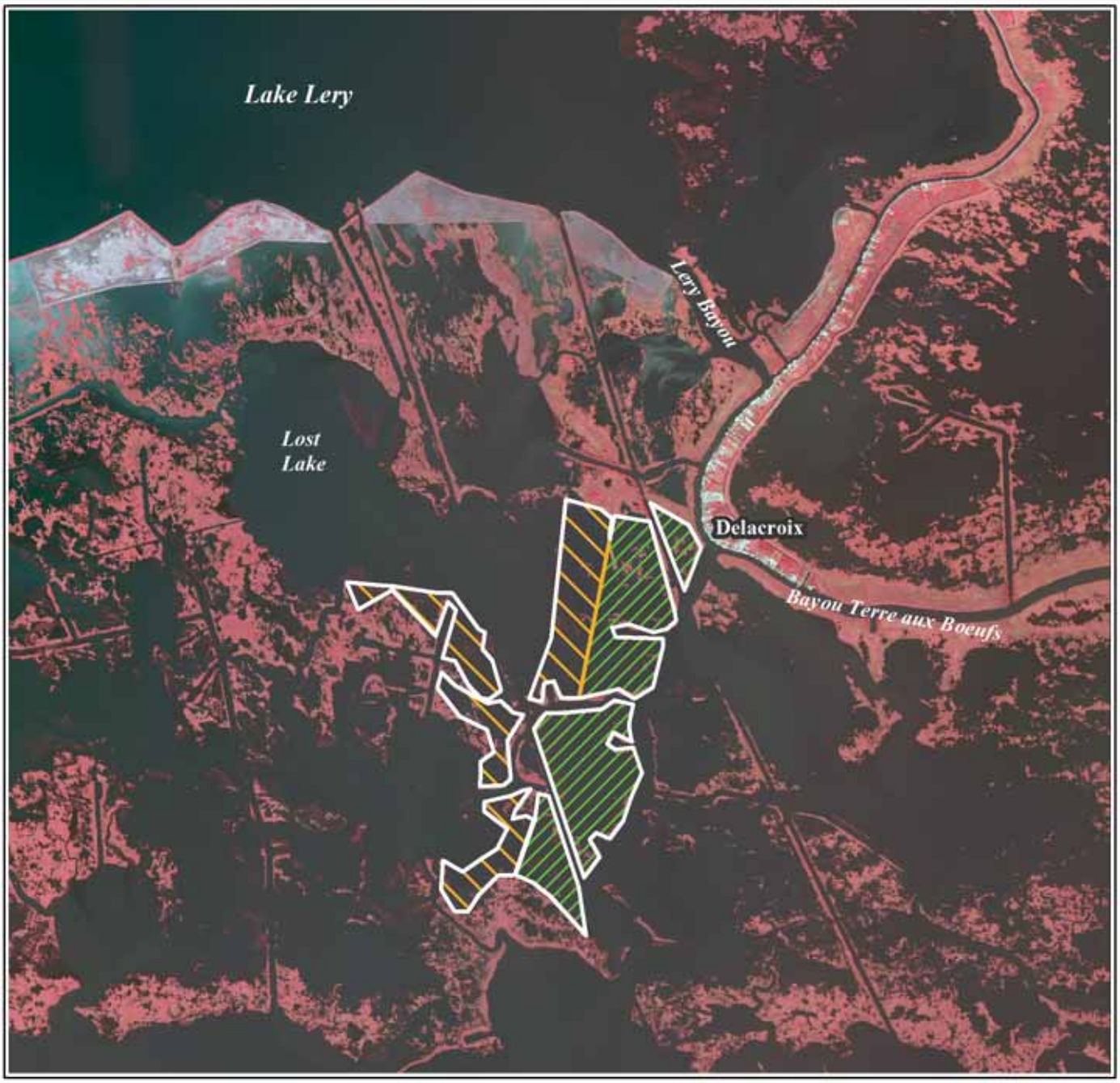
Proposed Solution:
Sediments from a Lake Lery borrow site will be hydraulically dredged and pumped via pipeline to create/nourish approximately 451 acres of marsh. Dewatering and compaction of dredged sediments should produce elevations conducive to the establishment of emergent marsh and within the intertidal range. Perimeter containment dikes will be constructed. Containment dikes will be gapped at the end of construction or by target year 3.

Approximately 22,960 LF of terraces (17 acres of marsh) will be created with long reach excavators in strategic areas. This will reduce erosion due to wind induced waves and help trap sediments that flow through Lake Lery and Lost Lake.

Project Benefits:
The project would result in approximately 364 net acres over the 20-year project life.

Project Costs:
The total fully-funded cost is $40,874,564.

