Fiscal Year 2011 Annual Plan

Integrated Ecosystem Restoration and Hurricane Protection in Coastal Louisiana

April 2010

Coastal Protection and
Restoration Authority of Louisiana

Prepared by the

OFFICE OF
Coastal Protection
and Restoration

Fiscal Year 2011 Annual Plan: Integrated Ecosystem Restoration
and Hurricane Protection in Coastal Louisiana

Submitted to the

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House Natural Resources and Environment Committee
Senate Transportation, Highways and Public Works Committee
House Transportation, Highways and Public Works Committee

by

The Coastal Protection and Restoration Authority of Louisiana
In accordance with R.S. 49:214.5.3 and R.S. 49:214.6.1

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Contents

Coastal Protection and Restoration Authority
Fiscal Year 2011 Annual Plan

Executive Summary vii

1 Introduction 1

2 Responding to a Call to Action 15

3 A New Approach to Planning 35

4 Fiscal Year 2011 Implementation Plan 49

Appendix A – Ongoing Protection and Restoration Project Summaries

Appendix B – Refined Prioritization Tool and Proof-of-Concept Analysis

Appendix C – Preliminary Inventory of Non-State Coastal Projects

Appendix D – Three-Year Spending Projections

Appendix E – Barrier Island Status Report

Appendix F – Candidate Community Development Block Grant Projects

Appendix G – Compilation of Project Concepts for Future Consideration

List of Tables

Table ES-1. Projected 3-Year Revenues FY 2011–FY 2013. xiii
Table ES-2. Projected 3-Year Expenditures FY 2011–FY 2013. xiii
Table 2-1. Projects in Construction in FY 2010. 18
Table 2-2. Projects Completed in FY 2010. 19
Table 3-1. Marsh creation and Mississippi River diversion projects included in the POC analysis. 44
Table 3-2. Storm surge protection structural and nonstructural flood risk mitigation projects included in the POC analysis. 44
Table 4-1. Projected 3-Year Revenues FY 2011–FY 2013. 56
Table 4-2. Schedules for All Active State Coastal Projects for FY 2011–2013. 61
Table 4-3. Projected 3-Year Expenditures FY 2011–FY 2013. 69
Table 4-4. Ongoing Programs Projected 3-Year Expenditures FY 2011–FY 2013. 70
Table 4-5. State Protection and Restoration Projected 3-Year Operating Expenditures FY 2011–FY 2013. 70

List of Figures

Figure ES-1. Projected FY 2011 Expenditures by Project Phase. xv
Figure 1-1. Map of Coastal Land Change in Louisiana over the Period 1956-2006. 3
Figure 2-1. Rockefeller Refuge Gulf Shoreline Stabilization Demonstration Project (ME-18 [EB]). 16
Figure 2-2. Project Construction Completion by Calendar Year, 1995-2013. 17
Figure 2-3. East Grand Terre Island Restoration Project (BA-30 [EB]). 19
Figure 2-4. Projects under Construction in FY 2010. 20
Figure 2-5. Projects Completed in FY 2010. 21
Figure 2-6. Grand Lake Shoreline Protection Project (ME-21 [EB]). 22
Figure 2-7. Mississippi River Sediment Delivery System- Bayou Dupont Project (BA-39). 22
Figure 2-8. Whiskey Island Back Barrier Marsh Creation Project (TE-50). 23
Figure 2-9. Barataria Landbridge Dedicated Dredging Project (BA-36). 24
Figure 2-10. Applied Engineering and Science Expenditures (Actual and Projected). 28
Figure 2-11. RSW Regional Divisions. 31
Figure 3-1. Conceptual Planning Framework. 37
Figure 3-2. Basic Steps of Prioritization Tool. 41
Figure 3-3. Example Results from POC Analysis. 47
Figure 4-1. Restoration Projects Projected for Construction in FY 2011. 66
Figure 4-2. Restoration Projects in Operation, Maintenance, and Monitoring in FY 2011. 67
Figure 4-3. Ongoing Hurricane Protection Projects with State Expenditures in FY 2011. 68
Figure 4-4. Projected FY 2011 Expenditures by Project Phase. 71
Figure 4-5. Projected FY 2012 Expenditures by Project Phase. 71
Figure 4-6. Projected FY 2013 Expenditures by Project Phase. 71

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Executive Summary

Coastal Protection and Restoration Authority
Fiscal Year 2011 Annual Plan

Louisiana has initiated a bold new direction for protecting and restoring the largest expanse of coastal wetlands in the lower 48 states.

Source: Library of Congress

Since the 1930s, approximately 2,300 square miles of wetlands in coastal Louisiana have been lost.

Integrated Solutions

The Louisiana coast is a significant component of our overall national security, economy, and natural resources. In addition to being home to approximately half of the state's population, it supports a vibrant array of nationally significant commercial and industrial activities, and provides habitat for diverse fish and wildlife species. Yet long-term sustainability of Louisiana's precious coastal resources is greatly threatened. Approximately 2,300 square miles of wetlands in coastal Louisiana have converted to open water, exposing coastal Louisiana to increased flood risk from hurricane-related flood damage. With more land lost each year, Louisiana is under increased pressure to develop sustainable solutions to expand and expedite its efforts to restore the coast and protect communities. In 2008, the State of Louisiana (State) initiated the integration of flood protection and coastal restoration efforts under the Office of Coastal Protection and Restoration (OCPR), which serves as the implementation arm of the Coastal Protection and Restoration Authority of Louisiana (CPRA). In addition to overseeing development of existing projects, OCPR is addressing other planning, engineering, and scientific needs through its Louisiana Applied Coastal Engineering and Science (LACES) Division, which coordinates science and engineering activities of State and Federal agencies, academia, and coastal communities. Through LACES, the State will ensure that research is conducted in the areas of greatest need and that the best possible technical information is used for decision making.

Breaking New Ground

The CPRA is directed by the Legislature to develop an annual coastal plan containing an inventory of ongoing and future coastal projects and schedules by which these projects will be implemented. This document fulfills that requirement, but also breaks new ground by providing a discussion of progress in project implementation during Fiscal Year (FY) 2010, and presenting new efforts to improve the State's planning process. These changes were made to improve transparency and increase the amount of useful information that the Annual Plan offers to stakeholders and the public.

Progress in the Coastal Program

While coastal Louisiana's challenges remain formidable, the State has made tremendous progress in protecting Louisiana's citizens and restoring its coast. In 2009, the Louisiana Legislature granted the coastal program $290 million in funding from the 2009 surplus and Tax Amnesty Act revenues. Together with other sources of funding, including $500 million from the 2007 and 2008 surpluses, these allocations represent the largest investment in coastal protection and restoration efforts in Louisiana history. Including other State funds and Federal dollars leveraged by these funds, nearly $17 billion in projects are fully financed and underway, with billions of dollars in additional projects authorized for construction by Congress.

The State has utilized this funding to move quickly, funding construction of existing protection projects throughout the coast and exploring protection and restoration plans for regions that are currently without appreciable hurricane protection. The State also allocated budget funds to 15 coastal restoration projects, many of which have now progressed ahead of their original schedules because of this funding. In FY 2010, the State began or continued construction on 30 large-scale coastal protection and restoration projects, of which nine were completed. In addition to on-the-ground progress in constructing projects, the State has made significant progress with its ongoing programs that further research, management,

Source: Library of Congress Map 1814.

training, monitoring, and assessment. Many of these efforts were spearheaded by LACES.

Innovative Initiatives

The State has explored innovative concepts and initiatives to both improve efficiency within the coastal program and streamline future efforts. These efforts include initiatives to reform the Federal water resource project planning process, market carbon and water quality credits from State projects to fund the coastal program, implement a single project database system to address all project management needs, and identify ways to streamline the coastal program to improve efficiency while reducing expenditures. Chapter 2 presents additional information on these and other efforts.

Prioritization Tool

Although significant progress has been made in the coastal program in recent years, the State acknowledges that it cannot address all protection and restoration concerns throughout coastal Louisiana. Additionally, the State acknowledges that sufficient resources (either financial or natural) will never be available to implement every conceivable protection and restoration activity within coastal Louisiana. It is imperative, therefore, that the State's coastal program operates as efficiently as possible to maximize benefits through the highest and best use of available resources. To improve the planning process, the State has developed a tool that will prioritize and sequence projects into portfolios that will provide the most progress toward restoring coastal ecosystems and protecting coastal Louisiana's citizens, homes, and businesses from hurricane and storm flood damages. This prioritization tool is designed to take into account state-of-the-art science and engineering, uncertainties, and other factors to identify the best uses of limited resources. The tool will be guided by the concepts and objectives described in the State's Master Plan and will be driven by inputs that include a vision of a sustainable coast. Computer models will produce data outputs that relate to quantifiable targets, which will help to measure the degree to which projects meet the vision. Although many of the inputs for the prioritization tool are still under development, the planning team was able to utilize existing models and data to perform a proof-of-concept (POC) analysis, which demonstrated how the tool can be used to evaluate and prioritize projects. Chapter 3 describes the development of the tool and presents the results of the POC analysis.

The tool shows great potential for expanding and enhancing the State's planning capacity by providing a decision process based on coastal needs and on tax dollar value, rather than one that allows politics to intrude or that merely funds projects with the most vocal advocates.

Stakeholder Participation

To respond to the public's request for increased engagement in its planning process, the State established three Regional Stakeholder Workgroups (RSWs), each of which represents a major geographic region of Louisiana's coast. The State first met with the RSWs in September 2009 to ensure solidarity of mission, solicit feedback on proposed planning efforts, and provide updates on project implementation. RSW members could then report back to their communities. RSW engagement with the State will significantly improve the Annual Plan's responsiveness to dynamic regional forces and concerns within the affected coastal communities.

FY 2011 Implementation Plan

Development of the FY 2011 implementation plan required an intensive data collection effort. The initial step in this effort was to update the inventory of State coastal projects created for the FY 2010 Annual Plan from State in-house coastal project databases. The planning team updated the database by reviewing various State databases and compiling information on project size, cost, projected benefits, and the timeframe for each phase.

To develop FY 2011 project implementation schedules and expenditure projections, the State expanded and refined its database of coastal projects first developed for the FY 2010 Annual Plan. The database currently contains only State projects and projects in which the State is a partner. However, in an effort to fulfill Act 523's mandate that State Annual Plans include descriptions of all projects and programs relating to hurricane protection, restoration, and infrastructure in coastal Louisiana, the FY 2011 Annual Plan team conducted outreach to coastal parishes and levee districts to obtain information on local, non-State coastal projects. Appendix C contains an inventory of local and Federal coastal projects identified through this outreach effort. The planning team will continue to expand and refine its inventory of non-State projects in future Annual Plans.

Fund Allocations

The FY 2011 Annual Plan contains budget projections (Tables ES-1 and ES-2) that show the amount of State funds that would actually be needed to accomplish the proposed implementation plan for the next three fiscal years. These budget projections improve further on previous projections by more closely reflecting actual expenditures and the amount of work to be performed, allowing citizens and legislators to track progress on individual projects more accurately. Funding projections take into account State budget surplus funds allocated for coastal protection and restoration projects. The funding projections presented in this Annual Plan represent a forecast based on a snapshot in time. However, the coastal program needs some degree of funding flexibility to enable the State to respond appropriately to the issues discussed above. Reprogramming of existing and new funds will likely occur, with approval from the CPRA, to protect the lives, livelihoods, and heritage of the people of coastal Louisiana and restore its ecosystems.

Table ES-1. Projected 3-Year Revenues FY 2011–FY 2013.				
Revenue Sources	FY 2011	FY 2012	FY 2013	Program Total FY 2011- FY 2013
CPR Trust Fund	$36,934,275	$35,000,000	$35,000,000	$106,934,275
CIAP	$91,704,790	$28,203,992	$32,136,368	$152,045,150
Surplus '07	$137,834,985	$13,689,356	$12,633,000	$164,157,341
Surplus '08	$99,399,444	$42,033,333	$3,053,333	$144,486,110
Surplus '09	$139,452,875	$7,239,631	$355,689	$147,048,195
GOMESA	$699,757	$326,400	$326,400	$1,352,557
Hazard Mitigation Grant Program	$47,200,000	$0	$0	$47,200,000
Community Development Block Grants	$27,400,000	$0	$0	$27,400,000
FEMA	$10,000,000	$0	$0	$10,000,000
Reimbursement for Federal In-Kind Credit	$6,140,000	$6,385,600	$6,641,024	$19,166,624
Carry Over From Previous Year (Trust Fund)	$21,460,660	$0	$0	$0
Total	**$618,226,786**	**$132,878,312**	**$90,145,814**	**$819,790,252**

Table ES-2. Projected 3-Year Expenditures[1] FY 2011–FY 2013.				
Program/ Funding Source	FY 2011	FY 2012	FY 2013	Program Total FY 2011–FY 2013
CIAP Projects	$91,704,790	$28,203,992	$32,136,368	$152,045,150
CWPPRA Projects[2]	$19,442,815	$16,000,000	$16,000,000	$51,442,815
Remaining Surplus '07 Projects[3]	$125,334,985	$8,689,356	$8,133,000	$142,157,341
Remaining Surplus '08 Projects[3]	$87,683,334	$41,683,333	$2,773,333	$132,140,000
Remaining Surplus '09 Projects[3]	$30,772,875	$6,864,631	$355,689	$37,993,195
WRDA Projects	$26,368,147	$92,856,726	$244,207,551	$363,432,424
Beneficial Use Program	$7,000,000	$7,000,000	$7,000,000	$21,000,000
Project OM&M	$19,844,586	$7,349,644	$6,154,661	$33,348,891
Hazard Mitigation Grant Program	$47,200,000	$0	$0	$47,200,000
Community Development Block Grants	$27,400,000	$0	$0	$27,400,000
Lake Pontchartrain Debris Removal (FEMA)	$10,000,000	$0	$0	$10,000,000
Barrier Island Maintenance Program	$3,500,000	$3,500,000	$3,500,000	$10,500,000
Ongoing Programs	$16,625,000	$16,775,000	$16,900,000	$50,300,000
Support/Emergency Response/Reserve	$25,891,110	$17,725,000	$17,725,000	$61,341,110
Operating Costs	$22,314,706	$23,203,858	$24,133,169	$69,651,733
HSDRRS 30 year payback	$0	$62,200,000	$62,200,000	$124,400,000
HSDRRS LERRDS	$76,300,000	$0	$0	$76,300,000
Total Planned Expenditures	**$637,382,348**	**$332,051,540**	**$441,218,771**	**$1,410,652,659**

Notes:
1–Represents proposed expenditures provided that commensurate level of funding is received.
2–Because CWPPRA projects compete for funding annually, CWPPRA expenditures as presented in Appendix C (which include projected expenditures for approved projects only) do not adequately capture likely CWPPRA expenditures in outlying years. The State's estimated CWPPRA expenditures for FY 2012–FY 2013 are therefore based on prior years' expenditures.
3–Represents only expenditures not otherwise captured in this table.

Based on these projections, the State has developed a three-year implementation plan that envisions the following activities for the interval FY 2011–2013:

- FY 2011 Projects in planning: 12
- FY 2011 Projects in design: 35
- FY 2011 Projects waiting for construction funding: 4
- FY 2011 Projects in construction: 51
- FY 2011 Projects that will complete construction: 23
- FY 2012 and 2013 Projects that will complete construction: 25
- FY 2011 Projects requiring operation and maintenance expenditures: 83
- FY 2011 Projects with monitoring expenditures: 33

As these figures indicate, the State will focus resources over the next three years on constructing coastal projects that have already been planned and/or designed (Figure ES-1). The State is constructing projects at a faster rate than ever before. Consequently, the State must be ready to meet the costs associated with operations, maintenance, and monitoring of these constructed projects.

Although the current funding climate is extremely uncertain, new funding sources may become available in FY 2011. For example, if Federal partners gain Congressional approval and funding for major new coastal projects in Louisiana, the State might need to contribute a percentage of the projects' costs (cost share), or risk losing the opportunity to maximize Federal investment in our coast. The CPRA has been granted authority to reprogram dollars from approved funding streams and allocate the dollars to best meet new opportunities or needs. Such flexibility ensures that the coastal program can respond effectively to unforeseen events that take place outside the legislatively-mandated planning cycle.

Adapting to the Future

New developments in science and engineering may cause the State to change its approach to project design and construction; in this event, shifts in funding would also be needed. As more data are collected about how constructed projects work, the State will adjust priorities to focus on the most effective project concepts. In this way, the State can allocate its limited funds to projects with high rates of return. These projects will be refined continually based on input from engineers, scientists, and regional and technical stakeholders.

Transparency and Accountability

The FY 2011 Annual Plan breaks new ground in providing updates on progress and technical challenges faced by the coastal program by comparing current implementation schedules with those from the FY 2010 Annual Plan. Although the State made significant progress in project implementation during FY 2010, 43 projects have experienced delays in design or construction since the FY 2010 Annual Plan was approved. Many of the delays were caused by issues outside of the State's control, such as cost-share or coordination delays associated with the U.S. Army Corps of Engineers and other Federal agencies (12 projects). Other causes include design issues (eight) projects, landrights issues (four projects), contracting issues (four projects), and additional funding requirements (three projects).

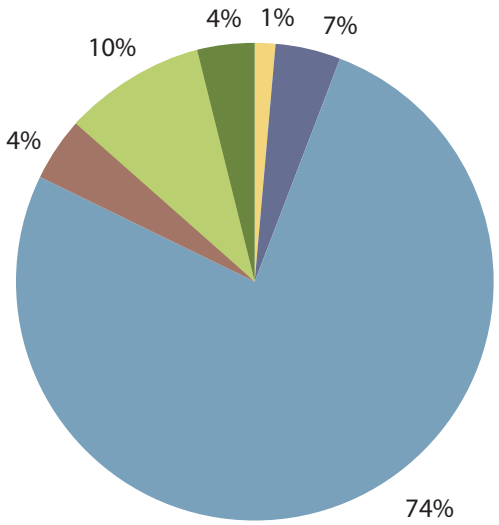
Year-Round Effort

The State's Annual Plan process is now a year-round effort. Consequently, the planning team will begin work on the FY 2012 Annual Plan as soon as the FY 2011 plan has been approved by the State Legislature. Specific actions to be undertaken during the FY 2012 Annual Plan effort include refining the prioritization tool to improve tool functionality, expanding public participation in State planning efforts by continuing to hold RSW meetings, beginning work on predictive models to evaluate project performance, continuing to expand and improve the project database to collect better data to feed the prioritization tool, and continuing to collect data on non-State projects to input into the project database.

Meeting Objectives

The FY 2011 Annual Plan brings the State's coastal program one step closer to meeting the objectives set forth in the Master Plan. The refined prioritization tool presented in this Plan integrates coastal protection and restoration activities, bringing the State closer to achieving complete integration of these efforts. The FY 2011 Annual Plan also improves upon past Annual Plans by providing a more accurate estimate of the funds available for the coastal program and a clear description of how these funds will be spent. The FY 2011 Annual Plan thus builds on past efforts, while directing new progress in the development of a comprehensive planning framework that allows the State, for the first time, to truly integrate coastal protection and restoration activities and engage in performance-based planning. The State will continue to work closely with its partners at all levels of government and with communities throughout the coast to protect Louisiana's citizens and restore its precious coastal heritage and resources.

Figure ES-1. Projected FY 2011 Expenditures by Project Phase.



FY 2011 Total Expenditures	$563 million
Planning	$7.8 million
Engineering and Design	$38.7 million
Construction	$417.5 million
Operation, Maintenance & Monitoring	$23.3 million
Ongoing Programs	$53.1 million
Operating Costs	$22.3 million
OM&M includes BIMP	$3.5 million
Construction includes:	
Beneficial Use	$7.0 million
Lake Pontchartrain Debris Removal	$10.0 million
Ongoing Programs includes:	
Emergency Reserve	$25.9 million
Total excludes:	
CDBG	$27.4 million
HMGP	$47.2 million

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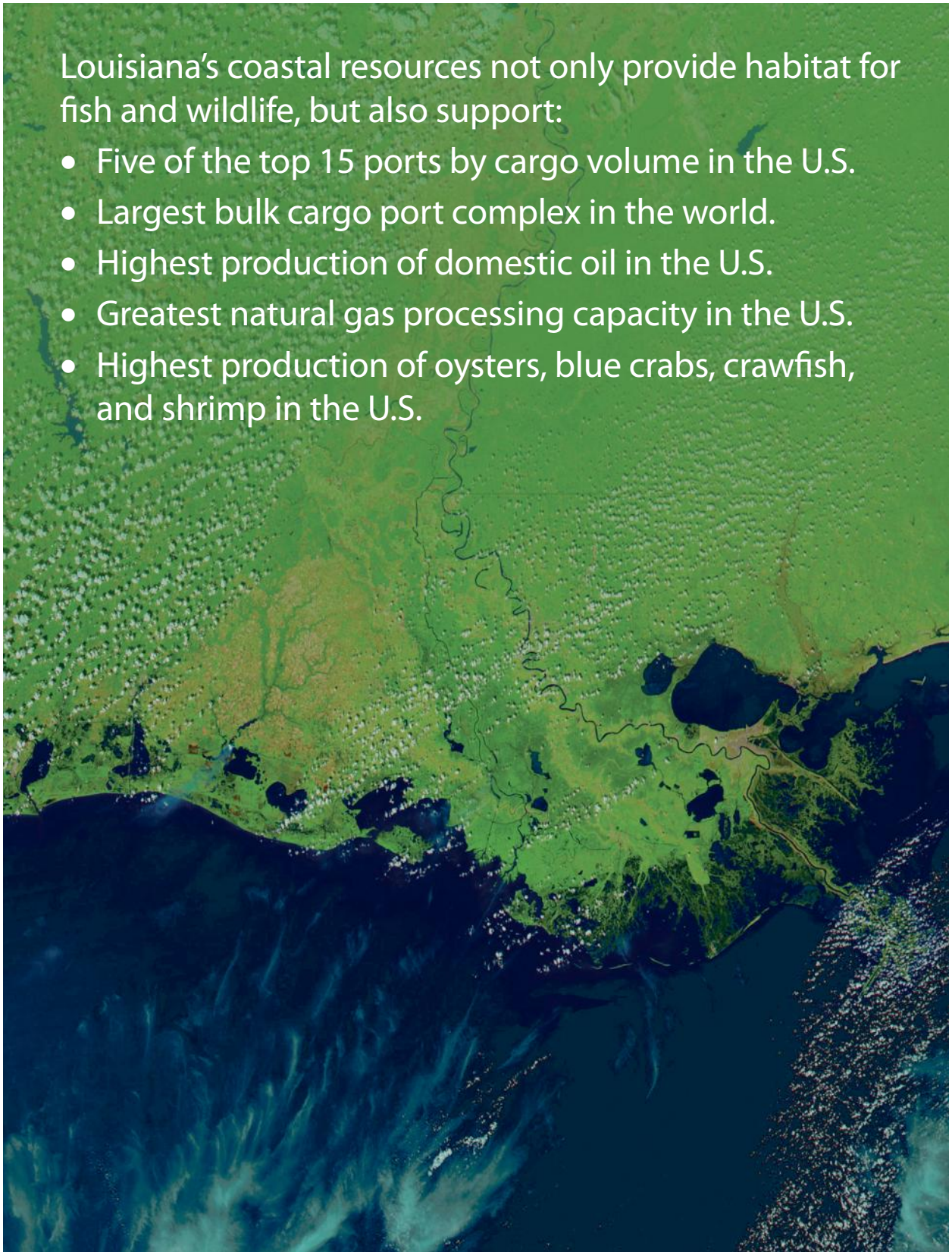
1. Introduction



Louisiana's coastal resources not only provide habitat for fish and wildlife, but also support:

- Five of the top 15 ports by cargo volume in the U.S.
- Largest bulk cargo port complex in the world.
- Highest production of domestic oil in the U.S.
- Greatest natural gas processing capacity in the U.S.
- Highest production of oysters, blue crabs, crawfish, and shrimp in the U.S.

Source: NASA

Urgency, Action, Innovation

Louisiana has the largest expanse of coastal wetlands in the lower 48 states. In addition to providing habitat for diverse fish and wildlife species, this vital natural resource supports a vibrant array of commercial and industrial activities that together account for 21 percent of commercial fish landings in the continental U.S., 18 percent of annual U.S. waterborne commerce, and 30 percent of the nation's oil and gas production. Louisiana's coast is also home to approximately two million people, roughly half the population of the state, and supports a rich and diverse array of cultures not found anywhere else on earth. Yet Louisiana's coastal communities, resources, and heritage are also among the most imperiled in the nation. Since the 1930s, approximately 2,300 square miles of wetlands in coastal Louisiana have been lost (Figure 1-1).

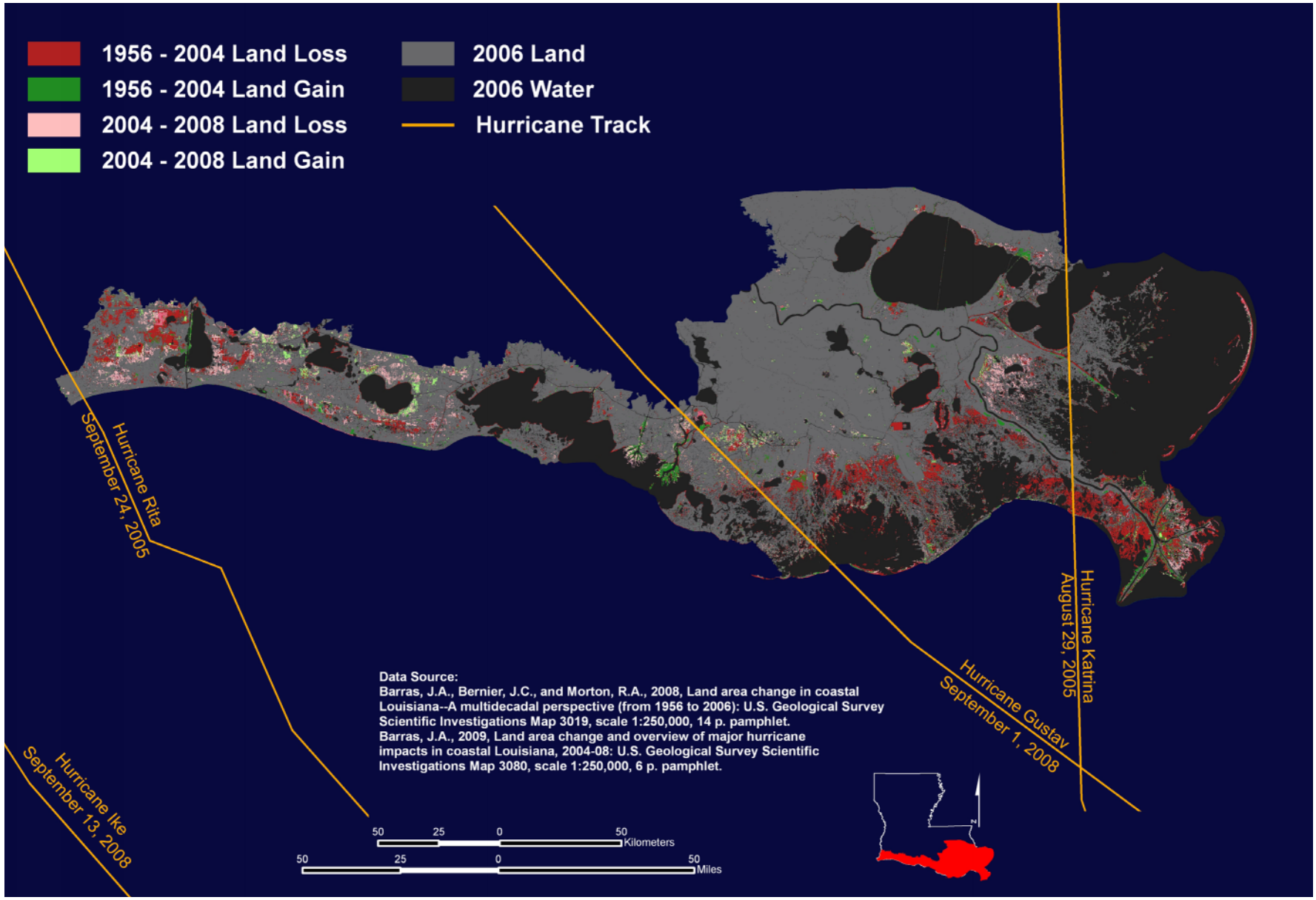
Within recent decades, the coastal erosion rate exceeded 35-40 square miles a year, resulting in substantial socioeconomic and environmental losses, and displacing coastal residents and wildlife. Due in part to management improvements, education efforts, and protection and restoration activities, the annual loss rate has been reduced to approximately 15 square miles per year. Nonetheless, coastal Louisiana remains at risk from land loss and hurricane-related flood damage. Furthermore, these issues have been compounded in recent years by the effects of four major hurricanes (Katrina, Rita, Gustav, and Ike) within a three-year period (2005–2008). These four storms together resulted in a cumulative net loss of 328 square miles of land and billions of dollars in flood damages.[1]

1 Barras, J.A., 2009, Land area change and overview of major hurricane impacts in coastal Louisiana, 2004-08: U.S. Geological Survey Scientific Investigations Map 3080, scale 1:250,000, 6 p. pamphlet.

Photo: Tom Downs

Louisiana's coast is also home to approximately two million people, roughly half the population of the state, and supports a rich and diverse array of cultures not found anywhere else on earth.

Figure 1-1. Map of Coastal Land Change in Louisiana over the Period 1956-2006.



Source: USGS

Louisiana is under increased pressure to develop innovative solutions for coastal protection and restoration needs that maximize benefits within funding constraints.

With more land lost each year, and with limited funds available, the State of Louisiana (State) is under increased pressure to develop innovative solutions that expand and expedite its efforts to protect the lives and livelihoods of coastal residents and to restore coastal environments while providing maximum benefit within funding constraints. Responding to the need for urgent action, the State allocated funding from budget surpluses in 2007, 2008, and 2009 to expedite the design and construction of numerous coastal protection and restoration projects. Many of these projects are now under construction or have otherwise progressed ahead of their original schedules because of this funding.

Despite this progress, coastal Louisiana's challenges remain formidable. The State is projecting funding shortfalls in coming fiscal years. The State is aggressively pursuing new sources of funding to maintain and, where possible, accelerate its current rate of project implementation. Given these potential future funding limitations, and that existing State and Federal funding are constrained by competing priorities, it is essential that available funding be used efficiently to ensure optimum benefit to Louisiana's coastal resources. Toward this end, the State has initiated development of a tool that will prioritize and sequence projects into portfolios that will make the highest and best use of available resources in restoring the ecosystem and protecting coastal Louisiana's homes and businesses from hurricane and storm flood damages. This tool, when fully functional, will support a decision process based on coastal needs and on tax dollar value, rather than one that allows politics to intrude or that merely funds projects with the most vocal advocates. Early demonstrations of the tool's capabilities, as presented in this Plan, indicate that the tool shows great potential for enhancing the State's planning capacity. The State continues to look for ways to

Preserving the coastal ecosystem is a priority. Preparing Annual Plans and updating the Master Plan every five years will help the planning process to both address urgent needs and prepare for long-term implementation.

PLAN FEATURES

FY 2011 ANNUAL PLAN FEATURES

The FY 2011 Annual Plan is laid out differently than previous plans. It provides an expanded discussion of the State's progress in protecting and restoring the coast and presents the results of new efforts to improve the coastal planning process. Specific features of the FY 2011 Annual Plan include the following:

Chapter 1	CPRA overview	pp. 5-6
	New features of the FY 2011 Annual Plan	pp. 9-11
Chapter 2	Project construction activities in FY 2010	pp. 16-26
	Progress in ongoing programs in FY 2010	pp. 27-28
	State initiatives undertaken in FY 2010	pp. 30-34
Chapter 3	Project prioritization tool	pp. 36-41
	Benefits of prioritization tool	pp. 41-43
	Demonstration of tool's capabilities	pp. 44-47
Chapter 4	Project status summaries	pp. 50-53
	Funding sources for FY 2011–2013	pp. 54-58
	Project schedules	pp. 60-65
	Expenditures	pp. 69-71
	Next steps	pp. 69-72
Appendix A	Detailed project information	
Appendix B	Detailed discussion of prioritization tool	
Appendix C	Preliminary inventory of non-State coastal projects	
Appendix D	Three-year program expenditure projections, including surplus expenditures	
Appendix E	Barrier Island Status Report	
Appendix F	Candidate Community Developement Block Grant projects	
Appendix G	Project concepts for future consideration	

expedite implementation of restoration projects to ensure that progress on the ground is made as fast as possible. This document provides an update on the State's efforts to protect and restore its coast, and describes the short-term and long-term results that citizens can expect to see as the State progresses toward a sustainable coast.

> The Master Plan established objectives and presented broad concepts for coastal protection and restoration. Annual Plans describe actions that the State will take to achieve that vision.

An Integrated Strategy for a Sustainable Coast

In the aftermath of Hurricanes Katrina and Rita, Louisiana initiated a bold new direction for protection and restoration of Louisiana's coastal assets, habitats, and cultural heritage. The Louisiana Legislature's passage of Act 8 of the Second Extraordinary Session of 2005 created the Coastal Protection and Restoration Authority (CPRA) and tasked it with identifying priorities that support comprehensive, long-term coastal protection and restoration.

Act 8 required that hurricane protection projects (such as levee construction) and coastal restoration projects (such as river diversions or marsh creation) must be integrated. In establishing this directive, the Louisiana Legislature recognized that protection and restoration projects must work synergistically to sustain the coast and must be designed and implemented together to ensure both short-term success and long-term viability.

Act 8 outlined a series of actions to develop and implement its new, mandated strategy of integrating protection and restoration. Foremost among these actions was the development of a master plan for coastal Louisiana. The initial master plan did not specify project details or implementation schemes, but rather presented a conceptual vision for the integrated planning, design, and implementation of hurricane

CPRA AND OCPR

THE COASTAL PROTECTION AND RESTORATION AUTHORITY (CPRA)

The CPRA, created by the Louisiana Legislature in 2005, is composed of 20 representatives from State agencies, regional levee districts, coastal parishes, and regional representatives and legislators. Under the guidance of Chair Garret Graves, the CPRA is the single State entity with authority to articulate a clear statement of priorities and focus development and implementation efforts to achieve comprehensive coastal protection and restoration for Louisiana. The CPRA works closely with other entities on coastal issues, including the State legislature, the Governor's Advisory Commission on Coastal Protection, Restoration and Conservation, and the Louisiana Recovery Authority (LRA).

THE LOUISIANA OFFICE OF COASTAL PROTECTION AND RESTORATION (OCPR)

OCPR implements the CPRA's mandates. The office was provisionally established in July 2008 with the signing of Act 545 of the 2008 Legislature. OCPR combined employees from two State agencies: the Department of Natural Resources, which directed coastal restoration activities, and the Department of Transportation and Development, which coordinated coastal flood control measures. OCPR's creation was formalized by the Legislature in 2009 with the passage of Act 523. Under the guidance of Executive Director Dr. Steve Mathies, OCPR's staff of approximately 150 is responsible for planning, designing, constructing, and operating, maintaining, and monitoring projects and activities authorized by the CPRA. OCPR has also established the Louisiana Applied Coastal Engineering and Science (LACES) Division to ensure that the best available science and engineering is applied to the State's coastal program.

protection and ecosystem restoration projects with the end goal of achieving a sustainable coast. The initial master plan, titled *Integrated Ecosystem Restoration and Hurricane Protection: Louisiana's Comprehensive Master Plan for a Sustainable Coast* (the Master Plan), was completed in 2007. It established four planning objectives as benchmarks for implementing coastal protection and restoration projects:

1. Reduce economic losses from storm-based flooding.
2. Promote a sustainable ecosystem.
3. Provide habitats for commercial and recreational activities coastwide.
4. Sustain Louisiana's unique coastal heritage.

The Master Plan divided coastal Louisiana into five planning units and identified within these units 106 large-scale measures needed to achieve a sustainable coast. Maps in the Master Plan showed the general locations for these measures. The Master Plan also discussed the assumptions and uncertainties inherent in coastal planning and provided recommendations for enacting the proposed measures.

Passed unanimously by the Louisiana Legislature in May 2007, the Master Plan's primacy was subsequently reaffirmed by Governor Bobby Jindal in Executive Order BJ2008-7, which directed all State agencies to administer their activities, to the maximum extent possible, in accordance with the Master Plan's recommendations.

> Preparing Annual Plans and updating the Master Plan every five years will help the planning process address urgent needs and prepare for long-term implementation.

While the Master Plan broke new ground by identifying a strategy for meeting the end goal of a sustainable coast, the Master Plan is a conceptual document. The Master Plan was not intended to address all of the complex issues that Louisiana faces with respect to protection and restoration of its coastal resources. To accommodate the dynamic nature of coastal processes, the Master Plan is a living document that will be updated approximately every five years. These updates will incorporate new data and planning tools as they become available. The first update of the Master Plan will be in 2012.

Act 8 directed the CPRA to develop an Annual Plan each year. This directive was reaffirmed in Act 523 of the 2009 Legislative Session. The CPRA produces the Annual Plan through the Office of Coastal Protection and Restoration (OCPR), which functions as the implementation office of the CPRA. Each Annual Plan inventories

projects, presents implementation schedules for these projects, and identifies funding and budgets.

Evolution of the Annual Plan

Historically, Louisiana's Annual Plans for coastal projects provided two sets of information:

1. An inventory of projects for which the State would need to spend money and use staff resources for a given fiscal year (FY). Since FY 2006, these schedules have included hurricane protection and ecosystem restoration projects.
2. Recommendations for allocating Coastal Protection and Restoration Funds to projects on the schedule.

The FY 2010 Annual Plan was the first plan to address the new integrated planning and prioritization directives. The FY 2010 Annual Plan included the two traditional Annual Plan components and introduced a new planning tool that utilized a decision support model to assess the benefits of coastal projects with respect to meeting the Master Plan's objectives. These tools provide decision makers with improved information to help with selecting and sequencing projects to enhance the State's coastal planning efforts.

A decision support model organizes data, calculates outcomes, and presents information in ways that help decision makers compare options, make choices, and set priorities. Decision support models can help make sense out of highly complex processes.

The FY 2011 Annual Plan builds on the FY 2010 plan and provides an expanded discussion of the State's progress in protecting and restoring the coast. This plan also presents the results of new efforts to improve the State's planning process (discussed below) and its progress in project implementation during FY 2010 (Chapter 2). Chapter 3 describes the tools and methods that will help to improve the information available to decision makers. Chapter 4 lists coastal projects and programs and their status and provides a detailed projection of how the State expects to receive and allocate funds during FY 2011–2013. Chapter 4 also includes an implementation plan for FY 2011–2013.

These changes in format were made to increase the amount of useful information the Annual

Source: NOAA

The fragmented marsh in this fragile "bird foot" delta is typical of the Louisiana coast. Recognizing the urgent need for action in the face of the complex issues that confront coastal Louisiana, the State is forging ahead to successfully plan and design large-scale projects that are essential to the coastal program.

TRANSPARENCY IN PLANNING

EXECUTION OF THE ANNUAL PLAN: TRANSPARENCY AND ACCOUNTABILITY

The FY 2011 Annual Plan was developed with the help of many partners. Throughout the plan development process, the planning team convened technical stakeholder meetings with government agency and non-government organization (NGO) representatives, many of whom also contributed to the development of the FY 2010 Annual Plan. These meetings offered stakeholders the opportunity to provide feedback on the planning framework under development and give their perspective on the next steps in the State's planning process.

Regional Stakeholder Workgroup (RSW) meetings provided another vehicle for incorporating new ideas into the Annual Plan and the State's planning process. During these meetings, the planning team learned that public participants appreciate being engaged in the planning process, that they are eager to see the State coordinate its activities across agencies and mandates, and that they are eager to see greater cooperation between the State and local governments, as well as private landowners. Above all, the planning team learned that citizens care deeply about the coast and are adamant that the State act with urgency and show progress on the projects constructed or on the ground. Finally, citizens have demonstrated a desire to help the State confront and address the tough questions about how the coast can best be protected and restored. The State looks forward to continuing its work with citizens to develop and achieve their vision of a sustainable coast and will document its progress toward that goal in future Annual Plans. The planning team incorporated stakeholder comments into the Annual Plan, as reflected in this draft. Information on the RSW meetings can be viewed online at www.lacpra.org.

WHAT IS THE "PLANNING FRAMEWORK?"

The new "planning framework" is a way to organize the State's thinking about the massive amount of work that needs to be done—a tool that allows decision makers to see useful comparisons of various coastal protection and restoration approaches. The framework will help to show how projects might operate in a regional, as well as coastwide, system and whether their construction would contribute significantly to achieving desired outcomes for the coast. The framework will help make decisions about which projects should be done first and aid in keeping track of how well the finished projects are performing.

FY 2011 ANNUAL PLAN TIMELINE

2009	May	Planning team initiated
	June–December	Project data collected and planning framework developed
	August	First technical stakeholder meeting
	September	First RSW meetings
	October	Second technical stakeholder meeting
	December	Second RSW meetings
2010	January	Draft Annual Plan released to public
	February	Proof-of-concept analysis using planning framework
	February	Public meetings for Draft plan
	March	End of pubic comment period on Draft plan
	February-March	Draft plan revised and sent to CPRA for approval
	April 12	Final Annual Plan submitted to legislature for approval

Plan offers to stakeholders and the public and to improve the transparency with which the State operates. As with the FY 2010 Annual Plan, the FY 2011 Annual Plan provides detailed information on State projects in Appendix A. This appendix also replaces the Coastal Restoration Annual Project Reviews, which prior to FY 2010 were published by the Department of Natural Resources.

Action in the Face of Urgency

In 2009, the Louisiana Legislature granted the coastal program $290 million in funding from the 2009 budget surplus and revenues from the Tax Amnesty Act. Together with other sources of funding, including $200 million and $300 million from the 2007 and 2008 surpluses, respectively, these allocations represent the largest investment in coastal protection and restoration efforts in Louisiana history. Including other State funds and Federal dollars leveraged by these funds, nearly $17 billion in projects are fully financed and underway, with billions of dollars in additional projects authorized for construction by Congress.

> More than 90 percent of coastal wetland loss in the continental U.S. occurs in Louisiana. The state is losing land faster than anywhere else in the world.

The FY 2011 Annual Plan reflects this forward momentum. Prior to FY 2010, the State's Annual Plans were relatively limited in scope, providing minimal budget details and offering no method of performance tracking from year to year. The FY 2010 Annual Plan broke with that tradition and presented readers with a prototype project prioritization tool and benchmarks for evaluating project performance and budgets. These innovations provided greater transparency and accountability for the Legislature and public. In 2009, recognizing the need for more in-depth analysis and increased public engagement, the planning team made development of each year's Annual Plan a year-round effort. Consequently, development of the FY 2011 Annual Plan began almost immediately after the Legislature approved the FY 2010 plan. The expanded timeframe allowed the FY 2011 Annual Plan to build on the FY 2010 plan's achievements and introduce new concepts and developments that have occurred since its approval. New activities performed in support of the FY 2011 Annual Plan include the following:

1. Revised Planning Framework

To prioritize State funding investments and measure progress on the ground, the planning team is developing a new decision support framework. This new framework improves upon the earlier project prioritization methods by incorporating newly available scientific and engineering information and aiming toward a vision of a sustainable coast. The framework allows the selection of project portfolios (groups of projects) that can be implemented to best meet the coastwide vision, and accounts for resource constraints and uncertainty about future conditions in the prioritization process. Chapter 3 and Appendix B provide further detail on these topics.

> Nearly $17 billion in projects are fully financed and underway in Louisiana.

2. Regional Stakeholder Workgroups

In September 2009, the planning team established three Regional Stakeholder Workgroups (RSWs), each covering a different geographic region of the coast, to provide guidance and input for the development of the FY 2011 Annual

Citizens care deeply about the coast and are adamant that OCPR act with urgency and show progress.

Plan, future Annual Plans, the 2012 Master Plan Update, and other future State planning efforts. The RSWs function as a two-way communications conduit between the State and regional coastal interests by bringing information about regional issues to the State for consideration, and, in turn, communicating information on State activities to affected regional interests. Chapter 2 describes the involvement of RSWs in more detail.

3. Integration of Non-State Projects

In accordance with Act 523 of the 2009 Legislature, this document and future Annual Plans are required to include descriptions and status of all projects pertaining to integrated coastal protection and restoration, including non-State flood protection projects, local parish and levee district projects, and privately funded wetland enhancement projects and plans. Toward this end, the planning team worked with coastal parish and levee district representatives to begin development of an inventory of local protection and restoration projects. Appendix C presents this initial inventory. The planning team will continue to update and refine its data on non-State projects in future Annual Plans.

4. Nonstructural Measures

The integration of nonstructural measures for flood protection (such as in-place elevation of structures) with structural protection measures is an essential component of the "Multiple Lines of Defense" strategy adopted by the Master Plan. Many regional stakeholders acknowledge that nonstructural measures are the only viable option for some at-risk coastal communities. However, because of the diverse needs of Louisiana's coastal communities, nonstructural measures must be developed to meet the specific needs of individual communities and to address their specific risks in order to be effective. The State is assisting in the development of a "Land Use Toolkit" that offers options for reducing flooding impacts, while supporting sustainable communities. This approach, which is based on Smart Growth principles and best land use practices, is customized to the needs of specific communities, and will inform residents about a range of available nonstructural options.

Chapter 4 presents additional information about these plans.

Coastal Louisiana is home to more than two million residents, roughly half the State's population.

5. Infrastructure Priority Program

The Infrastructure Priority Program, established in 2008, provides potential funding for State and local projects that address infrastructure needs created by wetland losses. The program utilizes funds from the Gulf of Mexico Security Act (GOMESA) (PL-109-432), which created provisions for sharing outer continental shelf (OCS) oil and gas lease revenues among the four Gulf oil and gas producing states of Alabama, Louisiana, Mississippi, and Texas. As much as 10 percent of the GOMESA fund may be allocated to this program. However, as GOMESA funds have not yet begun to be dispersed in significant quantities, and the State's coastal program is underfunded, the Infrastructure Priority Program has been placed on hold.

6. Proactive Steps to Streamline Future Efforts

Recognizing that projects require long construction times and that availability of funding affects what can be accomplished, the State is seeking to plan ahead more effectively and efficiently. To this end, the State is working on reforming the process by which the U.S. Army Corps of Engineers (USACE) develops and implements projects. The State is also coordinating with the Commission on Streamlining Government and participating in the Louisiana-Mississippi Gulf Coast Ecosystem Restoration Working Group, established by the Obama administration for streamlining coastal restoration in Louisiana and Mississippi. Chapter 2 presents more information on these initiatives.

Building on the Master Plan

With estimated program costs in the tens of billions of dollars, the State needs to manage its Federal partnerships effectively to expedite large-scale project implementation and optimize long-term Federal funding.

Despite changes to this Annual Plan in comparison to previous plans, the documents share a common foundation — the objectives and assumptions

identified in the Master Plan. The principles embodied in the Master Plan objectives are incorporated into the planning goals that inform the design of the planning framework presented in Chapter 3.

The FY 2011 Annual Plan also advances the view presented in the Master Plan that a sustainable coastal landscape and effective hurricane protection are equally important to the preservation of Louisiana's coastal assets, habitats, economy, and cultural heritage. Furthermore, the FY 2011 Annual Plan acknowledges that coastal Louisiana is constantly changing, and that monitoring the success of completed projects and adapting the State's planning and management principles are critical to the coastal program's continued success. Finally, the FY 2011 Annual Plan continues to incorporate the Multiple Lines of Defense strategy adopted in the Master Plan for the design, construction, and operation of hurricane protection measures. In using this strategy, the State takes advantage of natural landforms and artificial features (including nonstructural measures) to enhance the effectiveness of flood protection measures. Using Multiple Lines of Defense prevents situations in which an area's protection is dependent entirely on a single feature. The "Land Use Toolkit," which the State is developing to promote nonstructural measures, is consistent with the Multiple Lines of Defense strategy.

APPROACH

AN INCREMENTAL PROCESS

The 2012 Master Plan Update will present a new approach for considering the future of the coast. Elements of this approach will include:

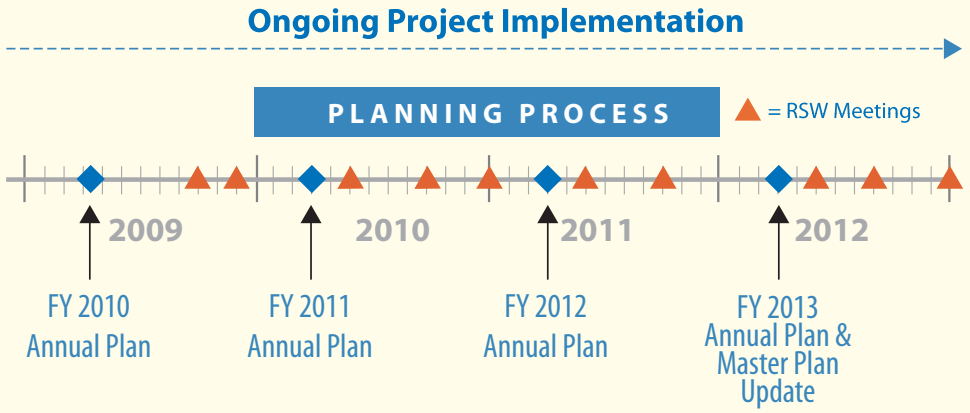
- Integration of protection and restoration.
- Prioritization guided by a coastwide vision using measurable targets.
- Focus on end results rather than projects.
- Incorporation of uncertainty into prioritization process.
- Incorporation of non-State projects into baseline conditions of the framework.
- Project portfolio development to best achieve the vision while weighing constraints and uncertainties.

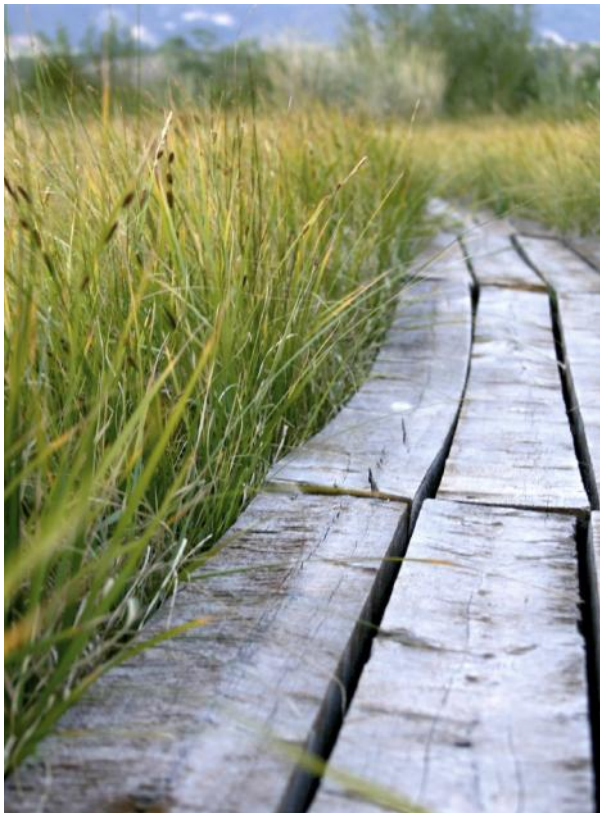
The FY 2011 Annual Plan represents a step toward achieving this approach. New features presented in the FY 2011 plan include:

- Proof-of-concept demonstration of the prioritization tool.
- Initiation of the visioning and target development process.
- Results of initial parish/levee district outreach.
- Nonstructural protection program update.
- Incorporation of the Streamlining Government Initiative and Federal-only protection projects.

The State remains committed to its aggressive planning and implementation schedule. Development of the proposed tools to support the 2012 Master Plan Update will not affect the schedules of any projects currently authorized for completion.

PLANNING TIMELINE





The FY 2011 Annual Plan presents a course of action that embraces the Multiple Lines of Defense strategy.

As was the case with the Master Plan and past Annual Plans, the FY 2011 Annual Plan is a component in an ever-evolving process that changes with the state of science and engineering. Consequently, the plan should not be considered the final word. Rather, the FY 2011 Annual Plan should be viewed as one part of a process that will evolve as the State's understanding of coastal processes and interactions advances. Many of the new tools, initiatives, and concepts presented in the FY 2011 Annual Plan are in their formative stages and not expected to be finalized until the completion of the Master Plan update in 2012. However, the FY 2011 Annual Plan documents important progress and innovation, representing a benchmark in developing the necessary means for fully integrating protection and restoration and establishing a quantifiable vision for a sustainable coast. The FY 2011 Annual Plan also fulfills the primary purpose of the State's Annual Plans by presenting the State's three-year program for funding and implementing projects during FY 2011–2013.

A Realistic Approach to Planning: Working Within Constraints

Like the Master Plan, the FY 2011 Annual Plan acknowledges that the extent and nature of a sustainable coast is limited by real world constraints, like the availability of sediment to build marsh or the availability of funding to construct projects, and some historical landscapes and coastal uses are no longer achievable because of these constraints. Nonetheless, the situation is urgent, and innovative action is needed to confront the complex issues that challenge coastal Louisiana. The State is forging ahead while these issues are being examined and, where possible, resolved. The FY 2010 Annual Plan identified five key constraints affecting coastal protection and restoration efforts. This Annual Plan presents strategies developed by the State to achieve optimum project performance within these constraints.

Key constraints affecting coastal protection and restoration include:

- Availability of resources.
- Inefficient laws and policies.
- Need for additional analysis of complex projects.
- Uncertainty about future environmental factors.
- Timeframes for implementation of large-scale projects.

Availability of Resources

"The rate at which projects can be constructed is dependent on the availability of resources, both financial (funding) and natural (sediment, fresh water). Resource limitations require that some projects must be built before others."

The State is addressing this constraint by exploring new funding sources, identifying ways to maximize funding by participating in the State's Streamlining Government Initiative, and developing a new planning framework to determine the optimum sequencing of projects.

Inefficient Laws and Policies

"Some laws and policies must be revisited if the coast is to be restored and protected as envisioned in the Master Plan."

The State is revisiting and working to amend inefficient laws and policies through their efforts to reform the current USACE planning and implementation processes and to improve the integration of other Federal agencies. Additionally, the State is participating in the Louisiana-Mississippi Gulf Coast Ecosystem Restoration Working Group to assist in the restoration of coastal Louisiana.

Further Analysis

"Some complex project concepts, particularly reengineering the lower Mississippi River, require further analysis before they can move forward."

The State is considering planning and analysis needs for the reengineering of the lower Mississippi River through the Louisiana Coastal Area (LCA) Mississippi River Hydrodynamic and Delta Management Study, which was initiated in 2009. OCPR is addressing other planning and analysis needs through its Louisiana Applied Coastal Engineering and Science (LACES) Division, which coordinates science and engineering activities from State and Federal agencies, academia, and coastal communities to ensure research is conducted in the areas of greatest need and the best possible technical information is used for decision making.

To successfully plan and design large-scale projects essential to the coastal program, the State must apply cutting-edge technology and consider a wide range of scenarios.

Environmental Factors

"Impacts from environmental factors, including the potential for sea-level rise, subsidence, biogenic response to diversions, and increased hurricane activity, could have profound effects on coastal Louisiana. These and other impacts make it imperative that the State implement projects that can withstand a range of fluctuations in environmental scenarios, integrating new science into projects as it becomes available."

The State is addressing this constraint by incorporating uncertainty analysis into the proposed planning framework to identify projects that perform well under a wide range of scenarios, and by applying adaptive management principles to planning and project design.

Large-Scale Projects

"To successfully plan and design the large-scale projects that are essential components of the coastal program, the State must apply cutting-edge technology to a dynamic coast. Consequently, sufficient resources to plan, design, and construct certain large-scale projects are needed."