Preparer of Fact Sheet:
Robert Dubois, FWS, Robert_Dubois@fws.gov, 337-291-3127



Mid-Breton Land Bridge Marsh Creation and Terracing (PPL27 Candidate)

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Marsh Creation *

Terrace Field *

Project Boundary

* denotes proposed features

0.5 0 0.5 1 Kilometers

0.5 0 0.5 1 Miles

Scale: 1:50,000

Map 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:
2016 DOQQ

Map ID: 2017-11-0042
Map Date: September 07, 2017

PPL27 Northeast Turtle Bay Marsh Creation and Critical Area Shoreline Protection

Project Location:
Region 2, Barataria Basin, Jefferson Parish

Problem:
Historic wetland loss in the area occurs in the form of shoreline erosion along Turtle Bay and interior marsh loss. The interior loss is caused by subsidence, sediment deprivation, and construction of access and pipeline canals. Based on the USGS analysis of the project's extended boundary, the land loss rate for the area is estimated to be -0.97% per year. Shoreline erosion along the northeast shore of Turtle Bay, in the area proposed to be addressed by this project, is approximately 5 feet per year. While this rate may not seem excessive, this reach of shoreline is very narrow and loss of this shoreline would connect Turtle Bay to a large lagoon, greatly altering the hydrology of the marsh.

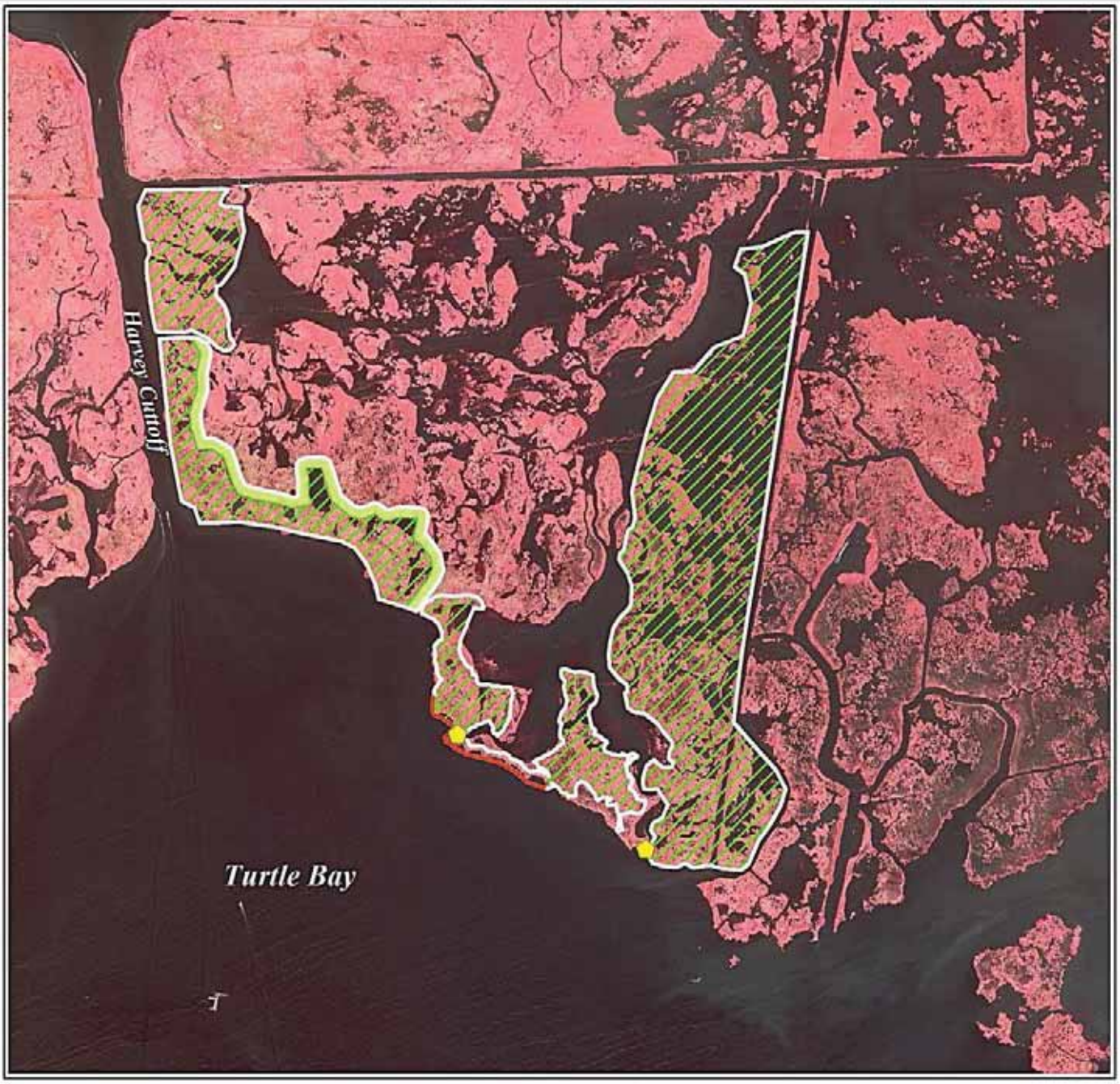
Goals:
The goals of the project are to 1) create approximately 377 acres of marsh and nourish approximately 300 acres of marsh (677 acres total) with dredged material from Turtle Bay, 2) protect approximately 2,870 feet of critical shoreline (5 acres saved over 20 years), and 3) prevent further enlargement of two primary water exchange points.