The State acknowledges that proper design and implementation of large-scale projects takes time. However, the State is working diligently with its Federal partners to accelerate project implementation through outsourcing of engineering, design, and environmental services to highly qualified consultants. This approach allows the State to implement multiple large-scale projects in parallel. Additionally, the State is exploring the implementation of alternate project delivery methods (such as design-build) to expedite project implementation.

LACES

LACES INVOLVEMENT IN THE PLANNING PROCESS

OCPR's LACES Division coordinates science and engineering activities from government agencies, non-government organizations, academia, and other interests to target areas of greatest need and inform decision making with the best available technical information. The LACES Systems Assessment Branch plays a critical role in the State planning process by overseeing efforts to make accurate predictions with models and to perform monitoring that will show how completed projects are performing. The two efforts allow the development of a comprehensive systems assessment program that compares predictions to actual performance. This Systems Assessment program embodies the principles of adaptive management, a guiding force for the State, and allows the State to engage in true performance-based planning, which has never been possible before because of limitations in technical resources.

LACES will also play a key role in the development of the new planning framework and prioritization tool presented in Chapter 3. In December 2009, LACES convened an advisory committee of leading members of coastal Louisiana's modeling community. This committee reviewed the ability of available modeling tools for predicting project effects and proposed new tools to fill voids left by existing methods. LACES will also be engaged directly in the development of data needed for the revised prioritization tool and will help to develop regional targets that measure the degree to which projects achieve the coastwide vision and targets.

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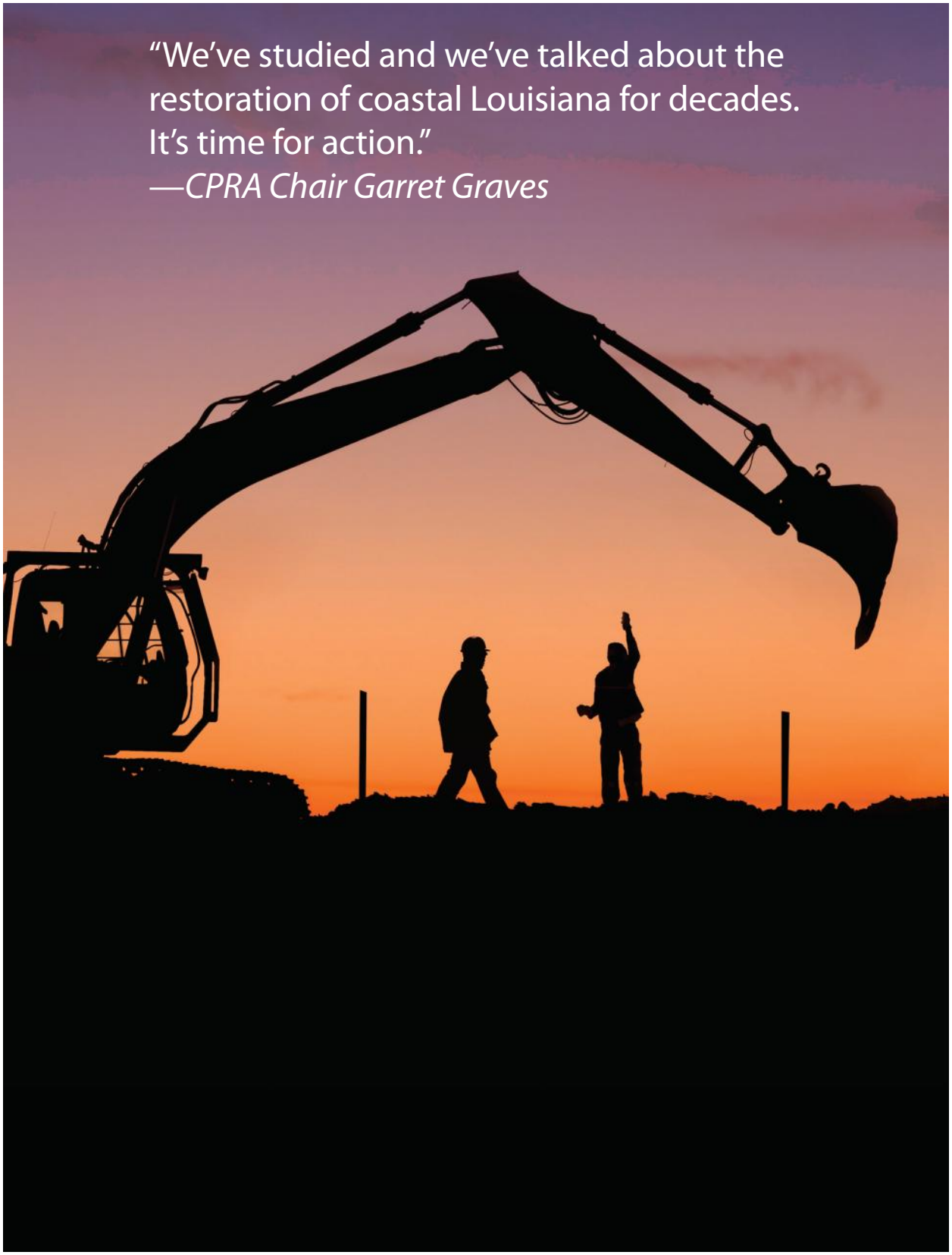
2. Responding to a Call to Action



While coastal Louisiana's challenges remain formidable, the State has made tremendous progress in protecting and restoring Louisiana's coast (Figures 2-1 through 2-9). Responding to the need for urgent action, the State stepped out ahead of its Federal partners to expedite hurricane protection and restoration projects in coastal Louisiana. The State moved quickly, using surplus dollars to fund protection projects, including the Morganza to the Gulf of Mexico, Larose to Golden Meadow, and Lafitte Hurricane Protection Projects. The State also allocated surplus funds to initiate protection and restoration plans for South-Central Louisiana and the North Shore of Lake Pontchartrain—regions currently without appreciable hurricane protection.

After the devastation wrought by Hurricane Katrina in 2005, the State and its Federal partners began an intense effort to repair and improve the greater New Orleans area hurricane protection system. While vulnerabilities still exist, these efforts will produce the strongest system ever protecting this vital region of the coast. These efforts, together with other protection projects throughout coastal Louisiana, will provide 100-year level hurricane protection to an estimated half of the coastal population (approximately one million people) by 2011.

The State's efforts in coastal restoration have been no less aggressive than its protection efforts. The State allocated funding from budget surpluses in 2007, 2008, and 2009 to 15 coastal restoration projects to expedite their design and construction. Many of these projects are now under construction or have otherwise progressed ahead of their original schedules because of this funding. In FY 2010 a total of 41 restoration projects were in planning, design, or construction. The State continues to look for ways to expedite the implementation of restoration projects to ensure that progress on the ground is made as fast as possible.

Today, nearly $17 billion in protection and restoration projects are fully financed and underway in coastal Louisiana. Every dollar invested by the State in coastal protection and restoration leverages $11 from its partners. The State is engaged in planning or designing numerous additional projects authorized for construction by Congress. These ongoing efforts have resulted in an increase of approximately 1,500 percent in State planning, engineering, design, and construction work since 2007 and have been accomplished with an increase of less than 20 new positions in

Figure 2-1. Rockefeller Refuge Gulf Shoreline Stabilization Demonstration Project (ME-18 [EB]). This project evaluates three different methods of shoreline protection, which will be monitored post-construction to determine the best method to prevent erosion of clay shorelines throughout the coast.

OCPR. This increase in activity has resulted in a marked increase in project construction in recent years, as depicted in Figure 2-2. In addition to on-the-ground progress in constructing projects, the State has made significant progress with its ongoing programs that further research and development, management, training, monitoring, and assessment. Finally, the State has explored innovative concepts and initiatives to both improve efficiency within the coastal program and streamline future efforts. This chapter describes the State's progress on all these fronts in FY 2010. Readers who are primarily interested in funding issues, the State's implementation plan, and project details should see Chapter 4 and Appendices A (project summaries) and Appendix D (three-year program spending projections).

Responding to the need for urgent action, the CPRA has stepped out ahead of its Federal partners to bring protection from hurricane-related flooding and coastal sustainability more quickly to the residents of coastal Louisiana.

"Turning Dirt": Progress on the Ground

The State's implementation schedule for FY 2010 reflected this surge in progress. A total of 30 large-scale coastal protection and restoration projects were under construction in FY 2010, of which nine were completed.

Restoration Projects under Construction

The State began or continued construction on 20 restoration projects in FY 2010. Of these projects, six were completed by the end of FY 2010. These projects are funded by:

- Coastal Protection and Restoration (CPR) Trust Fund.
- Coastal Impact Assistance Program (CIAP) funds.
- State surplus funds.
- GOMESA funds.
- American Recovery and Reinvestment Act Grants.

Table 2-1 lists the projects under construction in FY 2010, and Table 2-2 lists the projects completed in FY 2010. Figures 2-4 and 2-5 show the locations of FY 2010 projects under construction and completed, respectively. Restoration projects completed in FY 2010 are presented in pages 18-26 (see also figures 2-2 through 2-9).

Nine coastal projects were completed in FY 2010 alone. These completed projects will result in the restoration, enhancement, conservation, protection, or benefit of thousands of acres of wetlands and the improvement in protection to miles of levees.

Figure 2-2. Project Construction Completion by Calendar Year, 1995-2013.
(Completions for 2010-2013 are projections.)

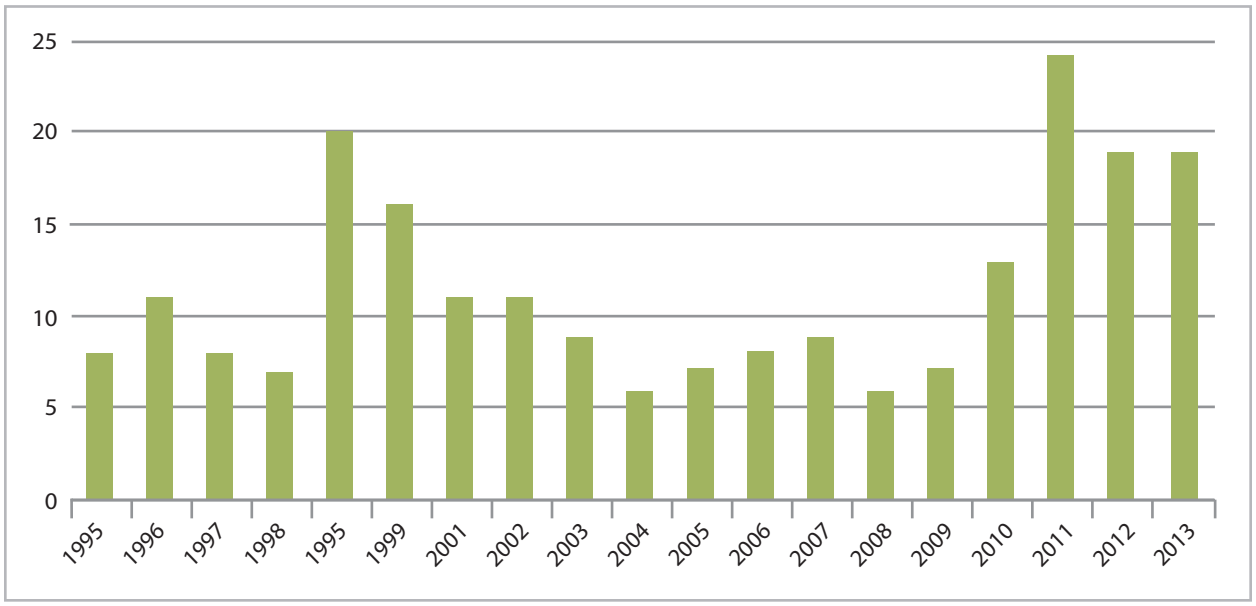


Table 2-1. Projects in Construction in FY 2010.

State ID	Project Name	Construction Start Date	Construction End Date	Acres Benefited[1]	Construction Budget
State-Only Projects					
CS-34 (SF)	Beneficial Use- Calcasieu Ship Channel	1-Jan-10	1-Sep-10	667	$5,000,000
TE-65	Larose to Golden Meadow	2-Feb-09	31-Aug-12	-	$19,820,000
N/A	Forty Arpent Levee, St. Bernard Parish	12-May-08	15-Nov-10	-	$5,000,000
N/A	St. Charles Parish West Bank Hurricane Protection Levee Phase 1- Magnolia Ridge	12-Feb-09	15-Dec-10	-	$4,500,000
CWPPRA Phase 2 Projects[2]					
BA-20-CU4	Jonathan Davis Wetland Project (CU-4)	30-Apr-09	31-Dec-11	228	$13,450,614
BA-41	South Shore of the Pen Shoreline Protection and Marsh Creation	30-Nov-09	30-Jun-11	211	$15,175,821
BA-42	Lake Hermitage Marsh Creation	1-Jun-10	23-Jan-12	438	$29,188,770
TE-34	Penchant Basin Natural Resources Plan, Increment 1	30-Nov-09	31-Aug-11	1,155	$12,896,311
TE-39-CU1	South Lake Decade Freshwater Introduction - CU1	1-Mar-10	1-Oct-10	202	$2,913,515
TE-48B	Raccoon Island Shoreline Protection/Marsh Creation - Phase B	30-May-10	30-Mar-11	16	$8,790,350
TV-21	East Marsh Island Marsh Creation	30-Nov-09	8-Mar-11	362	$20,055,564
CWPPRA Demonstration Projects[2]					
LA-09	Sediment Containment System for Marsh Creation Demonstration	30-Nov-09	30-Jun-11	-	$781,316
TE-53	Enhancement of Barrier Island Vegetation Demo	18-Mar-09	3-Jan-12	-	$390,998
CIAP Projects					
BA-30 (EB)	East Grand Terre	17-Dec-09	9-Apr-11	335	$26,595,000
BS-13 (EB)	Bayou Lamoque Floodgate Removal	29-May-10	4-May-11	660	$1,290,000
CS-35 (EB)	Marsh Creation via Beneficial Use (Phase I)	1-Jan-10	1-Sep-10	300	$3,660,195
TE-43 (EB)	GIWW Bank Restoration of Critical Areas of Terrebonne	22-Oct-09	30-Mar-11	1,180	$10,000,000
BA-55	LA-1 Improvements- Fourchon to Leeville Bridge	4-Dec-07	17-Jun-11	-	$33,000,000
Hurricane Protection Projects[3]					
BA-66	West Bank and Vicinity	6-Nov-08	1-Jun-11	-	$535,500,000
PO-56, PO-63	Lake Pontchartrain and Vicinity (HPO, PRO)	22-Sep-08	1-Jun-11	-	$759,940,000
TE-64	Morganza to the Gulf	27-Jan-09	1-Jun-13	-	$97,730,000

Notes:
1–Acres benefited presented for non-demonstration restoration projects only.
2–Fully funded construction cost is presented.
3– State portion of project cost share is presented.

Table 2-2. Projects Completed in FY 2010.

State ID	Project Name	Construction Start Date	Construction End Date	Acres Benefited[1]	Construction Budget
State-Only Projects					
N/A	East of Harvey Canal Interim Hurricane Protection- Phase 1	17-Jul-07	8-Jul-09	120	$4,000,000
N/A	Raising of LA-1 at Golden Meadow Floodgate and Completion of Golden Meadow Lock Structure	22-Oct-07	30-Aug-09	-	$18,000,000
BA-36[2]	Barataria Landbridge Dedicated Dredging	1-Dec-09	28-Feb-10	242	$2,400,000
CWPPRA Phase 2 Projects[3]					
BA-36[2]	Dedicated Dredging on the Barataria Basin Landbridge	28-Apr-08	22-Jan-10	242	$15,228,833
BA-39	Mississippi River Sediment Delivery System - Bayou Dupont	1-Sep-08	24-Mar-10	594	$25,614,879
TE-44	North Lake Mechant Landbridge Restoration	15-Feb-08	27-Nov-09	901	$35,072,245
TE-50	Whiskey Island Back Barrier Marsh Creation	29-Oct-08	30-Oct-09	270	$27,245,450
CIAP Projects					
BA-36 (EB)[2]	Barataria Land Bridge Dedicated Dredging	26-May-08	8-Jan-10	463	$17,950,000
ME-18 (EB)	Rockefeller Refuge Gulf Shoreline Stabilization Demonstration Project	7-Oct-08	26-Oct-09	-	$8,500,000
ME-21 (EB)	Grand Lake Shoreline Protection	27-Feb-09	28-Feb-10	495	$10,600,000
CS-47 (EB)	Trosclair Road	15-Apr-09	30-Jul-09	-	$400,000

Notes:
1–Acres benefited presented for non-demonstration restoration projects only.
2–Components of the same project.
3–Fully funded construction cost is presented.

Figure 2-3. East Grand Terre Island Restoration Project (BA-30 [EB]).
Aerial view showing back barrier marsh creation site under construction. This CIAP project will result in a benefit to 335 net acres of shoreline and back-barrier marsh over its 20-year lifespan.

Figure 2-4. Projects under Construction in FY 2010.

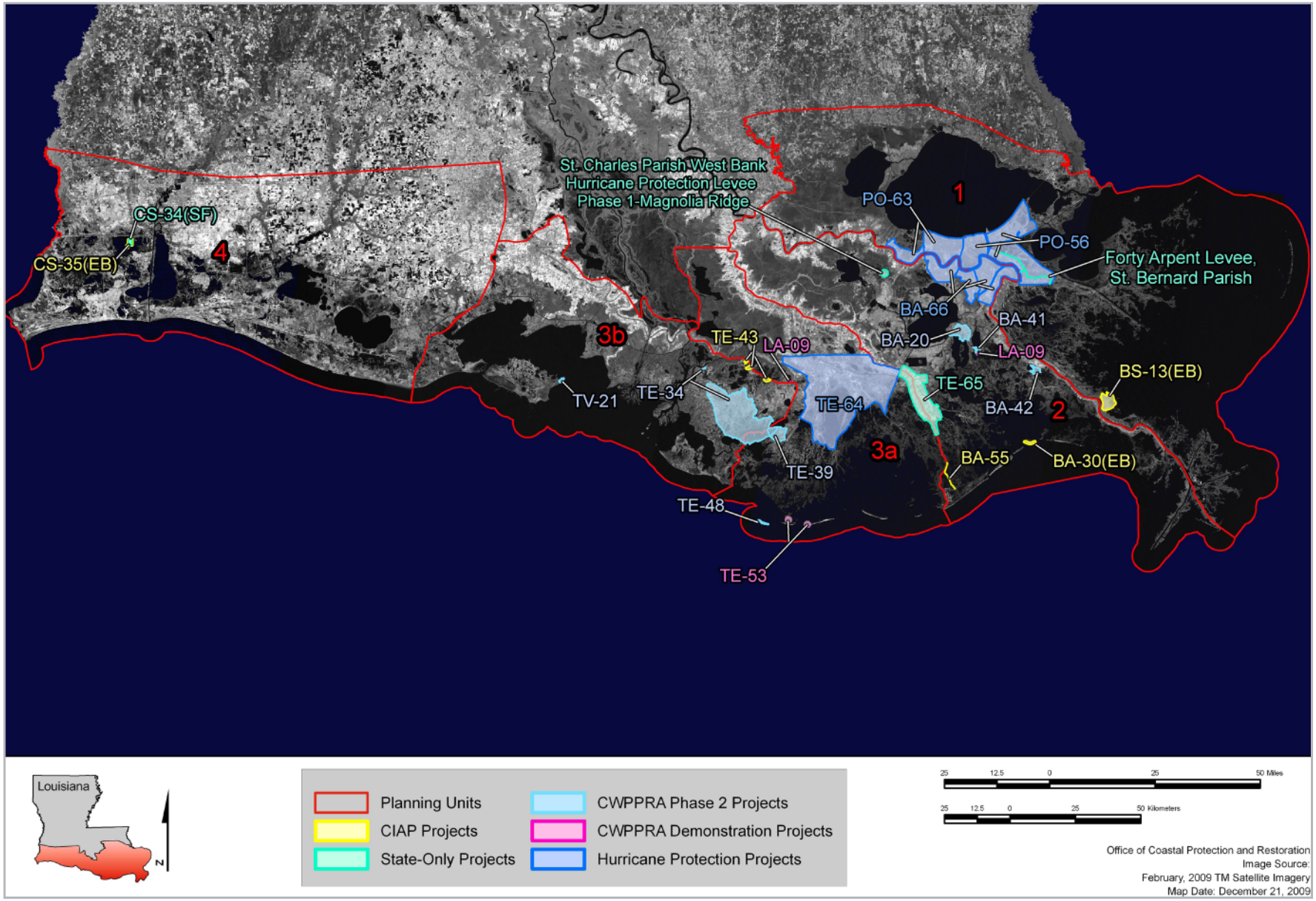


Figure 2-5. Projects Completed in FY 2010.

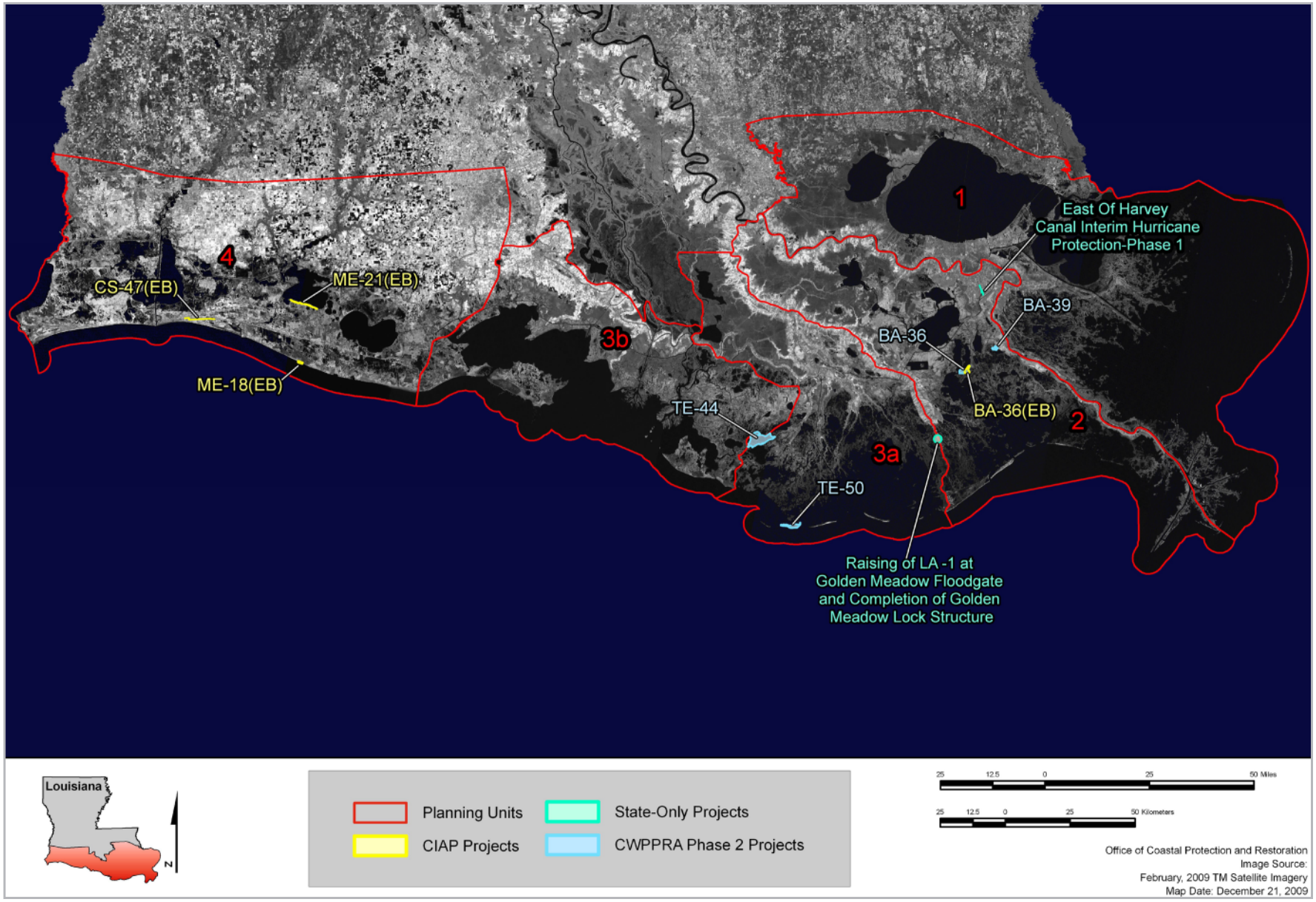


Figure 2-6. Grand Lake Shoreline Protection Project (ME-21 [EB]).
This CIAP project involves the construction of 37,800 linear feet of rock dike between Superior Canal and the mouth of Catfish Lake (PU4) and includes beneficial use of all excavated material to create approximately 120 acres of marsh behind the dike.

Figure 2-7. Mississippi River Sediment Delivery System- Bayou Dupont Project (BA-39).
The State received an American Recovery and Reinvestment Act grant in 2009 to be used for the creation of approximately 100 additional acres of marsh at this CWPPRA project site.

Mississippi River Sediment Delivery System- Bayou Dupont (BA-39)

This Coastal Wetlands Planning, Protection and Restoration Act (CWPPRA) project is adjacent to Bayou Dupont in Plaquemines and Jefferson Parishes (PU2). Marshes in the project area have degraded to open water with scattered marsh fragments as a result of reduced freshwater/sediment input, subsidence, and the dredging of oil and gas canals. The project involves dredging sediment from the Mississippi River and pumping it via pipeline to restore the highly degraded marsh. The project, which is the first CWPPRA project to use pipeline sediment transport from the Mississippi River to create marsh, provides a benefit to 474 acres at a cost of $24.7 million. In June 2009, the National Oceanographic and Atmospheric Administration (NOAA) announced its intent to grant $3.025 million to the State from the American Recovery and Reinvestment Act of 2009, allowing restoration of approximately 100 additional acres of marsh at the project site.

Whiskey Island Back Barrier Marsh Creation (TE-50)

This project, funded through the CWPPRA program, is on Whiskey Island, approximately 18 miles southwest of Cocodrie in Terrebonne Parish (PU3a). Gulfside and bayside erosion resulted in the narrowing of Whiskey Island as the two shorelines migrate toward each other. The project (shown in Figure 2-8) intends to increase the longevity of the island by increasing its width. Specific project features include creation of approximately 316 acres of back barrier intertidal

Figure 2-8. Whiskey Island Back Barrier Marsh Creation Project (TE-50).
Aerial view showing marsh creation site at center. This CWPPRA project will provide a benefit to 1,038 acres of marsh over its 20-year lifespan.

marsh habitat, 5,800 linear feet of tidal creeks, and 13,000 linear feet of protective sand dune using dredged material from a nearby sand source. The project provides a benefit to 1,038 acres at a cost of $29.9 million.

Gulf Intracoastal Waterway (GIWW) Bank Restoration of Critical Areas in Terrebonne Basin (TE-43 [EB])

This CIAP project encompasses a portion of an unconstructed CWPPRA project in the Terrebonne Basin, along the south bank of the GIWW from the Gulf South Pipeline to the St. Paul Bayou Oilfield (PU3b). The project involves closing four breaches totaling 14,500 linear feet along the south bank of the GIWW. These breaches accelerated the breakup of an area of unique and productive thin-mat floating fresh marsh that supports a wide variety of fish and wildlife species. The breach closures engineered for this bank line (lightweight aggregate core capped with rock) provide immediate benefits to approximately 30,000 acres of floating fresh marsh by stopping water movement through these large breaches where water exchange now occurs. Maintaining this area as floating fresh marsh rather than allowing it to convert to turbid open water will also provide added protection to the Bayou Black Ridge located five miles north. The project was engineered, designed, permitted and received land rights for construction through the CWPPRA Program.

Beneficial Use-Calcasieu Ship Channel/ Marsh Creation via Beneficial Use (CS 34 [SF]; CS-35 [EB])

This project, funded through CIAP and State surplus funds, includes work in Cameron Parish near the Calcasieu Ship Channel (PU4). Reduced freshwater input and dredging in oil and gas canals has caused the marsh within the project area to fragment and convert to open water. Specific features of the project include the creation of 200 acres of marsh via beneficial use of material dredged from the Calcasieu Ship Channel as part of channel maintenance operations. The project provides a benefit to 200 acres at a cost of $9 million.

Hurricane Protection Projects under Construction

Eight protection projects began or continued construction in FY 2010, of which two were completed. In FY 2010, OCPR assumed all State responsibilities for hurricane/flood protection in the Coastal Zone formerly assigned to the Department of Transportation and Development (DOTD)

Figure 2-9. Barataria Landbridge Dedicated Dredging Project (BA-36).
Aerial view showing ongoing construction of marsh creation site. This CWPPRA/CIAP project experienced a surplus of dredged material and budget, resulting in the creation of 600 additional acres of marsh beyond what was originally planned.

and began working with the USACE to enhance protection of Louisiana's at-risk coastal communities. Most ongoing hurricane protection projects in southeast Louisiana are Federally funded. As the non-Federal sponsor, the State has allocated $293.3 million in State surplus funds to address associated costs for lands, easements, rights-of-way, relocations, and disposal areas (LERRDS) for these projects.

The Morganza to the Gulf Hurricane Protection Project will provide hurricane/flood protection to 150,000 residents with the construction or improvement of 72 miles of levees and numerous water control structures.

The State and the USACE are working jointly on four major hurricane protection projects. These projects differ from other hurricane protection projects in their size and complexity. Referred to as "parent" projects, each project contains numerous smaller "children" components with varying construction schedules. In most cases, all children projects must be in operation for the parent project to provide full protection. The parent projects are estimated to cost between $15 and $20 billion, and construction of some components will continure beyond FY 2013.

Morganza, Louisiana to the Gulf of Mexico Hurricane Protection Project (TE-64)

This project was most recently authorized by the Water Resources Development Act (WRDA) of 2007 and is located in Terrebonne and Lafourche Parishes (PU3a). When complete, the project will provide hurricane storm surge protection to 150,000 coastal residents, property, and the remaining marsh in the vicinity of Houma through the construction or improvement of 72 linear miles of levees and numerous water control structures. Current construction activities are for interim protection and are being funded by capital outlay funds, State surplus funds from 2007, 2008, and 2009, and local parish revenues. As of FY 2010, the State has funded construction of one child component of the project, comprising approximately 2.7 linear miles, at a cost of $16.9 million. Additionally, five components, totaling 15.6 linear miles of levees at a cost of $49 million, were under construction in FY 2010.

Infrastructure Projects under Construction

The Energy Policy Act of 2005 authorizes the use of CIAP funds for onshore infrastructure projects and public service needs. Two CIAP infrastructure projects began construction in FY 2010, of which one, Trosclair Road, was completed. The project, a joint State-parish effort, involved rehabilitating Trosclair Road, an eight-mile roadway connecting State Highways 27 and 82 in Cameron Parish (PU4).

Completed Projects in Operation, Maintenance, and Monitoring

Following construction, the State assumes all or a portion of the operation, maintenance, and monitoring (OM&M) costs for CWPPRA, State-only, and WRDA projects according to the various cost-share agreements. In FY 2010, the State conducted operation and maintenance activities on 87 constructed projects, of which 81 were built using CWPPRA funds, four using State funds, and two using WRDA funds. The State conducted monitoring activities on 50 projects, of which 46 were built using CWPRRA funds, two using State funds, and two using WRDA funds.

In addition to operating and maintaining constructed projects, the State monitors project performance and coastwide conditions using its Coastwide Reference Monitoring System for Wetlands (CRMS-Wetlands). This system includes a distributed network of reference sites that are used to collect data on critical parameters of wetland sustainability. This network provides data that may be used both for evaluating individual projects and for assessments of the overall effect of State projects on coastal ecosystems.

> Once construction is done, the State must maintain projects and monitor them closely to be sure they are in good condition and working properly. This oversight requires money, thus the State must plan for adequate funding for operation, maintenance and monitoring.

As the State completes more projects, obtaining accurate estimates for OM&M activities will become increasingly important, as these expenditures comprise an ever-greater percentage of the State's annual coastal program budget. Current State estimates indicate that OM&M costs could increase by as much as $50-100 million annually over the next 10-15 years. The State is working on enhancing its OM&M estimating procedures to ensure it can meet its obligations and make informed decisions regarding long-term resource commitments to projects. Toward this end, the State is performing an analysis of out-year maintenance costs, projected revenue streams, revenue shortfalls associated with hurricane protection and coastal projects, and assets under the responsibility of the CPRA and coastal levee districts.

COASTAL ZONE

REDEFINING THE COASTAL ZONE

Louisiana's current coastal zone boundary was established in 1978, when the State created its coastal management program under the guidelines of the Federal Coastal Zone Management Program. The program authorized the Department of Natural Resources to regulate development activities and manage resources within the designated coastal zone. The coastal zone designation is significant to parishes because lands that are within the zone are eligible for funding, loans, and participation in coastal programs. Parishes assume additional funding and regulatory responsibilities for these lands.

Since the establishment of the coastal zone, coastal erosion and hurricanes have changed the physical appearance of the coast, and new programs have changed the State's approach to protecting coastal resources. Recognizing the need to manage coastal resources in the most effective manner possible, the CPRA directed the Office of Coastal Management (OCM) to undertake the current coastal zone boundary study, specifying that the study be science-based, consider existing legal issues and other State coastal programs, take economic concerns such as energy, fisheries, maritime transport, and tourism into account, and consider archeological and cultural concerns.

The study includes participation by other State and Federal agencies, an advisory group of stakeholders, and public involvement through a series of meetings (conducted in September 2009).

Toward Building Better Projects: Progress in Ongoing Programs

In FY 2010, the State made progress not only in constructing coastal projects, but also with programs that provide the foundation for future project designs. These programs feature components such as research to identify needs and address uncertainties, as well as development of new approaches for project design and performance monitoring. Many of these efforts were spearheaded by OCPR's LACES Division, created to support programmatic and project-level objectives through the activities of the Applied Research and Development, Data Management and Training, and Systems Assessment Branches.

In FY 2010, LACES participated in the Gulf of Mexico Alliance, a cooperative effort between the Gulf States, NOAA, and the U.S. Environmental Protection Agency (USEPA). LACES staff serve on and chair teams devoted to addressing priority issues. Gulf of Mexico Alliance activities in which LACES participated in FY 2010 include working sessions on the Federal Standard for handling dredged sediments, ecological and social factors governing freshwater inflows into Gulf Coast estuaries, and sea-level rise.

The LACES Applied Research and Development Branch is tasked with reducing technical uncertainties by acquiring data, developing tools, and providing those to OCPR and the State government as a whole. LACES applied research and development activities in FY 2010 included:

- Developing and beginning to implement a Work Plan of 30 high-priority technical uncertainties identified by State managers, Federal agencies, and academia.
- Establishing a Lower River Modeling Working Group to develop the hydrodynamic and sediment models for the lower Mississippi River system that will be applied to the developing LCA Hydrodynamic and Delta Management investigation.
- Improving the technical understanding of how landscape features affect storm surges.
- Managing the State's carbon credit program (see pages 33-34).
- Serving as co-director of the LCA Science and Technology Program.

LACES is co-sponsoring a sustainable coast conference in June 2010 to help identify and include the most up-to-date science and engineering in Louisiana's coastal protection and restoration efforts.

LACES also partnered with Federal, State, and local governments, non-government agencies (NGOs), academia, and private industry to

VISION

CRAFTING A VISION OF A SUSTAINABLE COAST

The Master Plan laid out a broad direction for restoration and protection in coastal Louisiana through four overarching objectives, as well as broad implementation concepts on maps to give a general impression of where actions could be taken. Subsequent Annual Plans detailed many projects that have been funded for implementation. Building on these past efforts, the State has initiated a bold new direction in moving toward a more performance-based planning approach guided by a comprehensive vision for coastal Louisiana. The 2012 Master Plan Update presents the need and opportunity to drive work toward a shared vision regarding the kind of activities we want the coast to support in the future.

The visioning process will build on past planning efforts and principles, but will take past efforts further by acknowledging what is possible with the current state of science and available resources. By recognizing that some compromises are needed and that some actions have consequences for outcomes the State wishes to achieve, the State will be equipped to make better decisions. The process will confront some of the legacy "tough questions" and find common ground to develop a shared vision. The vision will include levels of protection appropriate for communities and infrastructure, types of commercial and recreational activities, and ecosystems that the State should seek to support in the future. The vision must also be technically feasible. The vision will be used to guide the planning process and the implementation of projects that collectively produce desired outcomes in the context of a dynamic coast.

The State will facilitate the visioning process, although stakeholders will inform the vision. A technical team will craft the vision and translate it into quantitative targets to guide the planning team and help decision-makers know when the desired outcomes are achieved. Clear documentation of the process will help both the process and its results to be accessible and understandable.

sponsor The State of the Coast: Implementing a Sustainable Coast for Louisiana. This June 2010 conference will provide a forum for experts to discuss recent advances in science and engineering related to hurricane protection and ecosystem restoration in coastal Louisiana, with the goal of effectively informing policy and decision making.

In 2009, OCPR obtained detailed results from the Barrier Island Comprehensive Monitoring (BICM) program (described in Appendix E), which describes shoreline and sediment changes to barrier islands through 2007. The LACES Data Management and Training Branch is currently working with the BICM program to make all data, reports, photography, and other information available via the OCPR website (http://dnr.louisiana.gov/crm/coastres/project.asp?id=BICM). Appendix E contains the Barrier Island Status Report, which highlights some of the 2009 BICM findings.

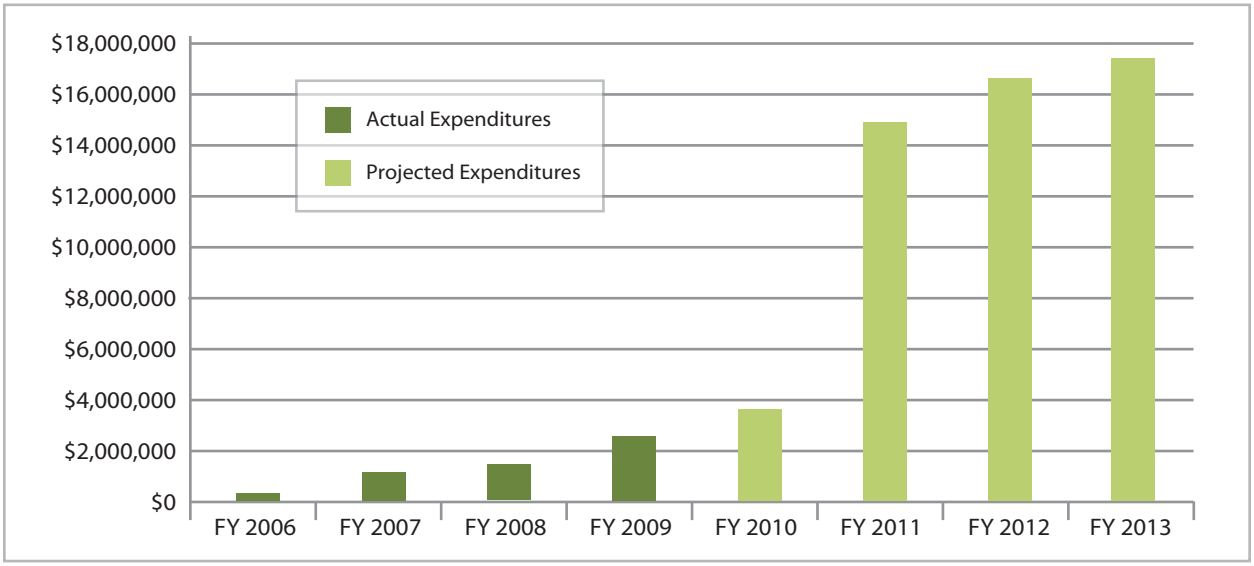
LACES is tasked with overseeing development of the Louisiana Sediment Management Plan to address scientific and policy issues related to utilization of sediment for coastal restoration. Activities performed under this program in FY 2010 include:

- Exploration for offshore sand in the Tiger and Trinity Shoal Complex for State coastal restoration projects.
- Expansion of the Louisiana Sand Resources Database, which formerly housed only geoscientific data collected in Outer Continental Shelf waters, to include data from State waters.
- Completion of an Environmental Investigation on anticipated physical and biological impacts of dredging of sand from Ship Shoal for coastal restoration projects.
- Evaluation of sand resources in Western Ship Shoal, resulting in the identification of approximately 124 million cubic yards of restoration quality sand.

Given the continued development of the programmatic role and execution capacity of the LACES Division, the State's corresponding applied engineering and science expenditures are anticipated to increase substantially over the next three fiscal years (Figure 2-10) to meet the growing needs of OCPR and the State as a whole. To better utilize external resources to accomplish some of the objectives of the Division, LACES has been negotiating agreements for additional services from academic institutions and private industry. Additionally, LACES is currently developing partnerships with other applied research and development programs that may offer leveraging opportunities in the future.

In July 2009, the CPRA authorized the Department of Natural Resources Office of Coastal Management (OCM) to begin a science-based study on the inland boundary of Louisiana's Coastal Zone. This study is determining whether the current boundary, a jurisdictional border established more than 30 years ago, is still sited appropriately to meet the needs of the State and its residents. OCM will provide recommendations to the CPRA upon completion of the study.

Figure 2-10. Applied Engineering and Science Expenditures (Actual and Projected).



A New Approach to Planning

Vision – a description of desired but feasible outcomes for the coastal protection and restoration effort. The vision answers the question, "What do we want the coastal regions to be like in the future?"

Target – a specific, measurable number that helps to describe when the vision has been achieved.

Metric – a standard of measurement.

Portfolio – a group of projects that could be implemented, with a sequencing order for their construction.

In support of the 2012 Master Plan Update, the State began laying the foundation in FY 2010 for a new planning framework. This new planning framework will help select combinations of protection and restoration projects that achieve multiple objectives (integrated planning) and schedule the work so that the most important projects are constructed first (prioritization). The new planning framework will guide planning to achieve a vision for a sustainable coast. Although challenging to implement, the framework represents a shift in the State's approach, and, once complete, that framework will provide for transparent, science-based project selection, design, and sequencing. It will also compare post-construction project performance to the predicted performance, allowing the State to report to the Legislature and stakeholders using methods and standards that are firmly grounded in science and engineering. Chapter 3 and Appendix B provide additional information about the planning framework.

Development of Revised Planning Framework

The planning framework under development improves the FY 2010 prioritization tool in several significant ways:

- Expansion of the functionality to include measurable regional targets based on a coastwide vision of the future. The coastwide vision will define where the State aims to go (its desired coastal restoration and protection outcomes) and guide the planning process.
- Development of quantitative, objective data that the prioritization tool can use to help evaluate projects and support decisions regarding which should be implemented first.
- A shift away from prioritization of individual projects and toward selection of project portfolios that can be implemented to meet the coastwide vision—a new capability that supports a more integrated approach to planning.
- Incorporation of uncertainties and constraints into the prioritization process.

Obtaining the consistent, quality data necessary to complete this tool requires significant investment in the development and application of predictive computer models. Although many of the inputs needed for the prioritization tool are not complete, the FY 2011 Annual Plan team was able to use existing data and models to demonstrate the framework's validity and usefulness (a "proof-of-concept" or POC analysis) by prioritizing representative projects for a portion of the coast. Chapter 3 presents additional information on the planning framework and summarizes the POC analysis results (see also Appendix B).

Visioning Process

An early step in the development of the planning framework is to develop a technically feasible vision for desired coastal protection and restoration outcomes specific to a given region. This vision will be inferred primarily from past coastal planning efforts. The regional visions together will be combined into a compatible, coastwide vision. The coastwide vision must accommodate the dynamic nature of the Louisiana coast, which changes constantly due to external factors, such as wave action, subsidence, erosion, Mississippi and Atchafalaya levees, relative sea-level rise, and others factors. Recognizing the potential for conflicts among stakeholders and regions, the State anticipates an iterative visioning process. Preliminary runs of the prioritization tool will help to illustrate tradeoffs and the implications of various choices.

Regional Stakeholder Workgroups

To respond to the public's request for increased engagement in its planning process, the State established three RSWs, each of which represents a major geographic region on Louisiana's coast (Figure 2-11). The State first met with the RSWs in September 2009 to solicit feedback on proposed planning efforts and provide updates on project implementation, so members could report back to their communities. RSW engagement with the State will significantly improve the plan's responsiveness to dynamic regional forces and concerns within the affected coastal communities.

Forging a New Path: Streamlining Future Efforts

The State has initiated a number of innovative programs and efforts to expedite the planning process, improve efficiency within the coastal program, and reduce the costs of project planning and implementation.

> The State explored innovative concepts and initiatives to improve efficiency within the coastal program and streamline future efforts.

Reforming the Federal Planning Process

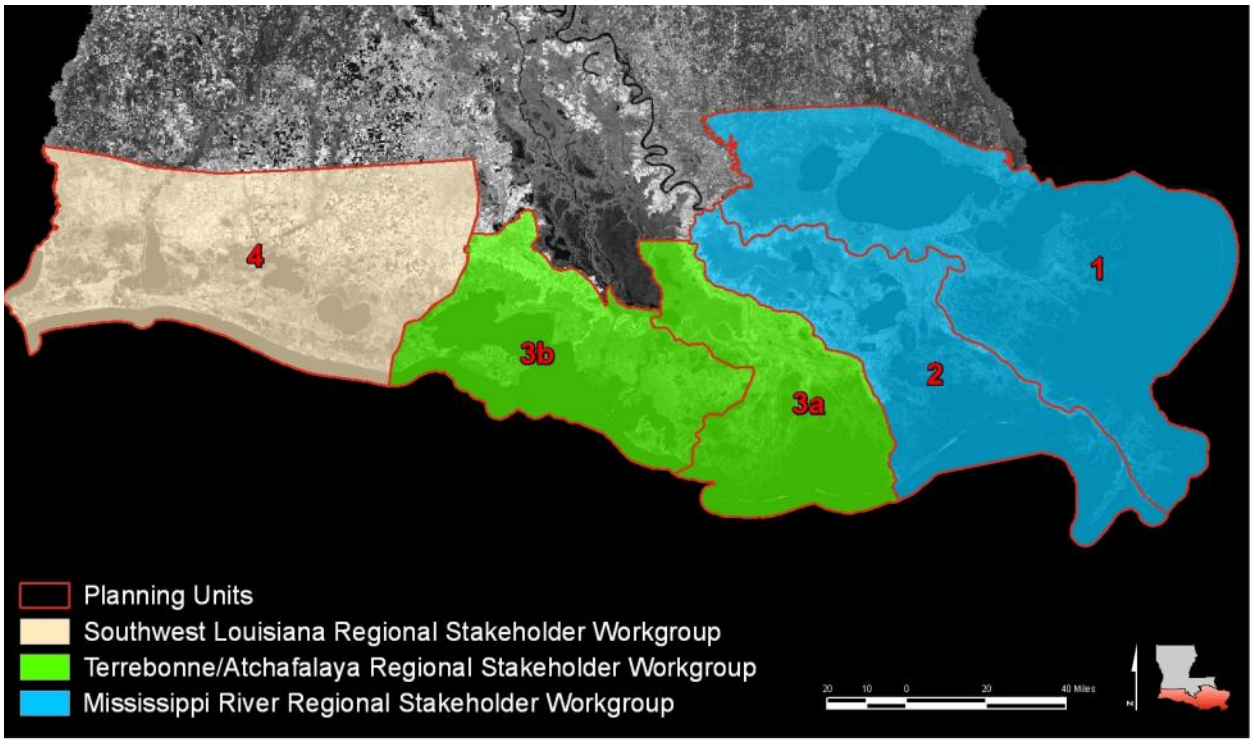
In July 2009, the State undertook an initiative to reform the USACE planning process in an effort to improve efficiency and expedite the development and implementation process for Federal water resources projects. To support this initiative, the State hosted a series of town hall meetings across coastal Louisiana to receive input on a number of reform proposals, designed to make the Federal process shorter and improve how the relationships between the State and the USACE work.

> The Louisiana-Mississippi Gulf Coast Ecosystem Restoration Working Group is developing a strategy to increase the economic and environmental resiliency of the central Gulf coast.

Working with the White House to Address Coastal Issues

Beginning in October 2009, the State participated in the Louisiana-Mississippi Gulf Coast Ecosystem

Figure 2-11. RSW Regional Divisions.



Restoration Working Group, created by President Obama in August 2009. The group, led by Council of Environmental Quality Chairwoman Nancy Sutley, includes representatives from numerous Federal agencies. This Working Group is developing a strategy to increase the economic and environmental resiliency of the central Gulf coast. According to a briefing provided by the Obama administration, Louisiana and Mississippi were chosen as the focus of the group because both states are facing threats to their wetlands and barrier islands. The working group will act as a pilot for addressing similar challenges in other coastal regions.

Streamlining the Coastal Program to Promote Efficiency

Since its inception, the CPRA has looked for ways to streamline the State's coastal program to maximize resources and promote efficiency within the implementation processes. Specific streamlining initiatives undertaken by the CPRA include the following:

- Integrating the State's hurricane protection and coastal restoration efforts through the creation of OCPR.
- Outsourcing engineering, design, and environmental services to allow planning and implementation of multiple large-scale projects in parallel.
- Partnering with other State agencies, local governments, federal agencies, universities, and NGOs to leverage resources and minimize duplication of effort.
- Developing a single database and project tracking system to address all of the State's coastal project-related information needs.

In FY 2010, the CPRA participated in the Louisiana Commission on Streamlining Government. The Commission, which was created in July 2009, directs State offices and agencies to identify measures to make State government more efficient at a time when the State faces anticipated budget shortfalls. The Commission reviewed the CPRA's existing and planned initiatives to improve efficiency within the coastal program. Many of the initiatives presented by the CPRA have been adopted by the Commission.

To improve efficiency within the coastal program, the State integrated its protection and restoration efforts, improved its project tracking, and capitalized on the knowledge and skills of consulting firms, colleges, and universities.

STAKEHOLDERS

REGIONAL STAKEHOLDER WORKGROUPS (RSW)

RSW members will contribute their regional knowledge and technical expertise to enhance the FY 2011 Annual Plan and future State planning efforts by ensuring that regional and community protection and restoration issues are addressed in these efforts. The RSWs will also function as a conduit for two-way communications between the State of Louisiana and regional coastal interests.

The RSW involvement process is designed to help the RSWs bring regional and local needs, concerns, and issues to the State for consideration, while helping the RSWs share information with their communities about State decisions or proposals that have consequences for their constituent regions.

The three RSWs represent coastal regions corresponding to the following Louisiana Planning Units described in the Master Plan:

- Mississippi River RSW- Planning Units 1 and 2.
- Terrebonne/Atchafalaya RSW- Planning Units 3a and 3b.
- Southwest Louisiana RSW- Planning Unit 4.

Each RSW will convene with the planning team for three meetings annually. The first round of meetings was held September 1-3, 2009, and the second round was held November 30 - December 1, 2009.

Toward a Comprehensive Project Tracking System

In FY 2010, the State committed funds to develop a single coastal project database system that will address all of the coastal program's project management-related information needs, including tracking project schedules, budgets, expenditures, and contracting information. Under the existing system, project managers spend approximately 25 percent of their time updating project schedules. The new database will reduce that time to approximately five percent and greatly facilitate management oversight. Under the new system, State leadership will learn about project delays or budget concerns immediately. The current system does not readily show project balances. Consequently, project managers may spend hours determining actual project expenditures. The new system will provide this information and allow managers to automatically track the data that tells them whether projects are on schedule and budget. These capabilities will also greatly reduce the time it takes to develop the Annual Plans. Additionally, the database will allow anyone to retrieve coastal project information from the CPRA website, providing greater transparency and accountability to citizens.

Using Restoration Benefits to Fund the Coastal Program

The State is researching the quantification, certification, marketing, and sale of greenhouse gas and water quality credits resulting from State coastal protection and restoration projects. These programs, once implemented, have the potential to generate significant revenues that can, in turn, be reinvested into the State's coastal program, thereby reducing the amount of funding the State requires to sustain the coastal program.

Making Better Use of Dredged Material for Restoration

As a complement to its beneficial use program, the State set aside separate funding to pre-clear sites for beneficial use of dredged material. These two initiatives, working together, will better ensure that material generated by USACE dredging operations is placed where it can best support the State's restoration and protection goals.

PLANNING REFORMS

ALTERING THE IMPLEMENTATION PROCESS FOR WATER RESOURCE PROJECTS

Coastal Louisiana has lost approximately 2,300 square miles of coastal land and wetlands since the 1930s and continues to lose an estimated 15 square miles per year, in addition to the 328 square miles associated with hurricane losses (2005-2008). Concerned about the lack of progress on approved water resource projects and recognizing that the existing process cannot deliver the needed actions within the necessary timeframe, the State took action in July 2009. This action included developing a draft list of seven systemic concerns about coastal protection and restoration efforts, as well as suggesting 10 interim solutions that could be enacted quickly to enhance the current process and facilitate development of a long-term solution.

Chief among these concerns was the USACE's lack of efficiency in planning, engineering, and implementing coastal protection and restoration projects. Current USACE policies prevent the organization from adapting swiftly to the complexities of coastal Louisiana and responding with the necessary degree of urgency to address the region's vulnerability and land loss challenges. To improve efficiency within the USACE, the State proposed reorganizing the USACE New Orleans District into a Division commanded by a General, to reduce timing of decision making and improve the accuracy of intra-USACE communication, and to extend the tour of the USACE New Orleans District office commander to a term of five years, allowing decision makers time to better understand the unique and complex challenges of the Louisiana coastal region.

To further explore this issue, the State conducted a series of public meetings in July 2009 to seek constructive input on ways to reform the USACE and make coastal restoration and protection efforts more efficient. These meetings aimed to unite civic leaders, non-profit and levee board members, and parish, local, and State officials, as well as area residents, to develop constructive ideas and gather input regarding changes that can be made to the USACE organization and methods.

On August 17, the State released a second draft containing eight concerns and 21 solutions aimed at expediting coastal restoration and protection efforts by the USACE. This list reflected suggestions made during the July public meetings, attended by invited panelists with extensive experience in coastal restoration and protection efforts, as well as by the general public. This list of reforms was shared with Federal officials and Congressional members in September 2009.

In October 2009, the Obama administration established the Louisiana-Mississippi Gulf Coast Ecosystem Restoration Working Group. This interagency working group was tasked by the President to evaluate current Federal actions and processes, and to prepare an action plan for aligning these efforts with the states to address our degrading coastal ecosystems. In March 2010 the Working Group released the "Roadmap for Restoring Ecosystem Resiliency and Sustainability", a groundbreaking document that outlines an 18-month process to meet a series of short-term objectives and actions. The State is actively engaged with the Working Group to meet the proposed timelines.