Proposed Solution:
The proposed project would create approximately 377 acres and nourish approximately 300 acres of marsh using sediment dredged from Turtle Bay. Two types of containment will be utilized for this project: semi-contained and fully contained. For the semi-contained portion, there will be approximately 42 acres of marsh creation and 86 acres of marsh nourishment. For the fully contained portion, there will be approximately 335 acres of marsh creation and 214 acres of marsh nourishment. Containment dikes will be degraded as necessary to reestablish hydrologic connectivity with adjacent wetlands. Approximately 2,870 feet of critical shoreline would be protected and two channel liners would be installed to prevent further enlargement of two primary water exchange points. Maintenance of the shoreline protection feature and channel liners would be included. In case the area does not re-vegetate on its own, the maintenance cost estimate includes funds to plant 25% of the created marsh at Year 3.

Project Benefits:
The project would result in approximately 372 net acres over the 20-year project life.

Project Costs:
The total fully-funded cost is $44,109,317.

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



NE Turtle Bay Marsh Creation and Critical Shoreline Protection (PPL27 Candidate)

N

Channel Liner *

Shoreline Protection *

Marsh Creation *

Marsh Nourishment *

Project Boundary

* denotes proposed features

0.25 0 0.25 0.5 Kilometers

0.25 0 0.25 0.5 Miles

Scale: 1:30,000

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Map 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:
2016 DOQQ

Map ID: 2017-11-0018
Map Date: July 27, 2017

PPL27 Sabine Marsh Creation Cycles 6 & 7

Project Location:
Region 4, Calcasieu/Sabine Basin, Cameron Parish, Sabine National Wildlife Refuge

Problem:
The area in the vicinity of Browns Lake within the Sabine National Wildlife Refuge experienced extensive loss of emergent wetlands directly related to hurricane activity in the 1950's and 1960's. Also the proximity of this area to the Calcasieu River Ship Channel (Ship Channel) has allowed saltwater intrusion and increased tidal exchange which has contributed to the more saline conditions and loss of emergent wetlands. More recently land loss rates within the project area have slowed and in some cases reversed. This is evidenced by the hyper-temporal analysis conducted by USGS for the extended project boundary, which shows a land gain in the project area estimated to be +0.62% per year for the period 1984 to 2016. This land gain was probably along the more western side of the projects extended boundary. The project area probably has some land loss due to the larger open water areas on the eastern side.

Goals:
The primary goal of this project is to restore marsh habitat in open water and in deteriorated marsh by beneficially using material hydraulically dredged from the Ship Channel during the Corps routine maintenance events.

The specific goal of the project is to create approximately 900 acres of marsh and nourish 29 acres of marsh with material dredged from the Ship Channel in two Corps maintenance events.

Proposed Solution:
This project consists of the creation of 900 acres and nourishment of 29 acres of marsh using material dredged from the Ship Channel. Marsh would be created during two Corps maintenance dredging events, each consisting of two marsh creation sites (Cycle 6 A&B – 478 ac and Cycle 7 A&B – 451 ac). Dredge material would be transported to the marsh creation sites utilizing the permanent pipeline that extends from the Ship Channel to the Sabine NWR. Earthen containment dikes and lower level earthen overflow weirs will be constructed to assist in the dewatering of each marsh creation disposal area and to create fringe marsh. Containment dikes will be gapped at the end of construction or by target year 3. The dredged slurry will be placed between elevations +4.0' and +4.5' MLG (consistent with the completed CS-28 Cycles 1-5) which have produced elevations conducive to the establishment of intertidal emergent marsh.

Project Benefits:
The project would result in approximately 900 net acres over the 20-year project life.

Project Costs:
The total fully-funded cost is $27,914,651.

Preparer of Fact Sheet:
Robert Dubois, FWS, Robert_Dubois@fws.gov, 337-291-3127

Sabine Marsh Creation Cycles 6&7
(PPL27 Candidate)

N

CS-28 Pipeline Corridor

Marsh Creation *

CS-28 Marsh Creation Cycles

Project Boundary

* denotes proposed features

1 0 1 Kilometers

1 0 1 Miles

Scale 1:80,000

USGS science for a changing world

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

Image Source:
2015 DOQQ

Map ID: USGS-NWRC 2017-11-0034
Map Date: July 11, 2017

VI. SUMMARY AND CONCLUSIONS

The 27th PPL consists of 4 projects, for a Phase I cost of $14,732,575 and a Phase II cost of $132,157,795 which will be funded as these projects mature. The total net wetland benefits of the implementing the four PPL 27 projects is estimate to be 1,992 acres or 762 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.