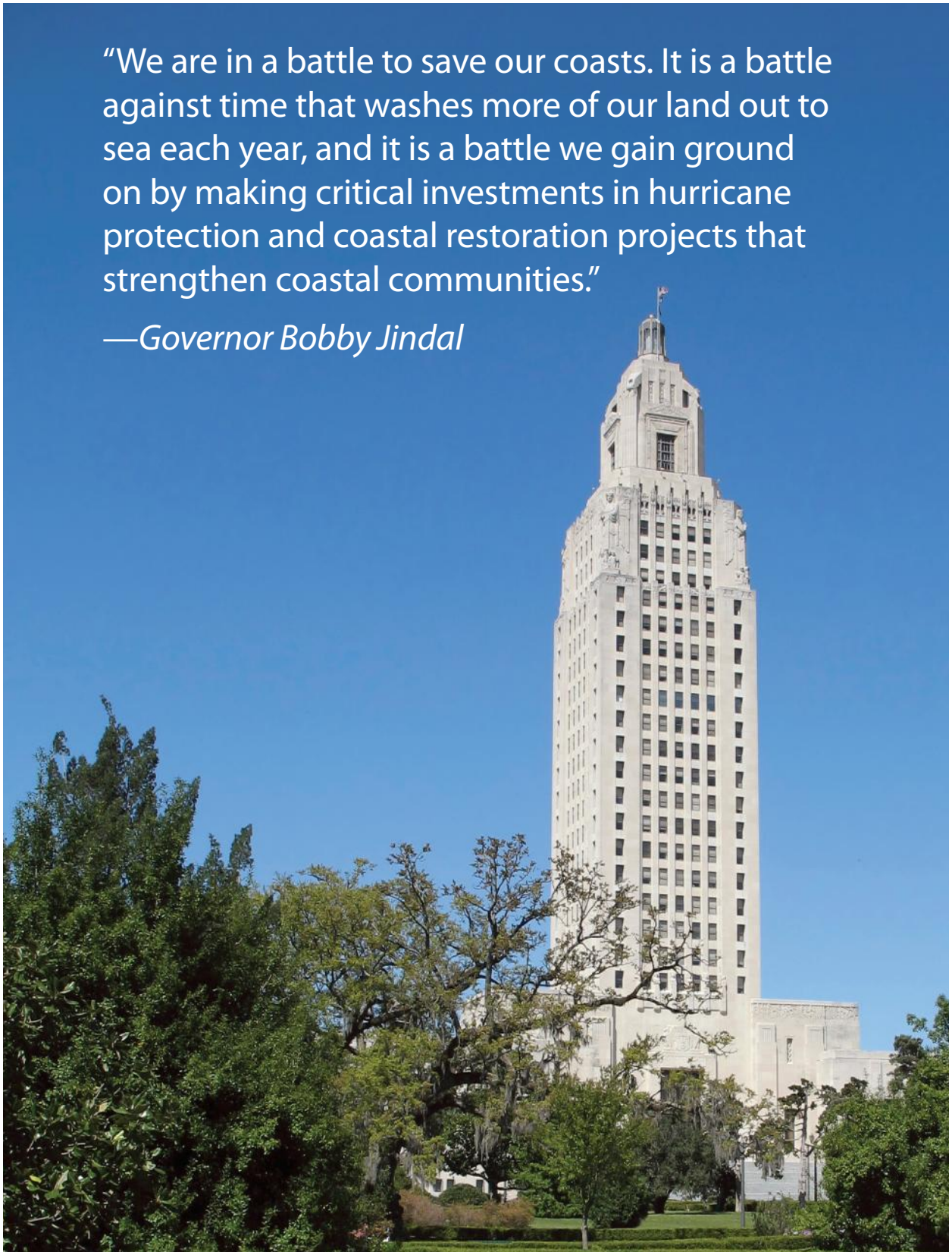
INNOVATION

CARBON/WATER QUALITY CREDITS

The abundant flora in Louisiana's coastal wetlands remove vast amounts of carbon dioxide through photosynthesis—absorbing carbon and releasing oxygen back into the atmosphere. State projects that preserve or restore coastal wetlands help to sequester (or prevent the release of) carbon and greenhouse gases that would result from the loss of these wetlands and the decomposition of their component flora. The ability to sequester carbon and greenhouse gas is a marketable asset to companies or organizations seeking to offset their own emissions of greenhouse gases. The State is currently quantifying and establishing standards relating to the volume of various gases sequestered by coastal restoration projects. The State's research into this initiative suggests Louisiana will become a world leader in this innovative approach to greenhouse gas sequestration.

Louisiana's coastal wetlands also serve as filtration devices by removing nutrients from river water that would otherwise enter the Gulf of Mexico and contribute to the growing problem of low oxygen levels in Gulf waters. As increasing amounts of river water are diverted into marshes through the implementation of restoration projects, wetlands will filter nutrients out of the water and process them into the soil, sustaining coastal wetlands rather than contributing to a nationally significant water quality problem. The State is investigating the development of a water quality market, in which water quality credits resulting from the operation of State coastal projects may be sold to produce an independent source of revenue for the coastal program.

3. A New Approach to Planning



"We are in a battle to save our coasts. It is a battle against time that washes more of our land out to sea each year, and it is a battle we gain ground on by making critical investments in hurricane protection and coastal restoration projects that strengthen coastal communities."

—Governor Bobby Jindal

The State's comprehensive effort to protect and restore the coast involves hundreds of projects costing tens of billions of dollars and one of the most complex ecosystems in the world. The resource requirements and technical complexities involved in coastal protection and restoration activities mean that some sacrifices must be made, and the State must confront some "tough questions" regarding the use of available resources to address competing priorities. Land loss and habitat degradation trajectories may not be reversible in some areas, and some coastal communities and assets may not be able to be protected by any feasible structural or nonstructural measures. Furthermore, the State acknowledges that sufficient resources (either financial or natural) will never be available to implement every conceivable protection and restoration activity within coastal Louisiana. Nonetheless, millions of Louisiana residents, hundreds of coastal communities, hundreds of thousands of jobs, and hundreds of billions of dollars in economic activity remain at risk from coastal land loss, habitat degradation, and hurricane-related flood damage without action. These precious assets are in danger of being lost forever. With so much at stake, failure is not an option, and progress must be efficient.

> The prioritization tool will support a decision process based on coastal needs and on tax dollar value, rather than one that allows politics to intrude or that merely funds projects with the most vocal advocates.

The State is developing a tool that will prioritize and sequence projects together into portfolios that will help to restore the ecosystem and protect coastal Louisiana's homes and businesses from hurricane and storm damages. This tool is designed to take into account state-of-the-art science and engineering, and evaluate uncertainties and other factors to identify the best uses of limited resources. The tool will help the State to identify the "high value" projects that will provide protection to the most at-risk coastal communities and assets, and provide optimal benefits to coastal ecosystems. The tool's outputs are useful in this respect because

they will allow an evaluation of all projects on a level playing field. These results will support a decision process based on coastal needs and on tax dollar value, rather than one that allows politics to intrude or that merely funds projects with the most vocal advocates.

The prioritization tool will be driven by inputs that include a vision of a sustainable coast. Scientists and engineers will use models to produce data outputs that relate to quantifiable targets, which will help to measure the degree to which projects achieve the vision. The prioritization tool will be guided by the concepts and objectives described in the Master Plan and other past planning efforts. The inputs, tool, and Master Plan guidance together comprise a planning framework that will fully integrate State coastal protection and restoration planning for the first time. Figure 3-1 presents a conceptual diagram of the planning framework.

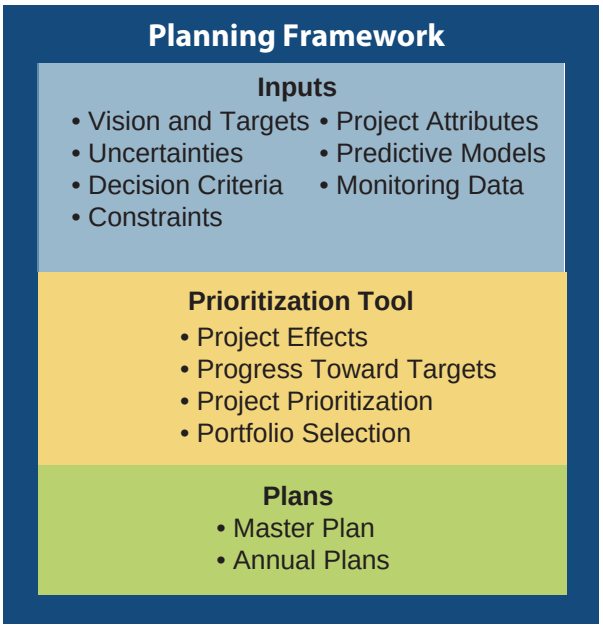
Implementing the planning framework is a multi-year effort that will evolve over the next several planning cycles, with the goal of a fully functional framework for the Master Plan Update in 2012. The first step in this process was the development and demonstration of a prototype prioritization tool for the FY 2010 Annual Plan. The FY 2011 Annual Plan team refined this prioritization tool and used it as the foundation for a revised tool that truly integrates protection and restoration. Although many of the inputs for the prioritization tool are still under development, the planning team was able to utilize existing models and data to perform a proof-of-concept (POC) analysis, which demonstrated how the tool can be used to evaluate and prioritize projects. The results of the POC analysis do not represent any real priorities but merely serve to illustrate tool inputs, functions, and outputs. The tool shows great potential for expanding and enhancing the State's planning capacity. This chapter describes the development of the framework and presents the results of the POC analysis.

> The POC analysis uses a prototype tool and representative data to demonstrate that the prioritization tool is credible and can provide useful information for decision makers.

Building on the Past to Create a Better Future

The planning framework reflects a transition from the broad concepts presented in the Master Plan and the project-specific implementation schemes presented in past Annual Plans. This new approach expands and improves upon the previous approach by incorporating the Master Plan direction with a quantifiable vision of regional and coastwide restoration and protection outcomes. These improvements will equip the State to engage for the first time in performance-based planning, allowing efficient use of available funding and providing a credible and transparent rationale for decision making.

Figure 3-1. Conceptual Planning Framework.



Elements of the Prioritization Tool

During Master Plan development, the State screened the many possible approaches to restoration and protection by comparing their ability to meet the four planning objectives. Since the Master Plan was completed, the State has rapidly accelerated the design and implementation of protection and restoration projects (see Chapter 2 for additional discussion). These implemented projects affect the State's planning process in two ways: 1) by changing baseline conditions within the coast, and 2) by providing the State with information on post-construction performance. Any evaluation of future State coastal projects needs to incorporate the physical changes and lessons learned from projects that are completed or in progress. Thus, project selection and implementation must be consistent with the Master Plan direction while accurately reflecting on-the-ground conditions.

The Four Master Plan Objectives:

- Reduce economic losses from storm-based flooding.
- Promote a sustainable ecosystem.
- Provide habitats for commercial and recreational activities coastwide.
- Sustain Louisiana's unique coastal heritage.

The prioritization tool accomplishes these tasks through three integrated activities:

1. Defining the goals and desired outcomes for protection and restoration activities.
2. Estimating how different projects and portfolios of projects contribute to the achievement of those goals and desired outcomes.
3. Using the information regarding predicted performance to prioritize projects and assemble high-priority project portfolios for implementation.

These activities are described in detail below.

Defining Desired Outcomes

The prioritization tool depends on clear definitions of desired outcomes, using three levels of detail. At the broadest level, the tool is based on two coastwide goals that are refinements of the Master Plan objectives. The coastwide vision defines specific desired outcomes at the regional level; regional targets and associated metrics allow the measurement of progress toward achieving the vision.

Desired Outcomes:

- **Coastwide Goals** – A refinement of the Master Plan's four objectives, the broadest level of guidance regarding what the State wants to accomplish.
- **Coastwide Vision** – A technically feasible description of what the State wants the coast to be like in each region.
- **Regional Targets** – Measureable, numerical descriptions of the vision.

Coastwide Goals

The four planning objectives and broad implementation concepts in the Master Plan provide guidance regarding outcomes (what the State wants to accomplish) and how these outcomes could be achieved. The prioritization tool expresses the Master Plan objectives as two goals: the first, comprising the outcomes associated with Master Plan Objectives 1 and 3 (the "what"); and the second, comprising the approaches outlined in Objectives 2 and 4 (the "how"). By condensing the Master Plan objectives into these two goals, the tool allows the State to refine the strategic approach described in the Master Plan into a more specific, outcome-oriented approach.

Regional and Coastwide Vision

The Master Plan includes maps depicting general areas where restoration and protection activities should occur, but provides few specific recommendations about the various levels of protection or the types of activities and uses that would be supported by restoration in these areas. To effectively prioritize projects for investment of State funds, a more quantitative and measurable description of what Louisiana is seeking to achieve in specific regions is required. Toward this end, the State will work with a team of technical experts to develop regional "visions" (see Chapter 2), which describe the desired types of recreational and commercial activities and the desired levels of protection for different types of communities and infrastructure. These visions will be combined into a single coastwide vision.

Quantifiable Targets

Following the completion of the "visioning" process, the State will work with a team of technical experts to translate the coastwide vision into quantifiable regional "targets". These descriptions of the outcomes as numerical targets will help the State to determine when the desired outcomes are achieved and report on that achievement with measureable indicators of success.

Estimating Project Effects

The prioritization tool is designed to apply science and engineering to inform decision making. At the heart of this approach are computer models that estimate the effects of protection and restoration projects and provide results in the same metrics (standards of measurement) as the regional targets.

FOUNDATIONS

PLANNING FRAMEWORK: BUILDING ON THE FOUNDATIONS OF PREVIOUS PLANNING EFFORTS

Louisiana has been the subject of numerous coastal protection and/or restoration studies in recent decades (e.g., CWPPRA; Coast 2050; LCA; CIAP Plan; LACPR). These studies represent a significant investment of resources and technical expertise, and resulted in the development of planning approaches and tools that remain useful to the State's coastal program. The planning team revisited these studies to determine the points of consistency between the planning framework and these past efforts and incorporated approaches and tools developed for these studies where appropriate. The framework is consistent with or expands upon these studies in the following areas:

- **Objective:** integrated protection and restoration; consistent with the Master Plan and LACPR Study; expansion on other past efforts that focused only or principally on restoration (Coast 2050, CWPPRA, CIAP).
- **Overall Planning Approach:** combined programmatic/strategic vision and project-level decision-making and planning (LCA); expansion upon other past efforts that focused solely on programmatic/strategic vision (Master Plan, Coast 2050) or project-level decision making (CWPPRA, CIAP, LACPR).
- **Basis of Plan Development:** quantitative assessment based on ability of projects/portfolios to achieve regional targets as determined by models; expansion upon all past efforts, which relied heavily on expert judgment or stakeholder preference.
- **Incorporation of Uncertainty:** consideration of the effect of both financial and scientific/technical uncertainties; expansion upon past efforts that either did not consider uncertainty or focused on scientific/technical uncertainties.

The planning framework is therefore informed by these past coastal planning efforts, and expands and improves upon them by truly integrating coastal protection and restoration activities. The framework employs a transparent, quantitative plan development process and incorporates a broader range of uncertainties. In this way the framework supports performance-based planning, which allows the State for the first time to accurately measure its progress in protecting and restoring the coast, and provides a science- and engineering-based approach to design new projects to address protection and restoration needs.

Metrics to Reflect Project Performance and Planning Predictions

Using the targets developed from the coastwide vision, the planning team will estimate the performance of projects in terms of these metrics. The planning team can then compare these estimates to the targets and evaluate the program's progress toward achieving the coastwide vision. Progress estimates will be based on the existing understanding of project performance and coastal landscape/community response to restoration and protection actions, and will incorporate assumptions about uncertain future conditions. A comparison of expected (pre-construction) and actual (post-construction) project outcomes will help the State to develop adaptive management methods that can guide and improve future project planning and design.

Prioritizing Projects and Assembling Portfolios

The coastwide vision and the regional targets will likely reflect a broad array of desired protection and restoration outcomes. No single project will be able to achieve all of the outcomes, and projects may provide progress toward one target while working against progress toward other targets. Finally, projects will compete for the same limited financial or natural resources. The prioritization tool addresses these issues with a process that first determines the relative priority of individual projects, and then assembles portfolios of projects that will move Louisiana toward successful implementation of the Master Plan.

Decision Criteria

The State recognizes that effective decisions about investments in protection and restoration must be based on many criteria. The prioritization tool incorporates multiple decision criteria that reflect the needs and desires of the State (such as cost-effectiveness and sustainability/longevity of project effects). The tool then scores the projects based on their performance with respect to the different decision criteria. These project scores then enable project comparisons and prioritization.

Planning Constraints

The ability of the State to determine which projects to implement is constrained by many factors, including the availability of funding or resources (such as freshwater or sediment availability). These constraints affect project implementation but are beyond the influence of the State. The prioritization tool applies these constraints when evaluating project portfolios.

The planning team will be able to use the prioritization tool to identify actions that perform well across a wide range of future scenarios.

Uncertainty and Future Scenarios

The future of the Louisiana coast, as well as the State's effort to fulfill the vision of a future coast, is influenced by many external factors such as hurricane frequency and magnitude, river sediment availability, and funding availability. Each of these external factors adds uncertainty to the analysis; that is, a range of possible future conditions exists for each factor. To account for this uncertainty, the prioritization tool will analyze a wide array of future scenarios, each representing a different plausible view of the future conditions associated with the factors that are beyond the State's control. The planning team can then apply the tool to identify projects and project portfolios that perform well across the wide range of future scenarios.

OBJECTIVES

INCORPORATING THE MASTER PLAN'S OBJECTIVES

The planning objectives and broad implementation concepts in the Master Plan provide guidance for directing planning toward restoration and protection outcomes, such as:

- Assuring that assets are protected, at a minimum, from a storm surge that has a one percent chance of occurring in any given year (Objective 1).
- Sustaining Louisiana's unique heritage (Objective 4).
- Sustaining productive habitats suitable to support an array of commercial and recreational activities coastwide (Objective 3).

Additionally, the Master Plan suggests how these outcomes ought to be achieved:

- By harnessing the processes of the natural system (Objective 2).
- By protecting historic properties and traditional living cultures and their ties and relationships to the natural environment (Objective 4).

The planning framework represents a shift from these broad concepts to project prioritization through the development of targets and associated metrics based on a vision of a sustainable coast. This approach requires greater clarity about project outcomes ("what" the State wants to achieve) and the proposed methods of achieving these outcomes ("how" the State wants to achieve it).

To support this approach, the prioritization tool refines the four planning objectives into two goals that seek to achieve the outcomes expressed in Objectives 1 and 3 ("what") through the approaches outlined in Objectives 2 and 4 ("how"):

- Goal 1: Reduce risk of damage from storm-based flooding (incorporates Objectives 1 and 3).
- Goal 2: Restore and/or maintain the Louisiana coastal environment to the benefit of ecosystems, communities, and commercial and recreational activities (incorporates Objectives 2 and 4).

Prioritization Tool Steps

The prioritization tool incorporates the key contributing elements described above with four main steps as summarized in Figure 3-2.

Step 1: Develop Inputs

This step consists of defining which projects to evaluate, identifying key uncertainties, developing regional targets, and establishing decision criteria and constraints. Development of these inputs will be a collaborative effort between the State and stakeholders; during the development and initial application of the prioritization tool, there will be a number of opportunities to refine these inputs.

Step 2: Evaluate Individual Projects

In this step, the planning team will collect data and use models to estimate the progress that each project would make toward achieving regional targets. The team will perform these analyses for multiple scenarios (different sets of assumptions about future planning conditions). This step requires significant technical input and support from universities and other research groups, and will be coordinated through the LACES Division. The first step in this effort was to convene in December 2009 an advisory group of leading members of coastal Louisiana's modeling community to review the ability of existing modeling tools to predict project effects, and to propose new tools to meet needs not addressed by existing models.

Step 3: Prioritize Individual Projects

In this step, the planning team will take the predictions and estimates developed in Step 2 and will compare the results for each project according to the decision criteria established in Step 1. Using these comparisons, projects will be ranked according to their priority for each region. This step will generate sets of rankings that reflect different scenarios.

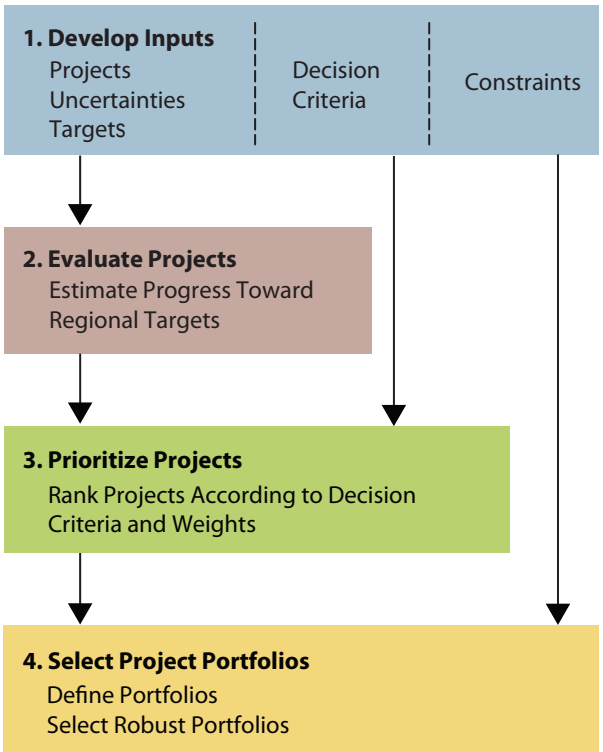
> Synergy = a mutually advantageous combination of elements or components.

Step 4: Select Project Portfolios

During this final step, the tool will identify different project portfolios that contain highly-ranked projects that would work within the constraints defined in Step 1. These portfolios can then be evaluated and compared by repeating the previous steps. During this step, the planning team also uses the results of project and portfolio analyses to examine the tradeoffs that would be associated with selecting one project or portfolio over another.

These four steps provide a structured approach for selecting a robust, comprehensive project portfolio for implementing the Master Plan goals coastwide.

Figure 3-2. Basic Steps of Prioritization Tool.



Benefits of Planning Framework

Long-Term Benefits

Although its implementation will be challenging and will require a significant investment of State resources, the framework represents a significant expansion of the State's planning capabilities and offers numerous improvements over the current planning process. Establishing measurable targets informed by compatible regional visions for a sustainable coast allows the true integration of protection and restoration efforts for the first time. The use of quantifiable targets also allows comparison of predicted project effects against post-construction project performance. This post-construction evaluation will help to develop adaptive management protocols that can improve future projects and will support project performance reporting that is firmly grounded in science and engineering.

INPUTS

A CLOSER LOOK AT INPUTS

Uncertainties

Uncertainties are external factors that are identified by the State, in coordination with technical stakeholders, for consideration in the project evaluation analysis. The planning team will define a set of scenarios to reflect the range of uncertainty associated with these factors. Examples of potential uncertainties could include:

- The effect of restoration projects on the performance of protection projects.
- Reliability of levee systems.
- Future rates of subsidence.
- Availability of sediment for restoration.
- Future demographic patterns.

Targets

Targets are quantifiable benchmarks that measure the progress that projects make toward achieving the vision for each region. Targets could reflect desirable outcomes (such as conditions that support a specific recreational activity) or outcomes to avoid (such as harmful algal blooms caused by freshwater diversions). Examples of possible targets could include:

- Protection levels for communities.
- Suitability/amount of habitat for recreational or commercial species.
- Public area access.

Decision criteria

Decision criteria are parameters that reflect the needs and desires of the State and help identify high priority projects. Decision criteria are applied quantitatively within the framework; therefore, only criteria for which specific project attributes or modeling outputs are available will be considered. Potentially applicable criteria for consideration may include:

- Estimated total progress towards targets.
- Amount of wetland acreage created.
- Time lags/delays in progress toward targets.
- Longevity of project effects.

Constraints

Constraints are factors that influence planning conditions but are not necessarily under the control of the State. The framework uses constraints to group projects together as implementable portfolios. Examples of possible constraints include:

- Available funding.
- Incompatibilities among projects.
- Availability of freshwater inflows or sediment for restoration.

The framework will help the State to take action that is based on both scientific analysis and a coastwide vision.

The planning framework also provides a science- and engineering-based approach to developing new project concepts by identifying areas where existing projects are not making significant progress toward targets. The framework allows OCPR engineers to design new projects around the protection and restoration needs identified by scientific analysis and informed by regional visions. The framework can also identify areas where protection targets cannot be achieved by structural projects, but can be achieved through the application of nonstructural measures.

The planning framework will be developed over several planning cycles, and is designed to provide incremental benefit to the OCPR as it evolves. Ultimately, the framework will serve as the foundation for the next update of the Master

DECISIONS

MAKING BETTER DECISIONS

The planning framework will improve the selection and prioritization of projects in several key ways.

- **Improve estimates of potential project benefits.** The State's current understanding of project benefits is severely limited. Improving benefit estimates through the application of scientific and engineering methods, including hydrodynamic and ecological modeling, will enable the State to distinguish between high- and low-quality projects.
- **Assess projects in an integrated framework.** The current, uncoordinated project selection processes may lead to the implementation of projects that do not achieve desired protection or restoration outcomes. The framework, through its integrated project assessment approach, will help decision-makers to identify, select, and implement projects that achieve multiple objectives.
- **Address inherent tradeoffs in the choice of investments.** Tradeoffs between protection and restoration, as well as among types of restoration outcomes, are unavoidable in any coastwide restoration and protection effort. The proposed framework will provide information to meaningfully address such tradeoffs and facilitate project selection and funding.
- **Improve transparency and stakeholder acceptance.** Developing a transparent, science-based approach to project selection will garner more support from the public. This approach also encourages stakeholders to comment on targets, model outputs, constraints, uncertainties, project selection, and resulting tradeoffs.
- **Streamline decision making and implementation.** An improved, integrated planning process will lead over time to more efficient project implementation, resulting in improved protection and restoration sooner for Louisiana assets and ecosystems.

Plan in 2012. Development of the framework is an iterative process and is not intended to be the final step in planning for Louisiana's effort to safeguard and sustain its coast, but will continue as conditions on the ground change and new information becomes available.

Interim Benefits

For the FY 2011 Annual Plan, the planning team conducted a POC analysis of the prioritization tool using existing data and models (see page 44). Although inputs for the planning framework are still under development, this POC analysis provides several key interim benefits.

> The POC analysis uses existing models and data to demonstrate that the prioritization tool is credible and that it can provide useful information for decision makers.

First, testing the prioritization tool's capabilities through the POC analysis provides a tangible demonstration of the tool at an early stage to facilitate stakeholder feedback and buy-in as the planning framework is being refined. The POC analysis clarifies the need for, and linkages among, predictive models, monitoring data, and project data. The POC analysis also allows the planning team to make refinements to the tool's functionality at an early stage of operation. This early demonstration also helps the planning team to develop the predictive models effectively and identify the data needed to drive the tool. Finally, the POC analysis demonstrates the feasibility of the proposed planning framework for prioritizing and sequencing project portfolios to ensure the realization of optimum benefits within the existing constraints.

Proof-of-Concept Analysis

The POC analysis demonstrates how the framework can be used to evaluate and prioritize an array of protection and restoration projects. The projects, portfolios, decision criteria, and vision developed for the POC analysis are for illustrative purposes only. The results of the POC analysis do not represent any real priorities but merely serve to illustrate tool inputs, functions, and outputs.

Proof-of-Concept Objectives

The objectives of the POC analysis were fourfold:

- Demonstrate the concepts embodied in the planning framework.
- Perform a small-scale test of the tool, allowing the identification of any needs for reworking prior to full-scale application of the tool.
- Make progress in tool refinement while the data and models that drive the tool are developed.

Key Parameters of the Proof-of-Concept Analysis

Region and Timescale

The POC analysis focused on a single planning unit (PU1) and identified tradeoffs among projects with regard to restoration and protection outcomes. The analysis evaluated projects over the interval 2010-2050.

> The POC analysis, which was performed with representative projects, demonstrates that the framework's innovations will be very useful for decision makers and stakeholders.

Projects to be Evaluated

The prioritization tool evaluated 12 representative restoration projects for PU1. These projects had a range of types, sizes, and locations within PU1 and were based on project concepts presented in the Master Plan. The project team developed costs and descriptions of the representative projects by using data from comparable projects. The tool also considered the five structural and nonstructural projects analyzed in PU1 by the USACE in its Louisiana Coastal Protection and Restoration Final Technical Report (LACPR report). Costs and other characteristics for these projects were obtained from the LACPR report. Tables 3-1 and 3-2 present additional information on the 17 projects considered in the POC analysis.

Vision, Targets, and Metrics

Because a vision is still under development for the geographic area covered in the POC analysis, the planning team used existing studies and expert judgment to develop an example vision for PU1 for demonstration purposes. The vision for ecosystem outcomes roughly correspond to current conditions in 2010 as modeled by an existing low-resolution model developed by RAND Corporation (RAND) and University of New Orleans (UNO) scientists to predict the impacts of climate change, restoration, and protection upon Louisiana coastal fisheries[1]. The vision for protection outcomes was based on:

- Residual risk as defined by LACPR for three recurrence intervals (100-, 400-, and 1,000-year).

1 Commagere, A. M., Fischbach, J., Groves, D. G., O'Connell, M., and Reed, D. J. (2009). "Implications of Future Climate Change and Restoration Policy for Gulf Coast Fisheries: A Pilot Project." RAND Corporation, Santa Monica, CA.

Table 3-1. Marsh creation and Mississippi River diversion projects included in the POC analysis.

Project Type	Basin Zone	Size
Marsh Creation	Upper	38,000 acres
	Upper	9,000 acres
	Upper	7,000 acres
	Upper	326 acres
	Middle	14,000 acres
	Middle	38,000 acres
	Lower	25,000 acres
Mississippi River Diversions	Upper	2,000 cfs
	Upper	5,000 cfs
	Middle	50,000 cfs
	Middle	10,000 cfs
	Lower	12,000 cfs

Table 3-2. Storm surge protection structural and nonstructural flood risk mitigation projects included in the POC analysis.

Project Name	Description
Nonstructural, 100-year Protection	Nonstructural projects designed to provide 100-year protection as estimated by LACPR project: PU1-NS-100
Nonstructural, 400-year Protection	Nonstructural projects designed to provide 400-year protection as estimated by LACPR project: PU1-NS-400
Nonstructural, 1,000-year Protection	Nonstructural projects designed to provide 1,000-year protection as estimated by LACPR project: PU1-NS-1000
Trans-Basin Storm Surge Barrier	Structural protection afforded by LACPR project: PU1-LP-a-100-1
Augmented Levee system, 100-year Protection	Structural protection afforded by LACPR project: PU1-HL-a-100-3

- Number of archeological sites afforded protection.

This enabled the planning team to use data from the LACPR report to derive the protection metrics (i.e., the ways by which the ability of projects to achieve protection were measured). The metrics used were:

- Residual damage at the 100-, 400-, and 1,000-year recurrence intervals. "Residual damage" is the amount of damage expected

LACPR TECHNICAL REPORT

ADVANCING COASTWIDE PLANNING WELL BEYOND THE LACPR TECHNICAL REPORT

The State's prioritization tool represents a significant departure from, and improvement to, previous planning tool efforts, including those described in the LACPR Final Technical Report (LACPR report). The tool builds upon the most promising aspects of the LACPR approach and applies new methods to further advance Louisiana's coastal decision making. The tool systematically incorporates uncertainty by evaluating a large set of scenarios for future conditions. The tool also factors planning constraints (e.g., funding and sediment availability) and decision criteria (e.g., sustainability and progress towards targets) into the evaluation process to develop robust project portfolios. Finally, the tool is iterative and interactive to better illustrate key tradeoffs in the selection of promising projects.

The LACPR report included significant advances in numerous areas, such as the use of highly-detailed coastal storm surge and flood risk modeling for coastwide hurricane risk assessments and the evaluation of uncertainty through the final assessment of a small number of scenarios. The prioritization tool builds on these achievements and uses hydrodynamic, coastal ecosystem, and flood damage models to calculate project effects. The State's tool expands upon the uncertainty analysis by considering a much larger set of uncertain factors and developing many more scenarios for analysis. To support the evaluation of a large number of cases, the State's approach uses, where feasible, less-detailed model representation of hydrodynamic, ecosystem, and storm damage risk impacts.

The LACPR effort also included components that were viewed by many stakeholders as less useful, including the application of Multi-Criteria Decision Analysis (MCDA) methods to define stakeholder values about risk and about protection and restoration plan outcomes. This process was not only viewed with skepticism by participating stakeholders, but the results were ultimately over-ridden in the analysis by LACPR-derived value assignments. While the prioritization tool uses MCDA methods to help prioritize projects, the tool evaluates projects based on a wide range of potential weights and is designed to be used interactively with the State and stakeholders in order to evaluate how their choices might be impacted by varying emphasis on the different metrics. This approach will avoid controversy and concern over any single set of analytically-derived stakeholder values and make the treatment of values transparent and flexible.

Finally, although the LACPR evaluated many projects, the study did not produce a final prioritization of projects or portfolios of projects. In contrast, after identifying the relative priority of different projects under different assumptions about the future and priorities, the prioritization tool evaluates actual planning constraints to develop feasible and implementable project portfolios.

at the specified recurrence interval. Residual damages are larger for longer recurrence intervals.

- Historic properties and districts protected (number of historic structures and districts).
- Habitat units for select species of interest.

Uncertainties

Representative uncertainties were considered to demonstrate the tool's uncertainty analysis capabilities. These uncertainties were incorporated into the analysis by developing results that assume a range of values associated with each of the uncertain factors.

The uncertainties included:

- Project costs ($).
- Subsidence and sea-level rise (millimeters/year).
- Availability of river sediment (milligrams/liter).
- Contribution of restoration to protection (reduction in residual damages per wetland area created).

A total of 30 different scenarios representing a wide range of values for each uncertainty factor were elevated in the POC analysis.

Decision Criteria and Constraints

The planning team developed decision criteria and portfolio constraints for use in the POC analysis. Decision criteria included:

- Wetland area: how many acres of wetland area does the project create/protect/restore?
- Achievement of targets within 40 years: how well are the regional targets met within this timeframe?
- A hypothetical score of sustainability: how much maintenance is required to maintain the proj-

ect's effects? (Less intervention implies greater sustainability).

Constraints included:

- Funding available for restoration projects.
- Funding available for structural and nonstructural projects.
- Maximum cumulative Mississippi River diversion flow.

Modeling Project Effects

Given that the POC analysis was preliminary and the focus was not on modeling project effects, this effort relied on existing tools. The effects of the protection projects were not modeled—the POC analysis used the quantitative analysis presented in the LACPR report directly. The impact of various levels of restoration were reflected as an uncertainty and were calculated using scenarios evaluated by the LACPR study: the "No Coastal Change" scenario, which assumes a static coast over the period of analysis; and the "Degraded Coast" scenario, which assumes changes in coastal morphology as a result of relative sea-level rise, subsidence, and erosion over the period of analysis. Ecosystem-related effects of restoration and protection projects were modeled using the existing RAND/UNO fisheries model.

Results of the Proof-of-Concept Analysis

Results of the POC analysis are described fully in Appendix B. After defining in greater detail the inputs to the analysis (Step 1 of the prioritization tool), the POC provides key results corresponding to the next three steps of the prioritization tool.

Step 2 results show how each project leads to incremental progress toward targets. The nonstructural and structural protection projects contribute the most toward the protection targets, while the trans-basin barrier project leads to adverse impacts on habitat for the three species. The marsh creation projects lead to positive progress toward the habitat targets, but the diversion projects have mixed effects on the species habitat. The restoration projects also made some positive progress toward the protection targets

Step 3 uses these results of Step 2, along with various decision criteria weights, to develop prioritized lists of projects. The results of this step reveal how a project's prioritization depends on the emphasis placed on different decision criteria. An analysis that focuses on meeting the flood protection targets places the highest ranks on the high-level nonstructural and structural protection projects as well as the larger diversion and marsh creation projects. Analyses with a balanced protection and restoration focus, analyses that focus on the creation of wetlands, and analyses that focus on projects with greater "sustainability" rank some structural protection projects lower (because of their impact on restoration objectives) and some diversion projects lower (because of their negative effect on the habitat of several species).

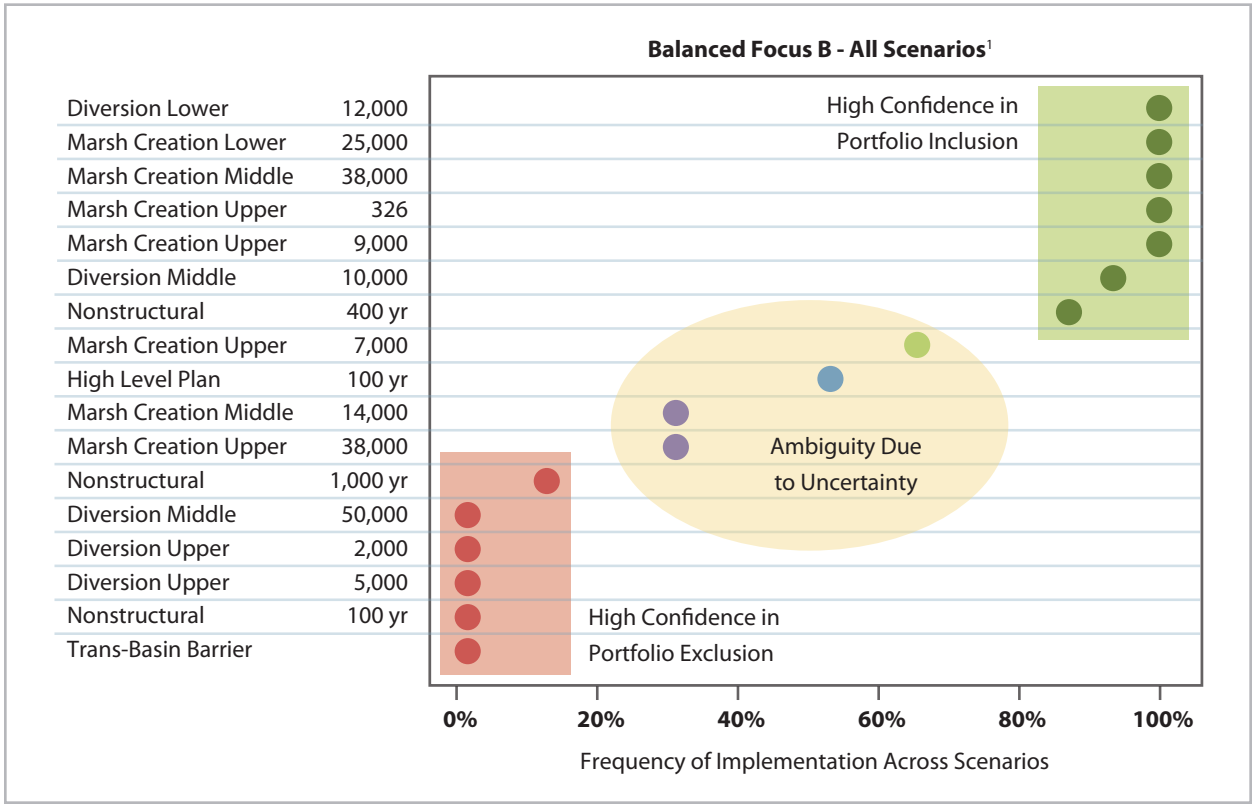
Step 4 combines the individual project prioritization results from Step 3 along with various decision constraints to develop project portfolios for each of 30 scenarios evaluated (Figure 3-3). As Figure 3-3 shows, certain projects perform well across the full range of scenarios and are almost always included in the portfolios (those at the top right of the figure). Alternately, some projects perform poorly across the full range of scenarios and are rarely or never included in portfolios (those at the bottom left of the figure). Only a few projects are included in some scenarios and not in others (those in the center of the figure).

In conclusion, the POC analysis illustrates how the prioritization tool can take estimates of individual project effects and develop recommendations for a small number of project portfolios reflecting uncertainty, different emphases of decision criteria and targets, and constraints. This basic framework can be expanded to incorporate hundreds of projects across all Louisiana's coastal planning units. The resulting of the prioritization and portfolio development processes can provide the State with valuable information to support decisions on implementing coastal restoration and protection projects.

Supporting Decision Making

None of the decisions that resulted in the FY 2011 Annual Plan relied on the results of the POC analysis. However, as the framework continues to be developed and the models and data that drive the prioritization tool improve, the framework's prioritization results will begin to drive decisions. Projects that receive high rankings may be expedited, while ongoing projects that receive low rankings may be off-ramped in favor of higher-ranked projects, rather than taking them to design or construction. Restoration and flood protection gaps identified through this process will prompt

Figure 3-3. Example Results from POC Analysis.



Note:
1–Colored dots indicate the frequency that a given project is included in the portfolio across 30 scenarios (balanced focus analysis).

the development of new projects that can address the areas that have not been considered.

> Effective use of the framework's portfolio sequencing feature could allow the State to seek a programmatic-level Congressional authorization for implementing regional portfolios, bypassing the lengthy WRDA process that is the State's current recourse for such authorizations.

Review of the implementation sequences generated by the tool can help to determine the timing and amount of funds needed to implement project portfolios. This feature allows the State time to explore new funding sources years before the funds are needed, to ensure that adequate funds are available to implement the project portfolio in the optimal manner. Effective use of this feature could allow the State to seek a programmatic-level authorization for implementing regional project portfolios from Congress, bypassing the lengthy and inefficient WRDA authorization process that is the State's current recourse for such authorizations.

Future Annual Plans will explore the planning framework's capacity to develop project portfolios and forecast funding needs. For the FY 2011 Annual Plan, the planning team used existing program requirements and project schedules. Chapter 4 presents these schedules in detail.

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4. Fiscal Year 2011 Implementation Plan

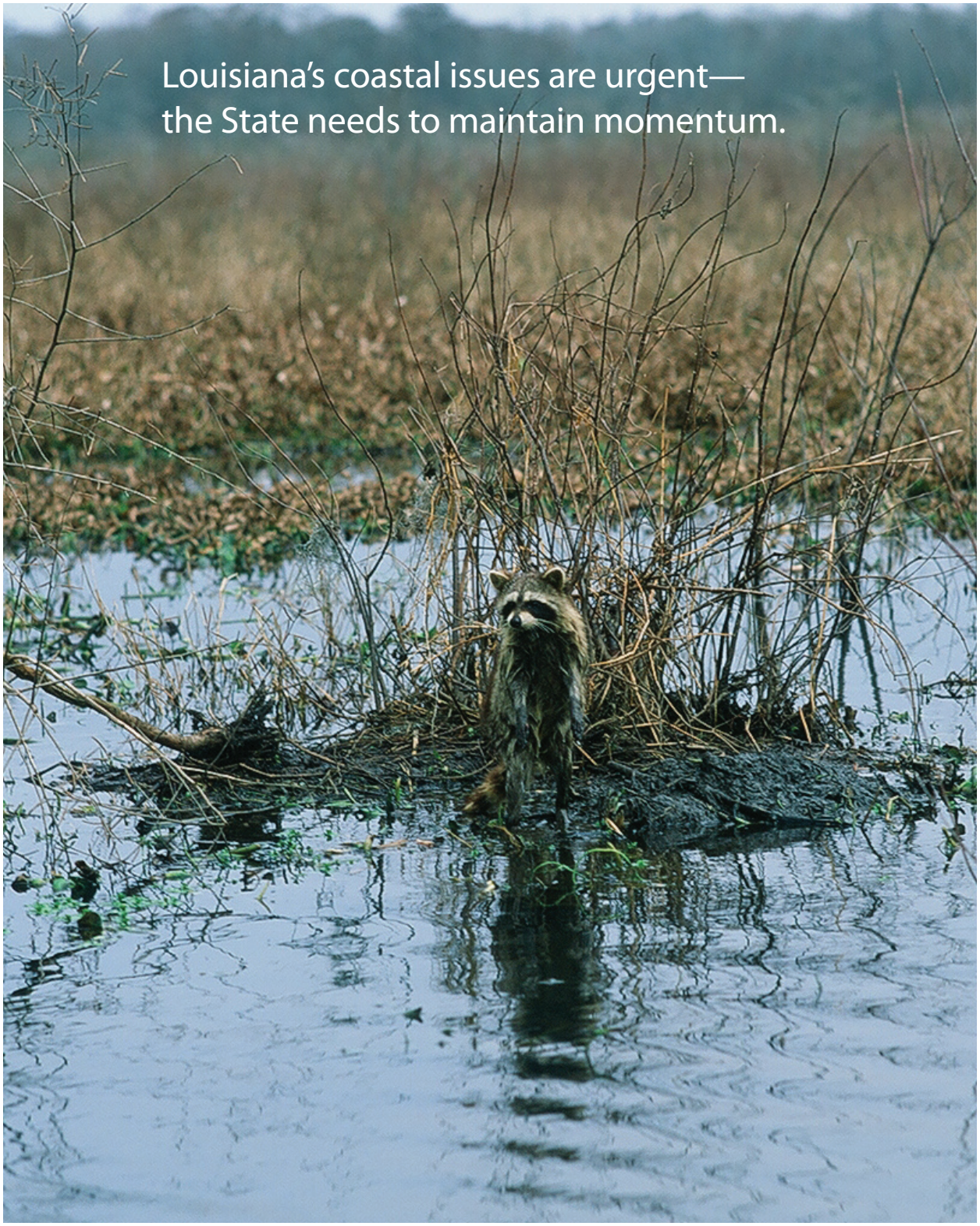


Photo: Tom Downs

This chapter presents an implementation plan that outlines how the State will approach coastal restoration and protection activities over the next three fiscal years (FY 2011-2013), including all coastal protection and restoration projects in which the State will participate. This presentation is organized according to the State's four project phases: planning, design, construction, and OM&M.

Coastal wetlands provide essential buffers against storm surges and floods and must be restored to work with, and serve as buffers for, protection structures such as levees and floodwalls.

The three-year plan shows project activity over time and includes a comparison of this year's project schedule projections with those of the FY 2010 Annual Plan, allowing readers to evaluate the State's overall progress in implementing its coastal program. The estimates for FY 2011 schedules and budgets are based on the most recent and best available information. The State acknowledges that estimates for future years are likely to change and future Annual Plans will update estimates accordingly.

Foundation of the FY 2011 Annual Plan

Development of this implementation plan required an intensive data collection effort. The initial step in this effort was an update of the inventory of State coastal projects created for the FY 2010 Annual Plan from the State's in-house coastal project databases. The planning team updated the database by reviewing various State databases and compiling information on project size, cost, projected benefits, and the timeframe for each phase.

Act 523 requires that State Annual Plans include descriptions of all protection and restoration projects in coastal Louisiana, including Federal-only projects, local parish and levee district projects, and those privately funded wetland enhancements and activities that require a Coastal Use Permit.

The database contains only State projects, or projects in which the State is a partner. However, Act 523 of the 2009 Legislature mandates that State Annual Plans include descriptions of all projects and programs relating to hurricane protection, restoration, and infrastructure in coastal Louisiana, including Federal-only projects, local parish and levee district projects, and those privately funded wetland enhancements and activities that require a Coastal Use Permit. Adding these other projects to the database will be a priority in future years, as the State continues to gather information about non-State coastal protection and restoration efforts. The FY 2011 Annual Plan represents an initial step in this direction. Plan preparation included outreach to coastal parishes and levee districts to obtain information on local, non-State coastal projects. Appendix C contains an inventory of non-State projects identified through this outreach effort. Appendix C also presents information on Federal coastal protection projects for which local parishes or levee districts serve as the local sponsor. The planning team will collect additional information about non-State projects and include this in future Annual Plans, with the ultimate goal of incorporating these projects and their effects into the baseline conditions of the prioritization tool.

Project Status Summaries

The next step in developing the FY 2011 implementation plan involved assessing the status of projects in the database according to the four categories traditionally used by the State to track projects: projects in planning, projects in design, projects under construction, and constructed projects that are being operated, maintained, and/or monitored. Below are summaries of project status by phase. Appendices A and D provide additional details about the projects.

Projects in Planning

The planning team identified 12 projects in the planning phase in FY 2011. These projects include seven restoration projects from the Louisiana Coastal Area (LCA) Ecosystem Restoration Study, the Violet Diversion project (currently under CIAP but transitioning to WRDA), the Southwest Coastal Louisiana Feasibility Study, the Donaldsonville to the Gulf of Mexico Feasibility Study, the Alexandria to the Gulf of Mexico Feasibility Study, and the South Central Coastal and North Shore Hurricane Flood Protection Plans. Planning for nine of these projects is projected to be complete within the next three fiscal years, at which point six of these projects will move into the design phase. The other three projects will begin design following appropriation of design funding.

INTEGRATION

BREAKING NEW GROUND WITH INTEGRATED APPROACHES TO COASTAL SUSTAINABILITY

The Southwest Coastal Louisiana Feasibility Study (SWCLFS) will investigate the integration of coastal protection and restoration measures to support sustainable human and natural communities in the Southwest Louisiana parishes of Calcasieu, Cameron, and Vermilion. Past studies, such as LACPR, LCA, Coast 2050, and the Master Plan will be evaluated as part of this effort.

The SWCLFS will investigate different types of measures, including:

- Multi-parish levee alignments, multiple lines of defense, and nonstructural measures (protection).
- Salinity control, new locks and gates, hydrologic restoration, freshwater introductions, beneficial use, shoreline stabilization, bypass culverts, and dedicated dredging (restoration).

The study team has compiled an array of potential concepts for the area, established project goals, and developed a set of screening criteria. In the coming months, the study team will evaluate and identify viable features and potential solutions for the study area. Once a list of options is developed, the team will model these features to test their feasibility. The project is scheduled to complete its planning phase in August 2011.

Projects in Design

Thirty-five coastal protection and/or restoration projects are in the design phase.

Restoration Projects in Design

The planning team identified 33 projects in this category in FY 2011. All of these projects will complete designs within the next three fiscal years. The path these projects will take to construction varies according to the authorizing program.

- Twenty-one CWPPRA projects are in the design phase. All of these projects will complete designs by the end of FY 2013. After design, construction will begin as projects are approved for Phase 2 through the CWPPRA program. An additional four CWPPRA projects have already completed designs and are awaiting funding for construction. Finally, one CWPPRA demonstration project is in design.
- Two State CIAP restoration projects are in the design phase, both of which will complete design within the three-year projection period. These projects are already funded for construction and will proceed to construction as outlined in the project schedules on pages 61-65.
- Three restoration projects that utilize State surplus funds are in the design phase, including the Mississippi River Water Reintroduction into Bayou Lafourche and Bayou Lacache Wetland restoration projects. The Bayou Lafourche project has construction activities concurrent with design, while the Bayou Lacache Wetland project will proceed to construction following completion of design.
- Six LCA restoration projects will begin the design phase in FY 2011. These projects are authorized for construction and will proceed to construction, pending Federal appropriations, as outlined in the project schedules on pages 61-65.

Protection Projects in Design

The State is contributing to four “parent” hurricane protection projects (see Chapter 2) with numerous “children” components that are in various stages of design and construction. These projects include the Lake Pontchartrain and Vicinity (HPO and PRO projects), West Bank and Vicinity, and Morganza to the Gulf of Mexico Hurricane Protection Projects. These projects are estimated to cost between $15 and $20 billion, and, in the case of Morganza to the Gulf, involve construction timeframes of several decades, according to USACE timelines. Two State protection projects are also in design in FY 2011, the Delcambre-Avery Canal and Rosethorne Tidal Protection projects. These projects will complete design within the next three fiscal years, at which point they will proceed to construction following appropriation of funding.

Projects under Construction

Restoration Projects under Construction

The planning team identified 31 restoration projects that will begin or continue construction in FY 2011, including 15 CWPPRA projects, nine State CIAP projects, six State surplus projects (including the Bayou Lafourche project, which is concurrently undergoing design), and one LCA project. Many of these projects began construction

in FY 2010 and are highlighted in Chapter 2. Fourteen of these projects will complete construction activities in FY 2011, and construction activities will be completed for an additional 15 projects within the three-year period of projection.

Protection Projects under Construction

The planning team identified nine projects in this category, all of which utilize State surplus funds. Four of these projects will complete construction in FY 2011, and the remaining five projects will complete construction within the three-year period of projection. As discussed above, the State is contributing to four "parent" hurricane protection projects whose numerous "children" components are variously in design and construction phases. Construction of the Lake Pontchartrain and Vicinity and West Bank and Vicinity Hurricane Protection Projects will be completed by the end of FY 2011, while construction of Morganza to the Gulf will continue beyond FY 2013.

In FY 2010, OCPR assumed all State responsibilities formerly assigned to DOTD for hurricane/flood protection in the Coastal Zone and began working with the USACE to enhance protection of coastal communities. The majority of ongoing hurricane protection efforts in southeast Louisiana are Federally funded. The majority of the State's contribution to project implementation has been in the form of funding LERRDS. Discussions about the manner in which the State may address any additional cost share requirements are ongoing.

In addition to the above protection projects, the State has expressed its intention to fully support the Plaquemines Parish government in its efforts to attain a 100-year level of protection for the reach of the New Orleans to Venice Hurricane Protection Project, which stretches from Oakville to LaReussite. New Orleans to Venice is currently 100 percent Federally-funded to congressionally authorized design levels. However, Plaquemines Parish has expressed its willingness to pay the incremental cost of raising the Oakville to LaReussite stretch of the project to a 100-year level of protection. The State has indicated its support for this local effort and its willingness to be a cosignatory with the Plaquemines Parish government in an agreement with the USACE, provided that the agreement specifies that Plaquemines Parish will pay the incremental cost of elevating Section 1 of the project to provide 100-year protection levels within the project area. No State funding is requested for the project at this time.

Infrastructure Projects under Construction

Seven State CIAP projects that involve infrastructure improvements will begin construction in FY 2011. Two of these projects will complete construction in FY 2011, and the remaining five projects will complete construction within the three-year projection period.

Constructed Projects in OM&M

Constructed Restoration Projects

The State will conduct operation and maintenance (O&M) activities on 83 constructed projects in FY 2011, of which 77 were built using CWPPRA funds, four using State funds, and two using

WRDA funds. The State also monitors projects and coastwide conditions using CRMS-Wetlands (see Chapter 2). The State will monitor 33 constructed projects in FY 2011, of which 29 were built using CWPPRA funds, two using State funds, and two using WRDA funds. Appendix D presents OM&M projections for these projects.

Over the last four years, 53 hurricane protection construction contracts have been completed.

Constructed Hurricane Protection Projects

Over the last four years, 53 hurricane protection construction contracts have been completed. The USACE constructed many of these projects to correct the levee heights of hurricane protection systems in and around New Orleans. The USACE is in the process of restoring the levee system to the pre-Katrina authorized level of protection.

Programs

Ongoing State Efforts

The State operates 14 ongoing programs. These efforts provide supporting data and research for protection and restoration projects and answer key questions about uncertainties and coastal processes that affect project performance and sustainability. The LACES Division coordinates many of these programs, including the LCA Science and Technology Program, Coastal Science Assistantship Program, and System-Wide Assessment and Monitoring Program.

Proactive Steps to Streamline Future Efforts

The State is exploring several initiatives that could expedite the achievement of Master Plan objectives by streamlining the planning process, improving efficiency within the coastal program, and reducing the costs of project implementation. Chapter 2 describes many of these initiatives, which are being funded with surplus dollars. Surplus allocations to the State's beneficial use program assist in covering the incremental cost of placing dredged material outside of a reasonable Federal standard. As a complement to the beneficial use program, the State has set aside surplus funding to pre-clear sites for beneficial use of dredged material (see Chapter 2). These two initiatives, working together, will better ensure that material generated by USACE dredging operations is not wasted and is placed where it can best support the State's restoration and protection goals.

The State is exploring several initiatives that could expedite the achievement of Master Plan objectives by streamlining the planning process, improving efficiency within the coastal program, and reducing the costs of project planning and implementation.

Land Use Toolkit for Nonstructural Measures

The Master Plan acknowledges that hurricane protection systems and restored wetlands cannot eliminate all flooding risks, whether from storm surges, rivers, or rainfall. Additionally, the Master Plan acknowledges that wind damage is always a risk for hurricane-prone regions. For these reasons, some degree of residual storm-related risk will remain facts of life in Louisiana, regardless of how many protection structures are built and wetlands restored. The Master Plan therefore champions the adoption of nonstructural measures as a tool to minimize risks to property. The types of nonstructural measures contemplated within the Master Plan include, but are not limited to, the use of smart growth principles, implementation of the 2007 Louisiana State Uniform Construction Code, and improved evacuation planning. Generally, nonstructural measures are implemented on an individual, community, or parish level, such as purchasing flood insurance, enacting and enforcing zoning regulations, and floodproofing and elevating homes. Nonstructural measures for flood protection (such as in-place elevation of structures) are an essential component of the Multiple Lines of Defense strategy adopted by the 2007 Master Plan.

Because of the complex cultural nature and diverse needs of Louisiana's coastal zone, nonstructural measures must address the specific risks and requirements of individual communities in order to be effective. For example, the State is supporting the development of a "Land Use Toolkit" that will offer options for reducing flooding impacts while supporting sustainable communities. This approach, which is based on Smart Growth principles and best land use practices, can be customized to the needs of distinct communities and will inform coastal residents about the range of available nonstructural options as they rebuild or protect their assets.

Many of the decisions on where, when, and how to implement nonstructural measures will need to be made at the community level, since it is the community that must ultimately decide how to protect itself from existing and future risks. Mitigation planning may involve tough choices, and communities, as well as individuals, may need to consider relocating to safer ground. However, the State plans to take a proactive approach to the implementation of nonstructural measures and facilitate adoption of these initiatives through education, outreach, and coordination. The State has already begun to embrace its expanded role through the continued improvement of hurricane evacuation planning and the enactment of tougher building codes. Implementation of a full suite of nonstructural measures will help ensure the continued vitality and sustainability of Louisiana's coastal communities.

FY 2011–2013 Funding Projections

Table 4-1 presents projected State revenues over the next three fiscal years. While the three-year projections provide readers with an informative picture of the State's upcoming activities, the Legislature only reviews and approves expenditures for FY 2011. The State acknowledges that new project opportunities may arise as Federal funds become available after the approval of the plan. The State must be ready to address these opportunities. In this event, any requests for additional funds will be submitted to and approved by the CPRA.

Sources of Coastal Funding

> The State is projecting funding shortfalls in coming fiscal years and is aggressively pursuing new sources of funding to maintain or accelerate its current rate of project implementation.

In future years, as inputs for the prioritization tool become available, decisions regarding the allocation of funding within the coastal program will be made by more quantitative analyses, which will continue to advance the objectives of the Master Plan. The State is projecting funding shortfalls in coming fiscal years and is aggressively pursuing new sources of funding to maintain and, where possible, accelerate its current rate of project implementation. In the meantime, the State will continue to make the most efficient use of possible funding from its current sources, which include the following:

State Coastal Protection and Restoration Trust Fund

The State Coastal Protection and Restoration (CPR) Trust Fund was established by Louisiana Revised Statute (LA-R.S.) 49:214. The

NONSTRUCTURAL

INCORPORATING NONSTRUCTURAL MEASURES INTO THE COASTAL PROGRAM

The 2007 Master Plan identified nonstructural measures as a vital component of an effective coastal protection and restoration program. Architectural, land use, and community planning solutions (such as elevation and evacuation planning) must be developed and implemented to reduce risk above and beyond what wetlands and levees can provide. Such nonstructural measures can help residents and businesses protect their assets while simultaneously reducing flood insurance premiums.

The identification, development, and implementation of nonstructural measures, including nonstructural flood protection measures, are currently under the charge of multiple Federal, State and local agencies and cover a broad range of actions, including local land use planning, evacuation planning and implementation, elevation and retrofitting of residences and businesses, and relocation.

Some nonstructural actions are eligible for funding through FEMA's Hazard Mitigation Grant Program (HMGP) and HUD's Community Development Block Grant (CDBG) program. Traditionally, in Louisiana, the Governor's Office of Homeland Security and Emergency Preparedness (GOHSEP) has administered FEMA monies, while the Office of Community Development (OCD) has administered CDBG funding. After Hurricanes Katrina and Rita, the Louisiana Recovery Authority (LRA) was established to handle these, as well as additional monies provided to Louisiana for community recovery, much of which was focused on projects that provide nonstructural flood protection.

Through the work of the LRA, including the Road Home program, funding has been made available to individuals not only for the repair of their homes, but also for the purchase of storm-damaged homes. Funds have been directed to elevating residences coastwide. The LRA has also made funding available to increase local planning capacity and to support the implementation of critical programs, such as providing funding to local government to develop staff to implement the State's stringent building codes adopted after Hurricanes Katrina and Rita.

Other State agencies continue to work on nonstructural protection measures which are part of their identified missions. DOTD, in partnership with GOHSEP and the State Police, continues to work to improve emergency evacuation in Louisiana, including storm evacuation.

The Office of Economic Development, through a cooperative endeavor with the Center for Planning Excellence (CPEX), produced a Land Use Toolkit for local government use in land use planning. The CPRA, in conjunction with CPEX, is funding a best practice manual to support the development of natural resource and natural hazards model ordinances for this innovative toolkit. Work on this component of the toolkit was recently initiated and is expected to be complete in 24 months.

Understanding that coordination between Federal, State and local agencies must continue on implementation of nonstructural flood protection measures, the CPRA recognizes that it serves as a forum for both agency and public dialogue on this important component of providing protection to the residents and businesses of coastal Louisiana.

Recognizing that a robust nonstructural program is an essential element of an effective natural hazards protection plan, the planning team is currently working to better integrate nonstructural protection measures into the 2012 Master Plan Update. Initial steps in this effort include facilitating a series of RSW meetings (see Chapter 2) specifically addressing nonstructural measures (currently scheduled for Spring 2010). The intent of these meetings is to involve the public, including community leaders, non-profit organizations, the business community, and the scientific community in the development of a comprehensive nonstructural program for the State. The RSWs will assist the planning team in identifying what types of nonstructural measures have already been implemented in coastal communities, which of these measures work, and which measures are generally supported by the public. The goal is to develop a comprehensive suite of nonstructural flood protection measures for inclusion in the 2012 Master Plan Update.

Trust Fund is largely supported by mineral revenues and severance taxes on oil and gas production on State lands. The Trust Fund provides funding for the coastal program's ongoing operating expenses and for continuing State efforts in coastal restoration and protection.

Minerals Management Service

CIAP is providing Louisiana and its 19 coastal parishes (referred to in CIAP as coastal political subdivisions) approximately $496 million from the Minerals Management Service (MMS) over a four-year period. MMS distributed $250 million a year

Table 4-1. Projected 3-Year Revenues FY 2011–FY 2013.

Revenue Sources	FY 2011	FY 2012	FY 2013	Program Total FY 2011- FY 2013
CPR Trust Fund	$36,934,275	$35,000,000	$35,000,000	$106,934,275
CIAP	$91,704,790	$28,203,992	$32,136,368	$152,045,150
Surplus '07	$137,834,985	$13,689,356	$12,633,000	$164,157,341
Surplus '08	$99,399,444	$42,033,333	$3,053,333	$144,486,110
Surplus '09	$139,452,875	$7,239,631	$355,689	$147,048,195
GOMESA	$699,757	$326,400	$326,400	$1,352,557
Hazard Mitigation Grant Program	$47,200,000	$0	$0	$47,200,000
Community Development Block Grants	$27,400,000	$0	$0	$27,400,000
FEMA	$10,000,000	$0	$0	$10,000,000
Reimbursement for Federal In-Kind Credit	$6,140,000	$6,385,600	$6,641,024	$19,166,624
Carry Over From Previous Year (Trust Fund)	$21,460,660	$0	$0	$0
Total	**$618,226,786**	**$132,878,312**	**$90,145,814**	**$819,790,252**

for FY 2007–2010 among six energy-producing coastal states (Alabama, Alaska, California, Louisiana, Mississippi, and Texas) to fund projects that mitigate the impacts of OCS oil and gas production activities. Distributions are based on the percentage of each state's OCS energy revenue with respect to the total revenue from all eligible states. Coastal political subdivisions receive 35 percent of the funds and the State receives 65 percent to be spent on projects and activities that are designed to:

- Conserve, protect, or restore coastal areas, including wetlands.
- Mitigate damage to fish, wildlife, or natural resources.
- Assist with planning and the administrative costs of CIAP compliance.
- Implement a Federally-approved marine, coastal, or comprehensive conservation management plan.
- Mitigate the impact of OCS activities by funding onshore infrastructure projects and public service needs.

Up to 23 percent of allocated CIAP funds can be spent for planning and compliance, onshore infrastructure projects, and public service needs to mitigate OCS impacts. The State has worked with the coastal parishes to prepare the Louisiana CIAP Plan, which was the first plan to receive approval from MMS in November 2007. The latest version of the Louisiana CIAP Plan, which was submitted to MMS in August 2009, includes 104 State-only, State/parish shared, and parish-only CIAP funded projects. Current projections indicate that approximately 80 percent of the funds will be spent by the end of (calendar year) 2011, with the remaining State CIAP funds spent by (calendar year) 2014.

Budget Surpluses

The Louisiana Legislature allocated funds from State surpluses in 2007, 2008, and 2009 to the coastal program, resulting in $790 million invested in support of coastal protection and restoration efforts over the past thee years.

American Recovery and Reinvestment Act of 2009

NOAA provided the opportunity to compete for grant funds for coastal habitat restoration projects under the American Recovery and Reinvestment Act of 2009. NOAA solicited proposals for a variety of habitat restoration projects, including wetlands restoration, dam removals, shellfish restoration, and coral reef restoration with the requirement that the projects be "shovel-ready." NOAA made $170 million available for coastal and marine restoration nationwide with awards of $1.5–$10 million and limited to projects costing $500,000–$20 million. The State received an award of $3.025 million for the CWPPRA project Mississippi River Sediment Delivery System at Bayou Dupont (BA-39; see Chapter 2).

GOMESA Funds

Beginning in 2017, GOMESA is expected to contribute $100–$200 million to Louisiana each year.

Full funding from GOMESA will begin in 2017. GOMESA provides four Gulf Coast states, including Louisiana, with 37.5 percent of Federal revenue gained from new offshore drilling leases in the outer continental shelf. The act is expected to contribute $100–$200 million to Louisiana each year after 2016. No end date has been established for GOMESA funding. The State is considering bonding a portion of GOMESA funds based on expected revenue from future oil and gas royalty payments, a strategy that could provide a surge in funding over the near-term, depending on the health of the bond market. The State is also considering borrowing GOMESA funds from the Federal government based on expected future royalties. Before bonding or borrowing can take place, however, MMS must publish regulations for allocating funds to the State, and the State must estimate the amount of money that can be expected from oil and gas revenues (both short- and long-term). With these estimates, the potential revenue stream can be evaluated.

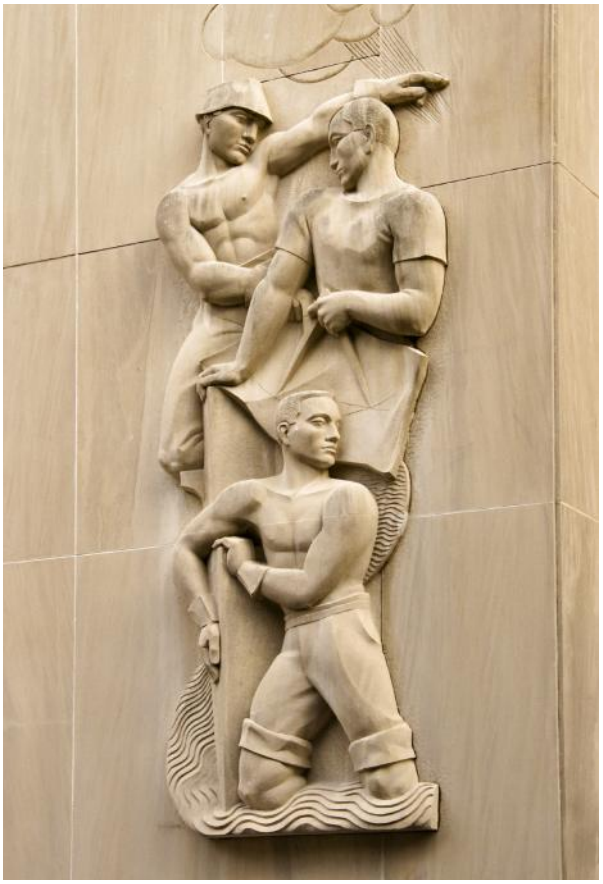
The State is considering bonding GOMESA funds based on expected revenue from future oil and gas royalty payments, a strategy that could provide a surge in funding over the near-term.

Community Development Block Grants

Louisiana will receive $1.06 billion in Community Development Block Grants (CDBG) to assist in the recovery from Hurricanes Gustav and Ike. This allocation was made in response to a plan Louisiana submitted to the Department of Housing and Urban Development (HUD). The vast majority of CDBG funds will go directly to the 19 coastal parishes for use in protecting their communities and infrastructure. The State is working with these coastal parishes to identify and construct local projects that will protect and restore coastal communities and contribute to the goals of the Master Plan. However, included within the $1.06 billion is an allocation of $27.4 million in CDBG funding for State coastal protection and restoration projects that will help communities recover from the 2008 hurricanes and prepare to withstand future hurricanes with greater resilience. The State, in communication with local interests, has identified 10 potential flood protection and restoration projects that could be implemented with these CDBG funds, including floodgate installation, levee construction or improvement to reduce storm surge impacts to coastal communities and critical infrastructure, and shoreline protection to benefit communities and related infrastructure and recreational facilities. These projects are presented in Appendix F. Several coastal wetland restoration projects have also been identified, including marsh restoration with dredged material, construction of marsh terraces, assimilation of nutrients from treated wastewater with existing wetlands, freshwater marsh protection and restoration, and shoreline stabilization to reduce wetland loss.

Hazard Mitigation Grant Program

The Federal Emergency Management Agency's (FEMA's) Hazard Mitigation Grant Program (HMGP) provides funds to states, local governments, and Indian tribes for long-term hazard mitigation projects following a major disaster declaration. The program funds public or private property improvements that help reduce the



impacts of future storms. In May 2008, FEMA allocated $50 million to the State for coastal projects. The State, working with the Louisiana Recovery Authority, the Governor's Office of Homeland Security and Emergency Preparedness (GOHSEP), and FEMA, developed a list of candidate coastal projects that would be eligible to receive these funds. Local governments would implement these candidate projects, which would complement the Master Plan by fostering resiliency in coastal communities subject to flooding. The majority of those projects would improve floodwater drainage, while another proposed project would use the funding for barrier island restoration and associated storm surge reduction. The State submitted an application to FEMA in June 2009 for 21 projects totaling $47.2 million. The projects are currently under review for approval by FEMA. The State also worked with coastal parishes and GOHSEP on applications for projects to be supported with $33 million in HMGP funds (for Hurricane Ike recovery) directed to coastal resiliency efforts.

Development of Funding Projections

This FY 2011 Annual Plan contains budget projections that show the amount of State funds that would actually be needed to accomplish the proposed implementation plan for the next three fiscal years. These budget projections improve further on previous projections by more closely reflecting actual expenditures and the amount of work that will be performed, which allows citizens and legislators to track progress on individual projects more accurately than ever before.

These funding projections take into account State budget surplus funds allocated for coastal protection and restoration projects. A 2009 House Bill allocated $290 million from 2009 surplus funds and Tax Amnesty Revenues for coastal protection and restoration in accordance with the FY 2010 Annual Plan. The State dedicated $193.3 million of this funding for land acquisition and related costs associated with critical hurricane protection measures in the New Orleans area, and the remaining $96.7 million for other coastal

projects. The Legislative approval of the 2009 surplus funding allocation supplements the $500 million already allocated from the 2007 and 2008 surpluses. Together, these funds represent an investment unprecedented in the history of the coastal program. Appendix D provides details of how the 2007-2009 surplus funds will be spent.

When developing these projections, the planning team worked with the following challenges and assumptions:

- CPR Trust Fund revenue is difficult to estimate in advance, due to a complicated formula and funding triggers based largely on fluctuating mineral revenues. An estimated Trust Fund balance of approximately $21.5 million will be carried forward as of July 1, 2010, but fund revenues are difficult to predict due to volatile oil and gas pricing.
- Some of the Trust Fund's existing balance is already obligated to cover OM&M expenditures. The State plans to reserve all earmarked and obligated funds to ensure that there will be enough money to complete projects that the Louisiana Legislature has committed to execute.
- All remaining funds earmarked for projects from 2007 and 2008 surplus funds were carried forward and are shown as revenue in FY 2010 for the purposes of the FY 2011 Annual Plan.
- State budget forecasts indicate a deficit in FY 2011 and 2012. Additionally, CIAP dollars will be expended by FY 2014 unless MMS extends the deadline for expending those funds. Thus, until FY 2017, when significant Federal GOMESA funding is scheduled to arrive, funding for coastal protection and restoration could be severely constrained. This funding gap will occur at a critical time for Louisiana, when the State needs to maintain momentum after implementing some new coastal protection and restoration projects. To bridge the projected funding gap and avoid deficit spending, the State is exploring ways to create a dedicated funding source for coastal activities and is investigating bonding GOMESA funds or borrowing from the Federal government against future GOMESA revenues. In the coming months, the State will explore these and other potential sources of funding, such as future allotments from the Tobacco Settlement and the Natural Resource Damage Assessment program (in response to oil spills from Hurricanes Katrina and Rita).
- Funding projections represent known avenues through which funding will be received. However, many uncertainties persist regarding the percentages and amounts of funding to be provided by the Federal government and local sponsors. Should more dollars become available, the State will be able to expand its efforts.

Funding Flexibility: Responding to Emergencies, Capitalizing on Opportunities

The funding projections in this chapter present a forecast based on a snapshot in time. However, the coastal program needs some degree of funding flexibility to enable the State to respond appropriately to the issues discussed above. Reprogramming of existing and new funds will likely occur in accordance with applicable State laws to protect the lives, livelihoods, and heritage of the people of coastal Louisiana.

> Every $1 invested by Louisiana in coastal protection and restoration efforts leverages $11 from its partners.

The planning team made its funding projections and estimates based on the most recent and best available information. Flexibility in funding allocations is necessary to maximize the ability of the State to meet Master Plan objectives. The current funding-limited environment makes it even more important to leverage every dollar to the maximum extent. Because funding situations change, storms affect coastal systems, and scientific and engineering developments advance, it is essential that the State can, as it identifies changes in needs, shift funding from one program or project to another without delaying progress.

The dynamic nature of Louisiana's coastal ecosystem increases the State's need to be ready to respond to evolving conditions. For example, if a public emergency (such as a hurricane) occurs in FY 2011, the State may need to change some funding allocations to address new conditions on the ground or to repair damages to existing projects. Such a reallocation would need to happen quickly, so that harm to the ecosystem and affected communities could be minimized.

Although the current funding climate is extremely uncertain, new funding sources may become available in FY 2011. For example, if Federal partners gain Congressional approval and funding for major new coastal projects in Louisiana, the State

might need to contribute a percentage of the projects' costs (cost share), or risk losing the opportunity to maximize Federal investment in our coast. The CPRA has been granted authority to reprogram dollars from approved funding streams and allocate the dollars to best meet new opportunities or needs. Such flexibility ensures that the coastal program can respond effectively to unforeseen events that take place outside the legislatively mandated planning cycle.

> Flexibility in funding allocations is necessary to maximize the ability of the State to meet Master Plan objectives and to protect the livelihoods and heritage of the people of coastal Louisiana.

New developments in science and engineering may cause the State to change its approach to project design and construction. In this event, shifts in funding would also be needed. As more data are collected on how constructed projects work, the State will adjust priorities to focus on the most effective project concepts. (An inventory of project concepts currently under consideration for development is presented in Appendix G.) In this way, the State can allocate its limited funds to projects with high rates of return. These projects will be refined continually based on input from engineers, scientists, and regional and technical stakeholders.

Project Schedules FY 2011–2013

Table 4-2 presents schedules for all active State coastal projects for the period FY 2011–2013. The schedules indicate the following levels of activity for the next three fiscal years:

- FY 2011 Projects in planning: 12
- FY 2011 Projects in design: 35
- FY 2011 Projects waiting for construction funding: 4
- FY 2011 Projects in construction: 51 (includes hurricane protection "parent" projects)
- FY 2011 Projects that will complete construction: 23 (includes "parent" projects)
- FY 2012 and 2013 Projects that will complete construction: 25
- FY 2011 Projects with operation and maintenance expenditures: 83
- FY 2011 Projects with monitoring expenditures: 33

Figures 4-1 through 4-3 depict restoration projects in construction in FY 2011, restoration projects in OM&M in FY 2011, and protection projects with State expenditures in FY 2011.

> Despite the State's progress in the past year, the challenges that face coastal Louisiana remain formidable—the State must continue to maintain and, where possible, accelerate its current rate of progress.

As the project schedules indicate, the State will focus its resources over the next three years on constructing coastal projects that are already in planning and design. The State is constructing projects at a greater rate than ever before. Consequently, the State must be ready to meet the costs associated with OM&M of these constructed projects.

Comparison with FY 2010 Schedules

The Master Plan requires that Annual Plans provide updates on progress, strategies, technical challenges, and priorities to help ensure high program performance and efficient use of resources. The FY 2011 Annual Plan breaks new ground in meeting this requirement with its updates and comparison. As Chapter 2 indicates, the State made significant progress in project implementation during FY 2010. Nonetheless, in the interest of transparency to stakeholders, the State also acknowledges that some projects have experienced delays in design or construction since the FY 2010 Annual Plan was approved. Forty-three projects have experienced delays of at least one fiscal quarter (denoted by a green triangle △ next to the project name in Table 4-2). Causes for delays for these projects are indicated by footnotes in Table 4-2. Many of these causes are issues outside of the State's control, such as cost-share or coordination delays associated with the USACE and other Federal agencies (12 projects). Other causes include design issues (eight projects), land-rights issues (four projects), contracting issues (four projects), and additional funding requirements (three projects).

The State is exploring approaches to address project delays, including alternative project delivery methods such as design-build, working to engage landowners earlier in the project development process, and working to reform the Federal planning process (see Chapter 2).

Table 4-2. Schedules for All Active State Coastal Projects for FY 2011–2013.

	Fiscal Year	2011				2012				2013			
	Quarter	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q
State ID	**Project Name**												
	State-Only Projects												
AT-12	Alexandria to the Gulf	P											
AT-13	Atchafalaya Basin Natural Resources Inventory and Assessment	D	D	D	D	D	D	D	D				
BA-25	Mississippi River Water Reintroduction into Bayou Lafourche	B	B	B	B	B	B	B	B	B	B	B	B
BA-75-1	Jean Lafitte Tidal Protection	C	C	C	F								
BA-75-2	Rosethorne Tidal Protection				D	D	D	D			C	C	C
BA-75-3	Lafitte Tidal Protection	D	D	C	C	C	F						
BA-75-4	Lafitte Levee Protection	C	C	C	C	C	C	C	F				
CS-33.1	Cameron Parish Shoreline	D	C	C	F								
CS-34 (SF) Δ	Beneficial Use - Calcasieu Ship Channel[1]	F											
CS-04a	Cameron Creole Maintenance	C	C	C	F	O	O	O	O	O	O	O	O
LA-21.1	Beneficial Use 2008 - Sabine Cycle 2	F											
LA-24.2	Madisonville Bulkhead	D	D	C	C	F							
ME-25 (SF) Δ	Marsh Creation Near Freshwater Bayou[2]	D	D	D	C	C	C	C	C	F			
PO-72	Biloxi Marsh	D	D	C	C	C	C	F					
PO-74	North Shore Hurricane Flood Protection Plan	P	P	P	P	P	P						
TE-03	Bayou LaCache Wetland	D	D	D	D	D	D	D	D	D	D	D	D
TE-65 Δ	Larose to Golden Meadow[1]	C	C	C	C	C	C	C	C	F			
TV-54	South Central Coastal Plan	P	P	P	P	P	P	P	P	P	P	P	P
TV-55	Morgan City/ St. Mary Flood Protection	D	D	D	C	C	C	C	F				
TV-56	Four-Mile Canal Storm Surge Reduction Construction						D	D	D	C	C	C	F
TV-57	Delcambre-Avery Canal (E&D)	D	D	D	D	D							
Δ	Forty Arpent Levee, St. Bernard Parish[1]	C	F										
Δ	Raising of LA 23 at LaReussite[3]												
Δ	St. Charles Parish West Bank Hurricane Protection Phase 1 - Magnolia Ridge[1]	C	F										

Legend

Δ Project has experienced a delay of greater than one fiscal quarter with respect to FY 2010 schedule.

[1] Cost-share agreement issues with the project sponsor.

[2] Project is being merged with another project.

[3] Pending selection of the preferred alternative of an adjacent project.

P	Feasibility & Planning
D	Engineering & Design
W	Completed Design Projects; Awaiting Construction Funding
C	Construction
B	Both Design & Construction
F	Completed Const. Projects
O	OM&M

Table 4-2. Schedules for All Active State Coastal Projects for FY 2011–2013 (continued).

State ID		Project Name	2011 1Q	2011 2Q	2011 3Q	2011 4Q	2012 1Q	2012 2Q	2012 3Q	2012 4Q	2013 1Q	2013 2Q	2013 3Q	2013 4Q
		CWPPRA Phase 1												
BA-34		Mississippi River Reintroduction Into Northwest Barataria Basin	D	D	D	W	W	W	W	W	W	W	W	W
BA-40		Riverine Sand Mining/Scofield Island Restoration	D	D	W	W	W	W	W	W	W	W	W	W
BA-47		West Pointe a la Hache Marsh Creation	D	D	D	W	W	W	W	W	W	W	W	W
BA-48		Bayou Dupont Marsh and Ridge Creation	D	D	D	D	D	W	W	W	W	W	W	W
BA-68		Grand Liard Marsh and Ridge Restoration	D	D	D	D	D	D	W	W	W	W	W	W
BS-12	Δ	White Ditch Resurrection and Outfall Management[4]	D	D	D	D	D	D	W	W	W	W	W	W
BS-15		Bohemia Mississippi River Reintroduction	D	D	D	D	D	W	W	W	W	W	W	W
BS-16		Caernarvon Outfall Management/Lake Lery Shoreline Protection	D	D	W	W	W	W	W	W	W	W	W	W
BS-18	Δ	Bertrandville Siphon[1,5]												
CS-49-CU2	Δ	Cameron-Creole Freshwater Introduction[6]	D	D	D	D	D	D	W	W	W	W	W	W
ME-17	Δ	Little Pecan Bayou Hydrologic Restoration[7]	D	D	D	D	D	D	W	W	W	W	W	W
ME-18	Δ	Rockefeller Refuge Gulf Shoreline Stabilization[4,8]												
ME-23	Δ	South Pecan Island Freshwater Introduction[9]												
ME-24	Δ	Southwest Louisiana Gulf Shoreline Nourishment and Protection[1,5]												
MR-15	Δ	Venice Ponds Marsh Creation and Crevasses[1]	D	D	D	D	D	D	W	W	W	W	W	W
PO-29	Δ	River Reintroduction into Maurepas Swamp[7,10]	D	D	D	D	D	D	D	D				
PO-34	Δ	Alligator Bend Marsh Restoration and Shoreline Protection[7]	D	D	D	D	W	W	W	W	W	W	W	W
TE-32A		North Lake Boudreaux Basin Freshwater Introduction and Hydrologic Management	W	W	W	W	W	W	W	W	W	W	W	W
TE-43		GIWW Bank Restoration of Critical Areas in Terrebonne	W	W	W	W	W	W	W	W	W	W	W	W
TE-47		Ship Shoal: Whiskey West Flank Restoration	W	W	W	W	W	W	W	W	W	W	W	W
TE-49	Δ	Avoca Island Diversion and Land Building[4]	D	D	W	W	W	W	W	W	W	W	W	W
TE-51	Δ	Madison Bay Marsh Creation and Terracing[9]	D	D	D	D	W	W	W	W	W	W	W	W

Legend

Δ Project has experienced a delay of greater than one fiscal quarter with respect to FY 2010 schedule.

[1] Cost-share agreement issues with the project sponsor.

[4] Design issues.

[5] Schedule to be determined after execution of cost-share agreement with Federal partner.

[6] Preliminary schedule was available for FY 2010 Annual Plan; current project schedule is accurate.

[7] Contracting issues.

[8] Pending analysis of Demonstration project (ME-18 [EB]).

[9] Landrights issues.

[10] Project will be moved to LCA for completion.

P	Feasibility & Planning	C	Construction
D	Engineering & Design	B	Both Design & Construction
W	Completed Design Projects; Awaiting Construction Funding	F	Completed Const. Projects
		O	OM&M

Table 4-2. Schedules for All Active State Coastal Projects for FY 2011–2013 (continued).

	Fiscal Year	2011				2012				2013			
	Quarter	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q
State ID	Project Name												
	CWPPRA Phase 1 continued												
TE-66	Central Terrebonne Freshwater Enhancement	D	D	D	D	D	D	D	W	W	W	W	W
TV-11B	Freshwater Bayou Bank Stabilization - Belle Isle Canal to Lock	W	W	W	W	W	W	W	W	W	W	W	W
TV-19 Δ	Weeks Bay Marsh Creation and Shore Protection/Commercial Canal Freshwater Redirection[4,11]												
TV-20	Bayou Sale Shoreline Protection	D	D	W	W	W	W	W	W	W	W	W	W
	Lost Lake Marsh Creation and Hydrologic Restoration	D	D	D	D	D	D	D	D	D	D	W	W
	Freshwater Bayou Marsh Creation	D	D	D	D	D	D	D	D	D	D	W	W
	LaBranche East Marsh Creation	D	D	D	D	D	D	D	D	D	D	W	W
	Cheniere Ronquille Barrier Island Restoration	D	D	D	D	D	D	D	D	D	D	W	W
	CWPPRA Phase 2												
BA-04C Δ	West Pointe a la Hache Outfall Management[4]	D	D	D	B	C	C	C	F	O	O	O	O
BA-20	Jonathan Davis Wetland Project (BA-20) CU4	C	C	C	C	C	F	O	O	O	O	O	O
BA-27c	Barataria Basin Landbridge Shoreline Protection, Phase 3 - CU7 and CU8	C	C	C	C	F	O	O	O	O	O	O	O
BA-38B	Pelican Island and Pass La Mer to Chaland Pass Restoration (B)	C	C	C	F	O	O	O	O	O	O	O	O
BA-41 Δ	South Shore of the Pen Shoreline Protection and Marsh Creation[12]	C	C	C	C	F	O	O	O	O	O	O	O
BA-42 Δ	Lake Hermitage Marsh Creation[9]	C	C	C	C	C	C	F	O	O	O	O	O
CS-49-CU1	Cameron-Creole Freshwater Introduction- Vegetative Plantings	C	C	F	O	O	O	O	O	O	O	O	O
ME-20	South Grand Chenier Hydrologic Restoration	C	C	C	C	C	F	O	O	O	O	O	O
ME-21 Δ	Grand Lake Shoreline Protection[1,5]												
TE-34 Δ	Penchant Basin Natural Resources Plan, Increment 1[4,7]	C	C	C	C	F	O	O	O	O	O	O	O
TE-39-CU1	South Lake Decade Freshwater Introduction - CU1	F	O	O	O	O	O	O	O	O	O	O	O
TE-48B	Raccoon Island Shoreline Protection/Marsh Creation - Phase B	C	C	C	F	O	O	O	O	O	O	O	O
TE-52	West Belle Pass Barrier Headland Restoration	C	C	C	C	C	C	C	C	C	C	C	F
TV-21	East Marsh Island Marsh Creation	C	C	F	O	O	O	O	O	O	O	O	O

Legend

Δ Project has experienced a delay of greater than one fiscal quarter with respect to FY 2010 schedule.

[1] Cost-share agreement issues with the project sponsor.

[4] Design issues.

[5] Schedule to be determined after execution of cost-share agreement with Federal partner.

[7] Contracting issues.

[9] Landrights issues.

[11] Schedule is in development.

[12] Additional funding requirements.

P	Feasibility & Planning	C	Construction
D	Engineering & Design	B	Both Design & Construction
W	Completed Design Projects; Awaiting Construction Funding	F	Completed Const. Projects
		O	OM&M

Table 4-2. Schedules for All Active State Coastal Projects for FY 2011–2013 (continued).

State ID		Project Name	2011 1Q	2011 2Q	2011 3Q	2011 4Q	2012 1Q	2012 2Q	2012 3Q	2012 4Q	2013 1Q	2013 2Q	2013 3Q	2013 4Q
		CWPPRA Demonstration Projects												
LA-08	Δ	Bioengineered Oyster Reef Demonstration[12]					C	C	C	F				
LA-09	Δ	Sediment Containment System for Marsh Creation Demonstration[2]	C	C	C	F								
LA-16	Δ	Non-rock Alternatives to Shoreline Protection Demo[13]	D	D	D	D	D	D	D	C	C	C	F	
TE-53		Enhancement of Barrier Island Vegetation Demo	C	C	C	C	C	C	F					
		CIAP												
AT-05		Morgan City Industrial Road - Alignment Two	B	C	C	F								
BA-30 (EB)	Δ	East Grand Terre[12]	C	C	C	F								
BA-43 (EB)	Δ	Long Distance Mississippi River Sediment Pipeline (Phase 1)[4]	D	D	D	D	D	C	C	C	C	C	C	C
BA-45 (EB)		Caminada Headlands	D	D	D	D	D	D	D	D	C	C	C	C
BA-55		LA-1 Improvements- Fourchon to Leeville Bridge	C	C	C	F								
BA-58	Δ	Fringe Marsh Repair[12]	D	D	D	C	C	C	F					
BS-13 (EB)	Δ	Bayou Lamoque Floodgate Removal[9]	C	C	C	F								
CS-35 (EB)	Δ	Marsh Creation via Beneficial Use (Phase I)[2]	F											
LA-13		Coastal Forest Conservation Initiative	C	F										
PO-35 (EB)	Δ	Violet Diversion[14]	P	P				D	D	D	D	D	D	D
PO-36 (EB)	Δ	Orleans Land Bridge Shoreline Protection[4]	C	C	C	C	C	C	C	F				
PO-73	Δ	Central Wetlands Assimilation[1]	D	D	C	C	C	F						
TE-43 (EB)		GIWW Bank Restoration of Critical Areas of Terrebonne	C	C	F									
TV-11B (EB)	Δ	Freshwater Bayou Bank Stabilization[9]			C	C	C	C	C	C	F			
TV-23		Port of Iberia Bridge Replacement - Unifab Road	D	D	C	C	F							
TV-25		Port of Iberia Bridge Replacement - Port Road over Rodere Lateral	D	B	C	C	C	C	C	C	F			
TV-28		Port of Iberia Bridge Replacement - Port Road over Commercial Canal	D	B	C	C	C	C	C	C	F			
TV-30		Port of Iberia Bridge Replacement - David Dubois Road over Commercial Canal	D	B	C	C	C	C	C	C	F			
TV-31	Δ	Acadiana Regional Airport[15]	D	D	B	C	C	F						

Legend

Δ Project has experienced a delay of greater than one fiscal quarter with respect to FY 2010 schedule.

[2] Project is being merged with another project.

[4] Design issues.

[9] Landrights issues.

[12] Additional funding requirements.

[13] Coordination issues with project sponsor.

[14] Change from CIAP to WRDA authorization; E&D may commence earlier if Federal funds are available.

[15] CIAP grant issues.

P	Feasibility & Planning
D	Engineering & Design
W	Completed Design Projects; Awaiting Construction Funding
C	Construction
B	Both Design & Construction
F	Completed Const. Projects
O	OM&M

Table 4-2. Schedules for All Active State Coastal Projects for FY 2011–2013 (continued).

		Fiscal Year	2011				2012				2013			
		Quarter	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q
State ID		Project Name												
		WRDA												
BA-70	Δ	Small Bayou Lafourche Reintroduction[1,5]												
BA-71	Δ	Medium Diversion with Dedicated Dredging at Myrtle Grove[1]	P	P	P	P	P	P	P	P	P	P	P	P
BA-72		Modification of Davis Pond Diversion	P	P	P	P	P	P	D	D	D	D	D	D
BS-19		Modification of Caernarvon Diversion	P	P	P	P	P	P	D	D	D	D	D	D
BS-20		Medium Diversion at White's Ditch	P	P	D	D	D	D	D	D	C	C	C	C
LA-10		Barataria Basin Barrier Shoreline Restoration	P	P	P	D	D	D	D	D	D	D	D	C
LA-18		Investigations of Modifications of Existing Structures					P	P	P	P	P	P	P	P
LA-20	Δ	Southwest Coastal Louisiana Feasibility Study[13]	P	P	P	P	D	D	D	D	D	D	D	D
PO-67	Δ	Small Diversion at Hope Canal[7]							C	C	C	C	C	C
PO-68		Small Diversion at Convent / Blind River	P	P	D	D	D	D	D	D	C	C	C	C
PO-69		Amite River Diversion Canal Modification	P	P	D	D	D	D	D	D	C	C	C	C
TE-67	Δ	Maintain Land Bridge Between Caillou Lake and Gulf of Mexico[1]	P	P	P	P	P	P	D	D	D	D	D	D
TE-68	Δ	Stabilize Gulf Shoreline at Point Au Fer Island[1]	P	P	P	P	P	P	D	D	D	D	D	D
TE-70		Terrebonne Basin Barrier Shoreline Restoration	P	P	D	D	D	D	D	D	C	C	C	C
TE-71		Convey Atchafalaya River Water to Terrebonne Marshes/Multipurpose Operation of HNC Lock	P	P	D	D	D	D	D	D	C	C	C	C
		Beneficial Use	C	C	C	C	C	C	C	C	C	C	C	C
		Mississippi River Hydrodynamic and Delta Management Study	P	P	P	P	P	P	P	P	P	P	P	P
PO-66		LCA MRGO Environmental Restoration Features[5]												
		Other Hurricane Protection												
BA-66		West Bank and Vicinity[16]	C	C	C	F	O	O	O	O	O	O	O	O
PO-56		Lake Pontchartrain and Vicinity (HPO)	C	C	C	F	O	O	O	O	O	O	O	O
PO-58		Donaldsonville to the Gulf	P	P	P	P	P	P						
PO-63		Lake Ponchartrain & Vicinity (PRO)	C	C	C	F	O	O	O	O	O	O	O	O
TE-64		Morganza to the Gulf	C	C	C	C	C	C	C	C	C	C	C	C

Legend

- Δ Project has experienced a delay of greater than one fiscal quarter with respect to FY 2010 schedule.
- [1] Cost-share agreement issues with the project sponsor.
- [5] Schedule to be determined after execution of cost-share agreement with Federal partner.
- [7] Contracting issues.
- [13] Coordination issues with project sponsor.
- [16] O&M requirements will be assigned to local sponsors.

P	Feasibility & Planning	C	Construction
D	Engineering & Design	B	Both Design & Construction
W	Completed Design Projects; Awaiting Construction Funding	F	Completed Const. Projects
		O	OM&M

Figure 4-1. Restoration Projects Projected for Construction in FY 2011.

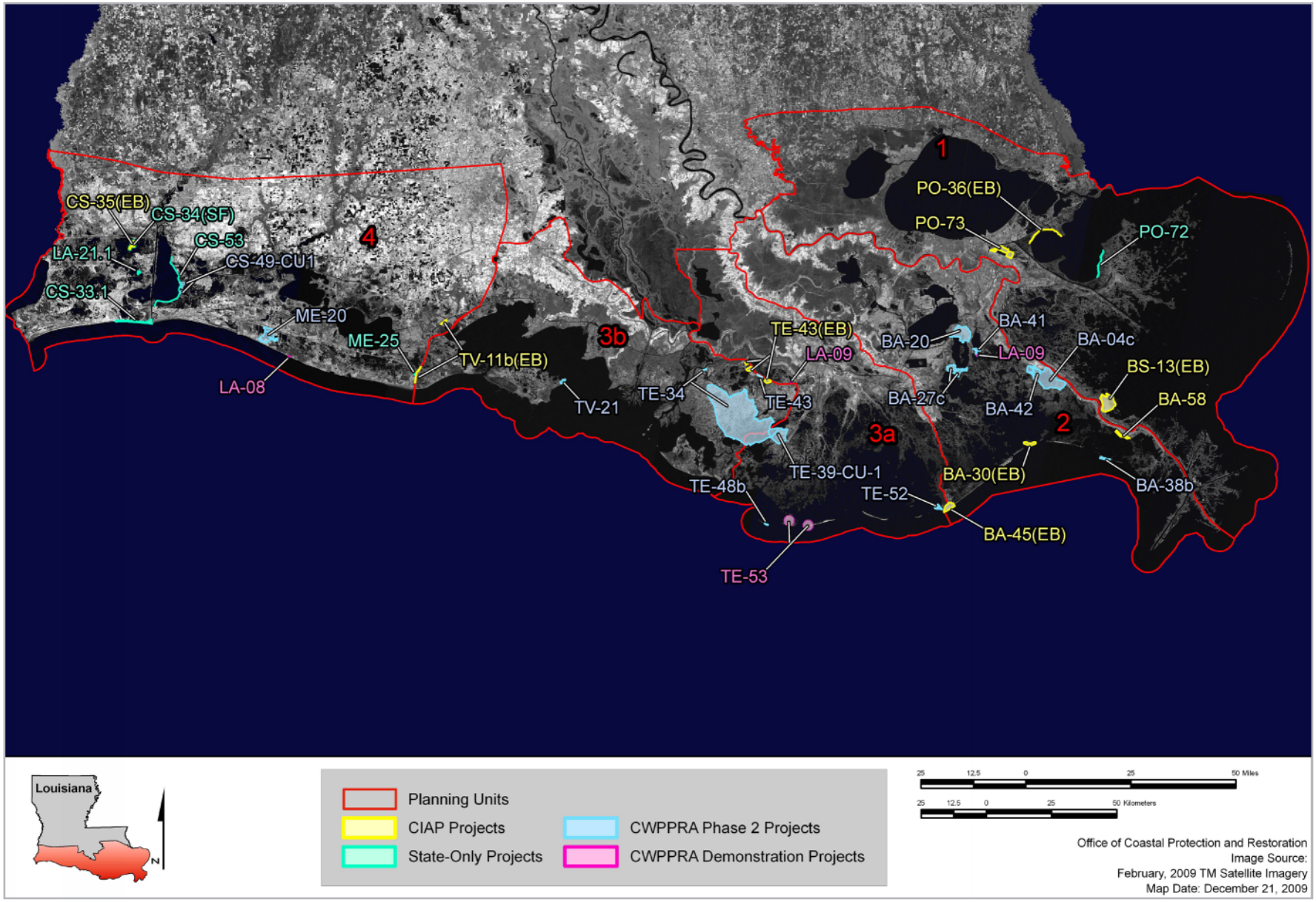


Figure 4-2. Restoration Projects in Operation, Maintenance, and Monitoring in FY 2011.

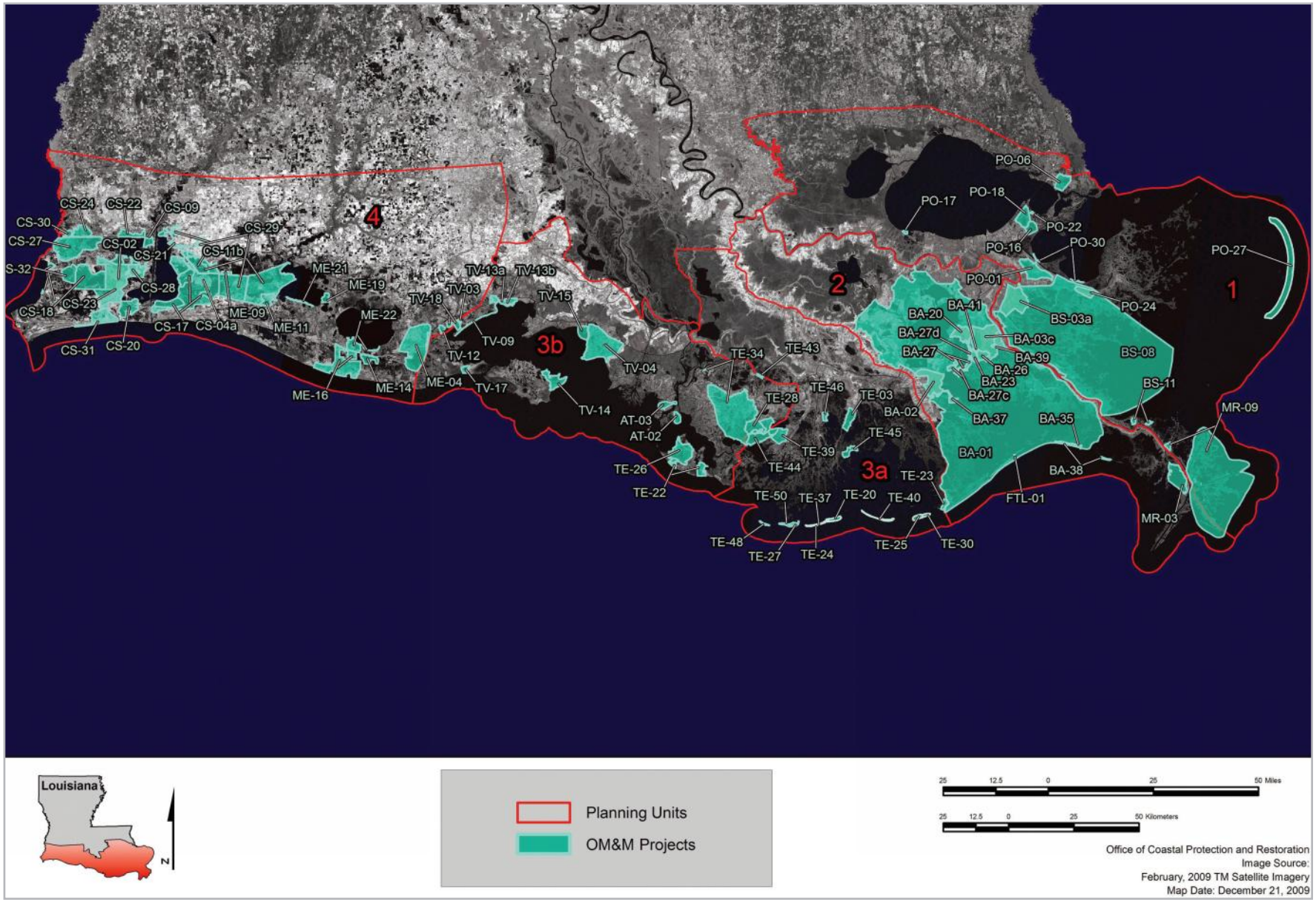
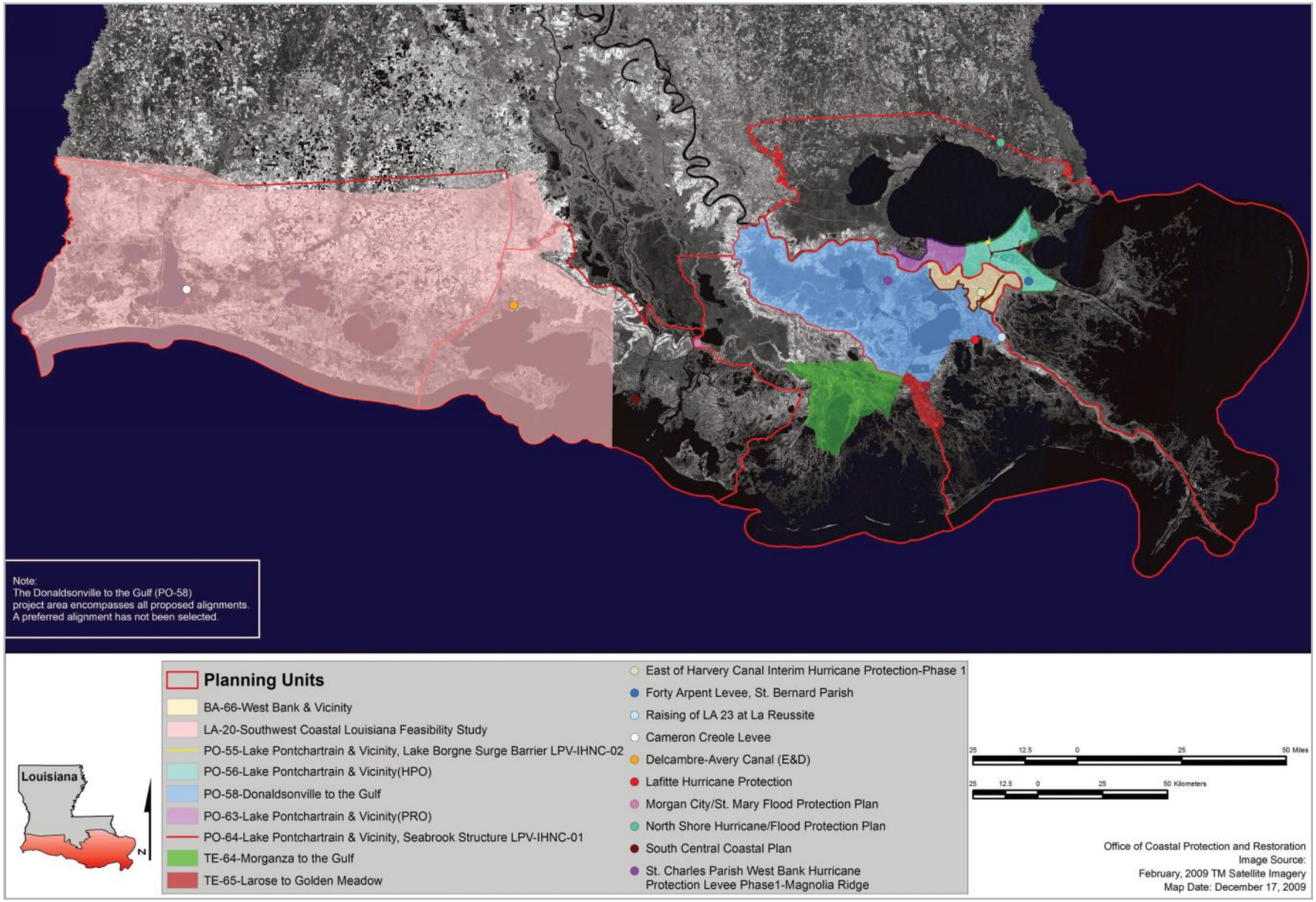


Figure 4-3. Ongoing Hurricane Protection Projects with State Expenditures in FY 2011.



Projected Expenditures FY 2011–2013

Tables 4-3 through 4-5 show what Louisiana plans to accomplish with its coastal budget over the next three fiscal years, while Figures 4-4 through 4-6 depict projected expenditures by project phase for FY 2011–2013, respectively.

The implementation plan expends all available dollars based on the budget revenue projections (Table 4-1). The plan incorporates projects that have received funding for planning, design, construction, or OM&M. As discussed previously, the State is exploring new funding sources, with the intent of obtaining this level of funding consistently from year to year so that new projects can continue to be brought on line.

Next Steps

A guiding principle of the State is that bold action must be combined with the best available science and engineering for a successful coastal program.

The Annual Plan process is now a year-round effort. Consequently, the planning team will begin work on the FY 2012 Annual Plan as soon as the FY 2011 plan has been approved by the State Legislature. This expanded preparation period will provide additional time to build on the progress made during the FY 2011 effort, further develop the planning framework, and improve the coastal

Table 4-3. Projected 3-Year Expenditures[1] FY 2011–FY 2013.

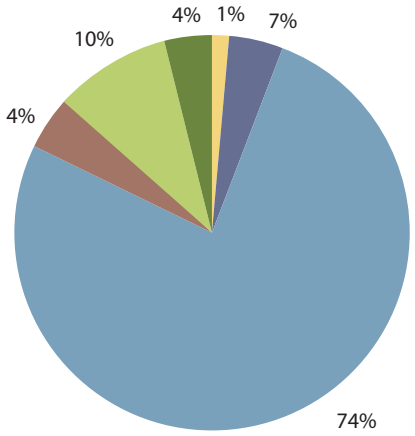
Program/ Funding Source	FY 2011	FY 2012	FY 2013	Program Total FY 2011–FY 2013
CIAP Projects	$91,704,790	$28,203,992	$32,136,368	$152,045,150
CWPPRA Projects[2]	$19,442,815	$16,000,000	$16,000,000	$51,442,815
Remaining Surplus '07 Projects[3]	$125,334,985	$8,689,356	$8,133,000	$142,157,341
Remaining Surplus '08 Projects[3]	$87,683,334	$41,683,333	$2,773,333	$132,140,000
Remaining Surplus '09 Projects[3]	$30,772,875	$6,864,631	$355,689	$37,993,195
WRDA Projects	$26,368,147	$92,856,726	$244,207,551	$363,432,424
Beneficial Use Program	$7,000,000	$7,000,000	$7,000,000	$21,000,000
Project OM&M	$19,844,586	$7,349,644	$6,154,661	$33,348,891
Hazard Mitigation Grant Program	$47,200,000	$0	$0	$47,200,000
Community Development Block Grants	$27,400,000	$0	$0	$27,400,000
Lake Pontchartrain Debris Removal (FEMA)	$10,000,000	$0	$0	$10,000,000
Barrier Island Maintenance Program	$3,500,000	$3,500,000	$3,500,000	$10,500,000
Ongoing Programs	$16,625,000	$16,775,000	$16,900,000	$50,300,000
Support/Emergency Response/ Reserve	$25,891,110	$17,725,000	$17,725,000	$61,341,110
Operating Costs	$22,314,706	$23,203,858	$24,133,169	$69,651,733
HSDRRS 30 year payback	$0	$62,200,000	$62,200,000	$124,400,000
HSDRRS LERRDS	$76,300,000	$0	$0	$76,300,000
Total Planned Expenditures	**$637,382,348**	**$332,051,540**	**$441,218,771**	**$1,410,652,659**

Notes:
1–Represents proposed expenditures provided that commensurate level of funding is received.
2–Because CWPPRA projects compete for funding annually, CWPPRA expenditures as presented in Appendix C (which include projected expenditures for approved projects only) do not adequately capture likely CWPPRA expenditures in outlying years. The State's estimated CWPPRA expenditures for FY 2012–FY 2013 are therefore based on prior years' expenditures.
3–Represents only expenditures not otherwise captured in this table.

Table 4-4. Ongoing Programs Projected 3-Year Expenditures FY 2011–FY 2013.				
Program	FY 2011	FY 2012	FY 2013	Program Total FY 2011–FY 2013
Coastal Science Assistantship Program	$300,000	$300,000	$300,000	$900,000
Assistance to Levee Authorities	$1,000,000	$1,000,000	$1,000,000	$3,000,000
Donations for Mitigation Activities	$1,002,347	$1,000,000	$1,000,000	$3,002,347
Louisiana Applied Coastal Engineering and Science Program	$7,000,000	$7,000,000	$7,000,000	$21,000,000
Louisiana Coastal Area Science and Technology Program	$3,500,000	$3,500,000	$3,500,000	$10,500,000
System Wide Assessment and Monitoring Program	$1,500,000	$2,000,000	$2,500,000	$6,000,000
GIS Lab Support	$500,000	$500,000	$500,000	$1,500,000
Christmas Tree Projects	$0	$0	$0	$0
Vegetative Plantings	$400,000	$400,000	$400,000	$1,200,000
Flood Protection and Ecosystem Restoration Conference	$100,000	$125,000	$125,000	$350,000
Community Outreach (formerly America's Wetland Conservation Corps)	$500,000	$500,000	$500,000	$1,500,000
Restoration Partnerships	$1,000,000	$1,000,000	$1,000,000	$3,000,000
Atchafalaya Basin Natural Resources Inventory and Assessment	$750,000	$375,000	$0	$1,125,000
Support for Department of Wildlife and Fisheries	$75,000	$75,000	$75,000	$225,000
Programmatic Total	**$16,625,000**	**$16,775,000**	**$16,900,000**	**$50,300,000**

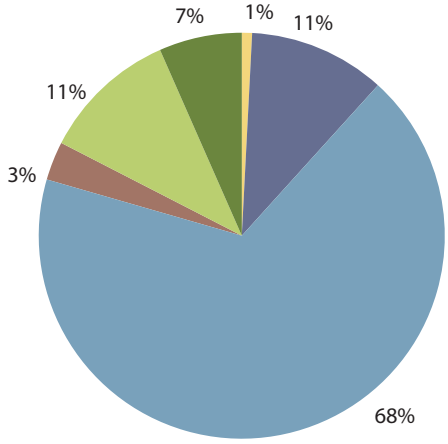
Table 4-5. State Protection and Restoration Projected 3-Year Operating Expenditures FY 2011–FY 2013.				
Program	FY 2011	FY 2012	FY 2013	Program Total FY 2011–FY 2013
CPRA	$485,144	$485,144	$485,144	$1,455,432
OCPR	$15,985,698	$16,625,126	$17,290,131	$49,900,955
OCM	$2,827,134	$3,010,898	$3,206,606	$9,044,638
GOCA	$1,367,730	$1,367,730	$1,367,730	$4,103,190
DNR Secretary	$1,649,000	$1,714,960	$1,783,558	$5,147,518
Total Operating Costs	**$22,314,706**	**$23,203,858**	**$24,133,169**	**$69,651,733**

Figure 4-4. Projected FY 2011 Expenditures by Project Phase.