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

USGS
science for a changing world

Vernon
Rapides
Avoyelles
West Feliciana
East Feliciana
St Helena
Washington
Beauregard
Allen
Evangeline
St Landry
Pointe Coupee
East Baton Rouge
Tangipahoa
St Tammany
West Baton Rouge
Livingston
Pontchartrain Basin
Acadia
St Martin
Iberville
Ascension
Calcasieu
Jefferson Davis
Lafayette
St John the Baptist
Orleans
St James
Region 1
St Bernard
Iberia
Calcasieu/Sabine Basin
Region 4
St Charles
Jefferson
St Mary
Assumption
St Martin
Cameron
Mermentau Basin
Vermilion
Barataria Basin
Teche/Vermilion Basin
Region 2
Region 3
Breton Sound Basin
Terrebonne Basin
Atchafalaya Basin
Lafourche
Plaquemines
Terrebonne
Mississippi River Delta Basin
Gulf of Mexico

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 1-27 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

26th Priority Project List

U.S. Department of Commerce

TE-138	Bayou DeCade Ridge and Marsh Creation
PO-179	St. Catherine Island Marsh Creation and Shoreline Protection
PO-178	Bayou La Loutre Ridge and Marsh Restoration
LA-284	Salvinia Weevil Propagation Facility

27th Priority Project List

U.S. Department of the Interior

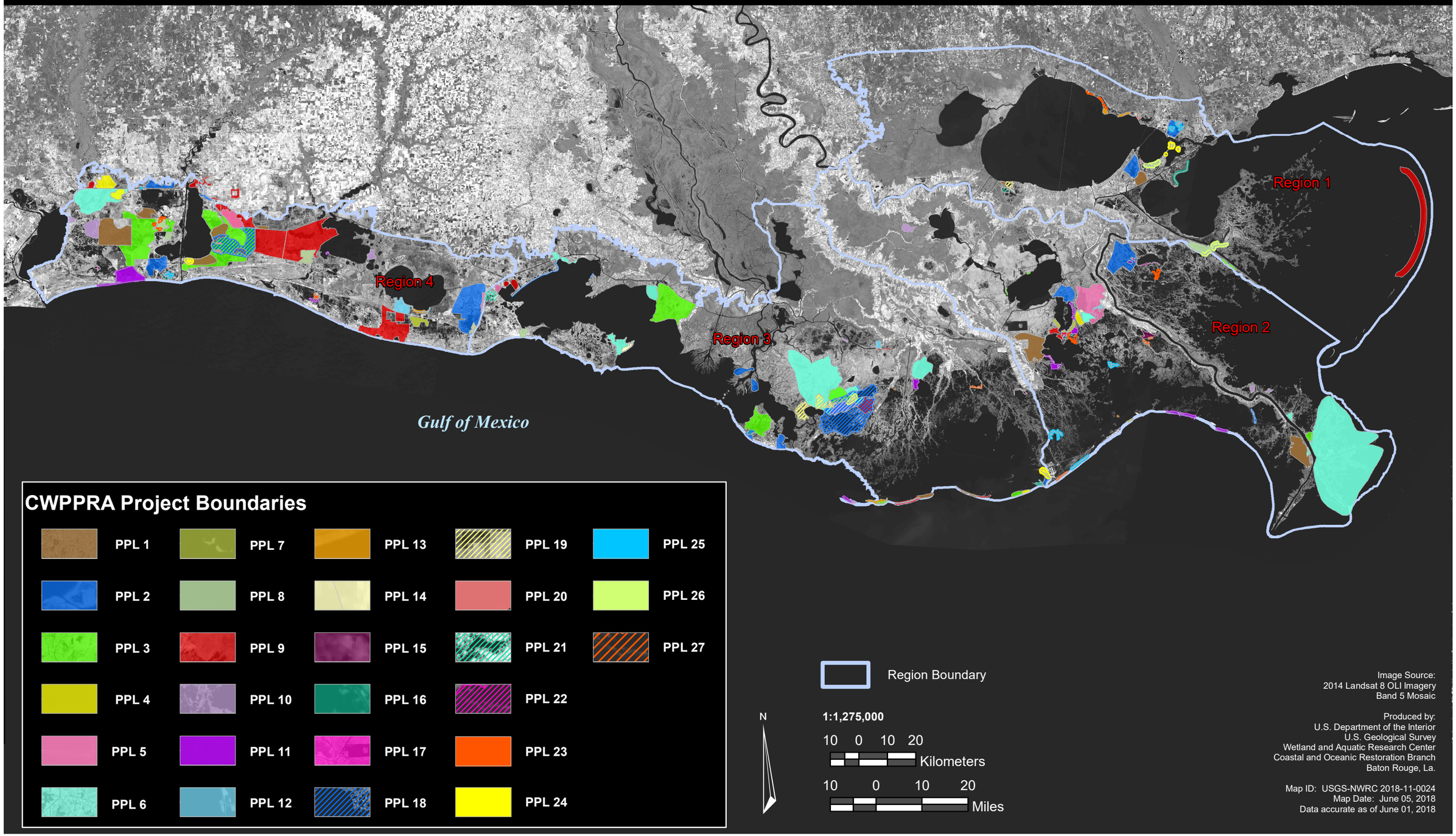
BS-32	Mid Breton Land Bridge Marsh Creation and Terracing
PO-181	Bayou Cane Marsh Creation
CS-81	Sabine Marsh Creation Cycles 6 and 7