FY 2011 Total Expenditures	$563 million
Planning	$7.8 million
Engineering and Design	$38.7 million
Construction	$417.5 million
Operation, Maintenance & Monitoring	$23.3 million
Ongoing Programs	$53.1 million
Operating Costs	$22.3 million
OM&M includes BIMP	$3.5 million
Construction includes:	
Beneficial Use	$7.0 million
Lake Pontchartrain Debris Removal	$10.0 million
Ongoing Programs includes:	
Emergency Reserve	$25.9 million
Total excludes:	
CDBG	$27.4 million
HMGP	$47.2 million

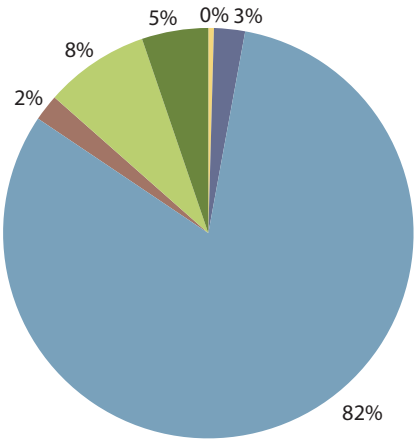
Figure 4-5. Projected FY 2012 Expenditures by Project Phase.



FY 2012 Total Expenditures	$332 million
Planning	$2.9 million
Engineering and Design	$38.3 million
Construction	$238.6 million
Operation, Maintenance & Monitoring	$10.8 million
Ongoing Programs	$36.2 million
Operating Costs	$23.2 million
Construction includes Beneficial Use	$7.0 million
OM&M includes BIMP	$3.5 million
Ongoing Programs includes Emergency Reserve	$17.7 million

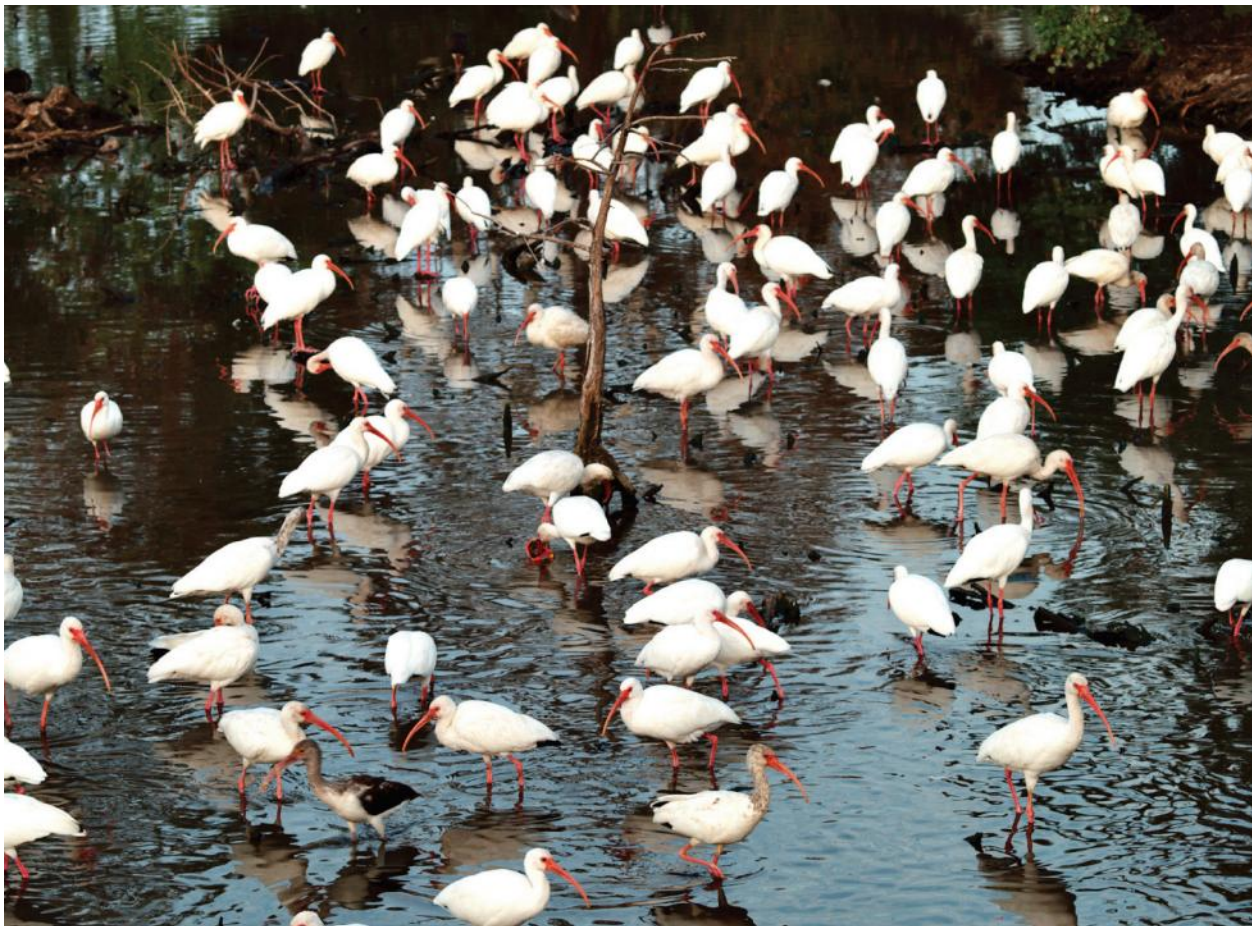
Engineering and Design and Construction include CWPPRA adjustment for outlying years (see Table 4-3 for explanation).

Figure 4-6. Projected FY 2013 Expenditures by Project Phase.



FY 2013 Total Expenditures	$441 million
Planning	$2.0 million
Engineering and Design	$11.3 million
Construction	$358.1 million
Operation, Maintenance & Monitoring	$9.7 million
Ongoing Programs	$36.1 million
Operating Costs	$24.1 million
Construction includes Beneficial Use	$7.0 million
OM&M includes BIMP	$3.5 million
Ongoing Programs includes Emergency Reserve	$17.7 million

Engineering and Design and Construction include CWPPRA adjustment for outlying years (see Table 4-3 for explanation).



program. Specific actions to be undertaken during the FY 2012 Annual Plan effort include:

- Refine the prioritization tool, based on the results of the POC analysis and stakeholder feedback, to improve tool functionality.
- Continue the coastal visioning process to facilitate the development of quantitative targets to allow measurement of project-specific and programmatic success. The visioning process will be crafted by technical experts and informed by both past planning efforts and stakeholder input about desired protection and restoration outcomes.
- Expand public participation in State planning efforts by continuing to hold RSW meetings. The RSWs will also provide feedback on State planning activities in the coming fiscal year, so that coastal community concerns continue to be represented and incorporated in future Annual Plans.
- Work with technical experts to define inputs to the prioritization tool, including targets, uncertainties, decision criteria, and constraints.
- Begin working on predictive models to evaluate project performance. The outputs from these models will drive the prioritization tool and enable full functionality of the planning framework upon completion.
- Continue to expand and improve the project database to collect better data to feed the prioritization tool. State personnel will also implement and refine the new project management database to ensure that the State's coastal program data systems work together efficiently.
- Continue to collect data on non-State projects to input into the project database and to facilitate integration of non-State projects into the baseline conditions of the prioritization tool.

Conclusion

The State looks forward to exploring new and innovative ways to expedite and enhance the coastal program.

The FY 2011 Annual Plan brings the State's coastal program one step closer to meeting the

objectives set forth in the Master Plan: to reduce the risk of damage from storm-based flooding in coastal Louisiana, and sustain the coastal environment to benefit ecosystems, communities, and commercial, industrial, and recreational activities. The refined prioritization tool presented in this plan integrates coastal protection and restoration activities, bringing the State closer to achieving Act 8's mandate of complete integration of these efforts. The FY 2011 Annual Plan also improves upon past Annual Plans by providing a more accurate estimate of the funds available for the coastal program and a clear description of how these funds will be spent. A further improvement is this Plan's comparison of project schedules for FY 2011 with those reported in the previous Annual Plan, providing a transparent accounting of the State's activities in the past fiscal year. The FY 2011 Annual Plan thus builds on past efforts, while charting new progress in the development of a comprehensive planning framework that allows OCPR, for the first time, to truly integrate coastal protection and restoration activities and engage in performance-based system planning.

Despite the State's progress in the past year, the challenges that face coastal Louisiana remain formidable, demanding that the State continue to maintain and, where possible, accelerate its current rate of progress. In the coming fiscal year, the State looks forward to exploring new and innovative ways to expedite and enhance the coastal program. The State will continue to work closely with its partners at all levels of government and communities throughout the coast to protect and restore Louisiana's precious coastal heritage and resources.

ADAPTATION

ADAPTIVE MANAGEMENT: BUILDING SMARTER AND BETTER PROJECTS

A guiding principle of the State is that bold action must be combined with the best available science and engineering for a successful coastal program. The State is pursuing initiatives to expedite projects that have been thoroughly studied to advance scientific and engineering understanding of coastal dynamics and project performance, so that the program can adapt to changing conditions through the incorporation of new information. The State is also considering the use of project reviews at the completion of each phase to identify modifications that could improve project design or performance.

This approach, referred to as adaptive management, is a cornerstone of the State's operating philosophy. It allows the State to improve its coastal program by incorporating lessons learned from both successes and failures. For adaptive management principles to be implemented successfully, a comprehensive monitoring program must be combined with a rigorous project evaluation process. Coastal monitoring programs such as CRMS-Wetlands (see Chapter 2) and the System Wide Assessment and Monitoring Program under development by LACES will allow the State to monitor project performance effectively. The development of quantifiable targets and metrics, as part of the planning framework implementation, is another important component of project performance assessment. The State is investigating ways to expand and improve its project evaluation process, to facilitate the application of adaptive management and ensure the highest and best use of State funds and resources.

Photo: Tom Downs

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Appendix A

Ongoing Protection and Restoration Project Summaries

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Program	State Project Number (Federal)	Project Name	Project Type	PPL	Agency/Sponsor	Senate District	House District	Parish	Acres Benefited	Construction Completion Date	Feasibility Cost	Fully Funded Phase 1 Budget	Fully Funded Phase 2 Budget	Project Summary	Planning Unit
Breaux Act	BS-03a (BS-03a)	Caernarvon Diversion Outfall Management	OM	2	NRCS	1	103	Plaq.	802	2002	N/A	$397,464	$2,128,665	The objective of this project is to promote better utilization of freshwater and nutrients from the Mississippi River via the Caernarvon diversion structure during low-discharge periods. The outfall management project includes installation of flow-through culverts with water control at eight sites, three plug closures with armor protection, spoil bank restoration, and vegetation plantings where applicable.	1
Breaux Act	BS-04a (BS-04a)	White's Ditch Outfall Management (Deauthorized)	OM	3	NRCS	1	105	Plaq.	N/A	Deauth.	N/A	$25,341	N/A	This project was designed to direct the flow of Mississippi River nutrients and sediment into the deteriorating wetlands in the Breton Sound Basin that are not directly benefited by the Caernarvon Freshwater Diversion project. Because of the failure to secure landrights, the project was officially deauthorized by the Breaux Act Task Force in January of 1998. This project was reauthorized on the 14th PPL as BS-12.	1
Breaux Act	BS-07 (PBS-06)	Grand Bay Crevasse (Deauthorized)	SD	4	USACE	1	105	Plaq.	N/A	Deauth.	N/A	$62,437	N/A	Project goals included construction of a rock-lined opening through the rocks at the head of the Jurjevich Canal in order to establish a pathway for freshwater and sediment into Grand Bay and the adjacent marshes to create, restore, and enhance wetlands in the area. The project was officially deauthorized by the Breaux Act Task Force in July of 1998 because of landrights issues.	1
Breaux Act	BS-09 (PBS-1)	Upper Oak River Freshwater Siphon, Phase 1 (Deauthorized)	FD	8	NRCS	1	105	Plaq.	N/A	Deauth.	N/A	$56,476	N/A	The primary goal of this project was to reverse the trend of interior marsh deterioration in the project area due to saltwater intrusion through installation of a freshwater siphon and outfall channel. These strategies would have provided freshwater, nutrients, and sediment to enhance marsh health. The project was officially deauthorized by the Breaux Act Task Force in January of 2003 because of landrights issues.	1
Breaux Act	BS-10	Delta Building Diversion North of Fort St. Philip	SD	10	USACE	1	105	Plaq.	501	Pending	N/A	$1,155,000	$4,857,000	This project intends to reduce the loss of existing marsh in the 1,918-acre project area and enhance the integrity of the delta system. Project strategies include dredging a 3,000 cfs conveyance channel strategically located along the east descending bank of the Mississippi River in the vicinity of Fort St. Philip to divert sediment and nutrients to adjacent wetlands.	1
Breaux Act	BS-11	Delta Management at Fort St. Philip	SD	10	USFWS	1	105	Plaq.	267	2006	N/A	$377,946	$1,580,053	The objective of the project is to enhance the delta-building process occurring as a result of the crevasse at Fort St. Philip. Six artificial crevasses will be constructed to divert freshwater and sediment into areas currently restricted by spoil banks or natural ridges. In addition, linear vegetated terraces will be constructed to enhance sediment retention and reduce wave energy in one of the large receiving bays.	1
Breaux Act	BS-12	White Ditch Resurrection and Outfall Management	OM	14	NRCS	1	105	Plaq.	189	Pending	N/A	$1,637,675	$11,213,249	The goal of this project is to reduce land loss rates by introducing freshwater, nutrients, and sediment to the marsh. This will be accomplished through the rehabilitation or replacement of the existing siphon at White Ditch and the construction of an additional siphon of similar size. In addition, a water control structure will be installed in the White Ditch outfall channel at the junction with River Aux Chenes to force water into the interior marsh. This project was originally authorized on the 3rd PPL as White's Ditch Outfall Management, BS-04a.	1

Program	State Project Number (Federal)	Project Name	Project Type	PPL	Agency/Sponsor	Senate District	House District	Parish	Acres Benefited	Construction Completion Date	Feasibility Cost	Fully Funded Phase 1 Budget	Fully Funded Phase 2 Budget	Project Summary	Planning Unit
Breaux Act	BS-13	Bayou Lamoque Freshwater Diversion (Transferred)	FD	15	EPA USACE	1	105	Plaq.	620	Transfer	N/A	$1,170,639	N/A	This project intends to create approximately 620 acres of new marsh, increase the percent cover of aquatic vegetation, increase the area of shallow open water habitat, and decrease mean salinity in the project area. Project strategies include repairing the Bayou Lamoque freshwater diversion structures and constructing gaps in the bayou's natural levee ridges and spoil banks to facilitate distribution of diverted water and promote accretion of new wetlands through the deposition of diverted river sediments. This project will be constructed using CIAP 2007 funds.	1
Breaux Act	BS-15	Bohemia Mississippi River Reintroduction	SD	17	EPA	1	105	Plaq.	637	Pending	N/A	$1,359,698	$5,457,986	This project will reintroduce Mississippi River water into adjacent wetlands, restoring natural deltaic growth and habitats. An uncontrolled diversion with a capacity of approximately 10,000 cfs will be constructed.	1
Breaux Act	BS-16	Caernarvon Outfall Management/Lake Lery Shoreline Restoration	OM SP	17	USFWS	1	103, 105	Plaq. StB.	652	Pending	N/A	$2,665,994	$22,388,188	Project features include diverting approximately 10 percent of the Caernarvon outfall flow into the marshes north of Lake Lery and hydraulically dredging sediment to create 396 acres of marsh and restore 32,000 feet of the southern Lake Lery shoreline.	1
Breaux Act	BS-18	Bertrandville Siphon	HR	18	EPA	1	105	Plaq.	1,613	Pending	N/A	$2,129,814	$19,789,300	The goals of the project are to eliminate future wetland loss, convert approximately 50% of the existing intermediate marsh to fresh marsh, and increase SAV in the project area by 20% by constructing a siphon from the Mississippi River, with 2,000 cfs maxium capacity.	1
Breaux Act	MR-06 (XMR-10)	Channel Armor Gap Crevasse	SD	3	USACE	1	105	Plaq.	936	1997	N/A	$253,486	$241,720	The implementation of this project intended to restore vegetated wetlands by increasing the flow of freshwater and sediment from the Mississippi River to the Delta National Wildlife Refuge area. The project consisted of deepening the existing 130-foot wide gap in the Mississippi River channel bank armor and adding 125,000 cubic yards of material from the outfall channel to the adjacent marsh.	1
Breaux Act	MR-07 (MR-8/9)	Pass-a-Loutre Crevasse (Deauthorized)	SD	3	USACE	1	105	Plaq.	N/A	Deauth.	N/A	$108,114	N/A	The objective of this project was to create and restore marsh in the Mississippi River Delta. This was to be accomplished through construction of a crevasse on the left descending bank of the Mississippi River between Pass-a-Loutre and Raphael Pass. The project was officially deauthorized by the Breaux Act Task Force in July of 1998 due to high costs attributed to relocating underground utilities in the area.	1
Breaux Act	MR-09 (PMR-10)	Delta Wide Crevasses	SD	6	NMFS	1	105	Plaq.	2,386	1999	N/A	$299,773	$445,287	The objective of this project is to promote the formation of emergent freshwater and intermediate marsh in shallow, open water areas of the Pass-a-Loutre Wildlife Management Area and the Delta National Wildlife Refuge by either cleaning existing splays or creating new ones. This project will be implemented during five year dredging cycles, with the first cycle completed in 1999.	1
Breaux Act	MR-11 (MR-DEMO)	Periodic Introduction of Sediment and Nutrients at Selected Diversion Sites Demonstration (Deauthorized)	SD	9	USACE	N/A	N/A	Plaq.	N/A	Deauth.	N/A	$93,515	$1,340,730	This demonstration project intends to show the effectiveness of using a hydraulic pipeline dredge to provide increased sediment through a diversion structure or siphon. Monitoring of the project will determine not only the characteristics of the sediment input concentrations, but also the subsequent effects in the outfall area.	1

Program	State Project Number (Federal)	Project Name	Project Type	PPL	Agency/Sponsor	Senate District	House District	Parish	Acres Benefited	Construction Completion Date	Feasibility Cost	Fully Funded Phase 1 Budget	Fully Funded Phase 2 Budget	Project Summary	Planning Unit
Breaux Act	MR-13	Benneys Bay Diversion	SD	10	USACE	1	105	Plaq.	5,706	Pending	N/A	$838,000	$2,154,000	The objective of the project is to create vegetated wetlands in shallow open water areas in Benneys Bay. The project would divert sediment in an effort to create, nourish, and maintain approximately 16,982 acres of fresh to intermediate marsh over the 20-year project life.	1
Breaux Act	PO-06 (PO-06)	Fritchie Marsh Restoration	HR	2	NRCS	1	76	StT.	1,040	2001	N/A	$309,687	$751,128	The purpose of this project is to address wetland loss in the area and to improve habitat for wildlife and fisheries by increasing the flow of freshwater, nutrients, and sediments from the West Pearl River into the marsh and managing the outfall. Project features include diverting part of the W-14 Canal and enlarging the Salt Bayou culvert under Highway 90.	1
Breaux Act	PO-09a (PO-09a)	Violet Freshwater Distribution (Deauthorized)	HR	3	NRCS	1, 2	103, 104	StB.	N/A	Deauth.	N/A	$85,717	N/A	The objective of the outfall management plan was to optimize the use of freshwater and sediment supplied by the existing siphons by managing water flow through the area. This would be accomplished by reducing channelized flow and routing the diverted flow across marshes or through shallow water areas instead of through larger channels. This project was officially deauthorized by the Breaux Act Task Force in October of 2001 because of landrights issues.	1
Breaux Act	PO-16 (XPO-52A)	Bayou Sauvage National Wildlife Refuge Hydrologic Restoration, Phase 1	HR	1	USFWS	2	103	Orl.	1,550	1996	N/A	$87,653	$887,848	The construction of U.S. Highway 90, canals, railroad lines, and Lake Pontchartrain hurricane protection levees isolated Units 3 and 4 of the Bayou Sauvage Wildlife Refuge from the surrounding marsh complex and established a large freshwater impoundment. The project utilizes two, 48-inch pumps to remove the excess water during the spring and summer to promote the growth of marsh vegetation in the project area.	1
Breaux Act	PO-17 (PPO-10)	Bayou LaBranche Wetland Creation	MC	1	USACE	19	56	StC.	203	1994	N/A	$758,435	$2,784,909	The project goal was to create vegetated wetlands in an open water area bounded by I-10, Lake Pontchartrain, and Bayou LaBranche. This objective was accomplished by dredging sediment from Lake Pontchartrain.	1
Breaux Act	PO-18 (XPO-52B)	Bayou Sauvage National Wildlife Refuge Hydrologic Restoration, Phase 2	HR	2	USFWS	2	103	Orl.	1,280	1997	N/A	$101,483	$892,402	The construction of U.S. Highway 90, canals, railroad lines, and Lake Ponctchartrain hurricane protection levees has impounded the marsh in the project area. Project features consist of two 36-inch pumps, which operate to maintain water levels at 0.5 feet above or below marsh elevation to promote vegetative growth in the project area.	1
Breaux Act	PO-19 (XPO-71)	Mississippi River Gulf Outlet (MRGO) Disposal Area Marsh Protection	HR	3	USACE	1	103	StB.	755	1999	N/A	$246,834	$40,000	The objective of this project is to preserve vegetated wetlands by repairing the lateral and rear dikes of the Mississippi River Gulf Outlet (MRGO) disposal areas. Repairs to a 28,000 linear-foot dike, in conjunction with the installation of metal box weirs with a single 40-inch pipe is used to control and divert water flow to prevent the perched marshes from draining.	1
Breaux Act	PO-20 (XTE-43)	Red Mud Demonstration (Deauthorized)	MC	3	EPA	18	57	StJo.	N/A	Deauth.	N/A	$26,836	$321,499	This project was authorized to determine whether red mud, produced as a by-product of removing alumina from bauxite, could be utilized as marsh-creation material in combination with compost and marsh sediment. Construction of experimental units was initiated in 1997; however, due to unexpected problems with fill material, liners, and contaminants in the water source, the project was officially deauthorized by the Breaux Act Task Force in August 2001.	1

Program	State Project Number (Federal)	Project Name	Project Type	PPL	Agency/Sponsor	Senate District	House District	Parish	Acres Benefited	Construction Completion Date	Feasibility Cost	Fully Funded Phase 1 Budget	Fully Funded Phase 2 Budget	Project Summary	Planning Unit
Breaux Act	PO-21 (PPO-4)	Eden Isles East Marsh Restoration (Deauthorized)	HR	4	NMFS	1	76	StT.	N/A	Deauth.	N/A	$36,078	N/A	The project intended to restore 2,536 acres of drained fastlands by actively managing water levels to maximize marsh creation. There was a change in landowners of the project area during the planning phase of this project. Consequently, the project was officially deauthorized by the Breaux Act Task Force in January 1998.	1
Breaux Act	PO-22 (XPO-69)	Bayou Chevee Shoreline Protection	SP	5	USACE	2	103	Orl.	75	2001	N/A	$405,813	$1,802,719	The project is designed to protect exposed wetland areas from erosive wave energy from Lake Pontchartrain and to enhance the establishment of submerged aquatic vegetation in the ponds behind the rock dikes. This is accomplished by constructing a 4,825 linear-foot rock dike across the mouth of the north cove and a 4,050 linear-foot rock dike, tying into an existing USFWS rock dike, across the south cove.	1
Breaux Act	PO-24 (PPO-38)	Hopedale Hydrologic Restoration	HR	8	NMFS	1	103	StB.	134	2004	N/A	$299,540	$891,485	This project is designed to abate site-specific wetland loss by replacing collapsed culverts installed in the 1950s near Yscloskey, Louisiana. Replacement of these structures would allow more rapid drainage of the area, improve fisheries access, reduce wetland loss rates, and protect approximately 3,086 acres of marsh.	1
Breaux Act	PO-25 (XPO-74a)	Bayou Bienvenue Pump Station Diversion and Terracing (Deauthorized)	HR MC	8	NMFS	1, 2	101, 103	Orl. StB.	N/A	Deauth.	N/A	$211,310	N/A	This project intended to combine the use of existing pump stations with the construction of a diversion channel, water control structures, and earthen terraces planted with smooth cordgrass (Spartina alterniflora). This would force the flow of freshwater and nutrients through a deteriorated marsh area to abate site-specific marsh loss. The project was officially deauthorized by the Breaux Act Task Force in April 2002 because construction was determined to be too costly.	1
Breaux Act	PO-26 (XPO-55a)	Opportunistic Use of the Bonnet Carre´ Spillway (Deauthorized)	FD	9	USACE	19	56	StC.	177	Deauth.	N/A	$106,104	N/A	This project intended to abate high salinity stress on the vegetated wetlands surrounding Lake Pontchartrain. This objective was to be accomplished through the removal of pins from the Bonnet Carre´ Spillway structure during high flow periods in the Mississippi River to allow no more than 4,000 cubic feet per second of water to flow from the river into Lake Pontchartrain. This project was officially deauthorized by the Breaux Act Task Force in October of 2007 due to uncertainty of benefits and lack of landowner support.	1
Breaux Act	PO-27 (XPO-95)	Chandeleur Islands Marsh Restoration	VP	9	NMFS	1	103	StB.	220	2001	N/A	$165,513	$500,152	The objective of this project was to accelerate the recovery period of barrier island areas overwashed by Hurricane Georges in 1998 through vegetation plantings. The overwash areas, which encompass 364 acres, are located at 22 sites along the Chandeleur Sound side of the island chain and were planted with smooth cordgrass (Spartina alterniflora).	1
Breaux Act	PO-28 (PPO-07a)	LaBranche Wetlands Terracing, Planting, and Shoreline Protection (Deauthorized)	SNT SP VP	9	NMFS	19	56	StC.	489	Deauth.	N/A	$305,266	N/A	Located along Lake Pontchartrain, the project intended to reduce emergent marsh loss along the shoreline by restoring and creating 489 acres through marsh terracing, shoreline protection, and vegetation planting. This project was officially deauthorized by the Breaux Act Task Force in October of 2007.	1
Breaux Act	PO-29 (Complex Project)	River Reintroduction into Maurepas Swamp	FD	11	EPA	18, 19	56, 57, 88	StJo.	5,438	Pending	N/A	$6,114,246	$50,415,547	This project intends to restore a natural hydrologic regime and increase nutrient inputs in cypress-tupelo swamp tracts south of Lake Maurepas through the diversion of Mississippi River water into an area of degraded swamp.	1

Program	State Project Number (Federal)	Project Name	Project Type	PPL	Agency/Sponsor	Senate District	House District	Parish	Acres Benefited	Construction Completion Date	Feasibility Cost	Fully Funded Phase 1 Budget	Fully Funded Phase 2 Budget	Project Summary	Planning Unit
Breaux Act	PO-30	Lake Borgne Shoreline Protection	SP	10	EPA	1	103, 104	StB.	165	2008	N/A	$2,452,581	$19,269,106	The goal of this project is to maintain the integrity of the narrow strip of marsh that separates Lake Borgne from the Mississippi River Gulf Outlet (MRGO). This land helps protect the communities of Shell Beach, Yscloskey, and Hopedale from direct exposure to lake wave energy and storm surges. The goal will be accomplished through construction of a continuous nearshore rock breakwater. A separately authorized adjoining project, Lake Borgne Shoreline Protection at Bayou Dupre (PO-31), has been merged with this project.	1
Breaux Act	PO-32	Lake Borgne and MRGO Shoreline Protection	SP	12	USACE	1	103	StB.	266	Pending	N/A	$1,427,346	$15,091,307	The objective of this project is to preserve the marsh between Lake Borgne and the Mississippi River Gulf Outlet (MRGO) by preventing shoreline erosion. A rock dike will be constructed along the lake Borgne shoreline and along the northern bank of the MRGO. The Lake Borgne segment of this project was constructed by the USACE with funds from the 4th supplemental. The process has begun to deauthorize the MRGO segment of this project.	1
Breaux Act	PO-33	Goose Point/Point Platte Marsh Creation	MC	13	USFWS	11	89	StT.	436	2008	N/A	$1,768,291	$18,362,719	The objective of this project is to create marsh through the deposition of dredged material in open water areas in the vicinity of Goose Point and Point Platte as well as to maintain the lake rim function along this section of the north shore of Lake Pontchartrain.	1
Breaux Act	PO-34	Alligator Bend Shoreline Protection	MC SP	16	USACE NRCS	1	103	Orl.	127	Pending	N/A	$1,660,985	$17,178,967	The objective of this project is to protect the shoreline integrity of Lake Borgne and prevent hydrologic coupling between the Lake and the marsh behind the shoreline. The project will protect approximately 26,700 feet of shoreline using a foreshore rock dike and approximately 21,700 feet of shoreline using earthen terraces and vegetative plantings.	1
Breaux Act	PO-75	LaBranche East Marsh Creation	MC	19	NRCS	19	56	StC.	770	Pending	N/A	$2,571,273	$29,752,018	The proposed project consists of the creation of emergent wetlands, shrub scrub wetlands, and subtidal water bottoms using dedicated dredging from Lake Pontchartrain. Vegetative plantings would be utilized in the areas designated to be emergent marsh. The proposed project would also provide storm buffer protection to I-10.	1
State	BS-06	Lake Lery Hydrologic Restoration	FD	N/A	N/A	1	103	StB.	100	1997	N/A	N/A	$1,000,000	This project involved the construction of a pumping station located along the south-central edge of the St. Bernard Parish Ridge. This will discharge collected rainfall into the marsh north of Lake Lery and help prevent saltwater intrusion. The project was built in partnership with the Lake Borgne Basin Levee District and was completed in May of 1997.	1
State	LA-01c	Dedicated Dredging Program - Pass a Loutre	DM	N/A	N/A	1	105	Plaq.	26	2005	N/A	N/A	$450,000	The project has created approximately 26 acres of sustainable freshwater marsh in the vicinity of Pass a Loutre, Louisiana. This project is part of the coastwide state Dedicated Dredging Program. The goal of this program is to use a small, mobile hydraulic dredge along inland waterways in Louisiana's coastal zone to deposit dredged material, and thereby nourish and/or rebuild threatened coastal marshes adjacent to the waterways.	1
State	MR-01b	Small Sediment Diversions	SD	N/A	N/A	1	105	Plaq.	6719	1986, 1990, 1992, 1993	N/A	N/A	$1,010,500	This project involved the excavation of 13 crevasses through the levees of Mississippi River distributary channels within the Balize Delta in order to create self-sustaining emergent marsh.	1

Program	State Project Number (Federal)	Project Name	Project Type	PPL	Agency/Sponsor	Senate District	House District	Parish	Acres Benefited	Construction Completion Date	Feasibility Cost	Fully Funded Phase 1 Budget	Fully Funded Phase 2 Budget	Project Summary	Planning Unit
State	PO-01	Violet Siphon Diversion	FD	N/A	N/A	1	103, 104	StB.	84	1992	N/A	N/A	$380,584	The purpose of this project is to return into operation the existing siphon, and to enlarge the size of the diversion so that more sediment and freshwater are available to offset marsh subsidence and saltwater intrusion.	1
State	PO-02c	Bayou Chevee	SP	N/A	N/A	2	103	Orl.	75	1994	N/A	N/A	$62,000	This project installed 2,000 feet of brush fences at the mouth of Bayou Chevee.	1
State	PO-03	LaBranche Shoreline Stabilization and Canal Closure	SP	N/A	N/A	19	56	StC.	1750	1987	N/A	N/A	$1,324,000	The purpose of this project is to restore the integrity of the shoreline, which separates Lake Pontchartrain from the western edge of the LaBranche wetlands.	1
State	PO-03b	LaBranche Shoreline Protection	SP	N/A	N/A	19	56	StC.	50	1996	N/A	N/A	$1,290,851	A rock breakwater was constructed along the Lake Pontchartrain shoreline, east of Bayou LaBranche, to protect the hydrologic boundary between the lake and the wetlands from being breached.	1
State	PO-08	Central Wetlands Pump Outfall	FD	N/A	N/A	1, 2	103, 104	StB.	300	1992	N/A	N/A	$250,000	This project is designed to provide freshwater, nutrients, and sediment associated with storm water runoff to an area of marsh near the Violet Siphon (PO-01).	1
State	PO-10	Turtle Cove Shore Protection	SP	N/A	N/A	19	56	StJo.	184	1994	N/A	N/A	$366,000	A 1,640 foot rock-filled gabion breakwater was constructed to maintain and protect the Lake Pontchartrain shoreline that shelters "The Prairie" (an 800-acre expanse of shallow, open water marsh bordered by organic freshwater marsh) from high wave energies and to encourage sediment deposition behind the gabion structure. An additional $195,600 was used for maintenance in 2001.	1
Surplus 2007	PO-72	Biloxi Marsh	SP	N/A	N/A	1	103	StB.	300	Pending	N/A	$2,640,000	$19,360,000	The Biloxi Marsh Creation project was funded with the 2007 surplus; however, it has since been changed to a shoreline protection project along Lake Borgne that will provide protection to Biloxi Marsh.	1
Surplus 2007		Forty Arpent Levee, St. Bernard Parish	HP	N/A	N/A	1, 2	101, 103, 104	StB.	N/A	Pending	N/A	N/A	$5,000,000	This project is in the Lake Borgne Levee District and calls for raising low reaches of the Forty Arpent Levee.	1
Surplus 2008	LA-24.2	Madisonville Bulkhead	SP	N/A	N/A	6	77	StT.	N/A	Pending	N/A	N/A	$500,000	The project is located at the mouth of the Tchefuncte River and is critical to provide protection to a road and parking lot that are being jeopardized by erosion.	1
Surplus 2009	PO-74	North Shore Hurricane/ Flood Protection Plan	N/A	N/A	N/A	1, 6, 11, 12	73, 76, 77, 89, 90, 103	Orl. StT. Tan.	N/A	Pending	$960,000	N/A	N/A	The objective of this project is to develop a hurricane protection plan for the North Shore.	1
CIAP 2007	BS-13 (EB)	Bayou Lamoque Floodgate Removal	FD	N/A	MMS	1	105	Plaq.	660	Pending	N/A	$210,000	$1,290,000	The goal of this project is to remove the existing floodgates from two separate water control structures to allow for the unimpeded flow of Mississippi River water into Bayou Lamoque and surrounding marsh.	1

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CIAP 2007	MR-16	Mississippi River Delta Management Strategic Planning	N/A	N/A	MMS	N/A	N/A	N/A	N/A	Pending	N/A	N/A	$2,000,000	OCPR will coordinate the development of a strategic framework for feasibility evaluation of improved management of fresh water, nutrients and sediment resources of the Lower Mississippi River, from the Old River Control Structure to Head of Passes, to better sustain its Deltaic Plain.	1, 2
CIAP 2007	PO-35 (EB)	Violet Diversion	FD	N/A	MMS	1, 2	103, 104	StB.	14000	Pending	N/A	$7,766,084	$31,103,369	The project diverts freshwater from the Mississippi River into Lake Borgne to freshen Mississippi Sound and the Central Wetlands. The project features will include a diversion structure through the Mississippi River Levee, a diversion canal, a control structure to pass water through the Forty Arpent hurricane protection levee, a control structure to cross the Federal hurricane protection levee adjacent to the MRGO, and improvements necessary to accommodate existing infrastructure (LA Highway 46, LA Highway 39 and a railroad).	1
CIAP 2007	PO-36 (EB)	Orleans Land Bridge SP & Marsh Creation	SP	N/A	MMS	1, 2	103, 104	Orl.	220	Pending	N/A	$5,036,184	$36,932,018	The goal of this project is to provide shoreline protection on the northwest rim of Lake Borgne.	1
CIAP 2007	PO-37 (EB)	Blind River Freshwater Diversion	FD	N/A	MMS	18	57, 58	StJa.	2000	Pending	N/A	$3,922,800	$24,097,200	The purpose of this project is to divert water from the Mississippi River into the Blind River to freshen the nearby Maurepas Swamp.	1
CIAP 2007	PO-73	Central Wetlands Assimilation (Phase I)	N/A	N/A	MMS	1, 2	101, 103, 104	Orl. StB.	N/A	Pending	N/A	N/A	$10,000,000	The Sewerage and Water Board of New Orleans in partnership with St. Bernard Parish jointly propose that the first phase of a regional wetland restoration project be funded to restore critically important wetlands using wetland assimilation of treated wastewater effluent. The project is projected to establish 2,300 acres of cypress swamp and low-salinity marsh where open water currently exists.	1
Section 204/1135		MRGO, Berm, Mile -2 to 3	DM	N/A	N/A	1	105	Plaq.	N/A	1999	N/A	N/A	$150,000	This Section 204 project utilized material from maintenance dredging activities along the Mississippi River Gulf Outlet (MRGO) to nourish the littoral system that feeds Breton Island.	1
Section 204/1135		MRGO, Breton Island Restoration, Mile 2.3 to 4.0	DM	N/A	N/A	1	105	Plaq.	26	1999	N/A	N/A	$1,050,000	This Section 204 project utilized material from maintenance dredging activities along the Mississippi River Gulf Outlet (MRGO) to repair Breton Island.	1
Section 204/1135		MRGO (1999), Mile 14 to 11	DM	N/A	N/A	1	103	StB.	50	1999	N/A	N/A	$350,000	This Section 204 project provided for the unconfined placement of 3,468,901 cubic yards of material into shallow water adjacent to the south jetty at about mile 15.3. The material was dredged from miles 14.0 to 11.0 of the Mississippi River Gulf Outlet (MRGO) navigation channel and placed to an elevation conducive to marsh vegetation establishment.	1

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Section 204/1135		MRGO, Mile 14 to 12 (2002)	DM	N/A	N/A	1	103	StB.	50	2002	N/A	N/A	$290,000	The project involved pumping approximately 1.6 million cubic yards to create some 50 acres of marsh behind the MRGO jetty. This project was fast tracked due to the impact of Hurricane Lili and Tropical Storm Isidore in 2002.	1
Section 204/1135		MRGO, Mile 14 to 12 (2003)	DM	N/A	N/A	1	103	StB.	113	2003	N/A	N/A	$580,000	This project involved pumping 4.3 million cubic yards of sediments to create 113 acres of marsh. The material was dredged from miles 14.0 to 12.0 of the Mississippi River Gulf Outlet (MRGO) navigation channel and placed at an elevation conducive to marsh vegetation establishment.	1
WRDA	BS-08	Caernarvon Freshwater Diversion	FD	N/A	USACE	1	103, 105	Plaq.	16,000	1991	N/A	N/A	$24,818,800	This project diverts freshwater and its accompanying nutrients and sediment from the Mississippi River to coastal bays and marshes in Breton Sound for fish and wildlife enhancement. This project can divert up to 8,000 cubic feet per second.	1
FEMA	DSR-81768	LaBranche Wetlands (FEMA)	SP	N/A	N/A	19	56	StC.	N/A	2000	N/A	N/A	$42,800	A 700-foot section of a Christmas tree brush fence was repaired. This project was damaged by Hurricane Georges, Hurricane Earl, and Tropical Storm Francis in 1998.	1
FEMA	PW-8743	Hopedale Structure (FEMA)	HR	N/A	N/A	1	103	StB.	N/A	2007	N/A	N/A	$64,900	This FEMA project consists of repairs to the water control structure of the Hopedale Hydrologic Restoration (PO-24) project that was damaged by Hurricane Katrina in 2005. Repairs were made to damaged fencing, railings, and displaced riprap, and a lost portable hydraulic actuator is being replaced.	1
FEMA		Lake Pontchartrain Debris Removal	N/A	N/A	N/A	6, 19	56, 73	Jef. Orl. St.C. St.Jo. St.T. Tan.	N/A	Pending	N/A	N/A	$10,000,000	The goal of this project is to remove debris from approximately 758 square miles of Lake Pontchartrain.	1
LCA	BS-19	Modification of Caernarvon Diversion	FD	N/A	USACE	1	103, 105	Plaq.	N/A	Pending	$300,000	N/A	$24,840,000	Investigate modifying project's existing authorization (for salinity management) to enhance wetland creation and restoration. Identify and assess changes to project's operation to facilitate organic and sediment deposition, improve biological productivity, and prevent further deterioration of marshes. *Fully funded Phase 2 cost includes preliminary engineering and design.	1
LCA	BS-20	Medium Diversion at White's Ditch	SD	N/A	USACE	1	105	Plaq.	N/A	Pending	$5,400,000	N/A	$103,320,000	Medium diversion (5001 – 15,000 cfs) to provide freshwater, nutrients, and fine sediment to wetlands between Mississippi River and River aux Chenes ridges. Facilitate organic sediment deposition, improve biological productivity, and prevent further marsh deterioration. *Fully funded Phase 2 cost includes preliminary engineering and design.	1
LCA	PO-67	Small Diversion at Hope Canal	FD	N/A	USACE	18, 19	56, 57, 58, 88	StJo.	N/A	Pending	N/A	N/A	$150,000,000	Small freshwater diversion (less than 5000 cfs) to introduce sediment and nutrients into Maurepas Swamp in order to facilitate organic deposition, improve biological productivity, and prevent further deterioration of the swamp. The state is using surplus funds as part of the required cost-share for this project. *Fully funded Phase 2 cost provided is the projected cost estimate.	1

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LCA	PO-68	Small Diversion at Convent/Blind River	FD	N/A	USACE	18	57, 58	StJa.	N/A	Pending	$4,400,000	N/A	$105,600,000	Diversion of water from the Mississippi River into the Blind River to freshen Mauarepas swamp and prevent further deterioration. The state is using surplus funds as part of the required cost-share for this project. *Fully funded Phase 2 cost includes preliminary engineering and design.	1
LCA	PO-69	Amite River Diversion Canal Modification	FD	N/A	USACE	18	88	Asc. Liv.	N/A	Pending	$500,000	N/A	$6,720,000	Construct gaps in spoil banks of Amite River Diversion Canal to introduce nutrients and sediment into western Maurepas Swamp. Facilitate organic deposition, improve biological productivity, and prevent further swamp deterioration. *Fully funded Phase 2 cost includes preliminary engineering and design.	1
HSDRRS	PO-55 PO-56 PO-63 PO-64	Lake Pontchartrain and Vicinity	FD	N/A	USACE	1, 2, 3, 4, 6, 9, 10, 19	56, 79, 81, 92, 94, 97, 100, 101, 103, 104	Jef. Orl. StB. StC.	N/A	Pending	N/A	$560,682,401	$5,395,111,650	The information provided represents all hurricane and storm damage risk reduction projects for Lake Pontchartrain and Vicinity included in IERs 1 through 11. The total cost figures presented were provided by the USACE for the entire Lake Pontchartrain and Vicinity project. Fully Funded Phase I cost includes real estate and engineering and design, and Fully Funded Phase 2 cost represents construction cost.	1, 2, 3a
Other	HPL-MIT	Lake Pontchartrain Mitigation Project	SP	N/A	N/A	19	56	StJo.	600	1996	N/A	N/A	$2,222,892	This project consisted of a near-shore, segmented breakwater system in Lake Pontchartrain parallel to a five-mile reach of the Manchac Wildlif Management Area. The project specifically mitigated for damages resulting from construction of the Lake Pontchartrain Hurricane Protection project.	1
Other	PO-4355NP4	Fontainebleau State Park Mitigation	SP DM	N/A	N/A	11	89	StT.	6	1999	N/A	N/A	$225,000	This project repaired a section of breached shoreline by depositing approximately 9,000 cubic yards of sand for a feeder berm on the easternmost end of Fontainebleau State Park.	1
Breaux Act	BA-02 (BA-02)	GIWW (Gulf Intracoastal Waterway) to Clovelly Hydrologic Restoration	HR	1	NRCS	20	54	Laf.	175	2000	N/A	$981,549	$5,462,880	This project will protect approximately 14,948 acres of intermediate wetlands by restoring natural hydrologic conditions. The project utilized 4 canal plugs, 3 weirs, and rebuilt approximately 11,000 linear feet of low overflow banks to better retain freshwater and prevent rapid salinity increases resulting from saltwater intrusion.	2
Breaux Act	BA-03c (BA-03c)	Naomi Outfall Management	OM	5	NRCS	1, 8	105	Plaq. Jef.	633	2002	N/A	$303,108	$800,169	The goal of this project is to reduce saltwater intrusion and enhance wetland productivity by managing the outfall of eight existing siphons. The two fixed crest weirs assist in the management of existing siphon outfall water from the Mississippi River into adjacent west bank wetlands. This project will help in reducing freshwater loss, allowing maximum sediment and nutrient uptake, and in reducing saltwater intrusion into the project area.	2
Breaux Act	BA-04c (BA-04c)	West Pointe a la Hache Outfall Management	OM	3	NRCS	1	105	Plaq.	646	Pending	N/A	$1,046,076	$4,324,440	This project will provide improvements to the West Pointe a la Hache siphon to increase the amount and duration of freshwater flow delivered to the siphon outfall area.	2
Breaux Act	BA-15 (BA-15)	Lake Salvador Shore Protection Demonstration	SP	3	NMFS	19	105	StC.	N/A	1998	N/A	$363,162	$2,058,356	The objective of this project is to maintain the shoreline along a section of Lake Salvador and help re-establish the natural hydrology of interior marsh. Phase I of the project was constructed to demonstrate the effectiveness of four separate types of segmented breakwaters in a poor soil environment. Phase II of the project included the installation of 8,000 feet of continuous rock structure along the western section of the lake.	2

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Breaux Act	BA-18 (BA-18)	Fourchon Hydrologic Restoration (Deauthorized)	HR	1	NMFS	20	54	Laf.	N/A	Deauth.	N/A	$7,340	N/A	The goal of this project was to restore tidal exchange to 2,400 acres of impounded wetlands. The project was officially deauthorized by the Breaux Act Task Force in July of 1994 at the request of the landowner.	2
Breaux Act	BA-19 (BA-19)	Barataria Bay Waterway Wetland Restoration	MC	1	USACE	8	105	Jef.	445	1996	N/A	$162,199	$945,791	This project intended to create marsh in shallow water areas adjacent to the Barataria Bay Waterway (BBWW). However, oyster leases prohibited the use of the dredged material at all of the marsh creation sites. As an alternative, approximately nine acres of vegetated wetlands were created adjacent to the state-funded Queen Bess project by constructing a rock dike and filling the containment area with dredged material from the BBWW.	2
Breaux Act	BA-20 (PBA-35)	Jonathan Davis Wetland Protection	HR	2	NRCS	8	105	Jef.	510	2003, Pending	N/A	$1,025,616	$11,151,398	The goal of this project is to restore the natural hydrologic conditions of the area and reduce shoreline erosion. This was accomplished through constructing a series of water control structures and a rock dike. Construction Unit 4 is currently under construction.	2
Breaux Act	BA-21 (XBA-65a)	Bayou Perot/Bayou Rigolettes Marsh Restoration (Deauthorized)	MC	3	NMFS	8	105	Jef. Laf.	N/A	Deauth.	N/A	$14,880	N/A	This project was authorized to protect deteriorated intermediate-to-brackish marsh located between Lake Salvador and Little Lake by using dredged material to re-establish the shoreline. Due to an unstable and rapidly eroding site, the project was deemed unfeasible and was officially deauthorized by the Breaux Act Task Force in January of 1998.	2
Breaux Act	BA-22 (PBA-34i)	Bayou L'Ours Ridge Hydrologic Restoration (Deauthorized)	HR	4	NRCS	20	54	Laf.	N/A	Deauth.	N/A	$265,334	N/A	This project was proposed to restore natural hydrologic flow to the marsh by reinforcing breached areas of the Bayou L'Ours Ridge through a series of canal closures and two water control structures. The project was officially deauthorized by the Breaux Act Task Force in April 2003 because of landrights issues.	2
Breaux Act	BA-23 (PBA-12a)	Barataria Bay Waterway West Side Shoreline Protection	SP	4	NRCS	8	105	Jef.	232	2000	N/A	$284,550	$1,851,223	This goal of this project is to reduce erosion of the channel bank and protect exposed marsh from increased water exchange and rapid changes in salinity. The project strategies included armoring the western bank of the Barataria Bay Waterway (BBWW) with approximately 9,400 linear feet of rock material and installation of a water control structure to limit saltwater intrusion into the area.	2
Breaux Act	BA-24 (XBA-48a)	Myrtle Grove Siphon (Deauthorized)	FD	5	NMFS	1, 8	105	Plaq.	1,119	Deauth.	N/A	$476,977	N/A	The goal of the project is to reduce saltwater intrusion and to nourish existing marsh. This will be accomplished by diverting water through a siphon from the Mississippi River to adjacent wetlands. This project was officially deauthorized by the Breaux Act Task Force in October 2007 because a larger diversion was authorized at the same location (see BA-33).	2
Breaux Act	BA-25 (PBA-20)	Bayou Lafourche Siphon (Phase 1) (Deauthorized)	FD	5	EPA	18, 19, 20, 21	51, 54, 55, 58, 60	Ter. Laf.	N/A	Deauth.	N/A	$1,500,000	N/A	The goal of the project is to reduce marsh loss adjacent to Bayou Lafourche by introducing nutrient and sediment laden river water through large siphon pipes. This project was reauthorized on the 11th PPL as BA-25b.	2
Breaux Act	BA-25b	Mississippi River Reintroduction Into Bayou Lafourche (Deauthorized)	FD	11	EPA	8, 19, 20	51, 52, 53, 54, 55, 105	Asc. Asu. Laf. Ter.	85,000	Deauth.	N/A	$9,619,586	N/A	The goal of the project is to restore and protect the health of marshes in the Barataria and Terrebonne basins through reintroduction of sediment and nutrient laden Mississippi River water via Bayou Lafourche. This project was originally authorized on the 5th PPL as BA-25. This project was officially deauthorized by the Breaux Act Task Force in October 2007; however, engineering and design will be continued by the OCPR using state funds.	2

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Breaux Act	BA-26 (PBA-12b)	Barataria Bay Waterway East Side Shoreline Protection	SP	6	NRCS	8	105	Jef.	217	2001	N/A	$356,838	$3,560,349	The objective of this project is to rebuild the banks of the Barataria Bay Waterway (BBWW), to protect the adjacent marsh from excessive tidal action, and to prevent saltwater intrusion. The project consists of installing a 17,600 linear-foot rock dike on the east bank of the BBWW.	2
Breaux Act	BA-27 (XBA-63/63ii)	Barataria Basin Landbridge Shoreline Protection, Phases 1 and 2	SP	7, 8	NRCS	8, 20	54, 105	Jef. Laf.	1,304	2002, 2008	N/A	$1,826,285	$27,768,079	This project is designed to protect a deteriorated intermediate-to-brackish marsh located between Lake Salvador and Little Lake by reducing shoreline erosion. Phases 1 and 2 of this project will provide 35,000 linear feet of shoreline protection along Bayous Perot and Rigolettes within the Barataria Basin.	2
Breaux Act	BA-27c (XBA-63iii)	Barataria Basin Landbridge Shoreline Protection, Phase 3	SP	9	NRCS	8, 20	54, 105	Jef. Laf.	264	1999, 2008, Pending	N/A	$1,300,744	$44,930,853	Phase 3 of this project encompasses approximately 41,000 feet of shoreline protection. Approximately 26,000 feet of protection will be built along the west bank of Bayou Perot and the north shore of Little Lake in Lafourche Parish. In Jefferson Parish, about 9,600 feet of the shoreline protection will be along the east bank of Bayou Rigolettes and approximately 2,700 feet along each bank of Harvey Cutoff. Construction Units 7 and 8 have been approved for Phase 2 funding.	2
Breaux Act	BA-27d	Barataria Basin Landbridge Shoreline Protection, Phase 4	SP	11	NRCS	8	105	Jef.	256	2006	N/A	$1,570,423	$8,704,760	Phase 4 of this project begins at the intersection of Bayou Rigolettes and Barataria Bay Waterway (BBWW) and extends about 31,500 feet southward along the east bank of Bayou Rigolettes and ties into the northern limit of Phase 2.	2
Breaux Act	BA-28 (XBA-1a-i)	Vegetative Plantings of a Dredged Material Disposal Site on Grand Terre Island	VP	7	NMFS	8	105	Jef.	127	2001	N/A	$117,657	$165,542	The goal of this project is to stabilize dredged material sites on West Grand Terre Island. This objective was achieved through vegetation plantings and by purchasing grazing rights on the island for the 20-year life of the project.	2
Breaux Act	BA-29 (BA-32a)	LA Highway 1 Marsh Creation (Deauthorized)	MC	9	EPA	20	54	Laf.	N/A	Deauth.	N/A	$319,700	N/A	The objective of this project was to create marsh habitat in a large open water area adjacent to Louisiana Highway 1 using dredged material from two proposed borrow areas. This project was officially deauthorized by the Breaux Act Task Force in February of 2005 because it was determined to be infeasible.	2
Breaux Act	BA-30 (XBA-01a)	East/West Grand Terre Islands Restoration (Transferred)	BI	9	NMFS	1	105	Jef.	335	Transfer	N/A	$2,280,777	N/A	The goal of this project is to stabilize and benefit 1,575 acres of barrier island habitat and extend the island's life expectancy. Dredged material will be used to create dune and marsh habitat on East Grand Terre Island. This project will be constructed using CIAP 2007 funds.	2
Breaux Act	BA-31 (Complex Project)	Delta Building South of Empire	SD	9	USACE	1	105	Plaq.	N/A	Pending	N/A	N/A	N/A	The objective of this project is to create marsh in open water areas south of Empire through the diversion and capture of fluvial sediment from the Mississippi River. Ultimately, the project will relay sediment to the barrier shoreline enhancing the ability of these features to regenerate and stabilize.	2
Breaux Act	BA-33	Delta Building Diversion at Myrtle Grove (Transferred)	SD	10	USACE	1, 8	105	Plaq. Jef. Laf.	8,891	Transfer	N/A	$3,702,115	N/A	The objective of this project is to divert Mississippi River water and sediment for the creation of new emergent wetlands. The project will involve: installation of gated box culverts on the west bank of the Mississippi River in the vicinity of Myrtle Grove; dedicated dredging from the Mississippi River to create marsh in the vicinity of Bayou Dupont, the Barataria Bay Waterway, and the Wilkinson Canal; or a combination of these actions. This project has been transferred to the LCA Program.	2