U.S. Department of Agriculture

BA-206	Northeast Turtle Bay Marsh Creation and Critical Area Shoreline Protection

Coastal Wetlands Planning, Protection and Restoration Act (CWPPRA) Priority Project Lists 1-27

USGS science for a changing world



CWPPRA Project Boundaries

PPL 1	PPL 7	PPL 13	PPL 19	PPL 25
PPL 2	PPL 8	PPL 14	PPL 20	PPL 26
PPL 3	PPL 9	PPL 15	PPL 21	PPL 27
PPL 4	PPL 10	PPL 16	PPL 22	
PPL 5	PPL 11	PPL 17	PPL 23	
PPL 6	PPL 12	PPL 18	PPL 24	

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
Wetland and Aquatic Research Center
Coastal and Oceanic Restoration Branch
Baton Rouge, La.

Map ID: USGS-NWRC 2018-11-0024
Map Date: June 05, 2018
Data accurate as of June 01, 2018

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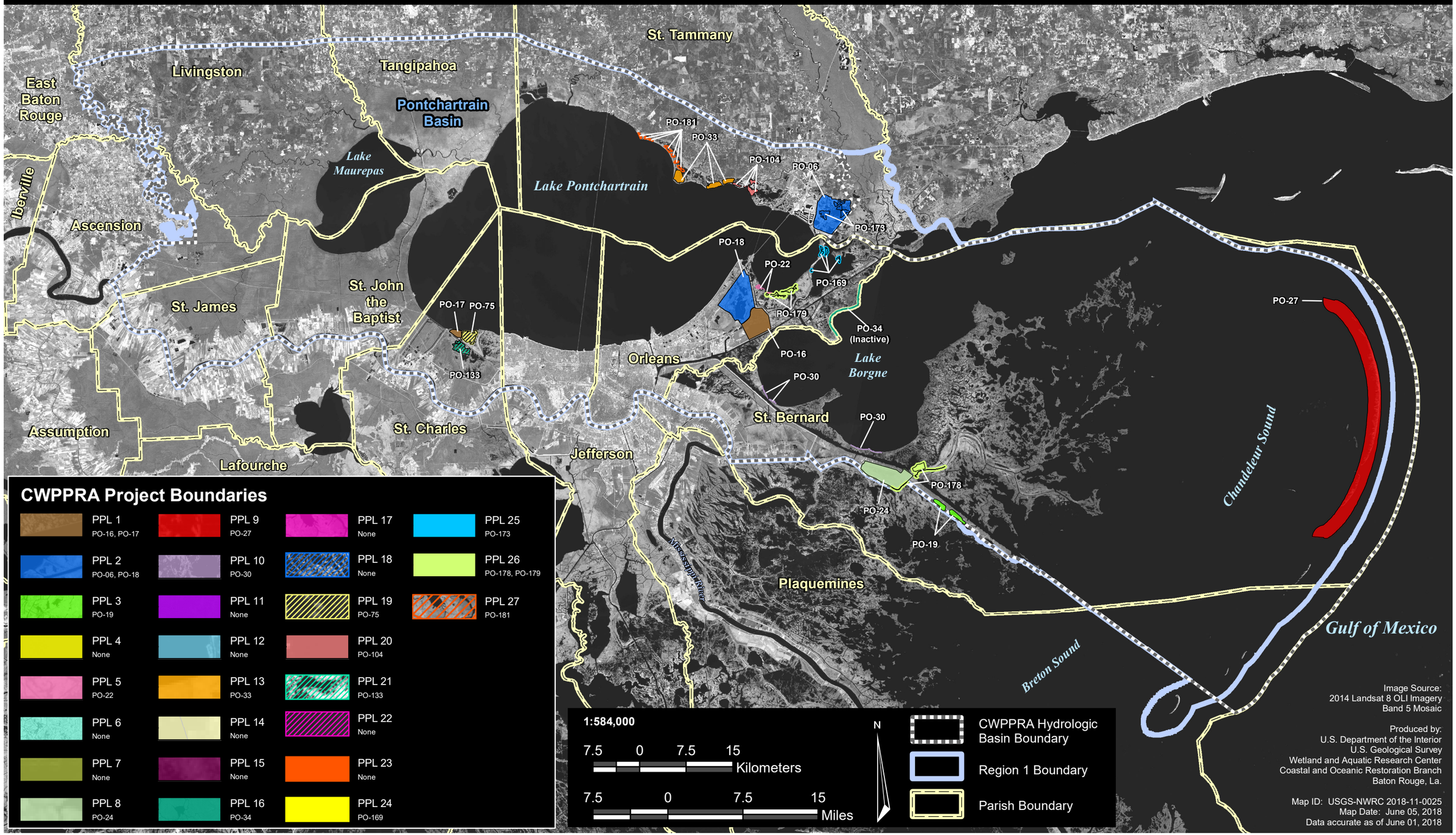
Coastal Wetlands Planning, Protection and Restoration Act (CWPPRA) Priority Project Lists 1-27 Coast 2050 Region 1



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 26	PO-178, PO-179
PPL 3	PO-19	PPL 11	None	PPL 19	PO-75	PPL 27	PO-181
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-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
Wetland and Aquatic Research Center
Coastal and Oceanic Restoration Branch
Baton Rouge, La.

Map ID: USGS-NWRC 2018-11-0025
Map Date: June 05, 2018
Data accurate as of June 01, 2018

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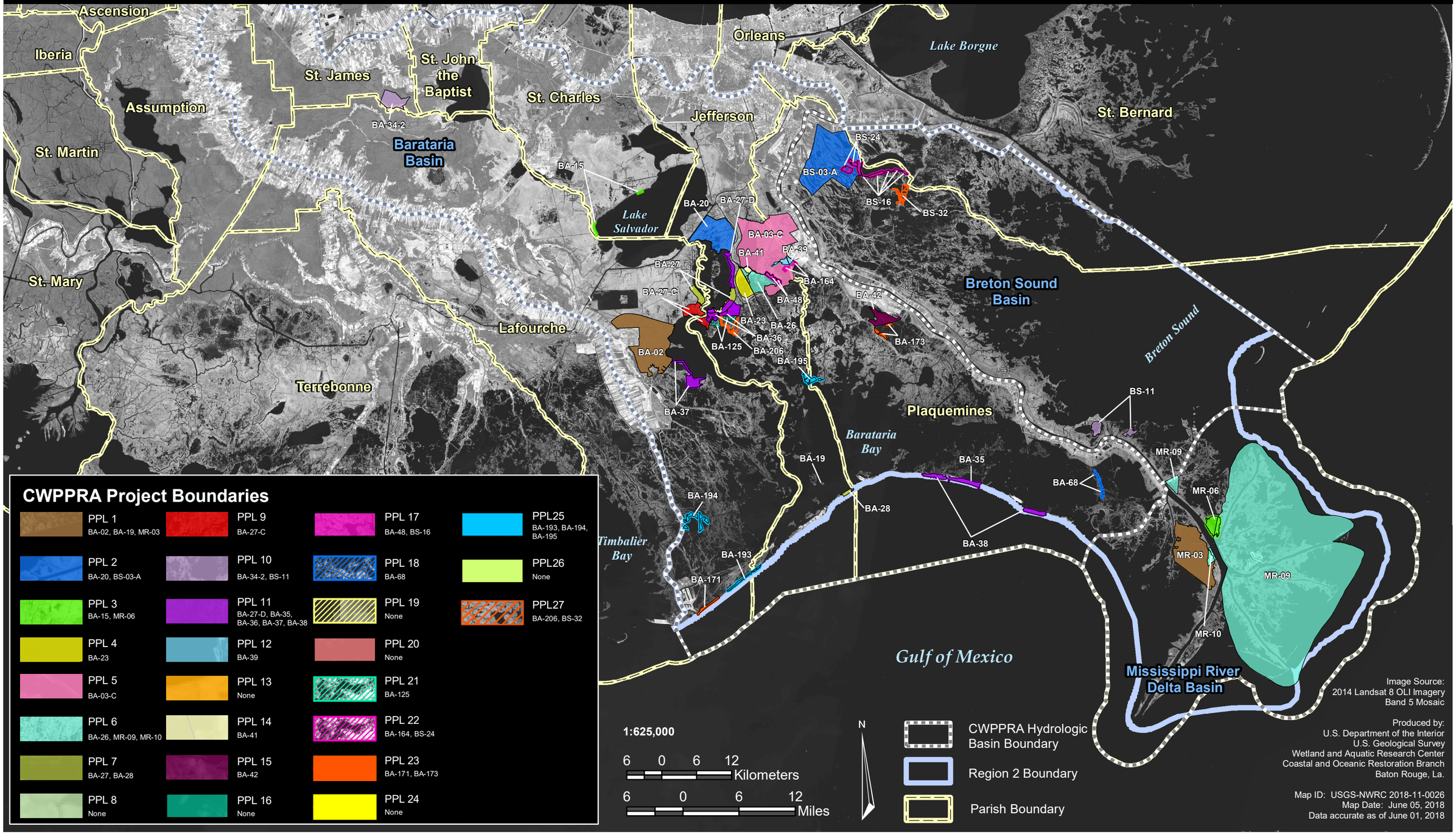
Coastal Wetlands Planning, Protection and Restoration Act (CWPPRA) Priority Project Lists 1-27 Coast 2050 Region 2