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Breaux Act	BA-34	Mississippi River Reintroduction Into Northwest Barataria Basin	FD	10	EPA	18, 19	55, 58	Laf. StJa. StJo.	941	Pending	N/A	$2,362,687	$11,630,195	The goal of this project is to restore the natural hydrologic regime and add nutrients to adjacent swamp areas. The project will utilize a freshwater diversion/siphon from the Mississippi River to northwest Barataria Basin wetlands with gapping of spoil banks and placement of culverts under LA Highway 20.	2
Breaux Act	BA-35	Pass Chaland to Grand Bayou Pass Barrier Shoreline Restoration	BI	11	NMFS	1	105	Plaq.	263	2009	N/A	$2,344,387	$30,573,184	This project will prevent the barrier island from being breached through the deposition of dredged material and vegetation plantings. The project will provide a continuous barrier to reduce wave and tidal energy, thereby protecting the mainland shoreline from continued erosion.	2
Breaux Act	BA-36	Dedicated Dredging on the Barataria Basin Landbridge	MC	11	USFWS	8	105	Jef.	242	2010	N/A	$463,942	$15,228,833	This project, in conjunction with the Barataria Basin Landbridge Shoreline Protection project (BA-27, BA-27c), will protect the functional integrity of this critical area of the Barataria Basin. This project will create emergent marsh through the deposition of dredged material into open water areas. *In February 2007, the Breaux Act Task Force approved construction funds for 40% of this project, with the remaining 60% using CIAP 2007 funds.	2
Breaux Act	BA-37	Little Lake Shoreline Protection/ Dedicated Dredging Near Round Lake	SP MC	11	NMFS	20	54	Laf.	713	2007	N/A	$2,019,214	$31,829,321	This project is designed to protect area wetlands, which currently experience high rates of shoreline erosion. This project will protect approximately 21,000 feet of Little Lake shoreline, create 488 acres of intertidal wetlands, and nourish an additional 532 acres of fragmented, subsiding marsh.	2
Breaux Act	BA-38	Barataria Barrier Island Complex Project: Pelican Island and Pass La Mer to Chaland Pass Restoration	BI	11	NMFS	1	105	Plaq.	334	Pending	N/A	$3,641,059	$75,570,297	The objectives of this project are to create barrier island habitat, enhance storm-related surge and wave protection, prevent overtopping during storms, and increase the volume of sand within the active barrier system. Conceptual project plans envision dedicated dredging of local, nearshore sand sources to directly create beach, dune, and wetland habitats. This project was first authorized on the 9th PPL as Barrier Island Restoration Grande Terre to SW Pass (BA-32). Construction of the Pass La Mer to Chaland Pass Restoration segment was completed in 2007.	2
Breaux Act	BA-39	Mississippi River Sediment Delivery System - Bayou Dupont	MC	12	EPA	1, 8	105	Jef. Plaq.	326	2010	N/A	$2,693,461	$25,581,240	The goal of this project is to create/restore 493 acres of brackish marsh by delivering, via pipeline, dredged material from the Mississippi River to an adjacent area within the Barataria Basin and planting marsh vegetation.	2
Breaux Act	BA-40	Riverine Sand Mining/Scofield Island Restoration	BI	14	NMFS	1	105	Plaq.	234	Pending	N/A	$3,221,888	$37,629,384	The goals of this project are to repair breaches and tidal inlets in the shoreline, reinforce the existing shoreline with sand, and increase the island width with back barrier marsh creation to increase longevity.	2
Breaux Act	BA-41	South Shore of The Pen Shoreline Protection and Marsh Creation	SP	14	NRCS	8	105	Jef.	211	Pending	N/A	$1,353,146	$12,839,842	The project features include approximately 11,750 ft of foreshore rock dike shoreline protection at south bank of The Pen and approximately 63 acres of marsh creation and 14 acres of marsh nourishment, within an area that is roughly parallel to, and east of, the Barataria Bay Waterway (Dupre Cut) in the vicinity of Enbridge, Plains All American and Central Crude pipelines in Jefferson Parish, Louisiana.	2

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Breaux Act	BA-42	Lake Hermitage Marsh Creation	MC	15	USFWS	1	105	Plaq.	447	Pending	N/A	$1,197,590	$29,188,770	The goals of this project are to create and nourish 555 acres of wetlands, reduce tidal exchange in marshes surrounding Lake Hermitage, and reduce fetch and turbidity to enhance open water habitats. This project will utilize hydraulic dredging, terraces, and a shoreline berm to benefit approximately 1,581 acres of brackish marsh and open water habitats.	2
Breaux Act	BA-47	West Pointe a la Hache Marsh Creation	MC	17	NRCS	1	105	Plaq.	203	Pending	N/A	$1,620,738	$14,409,780	The goal of this project is to create/nourish marsh using sediment hydraulically dredged from the Mississippi River and pumped via pipeline to the project area.	2
Breaux Act	BA-48	Bayou Dupont Ridge Creation and Marsh Restoration	MC	17	NMFS	8	105	Jef.	187	Pending	N/A	$2,013,882	$19,015,058	The goals of this project are to: 1) create and nourish marsh using sediment dredged from the Mississippi River and transported via pipeline to the project area; and 2) create a ridge along the southwestern shoreline of Bayou Dupont.	2
Breaux Act	BA-68	Grand Liard Marsh and Ridge Restoration	MC	18	NMFS	1	105	Plaq.	286	Pending	N/A	$3,271,286	$28,017,114	The goals of this project are to create/nourish marsh and associated edge habitat for aquatic species through pipeline sediment delivery and to restore the Grand Liard Ridge to reduce wave and tidal setup and provide fallout habitat for neotropical migrant birds.	2
Breaux Act	MR-03 (FMR-03)	West Bay Sediment Diversion	SD	1	USACE	1	105	Plaq.	9,831	2003	N/A	$1,171,755	$4,801,152	The objective of the project is to restore vegetated wetlands in the West Bay area that are currently shallow open water. A diversion channel will be constructed in two phases: (1) initial construction of an interim channel to accommodate a discharge of 20,000 cubic feet per second (cfs) at the 50% duration stage of the Mississippi River, and (2) modification of the interim diversion channel design to accommodate a full-scale diversion of 50,000 cfs at the 50% duration stage. The second phase of construction has not yet been completed. In January 2010, the Breaux Act Task Force voted to close the diverison channel.	2
Breaux Act	MR-08 (XMR-12)	Beneficial Use of Hopper Dredged Material Demonstration (Deauthorized)	DM	4	USACE	1	105	Plaq.	N/A	Deauth.	N/A	$48,719	N/A	The goal of this project was to utilize dredged material from a hopper dredge to create emergent vegetated marsh in an area that is currently a shallow open-water pond. Due to design problems, the project was officially deauthorized by the Breaux Act Task Force in November of 2000.	2
Breaux Act	MR-10 (XMR-12b)	Dustpan Maintenance Dredging Operations for Marsh Creation in the Mississippi River Delta Demonstration	DM	6	USACE	1	105	Plaq.	N/A	2002	N/A	$135,876	$1,727,144	This project demonstrated the beneficial use of dredged material from routine maintenance of the Mississippi River Navigation Channel by using a dustpan hydraulic dredge to create and restore adjacent marsh. Approximately 40 acres of deteriorated marsh that had converted to shallow open water were restored with approximately 222,000 cubic yards of dredged material.	2
Breaux Act	MR-12	Mississippi River Sediment Trap (Deauthorized)	SNT	12	USACE	1	105	Plaq.	1,190	Deauth.	N/A	$5,137,383	N/A	This project was reauthorized on the 12th PPL to create emergent wetlands through the beneficial use of material dredged from a sediment trap located between miles 5 and 1 above Head of Passes in the Mississippi River. The proposed sediment trap will consist of an area dredged out of the riverbed that will force sediment deposition. The project was officially deauthorized by the Breaux Act Task Force in October of 2009 due to the high cost to implement the project.	2
Breaux Act	MR-14	Spanish Pass Diversion	SD	13	USACE	1	105	Plaq.	433	Pending	N/A	$1,421,680	N/A	The goal of this project is to create emergent marsh by diverting Mississippi River water and sediment from Grand Pass into open water receiving areas.	2

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Breaux Act	MR-15	Venice Ponds Marsh Creation and Crevasses	MC SD	15	USACE EPA	1	105	Plaq.	511	Pending	N/A	$1,074,522	$6,820,901	The goals of the project are to create, maintain, nourish, and replenish existing deteriorating wetlands through dedicated dredging, hydrologic restoration, crevasse construction, and crevasse enhancement. The project will benefit approximately 1,944 acres of fresh marsh and open water.	2
Breaux Act	BA-76	Cheniere Ronquille Barrier Island Restoration	BI	19	NMFS	1	105	Plaq.	398	Pending	N/A	$10,736,747	$40,409,022	The project goal is to maintain shoreline integrity and create and restore saline marsh on Chenier Ronquille. The project involves dedicated dredging from nearshore Gulf deposits to create saline marsh in open water areas and nourish existing marshes in project area. About 11,000 ft of shoreline will be nourished through the creation of beach and dune. Intensive dune plantings in the project area are also proposed.	2
State	BA-03	Naomi Siphon Diversion	FD	N/A	N/A	1, 8	105	Jef. Plaq.	1,318	1992	N/A	N/A	$6,666,667	This project involves the construction of eight parallel siphons to divert water from the Mississippi River into the adjacent wetlands near Naomi, Louisiana. The maximum discharge of the siphons is 2,100 cfs	2
State	BA-04	West Pointe a la Hache Siphon Diversion	FD	N/A	N/A	1	105	Plaq.	718	1992	N/A	N/A	$6,081,800	This project involves the construction of eight parallel siphons to divert water from the Mississippi River into the adjacent wetlands on the west side of the river near Pointe a la Hache, Louisiana. The maximum discharge of the siphons is 2,100 cfs.	2
State	BA-05b	Queen Bess	DM	N/A	N/A	8	105	Jef.	8	1993	N/A	N/A	$161,250	The purpose of this project is to restore Queen Bess Island as a brown pelican (Pelecanus occidentalis) rookery. Dredged material was added to the island to increase its size in 1991, and a rock dike was installed around the perimeter of the original island in 1992 to armor the shoreline. The area has become vegetated and the number of pelican nests on the island increased after project construction.	2
State	BA-05c	Baie de Chactas	SP	N/A	N/A	19	105	StC.	130	1990	N/A	N/A	$175,000	Approximately 300,000 pounds of crushed oyster shell were placed on 7,400 feet of shoreline to restore the physical integrity of the marsh shoreline separating Lake Salvador and Baie de Chactas and Baie du Cabanage.	2
State	BA-15x1	Lake Salvador Shoreline Protection Extension	SP	N/A	N/A	19	105	StC.	2,035	2005	N/A	N/A	$2,270,847	The purpose of this project is to build a rock dike that will protect the marsh shoreline along the northeastern portion of Lake Salvador. The shoreline protection project was built on the land to avoid dredging in an area with cultural resources. This project was designed as an extension of the BA-15 Phase II CWPPRA project.	2
State	BA-16	Bayou Segnette	SP	N/A	N/A	8	84	Jef.	88	1994, 1998	N/A	N/A	$1,373,151	This project involved the construction of a 6,800-foot limestone rock berm to reinforce the bank between Lake Salvador and Bayou Segnette and the installation of a timber piling fence across an abandoned access canal that connects the two water bodies. The fence is designed to reduce wave energies and erosive forces from the lake while still allowing exhange of sediment and aquatic organisms. Additional CWPPRA funds were appropriated for the design of this state-funded project. Maintenance of this project was necessary in the 1998-1999 fiscal year at a cost of $300,000.	2
State	GIBSB	Grand Isle Bay Side Breakwaters	SP	N/A	N/A	8	54, 105	Jef.	5	1995	N/A	N/A	$500,000	The purpose of this project was to reduce erosion on the bay side of Grand Isle. Fifteen 300-foot breakwaters were constructed on the back-bay side of Grand Isle.	2

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State	LA-01a	Dedicated Dredging Program - Lake Salvador	DM	N/A	N/A	19	105	StC.	28	1999	N/A	N/A	$342,276	Two sites were filled utilizing dredged material adjacent to Baie du Cabanage on the Salvador Wildlife Management Area. This project is part of the coastwide state Dedicated Dredging Program. The goal of this program is to use a small, mobile hydraulic dredge along inland waterways in Louisiana's coastal zone to deposit dredged material, and thereby nourish and/or rebuild threatened coastal marshes adjacent to the waterways.	2
State	LA-01b	Dedicated Dredging Program - Bayou Dupont	DM	N/A	N/A	8	105	Jef.	66	2000	N/A	N/A	$1,080,017	Three sites were filled utilizing dredged material adjacent to Bayou Dupont and The Pen. This project is part of the coastwide state Dedicated Dredging Program. The goal of this program is to use a small, mobile hydraulic dredge along inland waterways in Louisiana's coastal zone to deposit dredged material, and thereby nourish and/or rebuild threatened coastal marshes adjacent to the waterways.	2
State	NGI	North Grand Isle Breakwaters	SP	N/A	N/A	8	54	Jef.	50	1995	N/A	N/A	$160,000	This project was authorized to construct segmented rock breakwaters on the bay side of Grand Isle to protect camps located between Caminada Bay and the west side of Louisiana Hwy 1. The Louisiana Department of Natural Resources (LDNR) contributed no construction funds and was involved in construction inspection only. The local Levee District supplied construction funds.	2
State		Yankee Pond Polder Demonstration	MC	N/A	N/A	8	83, 84	Jef.	N/A	Pending	N/A	N/A	$40,000	The Yankee Pond Polder Project is a cooperative endeavor with the National Park Service and others to aid coastal restoration. The objective of the project is to return open water into marshland by creating conditions for natural vegetation development. The proposed location is Yankee Pond, a pond of approximately 100 acres in Jean Lafitte National Park.	2
Surplus 2008	BA-25b (STATE)	Mississippi River Reintroduction Into Bayou Lafourche	FD	N/A	N/A	8, 19, 20	51, 52, 53, 54, 55, 105	Asc. Asu. Laf. Ter.	85,000	Pending	N/A	N/A	$20,000,000	Engineering, design, and construction of some project components will be continued by the OCPR using state funds.	2
Surplus 2007	BA-75-1	Jean Lafitte Tidal Protection	HP	N/A	N/A	8	105	Jef.	N/A	Pending	N/A	N/A	$7,000,000	This project involves tidal protection of the Pen Levee and flood protection along Main Street (Rosethorn Basin) and Fischer School Basin. Additional armoring and scour protection is the last part of the Lafitte Tidal Protection.	2
Surplus 2007	BA-75-2	Rosethorne Tidal Protection	HP	N/A	N/A	8	105	Jef.	N/A	Pending	N/A	N/A	$1,000,000	This project will provide flood protection improvements consisting of new earthen levees, approximately 8,010 linear feet of reinforced concrete floodwall and flood gates to 8.0 NAVD.	2
Surplus 2007	BA-75-3	Lafitte Tidal Protection	HP	N/A	N/A	8	105	Jef.	N/A	Pending	N/A	N/A	$2,000,000	This project will provide flood protection improvements consisting of new earthen levees, sheet pile flood walls, concrete flood walls and flood gates to 8.0 NAVD.	2
Surplus 2009	BA-75-4	Lafitte Levee Protection	HP	N/A	N/A	8	105	Jef.	N/A	Pending	N/A	N/A	$7,730,000	This project involves tidal protection of the Pen Levee and flood protection along Main Street (Rosethorn Basin) and Fischer School Basin. Additional armoring and scour protection is the last part of the Lafitte Tidal Protection.	2
Surplus 2007		Raising of LA 23 at LaReussite	HP	N/A	N/A	1	105	Plaq.	N/A	Pending	N/A	N/A	$1,200,000	This project will raise LA Hwy. 23 to the elevation of the adjoining La Reussite Siphon guide levees, where the highway crosses those guide levees. LDOTD will perform the engineering in house and let contracts to complete the project.	2

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Surplus 2007		East of Harvey Canal Interim Hurricane Protection- Phase I	HP	N/A	N/A	7, 8	87, 105	Jef.	N/A	2009	N/A	N/A	$4,000,000	This project would require installing a combination of sheet pile and earthen flood protection, ultimately to an elevation of 10.0 feet along the east side of the Harvey Canal from the sector gate at Lapalco Boulevard to the existing levee at the west end.	2
Surplus 2007		St. Charles Parish West Bank Hurricane Prot. Levee Phase I -Magnolia Ridge	HP	N/A	N/A	18, 19	56, 58, 105	StC.	N/A	Pending	N/A	N/A	$4,500,000	This funding will be used to install two water control structures (Paradis Canal North and Paradis Canal South) in the Magnolia Ridge segment of the above project now under construction. The earthen works component of that levee segment is being constructed.	2
Surplus 2007		Raising of LA 1 at Golden Meadow Floodgate and Completion of Golden Meadow Lock Structure	HP	N/A	N/A	20	54	Laf.	N/A	2010	N/A	N/A	$18,000,000	These are critical elements of the Larose to Golden Meadow Hurricane Protection System. Funds would be used to raise the road to the 100-year flood elevation and to complete the lock in Bayou Lafourche.	2
CIAP 2007	BA-15X-2 (EB)	Lake Salvador Shoreline Protection (Phase III)	SP	N/A	MMS	19	105	StC.	844	2009	N/A	N/A	$3,600,000	The purpose of this project is to provide shoreline protection near the northwest shore of Lake Salvador.	2
CIAP 2007	BA-30 (EB)	East Grand Terre	BI	N/A	MMS	1	105	Plaq.	335	Pending	$225	$405,000	$30,595,000	The objective of this project is to restore 2.8 miles and 620 acres of barrier shoreline and 450 acres of marsh by dredging 3.3 million cubic yards of offshore material and rebuilding the island.	2
CIAP 2007	BA-36 (EB)	Barataria Land Bridge Dedicated Dredging (CIAP)	MC	N/A	MMS	8	105	Jef.	363	2010	N/A	$0	$18,000,000	The objective of this project is to create and or nourish 1200 acres of marsh.	2
CIAP 2007/Surplus 2007/2008	BA-43 (EB)	Long Distance MS River Sediment Pipeline	MC	N/A	MMS State	1, 8, 20	54, 105	Laf. Jef. Plaq.	N/A	Pending	N/A	$4,760,000	$61,432,104	The goal of this project is to use material dredged from the Mississippi River and transported via new permanent pipeline from a region around Myrtle Grove to across the Barataria Basin to create marsh and/or a ridge.	2
CIAP 2007/Surplus 2008	BA-45 (EB)	Caminada Headlands	BI	N/A	MMS State	20	54	Laf. Jef.	N/A	Pending	N/A	$4,000,000	$71,000,000	The Caminada Headlands project will focus on restoring dune and beach features within the western portion of the Caminada Headlands, which extends from Belle Pass to Caminada Pass.	2
CIAP 2007	BA-55	LA 1 Improvements - Fourchon to Leeville Bridge	INF	N/A	MMS	20	54	Laf.	N/A	Pending	N/A	N/A	$35,120,658	This project is located 60 miles south of New Orleans in lower Lafourche Parish between Leeville and Port Fourchon. It will construct a 5 mile long, two lane elevated highway (two, 12 ft lanes and two, 8 ft shoulders). The Phase IA project connects to the Phase IB and Phase IC projects (in Leeville) by relocating LA 1 on a new alignment.	2

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CIAP 2007	BA-58	Fringe Marsh Repair	MC	N/A	MMS	1	105	Plaq.	N/A	Pending	N/A	N/A	$8,927,104	Restoration of approximately 300 acres of wetland area seaward of the back levee toe in Plaquemines Parish. There are several fringe marsh locations in need of restoration due to the breakup and fragmentation of those fringe marshes adjacent to the back levees' bases.	2
Section 204/1135		Barataria Bay Waterway, Grand Terre Island (Phase I)	DM	N/A	N/A	8	105	Jef.	115	1996	N/A	N/A	$1,370,000	This Section 204 project provides for the beneficial placement of 500,000 cubic yards of dredged material from the Barataria Bay Waterway (BBWW) to create wetlands on Grand Terre Island.	2
Section 204/1135		Barataria Bay Waterway, Mile 31 to 24.5	DM	N/A	N/A	8	105	Jef.	125	1999	N/A	N/A	$140,000	This Section 204 project utilized dredged material taken from a zone between miles 31 and 24.5 of the Barataria Bay Waterway (BBWW) to create marsh habitat.	2
Section 204/1135		Barataria Bay Waterway, Grand Terre Island (Phase II)	DM	N/A	N/A	8	105	Jef.	80	1999, 2002	N/A	N/A	$100,000	This Section 204 project provided for the beneficial placement of 500,000 cubic yards of material dredged from the Barataria Bay Waterway (BBWW) to create wetlands on the bay side of Grand Terre Island.	2
WRDA	BA-01	Davis Pond Freshwater Diversion	FD	N/A	USACE	1, 3, 7, 8, 19, 20	54, 56, 83, 84, 87, 105	StC.	33,000	2002	N/A	N/A	$120,000,000	The purpose of this project is to maintain and enhance the existing ecological framework of the Barataria Basin by providing freshwater, nutrients, and sediment. This will counter saltwater intrusion and help offset marsh subsidence. This project can divert up to 10,650 cfs.	2
LCA	BA-70	Small Bayou Lafourche Reintroduction	FD	N/A	N/A	18, 19, 20, 21	51, 54, 55, 58, 60	Asc. Asu. Laf.	N/A	Pending	N/A	N/A	$133,500,000	Small diversion (less than 5000 cfs) to reintroduce flow from the Mississippi River into Bayou Lafourche. Provide freshwater, sediment and nutrients needed to reduce salinity, stimulate plant productivity, and reduce wetland loss between Bayous Lafourche and Terrebonne. Funds from the budget surplus of 2008 will be used for the state's cost-share requirement. *Construction cost taken from WRDA 2007 legislation.	2
LCA	BA-71	Medium Diversion with Dedicated Dredging at Myrtle Grove	SD	N/A	USACE	1, 8	105	Jef.	N/A	Pending	$8,000,000	N/A	$278,300,000	Authorized by WRDA 2007 as a sediment diversion between 2,500 and 15,000 cfs. Ongoing modeling effort to examine potential for modification of the WRDA authority for a larger sediment diversion to promote infilling of shallow open water areas through deposition and marsh expansion. *Fully funded Phase 2 cost taken from WRDA 2007 legislation.	2
LCA	BA-72	Modification of Davis Pond Diversion	FD	N/A	USACE	1, 3, 7, 8, 19, 20	54, 56, 83, 84, 87, 105	StC.	N/A	Pending	$300,000	N/A	$77,040,000	The purpose of this project is to investigate modifying project's existing authorization (for salinity management) to enhance wetland creation and restoration. Identify and assess changes to project's operation to facilitate organic and sediment deposition, improve biological productivity, and prevent further deterioration of marshes. *Fully funded Phase 2 cost includes preliminary engineering and design.	2
LCA	LA-10	Barataria Basin Barrier Shoreline	BI	N/A	USACE	1, 8, 20	54, 105	Laf. Jef. Plaq.	N/A	Pending	$6,000,000	N/A	$242,600,000	The purpose of this project is to provide beach/dune restoration and marsh creation on Caminada Headlands and Shell Island. *Fully funded Phase 2 cost taken from WRDA 2007 legislation.	2

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HSDRRS	BA-66	West Bank and Vicinity	HP	2	USACE	3, 7, 8, 19	56, 83, 84, 85, 86, 87, 102, 105	Jef. Plaq. Orl.	N/A	Pending	N/A	N/A	$2,074,081,000	The project will reduce the risk of storm surges from Lake Cataouatche, Lake Salvador, and other waterways leading to the Gulf of Mexico. The original project included 22 miles of earthen levee and 2 miles of floodwalls extending from the Harvey Canal to the V-levee near the Jean Lafitte National Historical Park and back up to the town of Westwego. The Lake Cataouatche area eliminated the west-side closure in Westwego, and added about 10 miles of levee and 2 miles of floodwalls to the project. The East of Harvey Canal area includes a sector floodgate in the Harvey Canal just below Lapalco Boulevard and about 25 miles of levee and 5 miles of floodwalls, including enlargement of the Federal levees along the Algiers Canal. This project will be partially funded by state Surplus 2008 funds.	2
HSDRRS	PO-58	DTOG (Donaldsonville to the Gulf)	HP	N/A	USACE	1, 3, 7, 8, 18, 19, 20, 21	51, 54, 55, 56, 58, 60, 83, 84, 87, 105	Asc. Asu. StJa. StJo. Laf. StC. Jef. Orl. Plaq.	N/A	Pending	$2,400,000	$20,000,000	$1,121,000,000	The purpose of the project is to reduce the risk of flooding from coastal storm surge and rainfall to prevent further economic losses and environmental damage in the Barataria Basin. The project is currently in its feasibility study phase, during which various alternatives to reducing storm surge are being examined, the adequacy of the existing drainage system is being assessed, and cultural, environmental, and recreational issues are being identified. The scope is to study various alternatives that will provide flood protection from tidal, hurricane surges, and heavy rainfall events, determine the adequacy of the existing interior drainage systems and evaulate whether additional pumping capacity is required, and analyze recreational, cultural, and environmental needs.	2
HSDRRS	TE-65	Larose to Golden Meadow	HP	N/A	USACE	20	54	Laf.	N/A	Pending	N/A	N/A	$45,000,000	This funding would be used to support raising of the Larose to Golden Meadow, LA hurricane protection levees so that they provide protection against the project-design storm under today's conditions as well as elevating highways serving as evacuation routes. This project will be partially funded by state Surplus 2008 funds.	2, 3a
HSDRRS	BA-73	Grand Isle and Vicinity	HP	N/A	USACE	8	54, 105	Laf.	N/A	1991	N/A	N/A	N/A	The Grand Isle & Vicinity project provides protection from hurricane-driven waves with a frequency of recurrence of up to once in every 50 years. The project features consists of a berm and vegetated dune extending the length of Grand Isle's gulf shore; pedestrian and emergency vehicle crossovers, segmented offshore breakwaters; and a stone jetty to stabilize the western end of Grand Isle at Caminada Pass. The rehabilitation work includes the repair and rehabilitation of numerous project features including but not limited to sand berm and dune work consisting of placement of a sand filled GEOTUBE core, topped by a vegetated sand cap not to exceed an elevation of 13.5 feet NGVD, scour protection, breakwaters, jetty, crossovers, fencing, and beach re-nourishment to the authorized level of protection for which they were originally designed. Operation and Maintenance for this project is a local responsibility.	2
Other	CIAPFIFI	Fifi Island Restoration	SP	N/A	N/A	8	105	Jef.	126	2003	N/A	N/A	$3,000,000	Approximately 100 acres of existing island (Grand Isle & Fifi Island) will be protected by the installation of approximately 10,000 linear feet of rock shore protection. An additional $999,500 was contributed from the CIAP of 2001 for the construction and design of this project.	2

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Other	FTL-01	Fisheries Habitat Restoration on West Grand Terre Island at Fort Livingston	SP	N/A	N/A	8	105	Jef.	10	2003	N/A	N/A	$2,076,816	This project consists of a rock dike built to protect the Gulf shoreline of West Grand Terre Island and Fort Livingston. This project was expedited because erosion rates along West Grand Terre rapidly accelerated due to the impacts of tropical storms in 2002. Fort Livingston, which is listed on the National Register of Historic Places, was constructed in the 19th century by the U.S. Army Corps of Engineers as part of the nation's coastal defense system.	2
Breaux Act	LA-05	Floating Marsh Creation Demonstration	MC	12	NRCS	21	51	Ter.	N/A	2006	N/A	$338,063	$742,828	The goal of this project is to develop methods for restoration of open areas within deteriorated floating marsh and other freshwater areas where establishment of maidencane (Panicum hemitomon) marsh is desired.	3a
Breaux Act	LA-09	Sediment Containment System for Marsh Creation Demonstration	MC	17	NRCS	8, 20, 21	51, 105	Ter.	N/A	Pending	N/A	$257,068	$857,656	The overall goal of the project is to demonstrate the effectiveness of a sediment trapping system to strategically define areas of accumulation and improve the efficiency of passive sediment retention in small and medium freshwater diversions a well as mechanized introduction of fluid material to create marsh.	3a
Breaux Act	TE-10 (XTE-49)	Grand Bayou Hydrologic Restoration (Deauthorized)	HR	5	USFWS	20	53, 54	Laf.	199	Deauth.	N/A	$1,601,868	$2,637,807	The objective of the project is to maintain emergent wetlands in this area by providing supplemental freshwater, nutrients, and sediment from the Atchafalaya River via the Gulf Intracoastal Waterway (GIWW). Project features include a water control structure on Bayou Pointe au Chien just south of its junction with St. Louis Canal, the relief structure on Grand Bayou, and the pipeline structure on Grand Bayou Canal.	3a
Breaux Act	TE-17 (TE-17)	Falgout Canal Planting Demonstration	VP SP	1	NRCS	20	51	Ter.	N/A	1997	N/A	$36,330	$82,075	For this demonstration project, smooth cordgrass (Spartina alterniflora) suited to the salinity and habitat type of the Falgout Canal area was planted along the canal and protected by six types of wave-stilling devices. This is a subproject of the Vegetation Plantings project.	3a
Breaux Act	TE-18 (TE-18)	Timbalier Island Planting Demonstration	VP	1	NRCS	20	53	Ter.	N/A	1996	N/A	$36,955	$158,611	For this demonstration project, approximately 7,390 linear feet of sand fences were installed and vegetation suited to the salinity and habitat type of Timbalier Island was planted in several areas on the island to trap sand and buffer wind and wave energy.	3a
Breaux Act	TE-19 (TE-19)	Lower Bayou LaCache Hydrologic Restoration (Deauthorized)	HR	1	NMFS	20	53	Ter.	N/A	Deauth.	N/A	$92,808	N/A	The project would have reduced marsh loss rates and improved fish and wildlife habitat quality by restoring natural north-south water exchange with estuarine water bodies and by reducing flow through the numerous dredged canals in the area. Because of problems with landrights and navigation, the project was officially deauthorized by the Breaux Act Task Force in February of 1996.	3a
Breaux Act	TE-20 (TE-20)	Isles Dernieres Restoration East Island	BI	1	EPA	20	53	Ter.	9	1999	N/A	$466,359	$7,784,527	The project objective is to restore the coastal dunes and wetlands of the Eastern Isles Dernieres barrier island chain. Approximately 3.9 million cubic yards of sand were dredged from Lake Pelto and used to build a retaining dune which was then hydraulically filled to create an elevated marsh platform. Sand fences and vegetation were also installed to stabilize the sand and minimize wind-driven transport.	3a

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Breaux Act	TE-23 (PTE-27)	West Belle Pass Headland Restoration	DM SP	2	USACE	20	54	Laf.	474	1998	N/A	$1,018,979	$5,134,013	The project goals include reducing the encroachment of Timbalier Bay into the marshes on the west side of Bayou Lafourche through the use of dedicated dredged materials to create 184 acres of marsh on the west side of Belle Pass. A water control structure was placed in the Evans Canal and plugs on other canals. Riprap was used to anchor 17,000 linear feet of the western side of Belle Pass and Bayou Lafourche.	3a
Breaux Act	TE-24 (XTE-41)	Isles Dernieres Restoration Trinity Island	BI	2	EPA	20	53	Ter.	109	1999	N/A	$517,918	$10,099,253	The project objectives include the restoration of Trinity Island (dunes and marsh) of the Isles Dernieres chain. Approximately 4.85 million cubic yards of sand were dredged from adjacent waters and used to build a retaining dune, which was then hydraulically filled to create an elevated marsh platform at the bay side of the island. Sand fences and vegetation were also installed to stabilize the sand and minimize wind-driven transport.	3a
Breaux Act	TE-25 (XTE-67)	East Timbalier Island Restoration, Phase I	BI	3	NMFS	20	54	Laf.	1,913	2000	N/A	$430,859	$3,147,225	The objective of this project is to strengthen and thus increase the life expectancy of East Timbalier Island. The project called for the mining of 2.7 million cubic yards of sediment and placement of the material in three embayments along the landward shoreline of East Timbalier Island. The project also included aerial seeding of the dune platform, installation of sand fencing, and dune vegetation plantings.	3a
Breaux Act	TE-27 (PTE-15bi)	Whiskey Island Restoration	BI	3	EPA	20	53	Ter.	1,239	1999	N/A	$566,235	$6,401,038	The objective of this project is to create and restore beaches and back island marshes on Whiskey Island. The project consists of creating 523 acres of back island marsh and filling in the breach at Coupe Nouvelle (134 acres). The initial vegetation planting with smooth cordgrass (Spartina alterniflora) on the bay shore was completed in July 1998, and additional vegetation seeding/planting was carried out in Spring 2000.	3a
Breaux Act	TE-29 (PTE-15-vii)	Raccoon Island Breakwaters Demonstration	BI	5	NRCS	20	53	Ter.	N/A	1997	N/A	$200,401	$1,373,569	This demonstration project's goal is to reduce shoreline erosion and increase land coverage. Eight segmented breakwaters were constructed along the eastern end of the island to reduce the rate of shoreline retreat, promote sediment deposition along the beach, and protect seabird habitat. Project effectiveness was determined by 1) monitoring changes in the shoreline, wave energy, and elevations along the beach, and 2) surveys of the gulf floor between the shoreline and the breakwaters.	3a
Breaux Act	TE-30 (XTE-45/67b)	East Timbalier Island Restoration, Phase 2	BI	4	NMFS	20	54	Laf.	215	2000	N/A	$885,005	$6,570,105	The project goal is to strengthen and increase the life expectancy of East Timbalier Island by placing dredged material along its landward shoreline. Additional rock has been placed on the existing breakwater in front of the island, which will help protect the created area from erosion.	3a
Breaux Act	TE-31 (XTE-54b)	Flotant Marsh Fencing Demonstration (Deauthorized)	VP	4	NRCS	21	51	Ter.	N/A	Deauth.	N/A	$96,590	N/A	The purpose of this demonstration project was to determine the effectiveness of different fencing techniques used to conserve and restore floating marshes. There was difficulty in locating an appropriate site for demonstration and in addressing engineering constraints. The restoration techniques that were originally suggested for this project were not feasible. The project was officially deauthorized by the Breaux Act Task Force in October of 2001.	3a

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Breaux Act	TE-32a (TE-7f)	North Lake Boudreaux Basin Freshwater Introduction and Hydrologic Management	FD	6	USFWS	20	51, 52, 53	Ter.	416	Pending	N/A	$1,084,597	$6,529,568	The project objective is to seasonally introduce freshwater from the Houma Navigation Canal in order to reduce saltwater intrusion and promote vegetation diversity within the project area. Project plans include enlargement of a portion of Bayou Pelton, dredging of an outfall channel, installation of a major water control structure, building a bridge for Louisiana Highway 57 over the outfall canal, construction of water management structures, and a flood protection provision.	3a
Breaux Act	TE-33 (XTE-32i)	Bayou Boeuf Pump Station (Deauthorized)	HR	6	EPA	21	50, 51, 55, 60	StM.	N/A	Deauth.	N/A	$3,452	N/A	The purpose of this project was to link the wetlands protection/restoration objectives of the Breaux Act with flood protection and navigation needs generally covered by WRDA. The project components consisted of implementing a long-term water management strategy for the Verret Basin, and evaluating a long-term river water delivery strategy from Atchafalaya River to Terrebonne wetlands. The project was officially deauthorized by the Breaux Act Task Force in July of 1998.	3a
Breaux Act	TE-37 (TE-11a)	New Cut Dune and Marsh Restoration	BI	9	EPA	20	53	Ter.	102	2007	N/A	$1,788,807	$10,890,023	The objective of this project was to close the breach between East and Trinity Islands that was originally created by Hurricane Carmen (1974) and subsequently enlarged by Hurricane Juan (1985) and Hurricane Andrew (1992). The project will create barrier island dunes and marsh habitat and lengthen the structural integrity of the eastern Isles Dernieres by restoring the littoral drift and adding sediment into the near-shore system.	3a
Breaux Act	TE-39 (PTE-28)	South Lake DeCade Freshwater Introduction	FD	9	NRCS	20	51	Ter.	201	Pending	N/A	$948,711	$2,010,492	This project will include the construction of a water control structure in the southern bank of Lake DeCade. This will increase the amount of Atchafalaya River water and sediment introduced into the marshes south of the lake. In addition, shoreline protection will be implemented adjacent to the proposed structure, and a weir in Lapeyrouse Bayou will be removed.	3a
Breaux Act	TE-40 (XTE-45a)	Timbalier Island Dune and Marsh Creation	BI	9	EPA	20	53	Ter.	273	2004	N/A	$1,700,376	$14,827,413	Timbalier Island is migrating rapidly to the west/northwest; therefore, the western end of Timbalier Island is undergoing lateral migration by spit-building processes at the expense of erosion along the eastern end. The objective of this project is to restore the eastern end of Timbalier Island by the direct creation of beach, dunes, and marsh.	3a
Breaux Act	TE-42 (Complex Project)	Move Existing Atchafalaya Water to Central Terrebonne (Transferred)	HR	9	USFWS	20	51, 52, 53, 54	StM.	N/A	Transfer	N/A	N/A	N/A	This project is intended to reduce marsh loss through the improved distribution of excess freshwater seasonally available in the Gulf Intracoastal Waterway (GIWW). The project will benefit deteriorating marshes in central and/or eastern portions of the Terrebonne Basin. This project was transferred to the LCA Program.	3a
Breaux Act	TE-44	North Lake Mechant Landbridge Restoration	SP MC	10	USFWS	20	51	Ter.	604	2009	N/A	$1,548,310	$35,072,245	The project will help to maintain and restore the landbridge (Lake Mechant north shoreline and the Small Bayou La Pointe Ridge) which provides a hydrologic barrier between brackish and low-salinity habitats. Project features include marsh creation, the planting of smooth cordgrass (Spartina alterniflora) on the shoreline, the construction of various plugs, and repairing a fixed-crest weir along Bayou Raccourci.	3a
Breaux Act	TE-45	Terrebonne Bay Shore Protection Demonstration	SP	10	USFWS	20	53	Ter.	N/A	2008	N/A	$451,939	$1,772,972	This demonstration project intends to test several applications of concrete mats, A-Jacks®, and techniques for establishing shoreline oyster reefs for their ability to prevent shoreline erosion while encouraging oyster reef formation. The project design includes three 230 to 300 foot-long replicates of each treatment.	3a

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Breaux Act	TE-46	West Lake Boudreaux Shoreline Protection and Marsh Creation	SP MC	11	USFWS	20	51	Ter.	277	2008	N/A	$1,796,333	$14,413,543	The objective of this project is to protect the shoreline from erosion due to direct exposure to lake wave energy and to restore interior marsh lost to subsidence and saltwater intrusion. This objective will be accomplished through the construction of a rock dike to stop erosion along the western shoreline of Lake Boudreaux and the creation of marsh habitat through the deposition of dredged material.	3a
Breaux Act	TE-47	Ship Shoal: Whiskey West Flank Restoration	BI	11	EPA	20	53	Ter.	195	Pending	N/A	$2,841,982	$48,214,258	The objective of this project is to rebuild dunes and a marsh platform on the west flank of Whiskey Island through the deposition of dredged material transported from Ship Shoal. This project will provide a barrie to reduce wave and tidal energy, thereby protecting mainland shoreline from continued erosion.	3a
Breaux Act	TE-48	Raccoon Island Shoreline Protection/Marsh Creation	SP	11	NRCS	20	53	Ter.	16	2008	N/A	$1,477,974	$6,166,006	The goal of this project is to protect the Raccoon Island rookery and seabird colonies from an encroaching shoreline by reducing the rate of erosion along the western end of the island. This goal will be accomplished through the construction of eight additional segmented breakwaters and a terminal groin along the gulf side of the island, adjacent to the Raccoon Island Breakwaters Demonstration (TE-29) project.	3a
Breaux Act	TE-48B	Raccoon Island Shoreline Protection/Marsh Creation - Phase B	MC	11	NRCS	20	53	Ter.	55	Pending	N/A	$1,270,948	$8,389,746	The goal of this project is to protect the existing critical habitat and create over 68 acres of new marsh and supratidal habitat for avian species (brown pelican) in the backbay area of the Island.	3a
Breaux Act	TE-50	Whiskey Island Back Barrier Marsh Creation	BI	13	EPA	20	51, 53	Ter.	272	2009	N/A	$2,778,739	$19,661,600	The goal of this project is to enhance the structural function of Whiskey Island as a protective barrier for back bay and inland areas. Dredged material will be deposited on the island's back barrier area to widen the marsh platform on the central and eastern portions of Whiskey Island.	3a
Breaux Act	TE-51	Madison Bay Marsh Creation and Terracing	MC	16	NMFS	20	53	Ter.	372	Pending	N/A	$3,002,171	$28,782,537	The goals of this project are to create and nourish marsh and associated edge habitat and to promote conditions conducive to the growth of submerged aquatic vegetation. The proposed terraces will reduce the wave erosion of existing marshes along the fringes of Madison Bay. The project would benefit approximately 1,019 acres of fresh marsh and open water over the 20-year project life.	3a
Breaux Act	TE-52	West Belle Pass Barrier Headland Restoration	BI MC	16	NMFS	20	54	Laf.	299	Pending	N/A	$2,694,364	$26,824,882	The goals of this project are to reestablish the eroded West Belle Pass headland via dune and marsh creation and to prevent increased erosion along the adjacent bay shoreline. The project will create a continuous headland approximately 9,300 feet in length, 120 acres of beach/dune habitat, and 150 acres of marsh habitat.The project would benefit about 389 acres of dune, beach, and saline marsh over the 20-year project life	3a
Breaux Act	TE-53	Enhancement of Barrier Island Vegetation Demonstration	VP	16	EPA	20	51, 53	Ter.	N/A	Pending	N/A	$341,030	$390,998	The goal of this project is to test several technologies or products to enhance the establishment and growth of key barrier island and salt marsh vegetation. The project will focus specifically on enhancing the establishment and growth of transplants of both dune vegetation [bitter panicum (Panicum amarum) and sea oats (Uniola paniculata)] and marsh vegetation [smooth cordgrass (Spartina alterniflora) and black mangrove (Avicennia germinans)].	3a
Breaux Act	TE-66	Central Terrebonne Freshwater Enhancement	HR	18	NRCS	20	51	Ter.	456	Pending	N/A	$2,326,289	$13,478,286	The project will reestablish historic hydrologic and salinity conditions by reducing the artificial intrusion of Gulf marine waters via the Grand Pass into the Central Terrebonne marshes while enhancing the influenc of the Atchafalaya River waters into the area.	3a

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State	LA-01e	Dedicated Dredging Program - Grand Bayou Blue	DM	N/A	N/A	20	53	Laf.	38	2007	N/A	N/A	$1,831,534	This project created approximately 38 acres of marsh near Catfish Lake using dredged material from Grand Bayou Blue. This project is part of the coastwide state Dedicated Dredging Program. The goal of this program is to use a small, mobile hydraulic dredge along inland waterways in Louisiana's coastal zone to deposit dredged material, and thereby nourish and/or rebuild threatened coastal marshes adjacent to the waterways.	3a
State	RI	Raccoon Island Repair	DM	N/A	N/A	20	53	Ter.	197	1994	N/A	N/A	$1,400,000	This project was a cooperative effort that utilized dredged material and vegetation to repair storm damage to Raccoon Island. Cooperators include the Louisiana Department of Natural Resources/Coastal Restoration Division, Louisiana Department of Wildlife and Fisheries/Fur and Refuge Division, Terrebonne Parish Consolidated Government, South Terrebonne Tidewater Management and Conservation District, T. Baker Smith & Son, Inc., Coastal Engineering & Environmental Consultants, Inc., and Bean Dredging. Federal grant money was also utilized for this project by LDWF and TPCG.	3a
State	SBG	Spoilbank along the GIWW	VP	N/A	N/A	21	52	Ter.	1	1993	N/A	N/A	$9,400	This project planted 8,000 feet of spoilbank along the Gulf Intracoastal Waterway with black willow (Salix nigra) and bald cypress (Taxodium distichum) in an effort to reduce further bank erosion. The effectiveness of different types of nutria exclusion devices was also tested.	3a
State	TE-01	Montegut Wetland	MM	N/A	N/A	20	53	Ter.	1,655	1993	N/A	N/A	$6,600,087	The project objective was to protect and enhance 4,200 acres of degraded wetland habitat in the Pointe au Chien Wildlife Management Area. The project design included maintenance and refurbishment of approximately 3.5 miles of levee and the modification of two existing fixed-crest weirs by installing stop-logs and flapgates.	3a
State	TE-02	Falgout Canal Wetland	MM	N/A	N/A	20	51	Ter.	1,300	1993, 1995	N/A	N/A	$1,560,000	The primary objectives of this project were to protect approximately 8,000 acres of marsh and cypress-tupelo swamp, reduce saltwater intrusion, and improve wildlife habitat by moderating water flux and tidal energy in the deteriorating wetland community.	3a
State	TE-03	Bayou LaCache Wetland	MM	N/A	N/A	20	53	Ter.	171	1991, 1996, Pending	N/A	N/A	$256,000	A water control structure in Bayou LaCache needed to complete the Bush Canal Marsh Management Area was constructed. The structure is a four barrel prefabricated steel pipe structure with flap gates. Remaining project features are in engineering and design.	3a
State	TE-06	Pointe-aux-Chenes Hydrologic Restoration	HR	N/A	N/A	20	53	Ter.	4,700	2006	N/A	N/A	$2,771,819	This cooperative coastal restoration project will restore approximately 4,700-acres of brackish-intermediate marsh within the Pointe Aux Chenes WMA managed by the Louisiana Department of Wildlife and Fisheries. Major funding for the project was provided by Ducks Unlimited and the North American Wetlands Conservation Act.	3a
State	TE-07b	Lower Petit Caillou	HR	N/A	N/A	20	53	Ter.	3,465	1995, 2007	N/A	N/A	$1,536,084	The objective of this project is to decrease saltwater intrusion into the project area by re-routing freshwater discharge from the Lashbrook pumping station through the project area prior to entry into Lake Boudreaux.	3a

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State	TE-14	Point Farm Refuge Planting	VP	N/A	N/A	20	53	Ter.	150	1995	N/A	N/A	$192,016	This project was developed to create bottomland hardwood forests in former farmlands within the Point Farm Refuge Area (PFRA). Approximately 108,900 seedlings of bitter pecan (Carya aquatica), water oak (Quercus nigra), and cow oak (Quercus michauxii) (with nutria exclusion devices) were planted on 300 acres of former farmland within the PFRA.	3a
Surplus 2007		Houma Navigation Lock	HR	N/A	N/A	20	51, 52	Ter.	N/A	Pending	N/A	N/A	$40,000,000	The HNC Complex would involve use of State funds to accelerate efforts to reduce saltwater intrusion and storm surge that makes its way into the Terrebonne Basin via the Houma Navigation Canal.	3a
Surplus 2007		Chabert Ring Levee	HP	N/A	N/A	20	52	Ter.	N/A	2008	N/A	N/A	$500,000	The project consists of the design and construction for a segment of levee around the Chabert Medical Center in Houma, Louisiana. The proposed ring levee will surround the Chabert Medical Center and will provide flood protection for the facility allowing operation during possible flood events.	3a
Surplus 2007		Wine Island	DM	N/A	N/A	20	53	Ter.	N/A	2007	N/A	N/A	$2,000,000	The purpose of this project was to beneficially use material from the dredging of the Houma Navigation Canal Bay Channel on Wine Island.	3a
Surplus 2008		Bay Welsh Disposal Site (Houma Navigation Canal)	DM	N/A	N/A	20	53	Ter.	N/A	Pending	N/A	N/A	$300,000	The purpose of this project is to pre-clear the Bay Welsh disposal site adjacent to and east of the Houma Navigation Canal.	3a
Surplus 2009	TV-55	Morgan City/ St Mary Flood Protection	N/A	N/A	N/A	21	50, 51	StM.	N/A	Pending	N/A	N/A	$3,870,000	This project will provide flood protection improvements by raising or improving over seven miles of the current levee system in the Morgan City area.	3a
Section 204/1135	DSR-81558	Wine Island Restoration	DM	N/A	N/A	20	53	Ter.	37	1991	N/A	N/A	$1,007,000	This Section 204/1135 project was a cooperative effort with the USACE and included the use of beneficial dredging from a scheduled Houma Navigational Canal maintenance dredging project to restore Wine Island.	3a
Section 204/1135		Houma Navigation Canal, Wine Island Barrier Island Restoration	DM	N/A	N/A	20	53	Ter.	50	2002	N/A	N/A	$1,000,000	This Section 204/1135 project investigated the feasibility of beneficially using the dredged material from the bar channel area in lieu of the Ocean Dredged Material Disposal Site. The project area is approximately 35 miles south of Houma, Louisiana at the mouth of the navigation channel in Terrebonne Bay. The construction schedule of this project was expedited due to the impact of Hurricane Lili and Tropical Storm Isadore.	3a
FEMA	DSR-81557	Houma Navigational Canal Levee Maintenance (FEMA)	SP	N/A	N/A	20	53	Ter.	4,000	1995	N/A	N/A	$218,165	This FEMA project involved the repair of segments of the western bank of the Houma Navigation Canal damaged by Hurricane Andrew in 1992.	3a
FEMA	DSR-81558	Wine Island (FEMA)	DM	N/A	N/A	20	53	Ter.	25	1995	N/A	N/A	$253,579	This FEMA project was a cooperative venture with the USACE in the beneficial use of dredged material from a scheduled Houma Navigational Canal maintenance dredging project. The island was repaired to pre-Hurricane Andrew condition and planted with vegetation to stabilize the sediment.	3a
FEMA	DSR-81560	East Island Repair Protection (FEMA)	DM	N/A	N/A	20	53	Ter.	25	1996	N/A	N/A	$633,179	This FEMA project constructed an elevated marsh platform in an area of a Terrebonne Parish project destroyed by Hurricane Andrew in 1992. Vegetation was also planted to stabilize the sand.	3a

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FEMA	DSR-81559	Timbalier Island Repair (FEMA)	DM	N/A	N/A	20	53	Ter.	70	1996	N/A	N/A	$551,653	This FEMA project closed a major breach created by Hurricane Andrew and provided a 300-foot-wide elevated marsh platform to stabilize the island. Vegetation was also planted to stabilize the sand.	3a
FEMA	DSR-81784	Timbalier Island (FEMA 1999)	SP	N/A	N/A	20	53	Ter.	N/A	2000	N/A	N/A	$181,394	This FEMA project repaired sand fencing on Timbalier Island that was destroyed during a series of tropical storms and hurricanes in the fall of 1998.	3a
FEMA	DSR-81785	Falgout Canal (FEMA 1999)	MM	N/A	N/A	20	51	Ter.	N/A	2000	N/A	N/A	$7,070	This FEMA project replaced flap gates on water control structures damaged during tropical storms and hurricanes in the fall of 1998. The installation of the new flapgate culverts was completed by Terrebonne Parish Consolidated Government.	3a
FEMA	DSR-81786	East Island (FEMA 1999)	VP	N/A	N/A	20	53	Ter.	N/A	2000	N/A	N/A	$89,940	This FEMA project involved the planting of marsh vegetation on the dune and Lake Pelto shoreline of East Island. This area is part of a CWPPRA project damaged by a series of tropical storms and hurricanes in the fall of 1998. A total of 4,280 smooth cordgrass (Spartina alterniflora), 500 black mangrove (Avicennia germinans), and 6,147 roseau cane (Phragmites australis) plants were planted in April 2000.	3a
FEMA	DSR-81787	Whiskey Island (FEMA 1999)	SP	N/A	N/A	20	53	Ter.	1,259	2000	N/A	N/A	$581,566	This FEMA project involved the installation of sand fencing and the planting of vegetation to repair areas of Whiskey Island damaged by tropical storms and hurricanes during the fall of 1998. This area is part of a CWPPRA project area and CWPPRA funds were combined with the FEMA funds for repairs.	3a
FEMA/CIAP	PW-1728	Montegut Wetlands (FEMA)	MM	N/A	N/A	20	53	Ter.	N/A	2005	N/A	N/A	$1,093,962	This FEMA project repaired damage to the Montegut Wetland (TE-01) project that occurred during Hurricane Lili in 2002. The project consisted of refurbishing and reconstructing 17,000 linear feet of an existing earthen levee using off-site borrow material.	3a
LCA	TE-67	Maintain Land Bridge Between Caillou Lake and Gulf of Mexico	SP MC	N/A	USACE	20	51, 53	Ter.	N/A	Pending	$6,300,000	N/A	$67,560,000	The goals of this project are to prevent connection between the gulf and Caillou Lake by constructing shoreline protection on gulf and Grand Bayou du Large, marsh creation, and closure of newly opened channels and to minimize saltwater intrusion, prevent gulf shore erosion and increase freshwater influence on marshes in project area. *Fully funded Phase 2 cost includes preliminary engineering and design.	3a
LCA	TE-70	Terrebonne Basin Barrier Shoreline Restoration	BI	N/A	USACE	20	51, 53, 54	Ter. Laf.	N/A	Pending	$8,700,000	N/A	$149,520,000	The goals of this project are to restore Timbalier and Isles Dernieres barrier island chains and to reduce the current number of breaches and enlarge width and dune crest. *Fully funded Phase 2 cost includes preliminary engineering and design.	3a

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LCA	TE-71	Convey Atchafalaya River Water to Northern Terrebonne Marshes	HR	N/A	USACE	20, 21	50, 51, 52, 53, 54	Ter. Laf. StM.	N/A	Pending	$8,449,000	N/A	$283,540,000	The goals of this project are to utilize GIWW to convey increased Atchafalaya River water to central and eastern Terrebonne marshes (Lake Boudreaux and Grand Bayou areas); repair banks along the GIWW, enlarge constrictions in the GIWW, and enlarge channels to distribute increased freshwater; reduce saltwater intrusion during the late summer and fall; and manage operation of HNC Lock to make more efficient use of Atchafalaya River waters and sediment flow. The Multipurpose Operation of HNC Lock project has been rolled into this project; therefore, the cost estimates include the HNC Lock project.	3a
HSDRRS	TE-64	Morganza to the Gulf of Mexico Hurricane Protection	HP	N/A	N/A	19, 20, 21	51, 52, 53, 54, 55	Ter. Laf.	NA	Pending	N/A	N/A	$420,000,000	This project aims to protect people and property as well as the remaining fragile marsh from hurricane storm surge in the vicinity of Houma, Louisiana. The area has been affected by an extreme deterioration of coastal marshes as a result of saltwater intrusion, land subsidence, and the lack of sediment deposits from the Mississippi River and its tributaries. This deterioration has led to increased hurricane and storm surge inundation. The area is also significantly affected by tides emanating from the Gulf of Mexico. The project was authorized by the Water Resources Development Act of 2007. The state has contributed funds from Surplus 2007, 2008, and 2009.	3a
Other	DNR 2513-03-11	Bush Canal and Bayou Terrebonne Bank Stabilization	SP	N/A	N/A	20	53	Ter.	4,300	2007	N/A	N/A	$3,700,000	This project reconstructed the south bank of Bush Canal using material dredged from the canal. The restored bank-line was then covered with goetextile fabric and armored with stone rip-rap. The rebuilt bank-line will help to diminish storm surge as well as reduce saltwater intrusion. This project was funded by the CIAP of 2001.	3a
Other	BRM-01	Brown Marsh	MC	N/A	N/A	20	54	Laf.	44	2002	N/A	N/A	$473,365	The project features consisted of a thin layer marsh creation/nourishment covering 44 acres in Lafourche Parish.	3a
Breaux Act	AT-02 (PAT-2)	Atchafalaya Sediment Delivery	DM MC HR	2	NMFS	21	50	StM.	2,232	1998	N/A	$190,588	$1,676,356	The objective of this project is to enhance natural delta growth by re-opening Natal Channel and Castille Pass. Natal Channel was re-established with a 120-foot wide, 10-foot deep, 8,800-foot long channel and Castille Pass with a 190-foot wide, 10-foot deep, 2,000-foot long channel. Material dredged (700,925 cubic yards) as a result of construction was strategically placed at elevations mimicking natural delta lobes.	3b
Breaux Act	AT-03 (XAT-7)	Big Island Mining	DM MC HR	2	NMFS	21	50, 51	StM.	1,560	1998	N/A	$513,254	$5,948,384	The project includes creating a new western delta lobe behind Big Island to enhance the accretion of land beyond the west bank of the Atchafalaya River. Construction included dredging of a main stem and five branch channels designed to mimic natural channel bifurcations. Dredged material was strategically placed at elevations mimicking natural delta lobes. Re-opening the channels is allowing continued natural sediment transport and marsh growth.	3b
Breaux Act	AT-04 (XAT-11)	Castille Pass Channel Sediment Delivery (Deauthorized)	SD	9	NMFS	21	50	StM.	577	Deauth.	N/A	$1,809,438	N/A	The Castille Pass project intends to re-establish the sedimentation processes that lead to subdelta development in this area of the Atchafalaya Delta. This project consists of dredging and extending Castille Pass to promote subdelta development. The project was officially deauthorized by the Breaux Act Task Force in October of 2009 due to Corps permitting issues and lack of Phase II funding approval over three consecutive years.	3b

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Breaux Act	TE-22 (PTE-22/24)	Point Au Fer Canal Plugs	SP HR	2	NMFS	20	51	Ter.	375	2000	N/A	$230,196	$2,062,750	This project is intended to reduce saltwater intrusion into the Point au Fer marshes without reducing freshwater back flooding from the Atchafalaya River. Phase I of this project, completed in 1997, involved the plugging of two major natural gas/oil pipeline canals on the eastern half of the island. Under Phase II, a rock shoreline stabilization structure was constructed in 2000 along a thin strech of beach separating the Gulf of Mexico from the Mobil Canal.	3b
Breaux Act	TE-26 (PTE-23/ 26a/33)	Lake Chapeau Sediment Input and Hydrologic Restoration, Point Au Fer Island	HR MC	3	NMFS	20	51	Ter.	509	1999	N/A	$599,221	$3,602,934	The objectives of this project are to restore the marshes west of Lake Chapeau, re-establish the hydrologic separation of the Locust Bayou and Alligator Bayou watersheds, and re-establish the natural drainage patterns within the Lake Chapeau area. To accomplish this material dredged from Atchafalaya Bay was used to create marsh, oil field access canals were plugged, and spoil banks were gapped. An estimated 850,000 cubic yards of material were hydraulically dredged from Atchafalaya Bay and spread to a thickness of approximately 2 feet to create 160 acres of marsh.	3b
Breaux Act	TE-28 (PTE-26b)	Brady Canal Hydrologic Restoration	HR	3	NRCS	20	51	Ter.	297	2000	N/A	$221,156	$2,630,026	The objective of the project is to maintain the highly-fragmented transitional marshes between the fresh and estuarine zones by enhancing freshwater, sediment, and nutrient delivery into the area. The project promotes freshwater flow from Bayou Penchant into a fresh/intermediate marsh that encompasses the western-most segment of the Mauvais Bois Ridge. The project includes replacing and maintaining weirs, constructing a rock plug, stabilizing channel cross-sections, and restoring and maintaining channel banks. Tidal scouring and rapid water exchange rates would be reduced by decreasing the cross-sectional areas of natural and man-made outlets and by maintaining the banks along Bayou DeCade, Turtle Bayou, and Superior Canal.	3b
Breaux Act	TE-34 (PTE-26i)	Penchant Basin Natural Resources Plan, Increment 1	HR	6	NRCS	20, 21	51	Ter.	675	Pending	N/A	$2,013,055	$14,760,614	The objective of the project is to combine the long-term realignment of the Penchant Basin hydrology with restoration and protection measures aimed at maintaining the physical integrity of the area during the transition toward greater riverine influence. The major problems in the project area include hydrologic alterations, interior marsh erosion, subsidence, saltwater intrusion, herbivory, and hurricane damage.	3b
Breaux Act	TE-35 (CW-5i)	Marsh Creation East of the Atchafalaya River - Avoca Island (Deauthorized)	MC	6	USACE	21	51	StM. Ter.	N/A	Deauth.	N/A	$66,425	N/A	The project consisted of the beneficial use of dredged material from the "Crew Boat Chute" and placing it in the Avoca Island area. Although the project would have benefited 434 acres at a cost of $6,438,400, the cost of the project was estimated to be considerably higher than originally planned, making it economically unjustifiable. The project was officially deauthorized by the Breaux Act Task Force in July of 1998.	3b
Breaux Act	TE-36 (CW-DEMO)	Thin Mat Floating Marsh Enhancement Demonstration	SNT	7	NRCS	21	51	Ter.	N/A	2000	N/A	$67,748	$470,353	The objective of this project is to induce the development of thick-mat, continuously floating marsh from a thin-mat flotant using various combinations of treatments including fertilization, herbivory reduction, and transplanting healthy, thick-mat marsh plugs into the thin-mat flotant. The project will also determine the effects of water movement and sediment availability on these marshes.	3b

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Breaux Act	TE-41 (XTE-DEMO)	Mandalay Bank Protection Demonstration	SP	9	USFWS	20, 21	51, 52	Ter.	N/A	2003	N/A	$263,189	$1,386,366	This demonstration project is intended to develop new techniques for protecting and restoring organic soils, which can be easily eroded. Intact banks and breakthroughs were treated to determine the cost-effectiveness of demonstrated approaches. The project will evaluate several low-cost solutions for restoring habitat in blowout areas and preventing bank erosion.	3b
Breaux Act	TE-43	GIWW Bank Restoration of Critical Areas in Terrebonne	SP	10	NRCS	21	51	Ter.	65	Pending	N/A	$2,800,736	$15,738,942	The project objective is to restore critical lengths of deteriorated channel banks and stabilize/armor selected critical lengths of deteriorated channel banks with hard shoreline stabilization materials. A portion of this project will be constructed using CIAP 2007 funds and the remainder of the project has received Phase 2 funding through CWPPRA.	3b
Breaux Act	TE-49	Avoca Island Diversion and Land Building	SD	12	USACE	21	51	StM.	143	Pending	N/A	$2,349,876	$14,930,742	The project objective is to divert freshwater, sediment, and nutrients into open water areas in central Avoca Island to create and protect 143 acres of emergent wetlands by the end of the 20-year project life. The project design team is considering the addition of a marsh creation component utilizing dredged material to increase project wetland benefits.	3b
Breaux Act	TV-03 (FTV-03)	Vermilion River Cutoff Bank Protection	SP	1	USACE	26	49	Ver.	65	1996	N/A	$509,401	$1,185,882	The east bank of the Vermilion River Cutoff was stabilized by armoring the shoreline with a 6,520-foot rock breakwater to maintain the shoreline position and protect the integrity of several thousand acres of the Onion Lake wetland complex.	3b
Breaux Act	TV-04 (TV-04)	Cote Blanche Hydrologic Restoration	HR	3	NRCS	21	50	StM.	2,223	1999	N/A	$465,765	$4,128,061	The primary objectives of the project are to reduce shoreline loss from wave erosion, to reduce excessive tidal fluctuations and rapid tidal exchange currently causing scouring of interior marsh, to develop a hydrologic regime conducive to sediment and nutrient deposition, and to re-establish vegetation in eroded areas. Project structures included low-level, passive weirs that were constructed across seven major water exchange avenues and a PVC sheet-pile wall that was constructed along 4,140 linear feet of shoreline between Jackson Bayou and the British American Canal.	3b
Breaux Act	TV-09 (PTV-18)	Boston Canal/Vermilion Bay Bank Protection	SP	2	NRCS	26	49	Ver.	378	1995	N/A	$154,701	$524,439	The objective of this project is to conserve vegetated wetlands by reducing erosion through the dissipation of wave energy. The project will stabilize 15 miles of Vermilion Bay shoreline and prevent further regression of the Boston Canal banks. A rock bulkhead was installed parallel to the banks of Boston Canal on both sides of the channel from the existing shoreline at the mouth of the channel and extends into the bay. Sediment fences were installed behind the bulkhead to encourage sedimentation and land accretion.	3b
Breaux Act	TV-11b (XTV-27)	Freshwater Bayou Bank Stabilization - Belle Isle Canal to Lock	SP	9	USACE	26	47	Ver.	241	Pending	N/A	$1,498,968	$11,883,038	The goal of this project is to stop erosion along the bank of Freshwater Bayou Canal and to protect the interior wetlands from increased tidal exchange and wake-induced erosion. This objective will be achieved b constructing a rock dike along the eastern bank of Freshwater Bayou Canal, between Belle Isle Canal and Freshwater Bayou Lock.	3b
Breaux Act	TV-12 (PTV-19)	Little Vermilion Bay Sediment Trapping	SNT	5	NMFS	26	47, 49	Ver.	441	1999	N/A	$196,817	$351,930	This project is designed to optimize the retention of sediment from the Atchafalaya River to create new marsh areas in Little Vermilion Bay. Dredged material was placed to create emergent marsh, thereby protecting the existing shoreline from wind-induced wave erosion.	3b

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Breaux Act	TV-13a (XTV-25i)	Oaks/Avery Canals Hydrologic Restoration, Increment 1	HR	6	NRCS	22, 26	49	Ibe. Ver.	160	2002	N/A	$473,455	$1,455,061	This project is designed to protect the Vermilion Bay shoreline and the Gulf Intracoastal Waterway (GIWW) banklines and to stabilize water level fluctuation north of the GIWW and east of Oaks Canal. Project components include: shoreline stabilization along the Oaks Canal; shoreline protection along the GIWW; a low sill rock weir in a human made channel east of Oaks Canal; an armored plug in the breached opening along the Union Oil Canal; spoil bank maintenance on the western side of the Union Oil Canal; and vegetative plantings along the northern shoreline of Vermillion Bay from Oaks Canal eastward to Avery Canal.	3b
Breaux Act	TV-14 (TV-5/7)	Marsh Island Hydrologic Restoration	HR	6	USACE	22	49	Ibe.	408	2001	N/A	$602,995	$3,166,581	The objective of the project is to stabilize the northeastern shoreline of Marsh Island, including the northern shoreline of Lake Sand, and to help to restore the historical hydrology. The project included construction of nine plugs in oil and gas canals at the northeast end of Marsh Island, protection of the northeast shoreline with rock, and isolation of Lake Sand from Vermilion Bay with a rock dike.	3b
Breaux Act	TV-15 (PTV-19b)	Sediment Trapping at "The Jaws"	SNT	6	NMFS	21	50	StM.	1,999	2004	N/A	$438,654	$2,548,187	The objective of the project is to induce sedimentation to create emergent vegetated wetlands. This will be achieved by constructing wetland terraces, thereby reducing wave fetch. Distributary channels will be dredged to deliver water and sediment to the project area.	3b
Breaux Act	TV-16 (CW-05)	Chenier Au Tigre Sediment Trapping Demonstration	SNT SP	6	NRCS	26	47	Ver.	N/A	2001	N/A	$88,323	$457,388	This demonstration project intends to test the effectiveness of rock breakwaters that are designed to trap and retain sediment from gulf tides, stabilize the existing shoreline from ongoing erosion on Chenier Au Tigre, and build up portions of the coastline that have already eroded. Increased sediment accretion on the Gulf of Mexico side of the chenier is expected to act as a buffer between the higher salinity Gulf water and the brackish marsh, which lies immediately behind the chenier.	3b
Breaux Act	TV-17 (PTV-20)	Lake Portage Land Bridge	SP	8	NRCS EPA	26	47	Ver.	24	2004	N/A	$306,665	$682,225	The objective of this project is to prevent the shoreline south of Lake Portage from breaching and creating another pass from Vermilion Bay to the Gulf. The project will consist of backfilling a canal and armoring the beach with rock.	3b
Breaux Act	TV-18 (XTV-30)	Four Mile Canal Terracing and Sediment Trapping	SNT	9	NMFS	26	47, 49	Ver.	167	2004	N/A	$599,178	$1,359,690	This project includes construction and planting of terraces with smooth cordgrass (Spartina alterniflora) within Little White Lake and Little Vermilion Bay, along Four Mile Canal, to abate wave-induced shoreline erosion and facilitate sedimentation in the open water areas between the terraces.	3b
Breaux Act	TV-19 (PTV-13)	Weeks Bay Marsh Creation and Shore Protection/ Commercial Canal Freshwater Redirection	MC SP	9	USACE	22	49	Ibe.	278	Pending	N/A	$1,229,336	$12,886,638	The objective of this project is to stop shoreline and bank erosion. This will be achieved by the construction of a retention levee and channel plugs, dedicated placement of dredged material, re-vegetating critical areas, and armoring shore/bank areas with sheetpile revetment. In addition, a low-sill weir will be placed across Commercial Canal to reduce tidal energy and redirect Atchafalaya River water.	3b
Breaux Act	TV-20	Bayou Sale Shoreline Protection	SP	13	NRCS	21	50	StM.	329	Pending	N/A	$2,254,912	$20,630,378	The project goal is to reduce and/or reverse shoreline erosion. A foreshore rock dike will be constructed parallel to the existing eastern shoreline of East Cote Blanche Bay.	3b

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Breaux Act	TV-21	East Marsh Island Marsh Creation	MC	14	EPA	22	49	Ibe.	169	Pending	N/A	$1,193,606	$20,055,564	The goal of the project is to re-create brackish marsh habitat in the open water areas of the interior marsh primarily caused by hurricane damage.	3b
Breaux Act	TE-72	Lost Lake Marsh Creation and Hydrologic Restoration	HR	19	USFWS	20	51	Ter.	474	Pending	N/A	$2,320,214	$20,623,652	The goal of the project is to prevent the coalescence of Bayou DeCade and Lake Pagie and extend the landbridge function of the North Lake Mechant Landbridge Project. The project will also create new marsh and protect existing marsh in the project area through terracing, increasing freshwater flow, and replacing existing weirs with bays/gates that will increase freshwater and sediment delivery.	3a, 3b
State	CAT-01	Cheniere Au Tigre	SP	N/A	N/A	26	47	Ver.	40	2005	N/A	N/A	$921,672	The primary objective of the project is to protect the Cheniere au Tigre shoreline from additional erosion and protect local infrastructure. This project will use segmented rock breakwater structures to help reduce the rate of shoreline erosion and promote sediment deposition along the beach north of the breakwater structures. The proposed series of segmented breakwaters will be placed just east of the CWPPRA funded TV-16 project with up to nine additional structures. The structures will cover approximately 2,800 linear feet with an approximate distance of 240 feet from the existing shoreline.	3b
State	LA-01d	Dedicated Dredging Program - Terrebonne Parish School Board	DM	N/A	N/A	20	51	Ter.	40	2006	N/A	N/A	$1,102,154	This project created approximately 40 acres of marsh just north of Lake DeCade along the western bank of Minors Canal. This project is part of the coastwide state Dedicated Dredging Program. The goal of this program is to use a small, mobile hydraulic dredge along inland waterways in Louisiana's coastal zone to deposit dredged material, and thereby nourish and/or rebuild threatened coastal marshes adjacent to the waterways.	3b
State	LA-01f	Dedicated Dredging Program - Point Au Fer	DM	N/A	N/A	20	51	Ter.	67	2007	N/A	N/A	$2,469,250	This project created approximately 67 acres of marsh on Point Au Fer Island adjacent to the Breaux Act TE-26 project using material dredged from Atchafalaya Bay. This project is part of the coastwide state Dedicated Dredging Program. The goal of this program is to use a small, mobile hydraulic dredge along inland waterways in Louisiana's coastal zone to deposit dredged material, and thereby nourish and/or rebuild threatened coastal marshes adjacent to the waterways.	3b
State	TV-02b	Yellow Bayou	SP	N/A	N/A	21	50	StM.	52	1992	N/A	N/A	$194,500	The objectives of the project were to maintain the integrity of approximately 2,000 acres of interior marsh between Jackson Bayou and the British-American Canal and to stabilize 7,465 feet of the East Cote Blanche Bay shoreline. This was achieved by constructing an oyster shell berm adjacent to the water's edge to reduce shoreline erosion.	3b
State	TV-06	Marsh Island Control Structures	MM	N/A	N/A	22	49	Ibe.	643	1993	N/A	N/A	$453,500	The objectives of this project were to reduce the rate of land loss, revegetate shallow open-water areas, and increase waterfowl food within the water management units. Flap-gated/stoplog culverts and earthen canal plugs were installed in October of 1993 at the northeast and southeast units to control water exchange between the units and the surrounding water bodies. Within the management units, canal spoil banks were breached and ditches were constructed to facilitate water movement between interior marsh ponds.	3b

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State	TV-11	Freshwater Bayou Bank Protection	SP	N/A	N/A	26	47, 49	Ver.	511	1994	N/A	N/A	$2,177,025	This project conserves vegetated wetlands by maintaining the physical integrity of marshes that separate Freshwater Bayou and interior water bodies. The dominant project feature consists of the construction of 24,000 linear feet of rock dike, extending north to the confluence of Belle Isle Bayou and Freshwater Bayou. The original project was constructed in 1994; however, repairs were made to the structure in 1996 and 2001.	3b
State	TV-13b	Oaks/Avery Structures	SP	N/A	N/A	22, 26	49	Ibe. Ver.	160	2000	N/A	N/A	$700,000	This project enhanced the adjacent CWPPRA-funded TV-13a project by installing low-sill structures at the outfall of Oaks and Avery Canals to redirect more water flow through the portion of Bayou Petite Anse south of the GIWW.	3b
State	TV-4355NP1	Quintana Canal/ Cypremort Point	SP	N/A	N/A	21	50	StM.	26	1998	N/A	N/A	$684,610	The project features approximately 3,650 linear feet of rock breakwaters along the Vermilion Bay shoreline and approximately 3,375 linear feet of foreshore rock dike along the Vermilion Bay/Quintana Canal intersect and the south bank of the Quintana Canal.	3b
Surplus 2008	TV-11b.1	Acadiana to the Gulf of Mexico Access Channel (AGMAC)	HP	N/A	N/A	22, 26	47, 49	Ver.	N/A	Pending	N/A	N/A	$1,000,000	For the AGMAC project, it is anticipated that material removed from deepening of the Gulf Intracoastal Waterway and the Freshwater Bayou Channel will be placed along those waterways at elevations that would help to reduce storm surge and associated damages to adjacent lands and communities. The surplus funds will be utilized to help meet the State's cost-share obligations.	3b
Surplus 2008	TV-52	Franklin Canal	HR	N/A	N/A	21	48	StM.	N/A	Pending	N/A	N/A	$500,000	A lock structure will be constructed on Franklin Canal to provide salinity control.	3b
Surplus 2009	AT-12	Alexandria to the Gulf	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Pending	$970,000	N/A	N/A	Alexandria to the Gulf is currently in Feasibility Study phase. The study's purpose is to evaluate options or alternates for providing urban drainage and flood reduction to the City of Alexandria and irrigation and flood reduction benefits to agricultural areas south and southeast of the city.	3b
Surplus 2009	TV-54	South Central Coastal Plan	N/A	N/A	N/A	21, 22	48, 49, 50, 51	Ibe. StM. StMt.	N/A	Pending	$970,000	N/A	N/A	This project will develop a feasibility study to determine coastal protection and restoration needs for Iberia, St. Mary, and St. Martin parishes.	3b
Surplus 2009	TV-57	Delcambre-Avery Canal (E&D)	N/A	N/A	N/A	22	49	Ibe.	N/A	Pending	N/A	N/A	$970,000	This project will design and engineer a flood control structure for the Delcambre-Avery Canal just south of the Intracoastal Waterway. When constructed this project will provide flood protection improvements by allowing the closure of the Delcambre-Avery Canal to reduce the impact of storm surge from Vermilion Bay.	3b
CIAP 2007	AT-05	Morgan City Industrial Road	INF	N/A	MMS	21	51	StM.	N/A	Pending	N/A	N/A	$837,114	Located in Morgan City, St. Mary Parish, the project is a road alignment that begins at the First Street floodgate. The alignment will proceed along the unprotected side of the floodwall a distance of 1857 feet. And end at the Port of Morgan City's north gate. The project goal is to reduce the truck traffic through the residential neighborhoods by rerouting the traffic through the proposed realigned road. The preliminary project benefit is to provide more road access to the industrial facilities and the museum through the proposed new road, and decrease the traffic in the residential area.	3b

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CIAP 2007	TE-43 (EB)	GIWW Bank Restoration of Critical Areas of Terrebonne (CIAP)	SP	N/A	MMS	21	51	Ter.	1,180	Pending	N/A	$250,000	$7,750,000	The project objective is to restore critical lengths of deteriorated channel banks and stabilize/armor selected critical lengths of deteriorated channel banks with hard shoreline stabilization materials.	3b
CIAP 2007	TV-11b (EB)	Freshwater Bayou Bank Stabilization	SP	N/A	MMS	26	47	Ver.	223	Pending	N/A	$1,628,257	$11,940,547	The goal of this project is to stop erosion along the bank of Freshwater Bayou Canal and to protect the interior wetlands from saltwater intrusion, increased tidal exchange and wake-induced erosion. This wil be achieved by constructing a rock dike along critical areas of the eastern and western banks of the canal.	3b
CIAP 2007	TV-23	Port of Iberia Street Improvements - Unifab Road	INF	N/A	MMS	22	49	Ibe.	N/A	Pending	N/A	N/A	$53,989	The project is located in Iberia Parish, and will aid the Port of Iberia in its day-to-day operations. This project will patch and overlay 850 feet of Unifab Road. The Port of Iberia handles a substantial amount of OCS produced products and the large equipment used in transporting these products takes a major toll on the port's bridges and roadways.	3b
CIAP 2007	TV-25	Port of Iberia Bridge Replacement - Port Road over Rodere Lateral	INF	N/A	MMS	22	49	Ibe.	N/A	Pending	N/A	N/A	$720,000	The project is located in Iberia Parish, and will aid the Port of Iberia in its day-to-day operations. This project will replace the bridge on Port Road over Rodere Lateral. The existing bridge is approximately 28 feet wide and 60 feet long. The Port of Iberia handles a substantial amount of OCS produced products and the large equipment used in transporting these products take a major toll on the port's bridges and roadways.	3b
CIAP 2007	TV-28	Port of Iberia Bridge Replacement - Port Road over Commercial Canal	INF	N/A	MMS	22	49	Ibe.	N/A	Pending	N/A	N/A	$1,000,000	The project is located in Iberia Parish, and will aid the Port of Iberia in its day to day operations. This project will replace the bridge on Port Road over Commercial Canal. The existing bridge is approximately 24 feet wide and 76 feet long. The Port of Iberia handles a substantial amount of OCS produced products and the large equipment used in transporting these products take a major toll on the ports bridges and roadways.	3b
CIAP 2007	TV-30	Port of Iberia Bridge Replacement - David Dubois Road over Commercial Canal	INF	N/A	MMS	22	49	Ibe.	N/A	Pending	N/A	N/A	$1,020,000	The project is located in Iberia Parish, and will aid the Port of Iberia in its day to day operations. This project will replace the bridge on David Dubois Road over Commercial Canal. The existing bridge is approximately 24 feet wide by 70 feet long. The Port of Iberia handles a substantial amount of OCS produced products and the large equipment used in transporting these products takes a major toll on the port's bridges and roadways.	3b
CIAP 2007	TV-31	Acadiana Regional Airport Street Improvements - Admiral Doyle Drive	INF	N/A	MMS	22	49	Ibe.	N/A	Pending	N/A	N/A	$640,000	This project will patch and overlay 5,310 feet (about 1 mile) of Admira Doyle Road around the Acadiana Regional Airport in Iberia Parish from its intersection with LA 3212 to the end of the four lane section. This project will provide improved access to both the airport and the Port of Iberia, both of which support OCS facilities and commerce.	3b
FEMA	PW-1906	Cote Blanche Repairs (FEMA)	HR	N/A	N/A	21	50	StM.	N/A	2005	N/A	N/A	$64,092	This FEMA project consisted of repairs to areas of stone paving, stone dikes, and minor repair of navigation aids on the Cote Blanche Hydrologic Restoration (TV-04) project damaged during Hurricane Lili in 2002. The project also included minor maintenance work paid for by CWPPRA.	3b
FEMA	PW-1646	Marsh Island Repairs (FEMA)	HR	N/A	N/A	22	49	Ibe.	N/A	2005	N/A	N/A	$267,059	This FEMA project consisted of repairs to areas of stone paving, stone dikes, and minor repair of navigation aids on the Marsh Island Hydrologic Restoration (TV-14) project damaged during Hurricane Lili in 2002. The project also included minor maintenance work paid for by CWPPRA.	3b

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LCA	TE-68	Stabilize Gulf Shoreline at Point Au Fer Island	SP BI	N/A	USACE	20, 21	50, 51	Ter.	N/A	Pending	$4,900,000	N/A	$52,080,000	Stabilize gulf shoreline of Point Au Fer Island. Prevent direct connection between gulf and interior water bodies thereby preventing conversion of existing wetlands to marine habitat. *Fully funded Phase 2 cost includes preliminary engineering and design.	3b
Other	RAINEY	Rainey Audubon Wildlife Sanctuary Earthen Terraces	MC	N/A	N/A	26	47	Ver.	640	2005	N/A	N/A	$851,869	The project consists of constructing approximately 35,000 linear feet of terraces. The terraces were created by dredging in shallow open water areas and piling the spoil on one side of the borrow area. An additional $391,763 was contributed from the CIAP of 2001.	3b
Breaux Act	CS-04a (CS-04a)	Cameron-Creole Maintenance	HR	3	NRCS	25	47	Cam.	2,602	1997	N/A	N/A	$6,340,505	The project area falls within the Cameron-Creole watershed management area, which has been adversely impacted by saltwater intrusion and loss of sediment due to channelization and water diversion of the Calcasieu River. The project provides needed maintenance for the existing 19 miles of levee and five major structures which make up the Cameron-Creole Watershed Project.	4
Breaux Act	CS-09 (CS-09)	Brown Lake Hydrologic Restoration	HR	2	NRCS	25	36, 47	Cam. Cal.	162	Pending	N/A	$786,474	$1,963,099	The hydrologic restoration component of the project has been removed. Terraces will be constructed in the southern portion of Brown Lake.	4
Breaux Act	CS-11b (CS-11b)	Sweet Lake/Willow Lake Hydrologic Restoration	SP	5	NRCS	25	47	Cam.	247	2001	N/A	$408,208	$3,195,025	The project objectives are to re-establish the shoreline (hydrologic boundary) between Sweet Lake and the Gulf Intracoastal Waterway (GIWW), to reduce lake turbidity and tidal exchange, and to halt erosion and trap sediment needed to rebuild marsh along the northern and northwestern shorelines of Sweet Lake. This project includes construction of rock embankments on the GIWW to close off the lakes, vegetation plantings to reduce erosion, and construction of earthen terraces combined with vegetation plantings in open water areas to promote revegetation.	4
Breaux Act	CS-17 (FCS-17)	Cameron Creole Plugs	HR	1	USFWS	25	47	Cam.	865	1997	N/A	$73,158	$345,381	The project goal is to restore historic water circulation patterns within the Cameron-Creole Watershed. This objective will be accomplished by slowing the rapid movement of saline waters that enter the watershed from Calcasieu Lake. The project consisted of the installation of two sheetpile plugs in the lakeshore borrow canal.	4
Breaux Act	CS-18 (FCS-18)	Sabine National Wildlife Refuge Erosion Protection	SP	1	USFWS	25	47	Cam.	5,542	1995	N/A	$200,185	$1,010,568	The goal of this project is to protect 13,000 acres of fresh marsh from deterioration associated with the anticipated failure of the existing west levee. The original design was to reconstruct 5.5 miles of eroded levee. The project was redesigned to include 1,000 feet of levee reconstruction and 5.5 miles of rock armor. Vegetation plantings were used to reduce erosion from boat traffic.	4
Breaux Act	CS-19 (FCS-19)	West Hackberry Vegetative Planting Demonstration	VP	1	NRCS	25	47	Cam.	N/A	1994	N/A	$36,830	$125,461	The goal of this demonstration project is to reduce marsh erosion from interior open water wave energy using vegetation plantings consisting of California bullrush (Schoenoplectus californicus). In addition, wave-stilling hay bale fences were utilized to protect the vegetation plantings.	4
Breaux Act	CS-20 (PCS-24)	East Mud Lake Marsh Management	MM	2	NRCS	25	47	Cam.	1,520	1996	N/A	$248,569	$1,150,868	The objective of this project is to create a hydrologic regime conducive to restoration, protection, and enhancement of the Mud Lake area by using various types of water control structures and vegetation plantings. Structural components include culverts with flapgates, two variable crest weirs, three earthen plugs, and repair of an existing levee.	4

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Breaux Act	CS-21 (PCS-25)	Highway 384 Hydrologic Restoration	MM	2	NRCS	25	47	Cam.	150	2000	N/A	$154,447	$163,278	The purpose of this project is to restore the natural hydrology of the project area and eliminate high salinities and severe water fluctuations to reduce marsh loss. The project installed flapgated culverts and a shel plug along the Calcasieu Lake shoreline to repair a breach.	4
Breaux Act	CS-22 (PCS-27)	Clear Marais Bank Protection	SP	2	USACE	30	36	Cal.	1,067	1997	N/A	$562,832	$2,229,644	The goal of this project is to stabilize six miles of the Gulf Intracoastal Waterway (GIWW) channel bank with a rock armored breakwater. A 35,000 foot limestone breakwater was constructed to prevent continued erosion of the levee and to prevent encroachment of the GIWW into the project area. Vegetation plantings were used to enhance the bank protection and promote sediment trapping.	4
Breaux Act	CS-23 (XCS-47/48i)	Replace Sabine Refuge Water Control Structures at Headquarters Canal, West Cove Canal, and Hog Island Gully	MM	3	USFWS	25	47	Cam.	953	2001	N/A	$348,862	$2,775,475	This project was authorized to replace the water control structures on three major avenues of water passage that allow water to flow from saline areas into the project area's interior marshes. The new structures on Hog Island Gully, West Cove Canal, and Headquarters Canal will be operated to effectively discharge excess water, increase cross sectional area for movement of estuarine species, and help to curtail saltwater intrusion into the interior marshes.	4
Breaux Act	CS-24 (PCS-26i)	Perry Ridge Shore Protection	SP	4	NRCS	30	33	Cal.	1,203	1999	N/A	$244,881	$1,465,996	The objective of this project is to reduce tidal scour, wave action from boats, and other excessive energy impacts on interior marshes, and to reduce the possibility of saltwater intrusion by repairing the northern spoil bank of the Gulf Intracoastal Waterway (GIWW). A riprap breakwater was placed along low areas of the northern bank of the GIWW from Perry Ridge to Vinton Drainage Canal.	4
Breaux Act	CS-25 (XCS-56)	Plowed Terraces Demonstration	SNT	4	NRCS	25, 30	33, 47	Cam.	N/A	2000	N/A	$65,788	$214,428	This objective of this demonstration project is to develop and demonstrate a non-traditional procedure for constructing earthen terraces in shallow open water areas. Thirty-eight earthen terraces served as wave-stilling, sediment-trapping structures and provided a medium base for the establishment of emergent vegetation.	4
Breaux Act	CS-26 (XCS-36)	Compost Demonstration (Deauthorized)	MC	4	EPA	25	47	Cam.	N/A	Deauth.	N/A	$191,239	$6,171	This project was authorized to evaluate the effectiveness of using tree trimmings as compostable material, using compost amended material in providing a growth medium for emergent vegetation, and determining settlement rates of the compost amended materials and tree trimmings. The project was officially deauthorized by the Breaux Act Task Force in January 2002.	4
Breaux Act	CS-27 (XCS-48)	Black Bayou Hydrologic Restoration	HR	6	NMFS	25, 30	33, 47	Cam. Cal.	3,594	2001	N/A	$752,048	$3,763,244	The project goals are to reduce wetland loss resulting from hydrologic changes including reduced freshwater inflow, increased magnitude and duration of tidal fluctuations, increased salinities, higher water levels, and excessive water exchange. This project included the construction of spoil banks, weirs, plugs, and culverts designed to allow freshwater from the Gulf Intracoastal Waterway (GIWW) into the wetlands and to create a hydrologic head that increases freshwater retention time and reduces saltwater intrusion.	4
Breaux Act	CS-28 (XCS-48 (SA-1))	Sabine Refuge Marsh Creation, Cycles 1-3	MC	8	USACE USFWS	25	47	Cam.	662	2002	N/A	$2,840,532	$14,498,559	The objective of this project is to strategically create marsh in large, open water areas to block the wind-induced introduction of saltwater. Additionally, it will increase nourishment in adjacent marshes while reducing open water fetch and erosion of marsh fringe. The project consists of three marsh creation sites (three cycles) within the Sabine National Wildlife Refuge using material dredged from the Calcasieu River Ship Channel.	4

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Breaux Act	CS-28	Sabine Refuge Marsh Creation, Cycles 4 and 5	MC	8	USACE USFWS	25	47	Cam.	331	Pending	N/A	N/A	$3,100,000	The objective of this project is to strategically create marsh in large, open water areas to block the wind-induced introduction of saltwater. Additionally, it will increase nourishment in adjacent marshes while reducing open water fetch and erosion of marsh fringe. Cycle 4 if approved by the Task Force is expected to coincide with the FY 2011 maintenance dredging of the Calcasieu River Ship Channel.	4
Breaux Act	CS-29 (CS-16)	Black Bayou Culverts Hydrologic Restoration	HR	9	NRCS	25	36, 37, 47	Cam.	540	2007	N/A	$890,447	$4,240,815	The project objective is to discharge and remove excess water, which has contributed to marsh loss and shoreline erosion. This project consists of installing box culverts with sluice gates in Black Bayou and relocating Louisiana Hwy 384 over the culverts. Operation of the structure will be in coordination with Calcasieu Lock and the Schooner Bayou and Catfish Point water control structures.	4
Breaux Act	CS-30 (PCS-26ii)	GIWW - Perry Ridge West Bank Stabilization	SP	9	NRCS	30	33	Cal.	83	2001	N/A	$254,932	$1,376,878	This project was authorized to install riprap along the northern bank of the Gulf Intracoastal Waterway (GIWW) in an area which was dredged to a depth of 30 feet to allow for the use of double barge traffic. Rock was installed along the bank to prevent further erosion. This project was authorized to install approximately 11,700 linear feet of riprap along the northern bank of the Gulf Intracoastal Waterway (GIWW) to prevent further erosion in an area which was dredged to a depth of 30 feet to allow for the use of double barge traffic. The project also included the construction of approximately 22,952 linear feet of terraces in the shallow, open water north of the GIWW to reduce fetch and allow recovery of the interior marshes. Terraces were planted with California bulrush (Schoenoplectus californicus).	4
Breaux Act	CS-31	Holly Beach Sand Management	SP	11	NRCS	25	47	Cam.	330	2003	N/A	$544,641	$12,964,592	The purpose of the project is to protect existing coastal wetlands by restoring and maintaining the integrity and functionality of the remaining chenier/beach ridge. This objective was accomplished through beach renourishment, installation of sand fencing, vegetation plantings, and monitoring of the shoreline response. This project was originally authorized on the 9th PPL as the complex project: Holly Beach Project, CS-01. An additional $4,728,125 was contributed by the Coastal Impact Assistance Program (CIAP) for the construction of this project.	4
Breaux Act	CS-32	East Sabine Lake Hydrologic Restoration	HR	10	USFWS	25	47	Cam.	225	2008	N/A	$1,488,871	$3,939,219	The objectives of this project are to protect and restore area marsh, and restore the historical hydrologic regime to the Sabine National Wildlife Refuge. This was to be accomplished using shoreline protection, terraces, vegetation plantings, and water control structures to reduce tidal scour, shoreline erosion, turbidity, and salinities. However, design of the water control structures has been discontinued and the remaining construction funds will be used to build additional terraces.	4
Breaux Act	CS-49	Cameron-Creole Freshwater Introduction	FD	18	NRCS	25	47	Cam.	473	Pending	N/A	$1,549,832	$11,297,212	The purpose of this project is to restore the function value and sustainability to approximately 22,247 acres of marsh and open water. The vegetative planting feature has been approved for Phase 2 and will be completed in 2010. The remaining features are undergoing engineering and design.	4

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Breaux Act	LA-06	Shoreline Protection Foundation Improvements Demonstration (Demo)	SP	13	USACE	26	47	Ver.	N/A	2006	N/A	$360,809	$443,344	The goal of this demonstration project is to determine the feasibility of shoreline protection structures where a relatively poor soil foundation exists. This goal will be achieved using sand as a foundation beneath rock dike structures as a means to increase bearing capacity and consolidation settlement design tolerances. This project was incorporated into the South White Lake Shoreline Protection (ME-22) project.	4
Breaux Act	LA-08	Bioengineered Oyster Reef Demonstration	N/A	17	NMFS	25	47	Cam.	N/A	Pending	N/A	$260,436	$1,513,438	This project is intended to evaluate the Oysterbreak's ability to prevent beach erosion and increase habitat diversity associated with oyster reefs.	4
Breaux Act	ME-04 (XME-21)	Freshwater Bayou Wetland Protection	HR SP	2	NRCS	26	47	Ver.	1,593	1998	N/A	$285,397	$1,019,875	This project was constructed in two phases. Phase I was completed in 1995 and consisted of a 28,000 linear-foot rock dike to protect the west bank of Freshwater Bayou Canal from shoreline erosion. Phase II of the project was completed in 1998 and included the construction of several water control structures to improve the capability of the interior wetlands to mediate the effects of increased salinity and higher water level fluctuations on vegetation cover.	4
Breaux Act	ME-08 (ME-08)	Dewitt-Rollover Vegetative Plantings Demonstration (Deauthorized)	VP	1	NRCS	26	47	Ver.	N/A	1994 Deauth.	N/A	$36,830	$51,460	This demonstration project's purpose was to investigate the ability of vegetation plantings of smooth cordgrass (Spartina alterniflora) to colonize a newly accreted mudflat, thereby establishing a vegetation buffer between the Gulf of Mexico and coastal wetlands. This project was officially deauthorized by the Breaux Act Task Force in February 1996 because no plants remained.	4
Breaux Act	ME-09 (ME-09)	Cameron Prairie National Wildlife Refuge Shoreline Protection	SP	1	USFWS	25	47	Cam.	247	1994	N/A	$61,112	$851,775	The project goals are to protect the emergent wetlands of the Cameron Prairie National Wildlife Refuge adjacent to the Gulf Intracoastal Waterway (GIWW). Project features include construction of approximately 2.5 miles of rock dike parallel to the existing spoil bank, thereby terminating the encroachment of the GIWW into the refuge.	4
Breaux Act	ME-11 (PME-15)	Humble Canal Hydrologic Restoration	HR	8	NRCS	25	47	Cam.	378	2003	N/A	$155,912	$460,221	The objective of this project is to restore historical hydrology to the project area by constructing a water control structure consisting of five 48-inch diameter by 50-foot long corrugated aluminum pipes with flap gates and weir drop inlets along with one 18-inch diameter corrugated aluminum pipe with screw gate. This structure will protect the area from Mermentau River saltwater intrusion and allow high water to drain from the marsh to the river.	4
Breaux Act	ME-12 (PME-6)	Southwest Shore White Lake Demonstration (Deauthorized)	SP	3	NRCS	25, 26	47	Ver.	N/A	1996 Deauth.	N/A	$21,752	$20,025	The objective of this demonstration project was to stabilize one mile of the White Lake shoreline and prevent breaching into Deep Lake. The project was initiated to determine if California bulrush (Schoenoplectus californicus) is effective at damping high energy wave action. The project was officially deauthorized by the Breaux Act Task Force in October of 1998 and is no longer monitored.	4
Breaux Act	ME-13 (XME-29)	Freshwater Bayou Bank Stabilization	SP	5	NRCS	26	47	Ver.	511	1998	N/A	$228,978	$1,682,077	The objective of this project is to protect the integrity of the Mermentau River Basin by preventing interior ditches from connecting Freshwater Bayou Canal to the Old Intracoastal Canal. A 23,193 linear foot rock dike was constructed approximately 100 feet from the existing shoreline to prevent Freshwater Bayou Canal from eroding into the intermediate marshes.	4

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Breaux Act	ME-14 (XME-22)	Pecan Island Terracing	SNT	7	NMFS	26	47	Ver.	442	2003	N/A	$424,321	$1,616,090	The goal of this project is to convert areas of open water back to vegetated marsh. Project features included the construction of earthen terraces to reduce wave action. Terraces were constructed in a staggered gap formation and planted with smooth cordgrass (Spartina alterniflora) and California bulrush (Schoenoplectus californicus).	4
Breaux Act	ME-16 (PME-07a)	Freshwater Introduction South of Highway 82	HR	9	USFWS	25, 26	47	Ver. Cam.	296	2006	N/A	$856,669	$4,036,941	This project was authorized to address saltwater intrusion and lack of freshwater and sediment input into the area south of Louisiana Highway 82. Project components included the installation of four water-control structures, the removal of an existing plug, and the breaching of spoil banks to allow water to flow across the chenier. Approximately 26,000 linear feet of vegetated earthen terraces were constructed in open water areas to create marsh, reduce fetch and wave energy, retain sediments, and maintain SAV habitat. Sediment obtained from channel widening was sprayed onto adjacent wetlands to nourish the vegetation.	4
Breaux Act	ME-17 (XME-42a)	Little Pecan Bayou Hydrologic Restoration	HR	9	NRCS	25	47	Cam.	56	Pending	N/A	$1,556,598	$9,906,909	The purpose of the project is to introduce fresh water into brackish marsh habitat south of Highway 82 through use of water control structures and conveyance channels.	4
Breaux Act	ME-18	Rockefeller Refuge Gulf Shoreline Stabilization	SP	10	NMFS	25	47	Cam.	920	Pending	N/A	$2,408,478	$82,391,362	The project will address Rockefeller Refuge Gulf shoreline retreat, which averages approximately 39 feet per year with subsequent direct loss of saline marsh. The project would entail construction of a nearshore breakwater along the Gulf of Mexico shoreline, extending approximately from Beach Prong to Joseph Harbor.	4
Breaux Act	ME-19	Grand-White Lakes Landbridge Protection	SP	10	USFWS	25	47	Cam.	213	2004	N/A	$210,535	$3,326,295	The objective of this project is to protect freshwater wetlands by stopping the erosion of the southeastern shoreline of Grand Lake and the western shoreline of Collicon Lake. Project features include construction of hard structure shoreline stabilization and planted earthen terraces to protect the landbridge.	4
Breaux Act	ME-20	South Grand Chenier Hydrologic Restoration	HR	11	USFWS	25	47	Cam.	440	Pending	N/A	$2,358,420	$16,890,960	The objective of this project is to restore the Hog Bayou watershed hydrology through the use of dredged material to create two 200-acre cells that will stop saltwater intrusion into the project area. Freshwater, sediment, and nutrients from the Mermentau River will also be introduced into the project area .	4
Breaux Act	ME-21	Grand Lake Shoreline Protection	SP	11	USACE	25	47	Cam.	45	Pending	N/A	$1,119,030	$9,436,651	The objective of this project is to reduce erosion along the southern shoreline of Grand Lake, which is caused by high wave energy associated with storm winds and frontal passages. Project features will include construction of a rock breakwater from Superior Canal to Tebo Point. *In February 2007, the Breaux Act Task Force approved construction funds for the Tebo Point portion of the project, whereas the remainder will be constructed with CIAP 2007 funds.	4
Breaux Act	ME-22	South White Lake Shoreline Protection	SP	12	USACE	26	47	Ver.	844	2006	N/A	$1,819,891	$13,836,339	The objective of this project is to reduce erosion along the southern White Lake shoreline through the construction of a foreshore rock dike. Marsh accretion and submerged aquatic vegetation habitat creation is expected to occur behind the structure due to occasional wave overwash and the reduction of turbidity in the interior open water areas.	4

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Breaux Act	ME-23	South Pecan Island Freshwater Introduction	HR	15	NMFS	26	47	Ver.	98	Pending	N/A	$1,102,042	$2,754,623	The project would be constructed to allow excess freshwater to drain south of Highway 82, while preventing saltwater intrusion north of the highway. The project would benefit approximately 7,000 acres of brackish marsh, submerged aquatic vegetation, and open water.	4
Breaux Act	ME-24	Southwest Louisiana Gulf Shoreline Nourishment and Protection	SP MC	16	USACE	25, 26	47	Ver.	888	Pending	N/A	$1,336,841	$15,031,735	The goal of this project is to use dredged material to rebuild the gulf shoreline between Dewitt Canal and Little Contance Bayou.	4
Breaux Act	ME-31	Freshwater Bayou Marsh Creation	MC	19	NRCS	26	47	Ver.	407	Pending	N/A	$2,425,997	$4,746,211	The proposed project would create approximately 290 acres or more of interior marsh and nourish approximately 117 acres. That marsh would restore and maintain a wetland buffer between the open water of the Mermentau Basin and Freshwater Bayou.	4
State	BD	Brannon Ditch	SP	N/A	N/A	30	36	Cal.	480	1991	N/A	N/A	$12,440	This project included the construction of wooden breakwater fences along 2,200 feet of the GIWW across from Brannon Ditch in Calcasieu Parish. This area has experienced shoreline erosion in excess of 25 feet/year. The breakwaters will reduce wave action from boats and the current from Brannon Ditch during periods of high discharge. Smooth cordgrass (Spartina alterniflora) was also planted behind the breakwaters in order to enhance accretion and increase the stability of this site.	4
State	CS-01	Holly Beach	SP	N/A	N/A	25	47	Cam.	88	1991, 1992, 1993, 1994	N/A	N/A	$8,437,000	The objective of this project is to protect the marsh north of the Gulf of Mexico shoreline by expanding shoreline protection in phases from Ocean View, Louisiana to the east near Calcasieu Pass. A total of 34 breakwaters were constructed in 1991, 21 breakwaters were constructed in 1992, 21 breakwaters were constructed in 1993, and nine breakwaters were constructed in 1994 between Calcasieu Pass and Holly Beach, Louisiana. Eighteen of the existing breakwaters were raised and/or extended in 2003 utilizing marine mattress foundations and armor stone.	4
State	CS-02	Rycade Canal Marsh Management	MM	N/A	N/A	25	47	Cam.	1,200	1994	N/A	N/A	$516,474	The project is designed to stabilize salinities and water levels in the project area by reducing water flows through Rycade Canal and Black Lake.	4
State	CS-04a-1	Cameron-Creole Structure Automation	HR	N/A	N/A	25	47	Cam.	N/A	1999	N/A	N/A	$700,000	This project consists of automating three existing water control structures along the east shore of Calcasieu Lake. These structures are remotely located and are difficult to manipulate. Automation of these structures will improve management capabilities in the Sabine National Wildlife Refuge.	4
State	CS-BL	Blind Lake	SP	N/A	N/A	25	47	Cam.	N/A	1989	N/A	N/A	$173,433	The purpose of this project was to prevent the Gulf Intracoastal Waterway from breaching into Blind Lake. The project consisted of placing 2,339 linear feet of limestone breakwater along the south side of the GIWW adjacent to Blind Lake. The second phase of this project included planting giant cutgrass (Zizaniopsis miliacea) along the inside of the breakwater to enhance the accretion process.	4

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State	CS-ST	Sabine Terraces	SNT	N/A	N/A	25	47	Cam.	110	1990	N/A	N/A	$190,047	A total of 128 earthen terraces were constructed in a checkerboard pattern and planted with smooth cordgrass (Spartina alterniflora) in open water areas of the Sabine National Wildlife Refuge. This will increase the length of marsh-water interface, re-establish emergent marsh vegetation, reduce marsh fringe retreat by reducing wind-generated wave energy, increase overall primary productivity, and promote the deposition of suspended sediment.	4
State	ME-01	Pecan Island Freshwater Introduction	FD	N/A	N/A	26	47	Ver.	84	1992	N/A	N/A	$487,152	The purpose of this project is to introduce freshwater from the north to counteract the saltwater intrusion from the south. The project consists of two water control structures and approximately 5,700 linear feet of earthen embankment needed to channel water from White Lake to the south marshes.	4
State	SSB	Sabine Shellbank Stabilization	SP	N/A	N/A	25	47	Cam.	10	1990	N/A	N/A	$66,000	The purpose of this project was to provide natural shoreline protection by using tidal currents to deposit clam shell on the shoreline. The benefits of this design over the use of permanent structures are lower cost, less disturbance of the natural habitat during construction, and allowing natural distribution of sediment and organisms without impediment.	4
Surplus 2007/2008	CS-33 SF	Cameron Parish Shoreline	SP	N/A	N/A	25	47	Cam.	152	Pending	N/A	$3,180,000	$28,620,000	The purpose of this project is to nourish 5 to 6 miles of the Gulf shoreline due west of the Calcasieu Ship Channel utilizing sand mined from an offshore borrow site.	4
Surplus 2007	CS-34 SF	Beneficial Use - Calcasieu Ship Channel (Black Lake)	DM	N/A	N/A	25	47	Cam.	300	Pending	N/A	$1,000,000	$7,000,000	The purpose of this project is to create approxiametly 200 acres marsh through beneficial use of dredged material from the Calcasieu Ship Channel.	4
Surplus 2007	ME-25 SF	Marsh Creation Near Freshwater Bayou	MC	N/A	N/A	26	47	Ver.	96	Pending	N/A	$250,000	$3,750,000	The purpose of this project is to create 96 acres of marsh southeast of intersection of Acadiana Canal and Freshwater Bayou.	4
Surplus 2008	LA-21.1	Sabine Cycle 2	DM	N/A	N/A	25	47	Cam.	N/A	Pending	N/A	N/A	$6,600,000	The purpose of this project is to cover the cost of marsh fill for the Sabine Refuge Marsh Creation, Cycle 2 Breaux Act project.	4
Surplus 2008/2009		West Cameron Port	DM	N/A	N/A	27	36	Cam.	N/A	Pending	N/A	N/A	$6,000,000	The purpose of this project is to beneficially use 2 million cubic yards of dredged material from the West Cameron Port in the Oyster Bayou area west of the Calcasieu Ship Channel.	4
Surplus 2009	CS-53	Cameron Creole Levee	HP	N/A	N/A	25	47	Cam.	N/A	Pending	N/A	N/A	$12,600,000	The intent of this project is to provide for repair and maintenance of critical perimeter control structures around Calcasieu Lake and repairs to the Cameron-Creole Levee. These structures were severely damaged by Hurricane Rita.	4
Surplus 2009	TV-56	Four Mile Canal Storm Surge Reduction	N/A	N/A	N/A	26	49	Ver.	N/A	Pending	N/A	N/A	$6,280,000	This project will provide flood protection improvements for Southern Vermilion Parish. This project consists of design, engineering, and construction of a swing barge flood control structure on Four-Mile Canal, just south of the Intracoastal Waterway.	4

Program	State Project Number (Federal)	Project Name	Project Type	PPL	Agency/Sponsor	Senate District	House District	Parish	Acres Benefited	Construction Completion Date	Feasibility Cost	Fully Funded Phase 1 Budget	Fully Funded Phase 2 Budget	Project Summary	Planning Unit
CIAP 2007	CS-35 (EB)	Marsh Creation via Beneficial Use (Phase 1) (Black Lake)	DM	N/A	MMS	25	47	Cam.	300	Pending	N/A	$1,000,000	$9,000,000	Creation of approxiametly 200 acres marsh through beneficial use of dredged material from the Calcasieu Ship Channel.	4
CIAP 2007	ME-18 (EB)	Rockefeller Shoreline Protection Demo (CIAP)	SP	N/A	MMS	25	47	Cam.	863	2009	N/A	$50,000	$8,450,000	The purpose of this project is to construct four types of shore structures as a demonstration to determine which type(s) of structures are successful in protecting the shoreline. Successful structure(s) will be used in the ME-18 CWPPRA Project.	4
CIAP 2007	ME-21 (EB)	Grand Lake Shoreline Protection (CIAP)	SP	N/A	MMS	25	47	Cam.	495	2010	N/A	$1,119,030	$9,436,651	The purpose of this project is to construct shoreline protection on the south shore of Grand Lake.	4
CIAP 2007	CS-47	Trosclair Road	N/A	N/A	MMS	25	47	Cam.	N/A	2009	N/A	N/A	$2,958,600	Trosclair Road is a parish road that is heavily used by oilfield traffic. The proposed project will overlay this road, which is approximately 8 miles long and connects State Highway 27/82 from Cameron to State Highway 82 to Oak Grove.	4
Section 204/1135		Brown Lake	DM MC	N/A	N/A	25	47	Cam.	315	1999	N/A	N/A	$1,132,435	Approximately 1.6 million cubic yards of dredged material were pumped to create 315 acres of land at an elevation conducive to marsh creation in the Brown Lake area near the Calcasieu River, 16 miles south of Lake Charles, Louisiana.	4
Section 204/1135		Calcasieu River & Pass Phase I	DM MC	N/A	N/A	25	47	Cam.	1,070	1992	N/A	N/A	$1,560,804	This Section 204 project provides for the disposal of dredged material removed from the area between mile 7.5 and 11.5 of the Calcasieu Ship Channel. A total of 4 million cubic yards of material was deposited in three phases within the Sabine National Wildlife refuge at an elevation conducive to marsh creation.	4
Section 204/1135		Calcasieu River & Pass Phase II	DM MC	N/A	N/A	25	47	Cam.	1,070	1996	N/A	N/A	$1,560,804	This Section 204 project provides for the disposal of dredged material removed from the area between mile 7.5 and 11.5 of the Calcasieu Ship Channel. A total of 4 million cubic yards of material was deposited in three phases within the Sabine National Wildlife refuge at an elevation conducive to marsh creation.	4
Section 204/1135		Calcasieu River & Pass Phase III	DM MC	N/A	N/A	25	47	Cam.	1,070	1999	N/A	N/A	$1,560,804	This Section 204 project provides for the disposal of dredged material removed from the area between mile 7.5 and 11.5 of the Calcasieu Ship Channel. A total of 4 million cubic yards of material was deposited in three phases within the Sabine National Wildlife refuge at an elevation conducive to marsh creation.	4

Program	State Project Number (Federal)	Project Name	Project Type	PPL	Agency/Sponsor	Senate District	House District	Parish	Acres Benefited	Construction Completion Date	Feasibility Cost	Fully Funded Phase 1 Budget	Fully Funded Phase 2 Budget	Project Summary	Planning Unit
FEMA	PW-4403	Holly Beach Sand Fencing (FEMA)	SP	N/A	N/A	25	47	Cam.	N/A	2006	N/A	N/A	$218,473	This FEMA project consists of the replacement of 46,000 linear feet of sand fencing on the Holly Beach Sand Management (CS-31) project that was destroyed by Hurricane Rita in 2005.	4
FEMA	PW-4257	Cameron-Creole Structure (FEMA)	HR	N/A	N/A	25	47	Cam.	N/A	2007	N/A	N/A	$325,700	This FEMA project consists of repairs to five structures of the Cameron-Creole Maintenance (CS-04a) project that were damaged by Hurricane Rita in 2005. These structures are located at Grand, Peconi, Lambert, No Name, and Mangrove Bayous.	4
LCA	LA-20	Southwest Coastal Louisiana Feasibility Study	N/A	N/A	USACE	21, 22, 23, 24, 25, 26, 27, 30	31, 33, 34, 35, 36, 37, 39, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50	Cal. Cam. Ver.	N/A	Pending	$5,000,000	$24,000,000	N/A	Phase 1 looked at coastal restoration and hurricane protection features developed for Planning Unit 4 from the Louisiana Coastal Protection and Restoration (LACPR) Draft Technical Report and evaluated them so that the most optimal features could be advanced to Phase 2 for further study. Phase 2 will move ahead with the most promising features for evaluation and comparison and conduct a Feasibility Study to recommend a tentative selected plan. The study area for the Southwest Coastal study includes Calcasieu, Cameron and Vermillion Parishes.	3b, 4
Breaux Act	LA-03a (CW-7)	Nutria Harvest for Wetland Restoration Demonstration	N/A	6	USFWS	N/A	N/A	N/A	N/A	N/A	N/A	$21,372	$629,036	This project will enable the Louisiana Department of Wildlife and Fisheries to establish an economic incentive program to trap and control nutria, which are contributing to coastal wetland loss, by promoting the consumption of nutria meat.	Coastwide
Breaux Act	LA-03b	Coastwide Nutria Control Program	N/A	11	NRCS	N/A	N/A	N/A	14,963	N/A	N/A	$142,497	$26,446,504	The goal of this project is to eliminate or significantly reduce damage to coastal wetlands resulting from nutria herbivory. The implementation of an incentive payment program, beginning with the 2002-2003 trapping season, compensates licensed trappers $5 for each nutria tail delivered to a collection center.	Coastwide
Breaux Act	LA-16	Non-rock Alternatives to Shoreline Protection Demo	SP	18	NRCS	N/A	N/A	N/A	N/A	Pending	N/A	N/A	$1,906,237	The intent of this demonstration project is to provide a funding mechanism to research, install, and monitor various shoreline protection alternatives in an area(s) of the state where physical, logistical and environmental limitations preclude the use of current adopted methods.	Coastwide
CIAP 2007	LA-13	Coastal Forest Conservation Initiative	N/A	N/A	MMS	N/A	N/A	N/A	N/A	Pending	N/A	$667,036	$15,500,000	Implementation primarily focuses on purchasing land rights on an estimated 30,000 acres of coastal forest from several different hydrologic classes that serve significant ecological and storm-surge reduction functions. Additional action will include small scale restoration projects, such as reforestation of coastal cheniers and natural levee forests and small scale projects to reduce excessive ponding.	Coastwide

Program	State Project Number (Federal)	Project Name	Project Type	PPL	Agency/Sponsor	Senate District	House District	Parish	Acres Benefited	Construction Completion Date	Feasibility Cost	Fully Funded Phase 1 Budget	Fully Funded Phase 2 Budget	Project Summary	Planning Unit
Other		Coastal Wetlands Public Outreach	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	$400,000	The DNR Public Information Office provides a variety of printed materials, educational videos and cds, fact sheets, website information, and a traveling wetlands exhibit for the public. Other department outreach efforts include participating in conferences, workshops, civic events, and school activities. Much of the agency's educational outreach is in partnership with the Breaux Act Task Force committees and the America's WETLAND campaign. As a result of working with several noted authors, writers and reporters, the Public Information Office has contributed to the publishing of hundreds of national articles over the past years. To contact the Louisiana Department of Natural Resources' Public Information Office online---info@dnr.state.la.us.	Coastwide
Other		NRCS Biomass Production Program	VP	N/A	NRCS	N/A	N/A	N/A	N/A	N/A	N/A	$80,000	$80,000	The NRCS-LDNR/CRD Biomass Program is a multiyear programmatic initiative to accelerate the collection, testing, and release of important coastal wetland restoration plants. The Biomass Program began in 1999 in conjunction with the LDNR/CRD Small-Dredge Program with emphasis on plant performance and dedicated dredged sediment. This program is an important coastal restoration initiative that is advancing coastal wetland plant technology development.	Coastwide
Other		NWRC Biomass Production Program	VP	N/A	NWRC	N/A	N/A	N/A	N/A	N/A	N/A	$384,500	$1,007,600	This multi-year cooperative agreement will study productivity of endemic wetland plants, with the goal of identifying specific environmental conditions for maximum growth of a number of varieties (i.e., cultivars) within four plant species. The information obtained will facilitate matching plant species and varieties to expected environmental conditions at restoration sites, thereby increasing the likelihood of successful revegetation efforts.	Coastwide

Program: Breaux Act=Coastal Wetlands Planning, Protection and Restoration Act (CWPPRA); State=Restoration projects funded primarily by the State of Louisiana; Section 204/1135= Water Resource Development Act Sections 204 and 1135 beneficial use of dredged material projects; WRDA=Water Resources Development Act; LCA=Louisiana Coastal Area; FEMA= Federal Emergency Managment Agency; CIAP 2007= Coastal Impact Assistance Program; Surplus 07, Surplus 08, Surplus 09=State surplus-funded projects; HSDRRS=Hurricane Storm Damage Risk Reduction System (USACE Hurricane Protection); Other=funded by programs not otherwise listed.