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	PPL26 None
PPL 3 BA-15, MR-06	PPL 11 BA-27-D, BA-35, BA-36, BA-37, BA-38	PPL 19 None	PPL27 BA-206, BS-32
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	PPL 23 BA-171, BA-173	
PPL 8 None	PPL 16 None	PPL 24 None	

1:625,000

6 0 6 12 Kilometers

6 0 6 12 Miles

N

CWPPRA Hydrologic Basin Boundary

Region 2 Boundary

Parish Boundary

Image Source:
2014 Landsat 8 OLI Imagery
Band 5 Mosaic

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Map ID: USGS-NWRC 2018-11-0026
Map Date: June 05, 2018
Data accurate as of June 01, 2018

Coastal Wetlands Planning, Protection and Restoration Act (CWPPRA) Priority Project Lists 1-27 Coast 2050 Region 3

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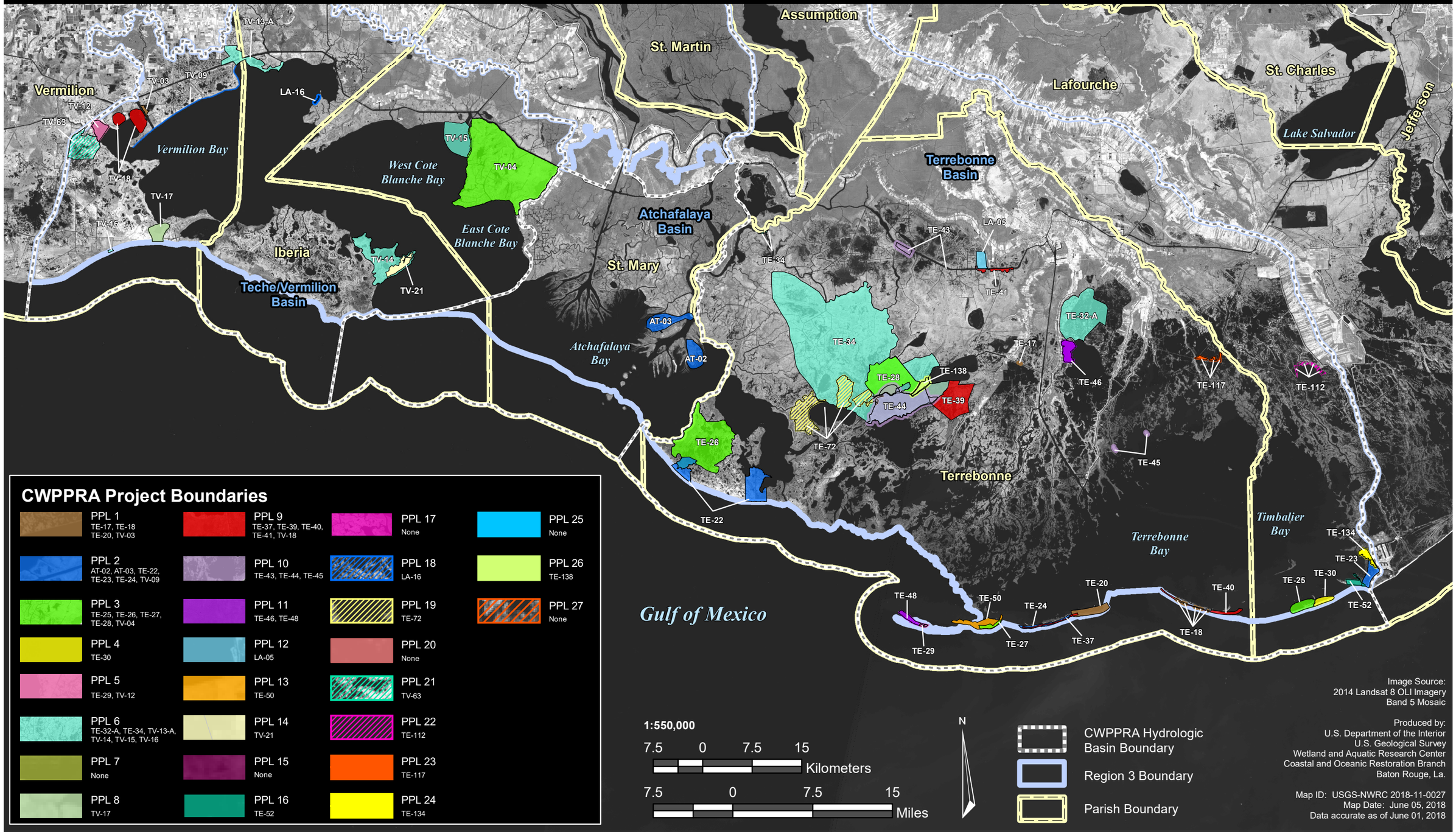

CWPPRA Project Boundaries

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	PPL 26: TE-138
PPL 3: TE-25, TE-26, TE-27, TE-28, TV-04	PPL 11: TE-46, TE-48	PPL 19: TE-72	PPL 27: None
PPL 4: TE-30	PPL 12: LA-05	PPL 20: None	
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-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

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Map ID: USGS-NWRC 2018-11-0027
Map Date: June 05, 2018
Data accurate as of June 01, 2018

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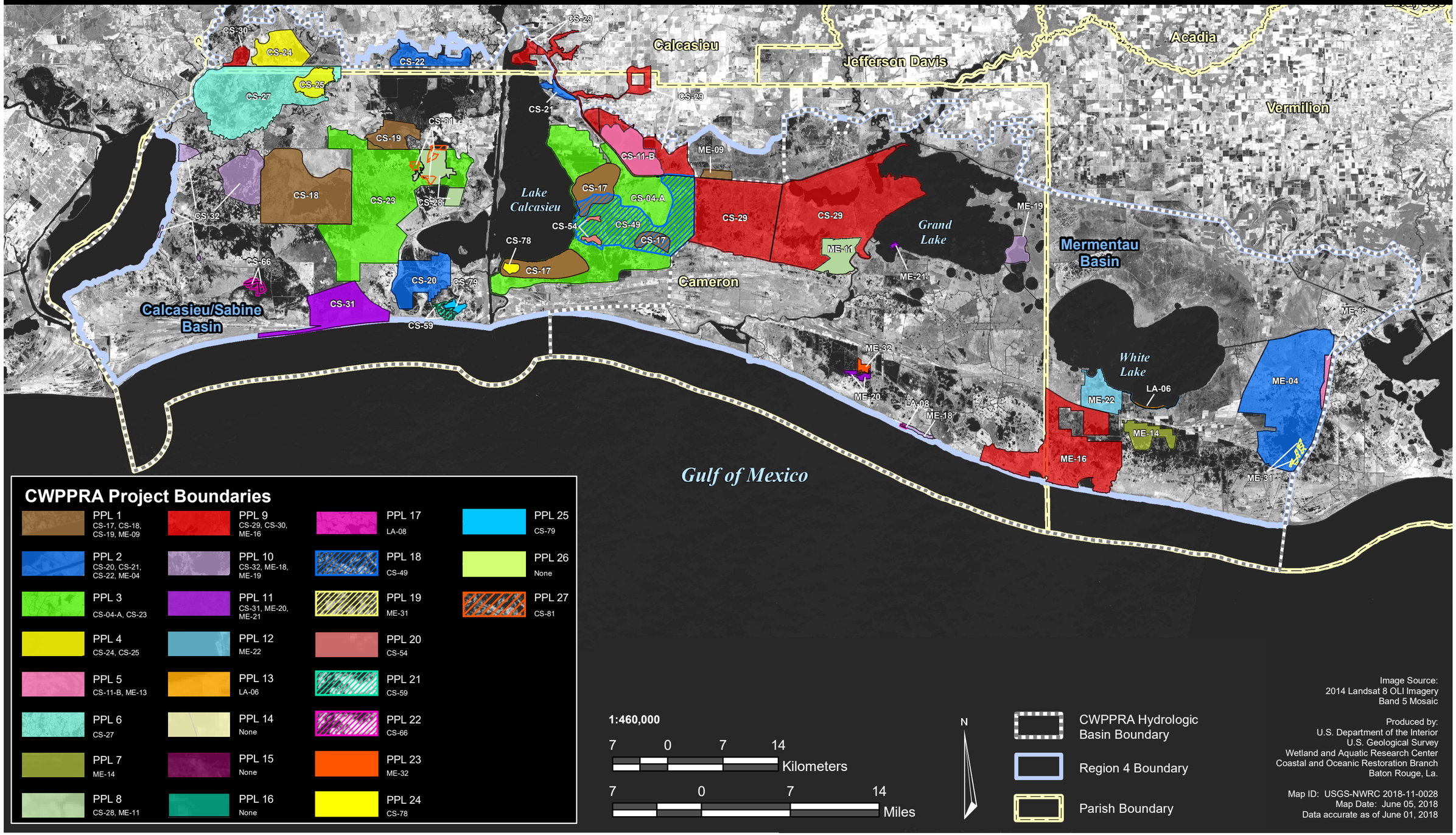
Coastal Wetlands Planning, Protection and Restoration Act (CWPPRA) Priority Project Lists 1-27 Coast 2050 Region 4



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 26 None
PPL 3 CS-04-A, CS-23	PPL 11 CS-31, ME-20, ME-21	PPL 19 ME-31	PPL 27 CS-81
PPL 4 CS-24, CS-25	PPL 12 ME-22	PPL 20 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

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Map ID: USGS-NWRC 2018-11-0028
Map Date: June 05, 2018
Data accurate as of June 01, 2018