Project Type: BI=Barrier Island; DM=Beneficial Use of Dredged Material; FD=Freshwater Diversion; HP=Hurricane Protection; HR=Hydrologic Restoration; INF=Infrastructure; LA=Land Acquisition; MC=Marsh Creation; MM=Marsh Management; OM=Outfall Management; PA=Public Access; PL=Planning; SD=Sediment Diversion; SNT=Sediment and Nutrient Trapping; SP=Shoreline Protection; VP=Vegetation Planting.

PPL: Priority Project List (as authorized each year by the Breaux Act Task Force).

Agency/Sponsor: EPA=Environmental Protection Agency; NMFS=National Marine Fisheries Service; NRCS=Natural Resources Conservation Service; NWRC=National Wetlands Research Center; USFWS=U.S. Fish and Wildlife Service; USACE=U.S. Army Corps of Engineers.

Parish: Asc.=Ascension, Asu.=Assumption, Cal.=Calcasieu, Cam.=Cameron, Ibe.=Iberia, Jef.=Jefferson, Laf.=Lafourche, Liv.=Livingston, Orl.=Orleans, Plaq.=Plaquemines, StB.=St. Bernard, StC.=St. Charles, StJa.=St. James, StJo.=St. John the Baptist, StM.=St. Mary, StMt.=St. Martin, StT.=St. Tammany, Tan.=Tangipahoa, Ter.=Terrebonne, Ver.=Vermilion.

Anticipated Acres Benefited: N/A for Breaux Act demonstration and deauthorized projects.

N/A=Not Applicable.

Note: Cost columns show the total fully funded cost (both federal and state) for each project phase. For information on state expenditures by fiscal year, please see Appendix D.

Appendix B

Refined Prioritization Tool and Proof-of-Concept Analysis

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Integrated Ecosystem Restoration and Hurricane Protection Project Prioritization Tool and Proof-of-Concept Analysis

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Outline

1 Introduction 1
2 Prioritization Tool Overview 2
2.1 Defining Desired Outcomes 2
2.1.1 Coastwide Goals 3
2.1.2 Regional and Coast-wide Vision 4
2.1.3 Regional Targets 4
2.2 Estimating Project Effects 5
2.3 Prioritizing Projects and Assembling Portfolios 6
2.3.1 Decision Criteria, Planning Constraints, and Portfolios 7
2.3.2 Evaluating Comprehensive Project Effects 7
2.3.3 Uncertainty and Future Scenarios 8
2.4 Prioritization Tool Steps 9
2.5 Phased Development and Iterative Use of the Prioritization Tool 10
3 Proof-of-Concept Demonstration of the Prioritization Tool 12
3.1 Develop Inputs (Step 1) 13
3.1.1 Regional Vision and Targets 14
3.1.2 Projects and Uncertainties 14
3.1.3 Decision Criteria and Weights 18
3.1.4 Implementation Constraints 19
3.2 Evaluate Individual Projects (Step 2) 19
3.2.1 Project Attributes and Effects 19
3.2.2 Progress Towards Targets 22
3.2.3 Decision Criteria Scores 24
3.3 Prioritize Individual Projects (Step 3) 25
3.4 Select Project Portfolios (Step 4) 27
3.4.1 Apply Constraints 27
3.4.2 Assess Portfolio Progress Toward Targets 29
3.4.3 Consider Uncertainty 30
3.4.4 Evaluate Robust Portfolios in Another Iteration 32
3.5 Conclusion 33
4 Glossary 34
5 Bibliography 35

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1 Introduction

Louisiana's Comprehensive Master Plan for a Sustainable Coast (Master Plan) (CPRA 2007) lays out a broad direction for restoration and protection in coastal Louisiana by identifying four coastwide planning objectives that guide what restoration and protection activities should achieve and how:

1. "Reduce economic losses from storm-based flooding to residential, public, industrial, and commercial infrastructure, assuring that assets are protected, at a minimum, from a storm surge that has a 1% chance of occurring in any given year."
2. "Promote a sustainable coastal ecosystem by harnessing the processes of the natural system."
3. "Provide habitats suitable to support an array of commercial and recreational activities coastwide."
4. "Sustain, to the extent practicable, the unique heritage of coastal Louisiana by protecting historic properties and traditional living cultures and their ties and relationships to the natural environment."

The Office of Coastal Protection and Restoration (OCPR), which operates as the implementation arm of the Coastal Protection and Restoration Authority (CPRA), is tasked with planning and managing the State of Louisiana's (State) activities to achieve these coastwide objectives and preparing annual plans documenting these activities. To effectively plan future state investments, the CPRA must use what can be learned from projects already completed or in progress. Thus, project selection procedures need to use information regarding on-the-ground achievements in combination with predictions of future project outcomes. Project selection must also explicitly and transparently reflect differences in views over what outcomes have been or could be achieved and address the significant uncertainty inherent in any estimate of future coastal conditions.

The Fiscal Year 2010 Annual Plan (CPRA 2009) initiated the development of a new planning framework (framework) and tool (prioritization tool) to prioritize and sequence restoration and protection activities in support of the Master Plan. The OCPR planning team (planning team) has continued to develop the framework and tool for the Fiscal Year 2011 Annual Plan. The current version of the prioritization tool was used in a proof-of-concept analysis (see Section 3) to illustrate how restoration and protection project concepts and portfolios of project concepts could be identified while considering the dynamic nature of the coast, the availability of future funding, and other key uncertainties such as future hurricane risk, assets at risk, and ecosystem conditions. The results of this analysis do not represent any real priorities but merely serve to illustrate tool inputs, functions, and

outputs. The tool, when implemented for the 2012 Master Plan Update, will allow the State to refine the strategic approach described in the 2007 Master Plan into a more specific, outcome-oriented action plan. The tool has been developed with capability to be extended and modified over time as predictive models improve, data availability increases, and as funding sources and programs develop. This appendix summarizes material published in Groves et al. (2009) and Groves et al. (2010).

2 Prioritization Tool Overview

The prioritization tool requires significant information to provide guidance about which restoration and protection projects to implement. This information will be developed through three interrelated activities:

1. **Defining desired outcomes** through decision maker and stakeholder engagement
2. **Estimating project effects** through ecosystem and flood risk modeling
3. **Prioritizing projects and assembling portfolios** through decision analysis

2.1 Defining Desired Outcomes

Decision maker and stakeholder input will be essential for defining the desired outcomes of restoration and protection activities and for identifying and weighting different decision criteria (see Section 4 for a glossary of terms used in this appendix). Technical experts are engaged to refine what specific outcomes are desired on a regional basis. This “vision” is then used to define quantitative regional “targets” for use in the decision analysis. Table 1 describes how these concepts evolve from the Master Plan.

Table 1: Planning goals, visions, and targets

Planning Concept	Source	Examples
Coastwide "Goals"	Master Plan objectives	1. Reduce flood risk 2. Sustain and restore coastal ecosystems
Regional and Coastwide "Vision"	Prior Studies and Planning Efforts / OCPR / Technical Experts	<u>Desired regional outcomes</u> • Level of protection by community • Type and amount of recreational and commercial activities
Regional "Targets"	Technical Experts / OCPR	<u>Quantifiable regional planning objectives:</u> • Level of protection by location • Amount of storm surge attenuation • Quantity of brown shrimp habitat • Quantity of high-quality oyster habitat

2.1.1 Coastwide Goals

The objectives of the Master Plan provide guidance on anticipated restoration and protection outcomes ("what" the State wants to achieve), such as: "assuring that assets are protected, at a minimum, from a storm surge that has a 1% chance of occurring in any given year," sustaining Louisiana's "unique heritage," and sustaining productive "habitats suitable to support an array of commercial and recreational activities coastwide." In addition, the Master Plan suggests how these outcomes ought to be achieved: "by harnessing the processes of the natural system" and "by protecting historic properties and traditional living cultures and their ties and relationships to the natural environment."

In this framework, the Master Plan objectives are expressed as goals (the "what" in Objectives 1 and 3 and "the how" in Objectives 2 and 4). Thus the framework has been designed to reflect two goals derived from the Master Plan:

Goal 1: Reduce risk[1] of damage from storm based flooding.

[1] Flood risk can be defined as the product of the threat, vulnerability, and consequences. Risk reduction can occur through reduction in any of these three components.

Goal 2: Sustain the Louisiana coastal environment to the benefit of ecosystems, communities, and commercial and recreational activities.

2.1.2 Regional and Coast-wide Vision

While the 2007 Master Plan provides maps depicting general areas of restoration and protection for communities, few specifics are provided about the various levels of protection, how it should be achieved, or the types of recreational and commercial activities to be supported. Such an approach may be reasonable for an initial conceptual strategic plan for the entire coast; however, prioritization of projects for state investment requires a more quantitative and measurable description of what Louisiana is seeking to achieve in specific regions.

In order to implement the prioritization tool for the Master Plan Update, the planning team will work with technical experts to define one or more "visions" for each region,[2] building on past planning efforts. The regional visions will describe the general types and relative importance of recreational and commercial activities desired in the future and the desired levels of protection for different types of communities and infrastructure. These will be coordinated to ensure a comprehensive coastwide vision that is consistent with the Master Plan. Furthermore, each regional vision must be technically feasible in ways that are consistent with how the Master Plan guides restoration by harnessing natural processes and protecting specific cultural sites and values.

2.1.3 Regional Targets

As part of the framework implementation, technical experts will work with the planning team to translate the coastwide vision into quantifiable regional "targets". Examples of possible targets are:

- Level[3] and location of protection
- Amount of storm surge attenuation
- Amount of brown shrimp habitat
- Quantity of high quality oyster habitat

[2] The Prioritization Tool is capable of evaluating multiple "visions" for each region to reflect divergent desires for the future coast.

[3] Level of protection could be expressed as expected annual residual damage or the exceedance damages for various storm-return frequencies (e.g. 100-year, 400-year, and 1000-year).

These targets then serve as key inputs into both the Ecosystem and Risk Modeling and Decision Analysis components of the prioritization tool described in the next two sections.

2.2 Estimating Project Effects

The prioritization tool is designed to use available science and engineering to inform investment decisions. At the heart of this approach are ecosystem and flood risk models that estimate the effects of individual restoration and protection projects and portfolios of projects. These estimates then support an evaluation of progress towards the achievement of the vision for the coast. These estimates will be based on existing understanding of coastal landscape and community response to restoration and protection actions and different assumptions about uncertain future conditions. They will also incorporate information derived from the monitoring of existing projects. For example, monitoring data from restoration projects can be used to quantify the effects of different types of projects, and to determine whether individual projects with ongoing operations, maintenance, and monitoring commitments are performing as expected. Metrics used to document project effects should reflect both anticipated and actual effects.

A number of linked modules will be used to predict change in the nature of the Louisiana coastal system under both future without project conditions and as a result of project implementation. These changes support the estimation of how far projects go toward achieving targets. Each module also considers important, but uncertain, factors that drive the dynamics of that aspect of the system. These uncertain factors are identified for each module, and scenarios will be developed reflecting the potential range of these factors (as described in the Section 2.3.3 of this memo). Thus, for each target, multiple values reflecting the scenarios will be generated for each project or portfolio evaluated. An example of the potential linkages among modules is shown in Figure 1, together with examples of the major uncertainties to be considered by each module. The development of this modeling suite is being coordinated through the LACES (Louisiana Applied Coastal Engineering and Sciences) Division within OCPR. Due to the short timeline for developing and utilizing the models for the 2012 Master Plan Update, the models will under go peer review concurrently with their initial use for the Master Plan Update. The models will be informed by the best-available understanding of coastal processes, ecosystem dynamics, and flood risk while meeting the necessary temporal and spatial constraints.

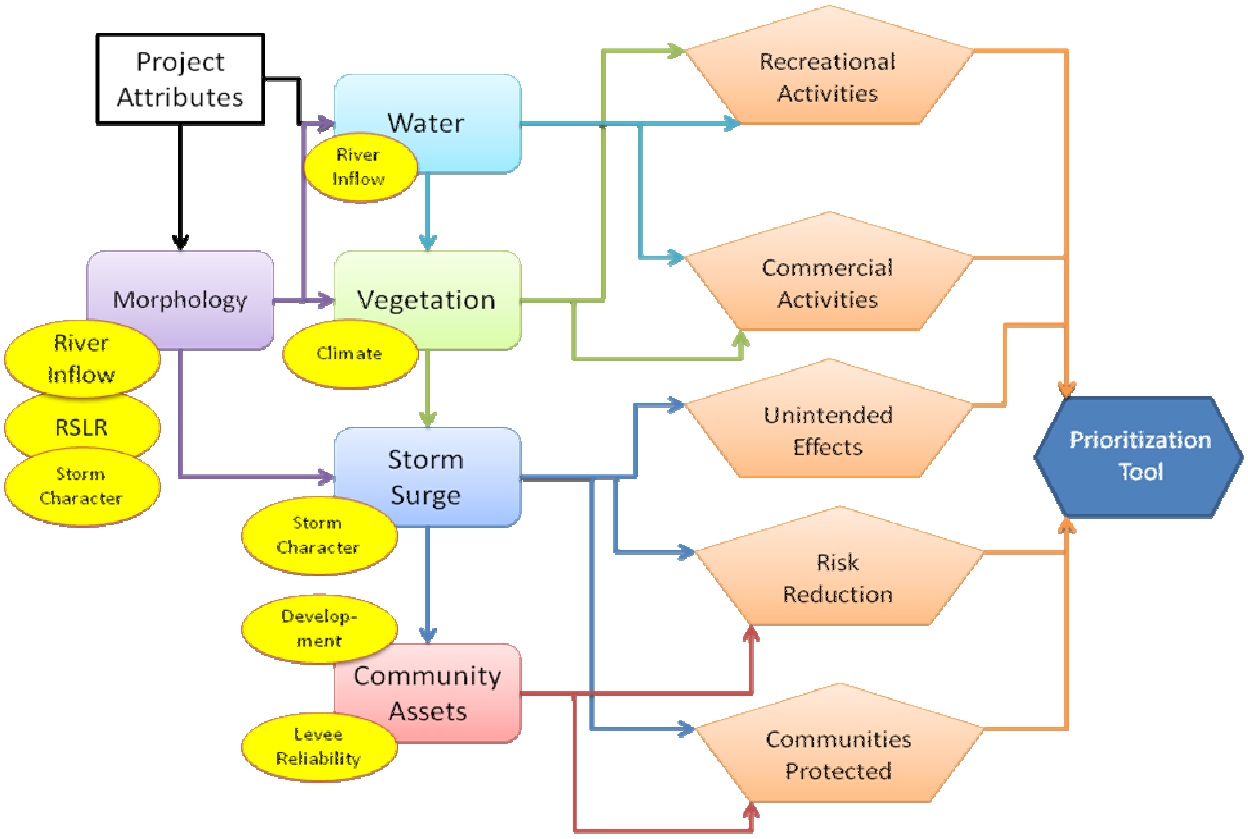

Figure 1: Suggested linkages among project attributes, modules and potential use of module outputs. Boxes represent analysis modules, ovals represent uncertain factors used by the modules, pentagons represent targets, and the hexagon represents the prioritization tool (RSLR is short for relative sea-level rise).

2.3 Prioritizing Projects and Assembling Portfolios

Decision analysis is used to prioritize and assemble feasible project portfolios that (1) consider how the predicted project effects relate to the Master Plan and other planning objectives and (2) reflect existing and/or potential constraints. A series of calculations are embedded within the prioritization tool to implement this decision analysis.

The regional "visions" and derived targets developed for the prioritization tool will likely be multi-faceted, reflecting desires for flood protection as well as a variety of ecosystem services. In most or all regions, no single project alone will be able to achieve such outcomes. Furthermore, projects that provide progress towards some targets may work against other targets or compete for finite financial or natural resources (e.g. river flow or sediment). A key decision facing the State is:

Which projects (or portfolio of projects) should be implemented to best achieve the diverse objectives and goals of the Master Plan, given various planning constraints?

This prioritization tool addresses this question by using a decision analytic process that prioritizes individual projects and then defines portfolios of projects that will move Louisiana towards successful implementation of the Master Plan.

2.3.1 Decision Criteria, Planning Constraints, and Portfolios

This prioritization tool recognizes that investment decisions in protection and restoration will be based on many criteria. Ensuring that the projects lead towards the realization of the regional visions and targets (as predicted by the models described in Section 2.2) is only one such criterion. Utilizing state resources as effectively as possible and leveraging Federal support is another important criterion. Others include harnessing natural processes and promoting the longevity of project effects. The prioritization tool explicitly defines multiple decision criteria and uses them to prioritize individual projects by evaluating how individual projects compare to one other.

Lists of high priority projects are only part of the information necessary for the State to determine which projects to implement. There are many factors that constrain the ability for the state to implement projects. Financial resources are limited. Some projects are complementary, whereas others would not function well if implemented jointly. Available sediment and river flow will limit the types of restoration projects that can be implemented in any single basin. Finally, some restoration projects and some flood protection structures may be incompatible.

The prioritization tool uses these “planning constraints” to guide the development of project portfolios that maximize achievement of the Master Plan objectives. As existing constraints are incorporated into the planning process, different portfolios can be assembled that meet the targets while adhering to financial and resource constraints. Each portfolio will move the state towards implementation of the Master Plan differently. The prioritization tool will thus provide the State with the information needed to weigh tradeoffs between implementing different project portfolios.

2.3.2 Evaluating Comprehensive Project Effects

To reflect the need for the State to evaluate and choose among projects based upon multiple decision criteria, the prioritization tool uses well-established Multiple Criterion Decision Analysis (MCDA)

theory.[4] Although there are many ways to apply MCDA to a decision problem, the basic approach is to aggregate evaluations of projects against multiple criteria into a single criterion, which can then serve as the basis of prioritization and ranking. Aggregating multiple criteria requires the development of a mathematical equation that, when seeded with specified weights (or preferences) and estimated criteria scores for a project (or group of projects), yields a single score.

Application of MCDA could involve significant, theoretically-rigorous procedures for assessing the preferences of a wide range of stakeholders to develop weights for the MCDA calculations that, in principle, reflect the aggregate desires of a stakeholder population of interest.[5] Given the broad diversity of stakeholder views, the OCPR planning team believes that a single set of criteria weights derived from many responses from the stakeholder community would do a poor job of reflecting the desires of Louisiana. Instead, the framework will evaluate several sets of criteria weights to reflect the diversity of views held by Louisiana stakeholders. The planning team will ultimately be able to select the weights that they believe to be most reflective of the State's mandate. This choice, however, will be made with a more complete understanding of how the selection of different weights will impact the projects that comprise the recommended portfolio.

2.3.3 Uncertainty and Future Scenarios

The future of the Louisiana coast, as well as the State's effort to fulfill the vision of a future coast, depends on many external factors such as future sea-level rise, subsidence and ongoing land loss, hurricane frequency and magnitude, river sediment inflow, and the provision of funding. Each of these external factors is uncertain, and a range of possible future conditions exist for each factor. These uncertain factors, combined with an incomplete understanding of coastal dynamics (e.g., the ability of marsh accretion to offset relative sea-level rise), makes it exceedingly difficult to develop a single prediction of how restoration and protection actions might affect the Louisiana coast.

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[4] Many other natural resource planning studies have successfully used MCDA techniques.

[5] For example, the USACE's LACPR Technical Report (USACE 2009) developed a process to elicit criteria weights from stakeholders. They used information derived from 114 people in the MCDA calculations. Note that unlike the LACPR Technical Report (USACE 2009), the framework will not solicit stakeholder input to assemble a single average set of weights. Instead, OCPR and technical stakeholders will develop several sets of transparent criteria weights that can then be evaluated.

The best choice of restoration and protection projects to implement would likely be different depending on how the uncertain external factors actually play out in the future. A traditional engineering analysis would represent future uncertainties probabilistically and then develop an "optimal" solution. This requires, however, a good understanding (often experimentally derived) of the various uncertain factors.

The State's understanding of future hurricane risk, economic and demographic conditions, ecological conditions and trends, and other planning conditions, is much more limited and cannot be described probabilistically. A best solution through optimization cannot therefore be credibly identified.

To evaluate these uncertainties and identify project portfolios whose performance is not highly sensitive to unknown future conditions, the prioritization tool will develop a wide array of future scenarios, each representing a different plausible view of future conditions outside the control of the State. Formally, such scenarios are defined by unique specifications of uncertain parameters (e.g. rate of sea-level rise or demographic growth rates). The prioritization tool will then identify restoration and protection investments that are robust (or perform adequately) across the wide range of future scenarios.[6]

As described in the sections below, results from the Ecosystem and Risk Modeling will be presented for a set of scenarios reflecting geophysical, demographic, and engineering uncertainties.

2.4 Prioritization Tool Steps

The framework can be summarized in the following four main steps, each relying on stakeholder input, technical modeling, and/or decision analysis (shown graphically in Figure 2). These steps are designed to be implemented iteratively, incorporating stakeholder and decision maker feedback during each round:

1. **Develop Inputs:** This step develops regional visions and targets ("What do we want to achieve?"); characterizes projects to evaluate and the key uncertain planning factors ("What tools do we have?"); defines decision criteria and decision criteria weights ("How do we want to get there?"); and specifies implementation constraints ("What other factors limit the ability to implement projects?).

[6] Robust decision methods such as Robust Decision Making (RDM) (Groves and Lempert 2007; Lempert et al. 2006; Lempert et al. 2003) can be used to identify robust solutions from large sets of scenario results.

2. **Evaluate Individual Projects:** In this step, data are collected and models used to characterize project attributes and predict project effects. This information, combined with the regional targets, informs estimates of the progress that each project could make towards regional targets. These analyses will be performed for multiple scenarios, reflecting different assumptions about future planning conditions. These tasks require significant technical input and will be coordinated through LACES.

3. **Prioritize Individual Projects**: This step develops prioritized lists of projects by region based on the estimated progress towards targets and other effects calculated in Step 2 along with the decision criteria defined in Step 1. This step will generate a variety of different rankings reflecting the different scenarios and decision criteria applied.

4. **Select Project Portfolios**: This last step develops many different project portfolios constructed of highly-ranked projects that meet the implementation constraints defined in Step 1. The portfolios can inform the creation of aggregated projects that will be re-evaluated through the previous steps. Next, it provides a structured approach for examining the tradeoffs in terms of predicted protection and restoration achievement across the different regions and under the different scenarios and then selecting a robust, comprehensive project portfolio to implement to achieve the Master Plan goals coastwide.

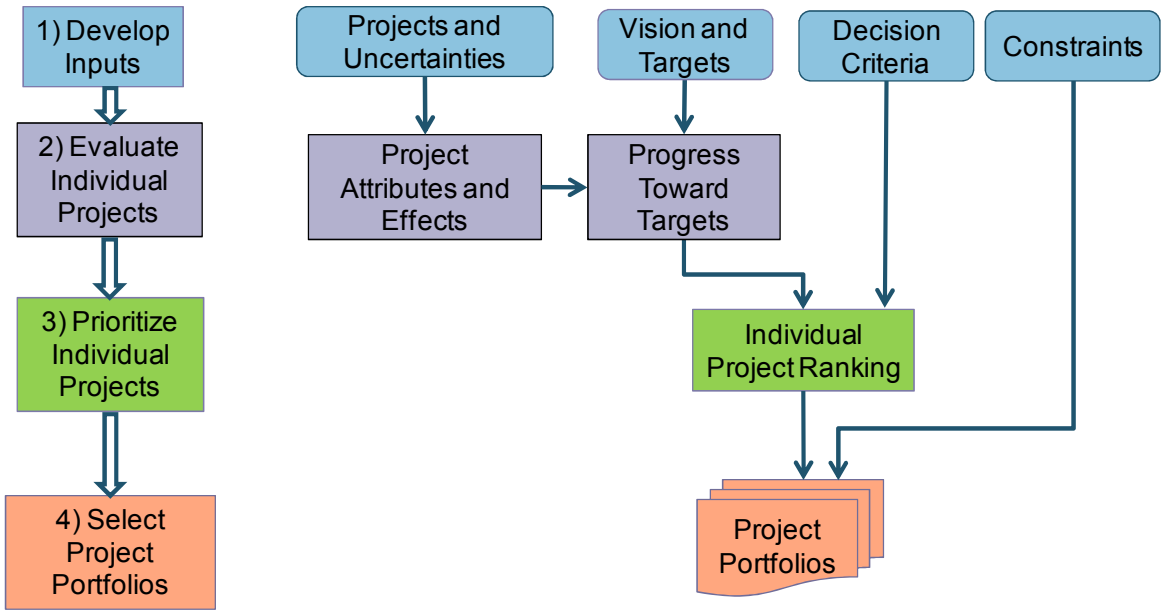

Figure 2: Four steps of the prioritization tool.

2.5 Phased Development and Iterative Use of the Prioritization Tool

The tool is designed to be flexible and address a variety of different planning questions. For example, it could be used to:

- Identify which projects best achieve the vision for protection and restoration under specific funding levels for each region,
- Identify portfolios of projects that are high performing relative to specific targets and meet specified decision criteria,
- Determine how much funding is required to implement promising project portfolios, and
- Reveal where new projects are needed to achieve the vision.

While Figure 2 (above) shows a largely linear process of steps, in order to address this array of questions, the actual use of the tool will occur iteratively, looping from later steps back to earlier steps as information is developed and results are produced (Figure 3). The prioritization tool, targets, and data and information to feed the tool will be developed over several annual planning cycles, and the tool is designed to provide incremental benefit to the State as it evolves. The tool is intended to serve as the foundation for the first update of the Master Plan in 2012.

The left sequence (a) in Figure 3 shows the iteration between developing tool inputs and evaluating individual projects that will occur as the Ecosystem and Risk Models are developed. The second step will likely be guided by the choice of projects, targets, and decision criteria. Reciprocally, development of the models will shape what type of projects may be evaluated with respect to what targets. The second sequence (b) shows iteration through the first three steps in which target and decision criteria weights are refined in response to the results of the prioritizations. This sequence recognizes that it may be difficult to determine, prior to any analysis, how to value different outcomes and weight different criteria. The third sequence (c) shows how new project concepts are developed to assist the current leading project portfolios in better achieving progress toward targets. The last sequence (d) shows how the project portfolios developed through the first iteration are then evaluated through the framework in a second iteration.

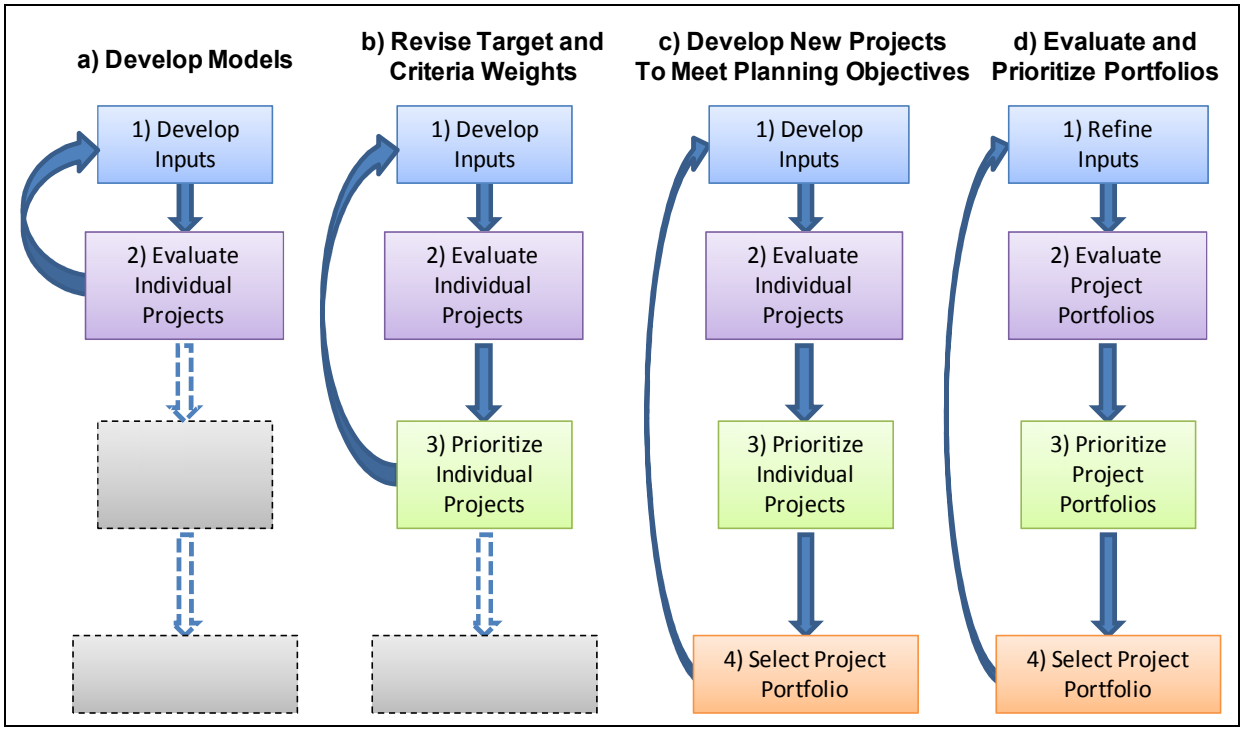

Figure 3: Depictions of the various iterative framework implementation loops. See text for discussion of the four loops depicted.

3 Proof-of-Concept Demonstration of the Prioritization Tool

This section presents a simple, but quantitative example (or proof-of-concept) of how the prioritization tool can be applied to prioritize a set of illustrative restoration projects (based on project concepts presented in the 2007 Master Plan) and protection project concepts (taken from the LACPR Technical Report) and then to define portfolios of these projects that are implementable and should lead to measurable progress towards the Master Plan objectives. The projects, portfolios, decision criteria, and vision presented herein are for illustrative purposes only. The results of the proof-of-concept (POC) analysis do not represent any real priorities but merely serve to illustrate tool inputs, functions, and outputs. As the complete suite of predictive models required to estimate restoration and protection project effects on the Louisiana coast are under development, this analysis uses data developed for the LACPR Technical Report (USACE 2009) and by the RAND/UNO Louisiana Coastal Fisheries Under Climate Change model—hereafter, fisheries model (Commagere et al. 2009).

The POC analysis seeks to identify projects most consistent to the goals of the Master Plan subject to planning constraints and other goals. Specifically it asks:

- Which projects should be of high priority?
- How do these priorities change under different assumptions about the future and under different emphases on MP goals?
- Which projects are no-regrets and broadly desirable and which are recommendable only under specific assumptions and/or preferences?

The following sections describe the POC analysis following the four steps shown in Figure 2 in Section 2.4 above.

3.1 Develop Inputs (Step 1)

Step 1 of the framework consists of defining all inputs related to the projects, decision criteria, and constraints. Key uncertain planning factors and ranges of possible values are defined, and an appropriate experimental design of scenarios that adequately covers the space of possible future conditions is specified. Values for regional targets, decision criteria of interest, and weights for the targets and decision criteria are also provided as inputs.

The POC analysis evaluates a small number of illustrative restoration and protection project concepts for Planning Unit 1 (Figure 4) based on those listed in the Master Plan and the LACPR report. Planning Unit 1 was divided into 3 zones for the analysis—upper, middle, and lower basin.

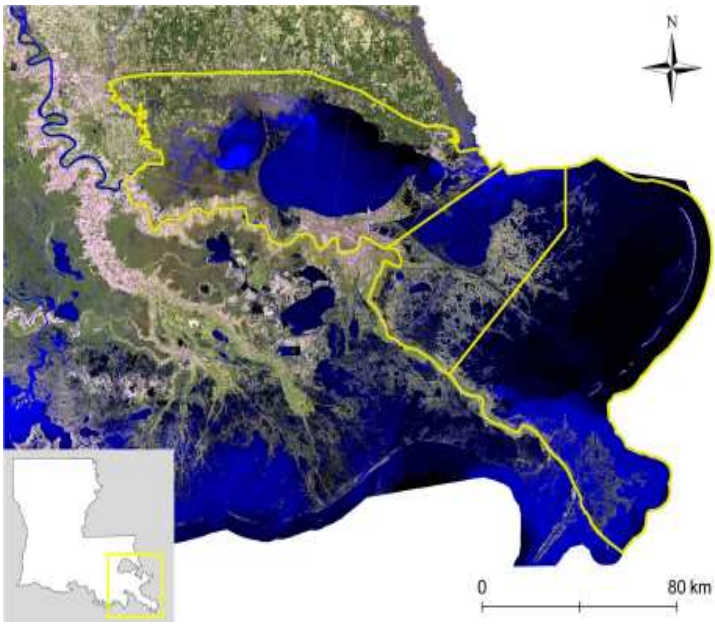

Figure 4: Three zones of Planning Unit 1 used in the POC analysis.

3.1.1 Regional Vision and Targets

The planning team based the vision for the level of flood protection on the amount of protection afforded by one of the LACPR Technical Report's comprehensive alternatives and the vision for ecosystem outcomes roughly correspond to current conditions in 2010 as modeled by the fisheries model.

Targets for flood protection were based on residual risk as defined by LACPR for three recurrence intervals (100, 400 and 1,000-year) and the number of archeological sites afforded protection. The values of protection corresponding to future-without-project (FWOP) conditions were derived from LACPR's no action alternative (PU1-0). Proxies for species habitat targets were developed by considering three estuarine species representing different life history strategies (hereafter referred to as species 1, 2, and 3) as modeled by the fisheries model. Table 2 shows the target value and FWOP values for each target parameter in the POC analysis.

Table 2: Targets and future-without-project values used in POC analysis

Target parameter	Target Value	Value for future-without-project
Residual Risk 100-year recurrence frequency	$1.21 billion	$22.97 billion
Residual Risk 400-year recurrence frequency	$1.83 billion	$103.07 billion
Residual Risk 1,000-year recurrence frequency	$7.16 billion	$120.34 billion
Number of archeological sites afforded protection	267	111
Species 1 habitat	2010 level of habitat units[7]	Loss of 557 habitat units
Species 2 habitat	2010 level of habitat units	Loss of 584 habitat units
Species 3 habitat	2010 level of habitat units	Loss of 3300 habitat units

3.1.2 Projects and Uncertainties

The POC analysis considers a set of illustrative project concepts with a range of magnitude: seven marsh creation projects, five Mississippi River diversion projects, and two structural and three nonstructural risk reduction projects. Table 3 and Table 4 list the included projects.

[7] Habitat units are derived by multiplying Habitat Suitability Index values by the area available for habitat.

Table 3: Marsh creation and Mississippi River diversion projects included in POC analysis.

Project Type	Basin Zone	Size
Marsh creation	Upper	38,000 acres
	Upper	9,000 acres
	Upper	7,000 acres
	Upper	326 acres
	Middle	14,000 acres
	Middle	38,000 acres
	Lower	25,000 acres
Mississippi River diversions	Upper	2,000 cfs
	Upper	5,000 cfs
	Middle	50,000 cfs
	Middle	10,000 cfs
	Lower	12,000 cfs

cfs = cubic feet per second

Table 4: Structural and nonstructural flood risk mitigation projects included in POC analysis.

Project Name	Description
Nonstructural, 100-year Protection	Nonstructural projects designed to provide 100-year protection as estimated by LACPR project: PU1-NS-100
Nonstructural, 400-year Protection	Nonstructural projects designed to provide 400-year protection as estimated by LACPR project: PU1-NS-400
Nonstructural, 1,000-year Protection	Nonstructural projects designed to provide 1,000-year protection as estimated by LACPR project: PU1-NS-1000
Trans-Basin Storm Surge Barrier	Structural protection afforded by LACPR project: PU1-LP-a-100-1
Augmented Levee system, 100-year Protection	Structural protection afforded b LACPR project: PU1-HL-a-100-3

3.1.2.1 Project effects on protection metrics

Estimates of the residual risk reduction provided by the protection projects listed in Table 4 were derived directly from the LACPR Technical Report (USACE 2009). The LACPR projects each assume a sustained coastal landscape and not the future degraded landscape as is needed for the prioritization tool. Therefore, to approximate the protection effects of the nonstructural and structural projects in isolation, the POC analysis considers the protection effects afforded by the current versus the degraded coastal landscape, as calculated by the LACPR pulsed diversion-type restoration-only strategy (PU1-R2).

For example, the 100-year residual damage for the LACPR 100-year nonstructural project (PU1-NS-100), which includes restoration, is $2.19 billion. The 100-year residual damage for the restoration only project (PU1-R2) is $5.96 billion. So, residual damage reduction due to the structural protection actions alone was estimated to be the difference: $3.77 billion.

The effects of the projects on historic and archaeological site protection were also derived from the LACPR Technical Report. For the Trans-Basin Barrier project and the Augmented Levee System, the restoration effect was removed from the LACPR results as above. LACPR calculates no additional historic or archaeological site protection due to the nonstructural projects.

Residual risk reduction and historic site protection effects due to the marsh creation and river diversion projects listed in Table 3 were also derived from LACPR data. As a coarse approximation of the effect of each individual project, the planning team calculated the ratio of protection afforded by the LACPR pulsed diversion-type restoration-only strategy (PU1-R2) to the amount of land area that LACPR calculated would be created (compared to FWOP) for that same strategy. The difference between the 2050 wetland area under each project and the 2050 wetland area under the FWOP case was used as each project's respective estimate for wetland creation. This ratio was then used to translate individual restoration project land-building effects to individual residual protection and historic site protection effects. For example, the ratio of 100-year residual damage reduction to land area created was estimated under low and high relative sea-level rise (RLSR) scenarios to be:

- $6.9 million per sq. km. or $0.028 million per acre (low RSLR)
- $24.3 million per sq. km. or $0.098 million per acre (high RSLR)

3.1.2.2 Project effects on species habitat metrics

The fisheries model estimates the effect of marsh creation and river diversion projects on species habitat through their modeled influence on salinity and wetland area via habitat suitability index (HSI) calculations. The effect of the marsh creation and Mississippi River diversion projects on three species of interest, Species 1, 2, and 3, were derived from the fisheries model. The difference between the 2050 species habitat under each individual project and the 2050 species habitat under the FWOP case was calculated. This difference was allowed to vary, however, based on the values of the uncertainty factors for the given scenario. Thus a scenario specific and project specific effect on species habitat for each project and scenario combination was estimated.

A simplifying assumption was made that the effect of the Trans-Basin Barrier on species habitat would be proportional to the amount of wetland area lost for each of the three regions within Planning Unit 1 (see Figure 4). The fisheries model estimates that the Trans-Basin Barrier would reduce wetland area in PU1 by approximately 31%. Thus the effect of the barrier on the species of interest was defined as reducing the habitat of the species existing in 2050 under the FWOP case by 31%. The fisheries model

did not evaluate any project commensurate with the Augmented Levee system, so the POC assumes no adverse impact on species from this project. Nonstructural projects were also assumed to have no effect on the habitat of the species.

3.1.2.3 Project uncertainty and scenarios

The POC considers the uncertainty inherent in seven factors that could affect the performance and cost of the projects. Uncertainty in each factor is expressed as a range of plausible values listed in Table 5.

Table 5: Range of plausible values for uncertain model factors

Factor	Low value	High value
Relative sea-level rise (RSLR)	Low (4 mm/year)	High (8 mm/year)
Marsh creation project costs (% nominal)	80%	120%
Diversion project costs (% nominal)	80%	120%
Structural protection project costs (% nominal)	80%	120%
Nonstructural protection project costs (% nominal)	80%	120%
Contribution of wetland protection to protection (% nominal)	70%	130%
Mississippi River sediment [mg/L]	253.2	591.8

The planning team developed a 30-scenario experimental design by sampling quasi-uniformly across the ranges of the uncertain variables. Figure 5 shows how 16 of the 30 scenarios are defined by different values for the seven uncertain factors.

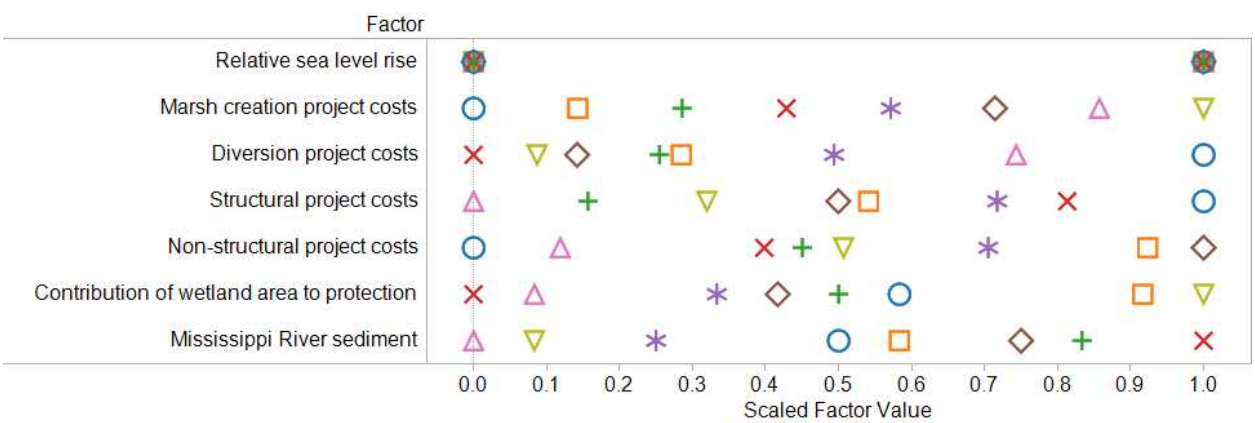

Figure 5: Combinations of factor values (expressed as scaled values between 0 and 1) that comprise each of the 16 scenarios. There are eight different combinations of non RSLR factors (each corresponding to a different color and shape). These eight scenarios are repeated for two values for RSLR to create a total of 16 scenarios.

3.1.3 Decision Criteria and Weights

The POC considers three decision criteria:

1. Progress towards POC targets
2. Sustainability
3. Wetland area

The first criterion captures the outcomes reflected by the vision and associated targets. As described below, this decision criterion can be tailored to focus on some targets more than others through the application of weights. The second, a notional measure of sustainability used for the purposes of the POC, reflects preferences for projects that do not require significant ongoing investment (i.e., operation and maintenance) to maintain their effects. The last, wetland area, reflects preferences for projects that develop and/or maintain wetland area over those that do not.

The prioritization tool allows the assignment of weights for each of the criteria, reflecting different views over how the coastwide vision is achieved. The POC defines six different sets of weightings shown in Table 6. The Risk Reduction set emphasizes progress towards the risk reduction targets. The Species Habitat set emphasizes progress towards the habitat targets for each of the three species, whereas the Species 2 Emphasis only weights progress towards species 2 habitat. The Balanced A set weights species habitat more than protection while increasing weight for sustainability and wetland area. The Balanced B set provides equal weight for protection and species habitat. The Balanced C set increases weight for sustainability and wetland area at the expense of progress towards the Master Plan targets.

Table 6: Decision criteria weights for six Decision Criteria Weight Sets

Decision Criteria	Decision Criteria Weight Sets					
	Risk Reduction	**Species Habitat**	**Species 2 emphasis**	**Balanced A**	**Balanced B**	**Balanced C**
MP Progress (risk reduction)	80%	0%	0%	25%	37.5%	33.3%
MP Progress (species habitat)	0%	26.7% (each species)	80% (species 2)	50%	37.5%	33.3%
Sustainability	10%	10%	10%	12.5%	12.5%	16.7%
Wetland Area	10%	10%	10%	12.5%	12.5%	16.7%

3.1.4 Implementation Constraints

The POC analysis defines three types of constraints: (1) total funding for protection projects and for restoration projects, (2) maximum cumulative Mississippi River diversion flow, and (3) the implementation of only one nonstructural package. Table 7 lists the three levels of funding constraints. Only one diversion flow constraint (60,000 cubic feet per second [cfs]) is used as an example in the POC.

Table 7: Funding constraint levels [$ billion].

	Low	Medium	High
Protection Funding	8	24	40
Restoration Funding	1	4	6

3.2 Evaluate Individual Projects (Step 2)

Step 2 incorporates externally-derived estimates of project effects and compares them to the performance targets specified in Step 1. Project attributes, such as cost and amount of wetlands created, are also incorporated and adjusted to a comparable scale for the prioritization step (Step 3).

3.2.1 Project Attributes and Effects

Estimates of project attributes and the effects of the projects upon the coast were derived from data developed for the LACPR Technical Report and fisheries model.

The following project attributes were assigned to support the selected decision criteria defined in Step 1 (Section 3.1.3):

- Cost [$ million]
- Notional sustainability score [0-100]
- Wetland area created by 2050 [square kilometers]

Costs were derived for marsh creation and Mississippi River diversion projects from data provided separately by OCPR, and costs for the structural and nonstructural risk reduction projects were derived from data in the Evaluation Results Appendix for Planning Unit 1 of the LACPR Technical Report (USACE 2009). Notional sustainability scores were defined subjectively as a placeholder for illustration purposes only to represent differences between mechanical marsh creation projects and natural diversion projects and structural and nonstructural risk mitigation projects. Estimates for change in wetland area were derived from the fisheries model output.

Table 8: Baseline cost, flow and use of notional sustainability score.

Project	Cost [$M]	River Flow [cfs]	Notional sustainability score [0-100]
Nonstructural 100 yr	6,453	0	50
Nonstructural 400 yr	23,873	0	50
Nonstructural 1000 yr	39,066	0	50
Trans-Basin Barrier	7,024	0	0
High Level Plan 100 yr	15,893	0	0
Marsh Creation_upper_38000	1,906	0	25
Marsh Creation_upper_9000	362	0	25
Marsh Creation_upper_7000	373	0	25
Marsh Creation_middle_14000	864	0	25
Marsh Creation_middle_38000	1,848	0	25
Marsh Creation_lower_25000	2,584	0	25
Marsh Creation_upper_326	33	0	25
Diversion_upper_2000	155	2,000	100
Diversion_upper_5000	151	5,000	100
Diversion_middle_50000	289	50,000	100
Diversion_middle_10000	201	10,000	100
Diversion_lower_12000	5	12,000	100

Project effects across the seven performance metrics chosen and project outcomes relating to wetland area were estimated for each scenario. To provide an example of the POC results, results are shown for a single scenario—scenario 5 (Table 9). Project effects estimates for Scenario 5 are shown below in Table 10 to provide an example of the estimates used. Calculations necessary to derive these numbers for the POC are detailed in Groves et al. (2010). The project effects and outcomes displayed are the result of comparing future conditions with a project implemented to the FWOP conditions.

Table 9: Values for uncertain factors for Scenario 5.

Scenario Factor	Scenario Value
Sea-level rise	Low (4 mm/yr)
Marsh creation project costs (% nominal)	-8.6%
Diversion project costs (% nominal)	-9.1%
Structural project costs (% nominal)	-12.3%
Nonstructural protection project costs (% nominal)	-0.6%
Contribution of wetland protection to protection (% nominal)	-4.3%
Mississippi River sediment	535 mg/L

Table 10: Project effects for Scenario 5.

Projects	Reduction in RR 100-year [M$]	Reduction in RR 400-year [M$]	Reduction in RR 1000-year [M$]	Archeological Sites Protected	Habitat Units created – Species 1	Habitat Units created – Species 2	Habitat Units created – Species 3	Wetland created [sq. km]
Nonstructural 100 yr	3,766	3,949	3,889	0	0	0	0	0.0
Nonstructural 400 yr	5,153	49,100	16,768	0	0	0	0	0.0
Nonstructural 1000 yr	5,339	52,460	73,706	0	0	0	0	0.0
Trans-Basin Barrier	1,757	34,813	24,418	44	-3,068	-3,030	-3,320	0.0
High Level Plan 100 yr	3,559	2,337	5,938	54	0	0	0	0.0
Marsh Creation_upper_38000	1,105	6,541	7,300	20	0	0	0	153.8
Marsh Creation_upper_9000	262	1,549	1,729	5	0	0	0	36.4
Marsh Creation_upper_7000	203	1,204	1,343	4	0	0	0	28.3
Marsh Creation_middle_14000	407	2,412	2,692	7	0	0	0	56.7
Marsh Creation_middle_38000	1,105	6,541	7,300	20	0	0	0	153.8
Marsh Creation_lower_25000	727	4,304	4,804	13	314	286	29	101.2
Marsh Creation_upper_326	9	55	62	0	0	0	0	1.3
Diversion_upper_2000	27	159	178	0	-223	0	-10	3.7
Diversion_upper_5000	67	397	443	1	-461	0	-97	9.3
Diversion_middle_50000	659	3,899	4,352	12	-1,018	229	458	91.7
Diversion_middle_10000	132	779	870	2	-393	195	1,218	18.3
Diversion_lower_12000	156	922	1,029	3	69	334	1,868	21.7

3.2.2 Progress Towards Targets

The amount of progress that each project in isolation would make towards the POC targets was calculated by dividing the project effect by each target metric by the target values.[8]

Figure 6 through Figure 8 (shown below) display the scaled values for progress towards the targets for each individual metric. Figure 6 displays the progress made by individual nonstructural and structural protection projects. While all protection projects make at least some progress towards the residual risk reduction metrics, only the structural projects make progress towards protecting archeological sites. It is also important to note that the Trans-Basin Barrier has significant impacts on habitat for all three species leading to negative progress for each species. Species 3 is less adversely affected by the Trans-Basin Barrier than the other two species considered.

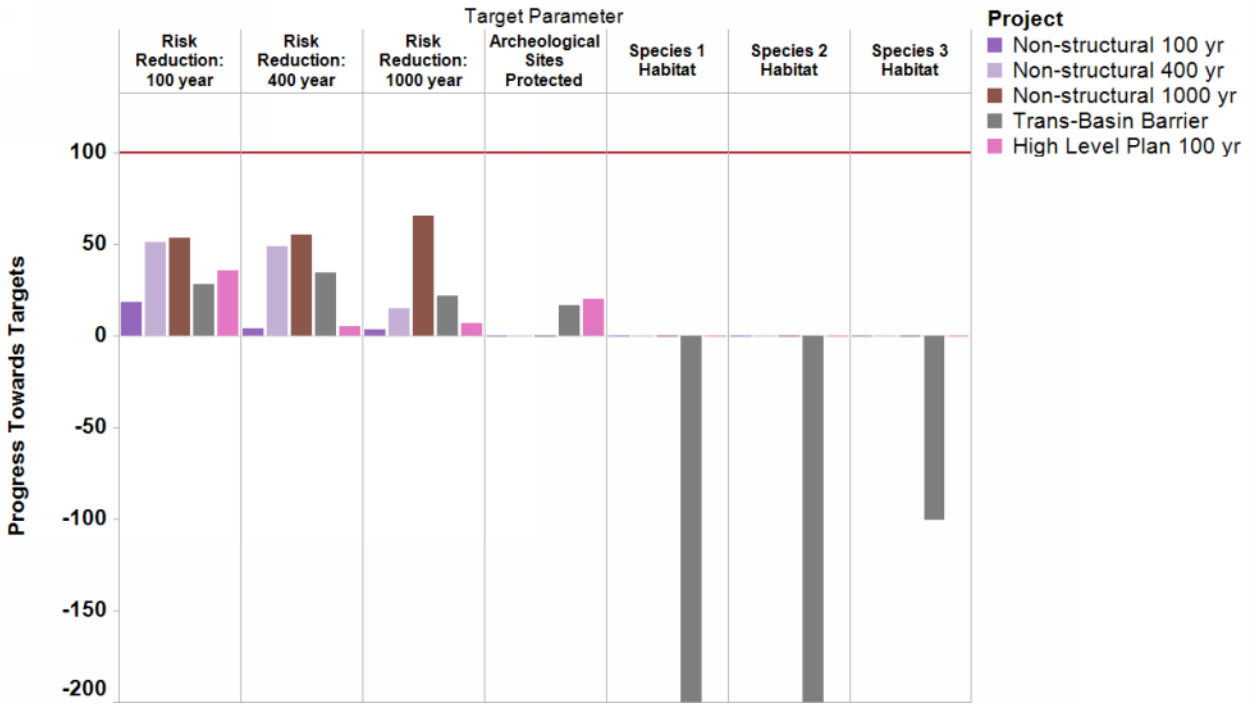

Figure 6: Progress Towards Individual Targets for Protection Projects for Scenario 5.

Figure 7 similarly displays the progress made individually by the marsh creation projects. Each of the marsh creation projects provide positive progress towards reduction of residual risk, with the magnitude of that progress being commensurate with the size of the marsh created according to the

[8] For the POC analysis, Progress Towards Targets was scaled such that the maximum positive progress scored approximately 100 and the worst negative progress scored approximately -200.

assumptions described above. Marsh creation in the lower zone also provides positive progress for all three species, but sizably greater progress for species 1 and 2.

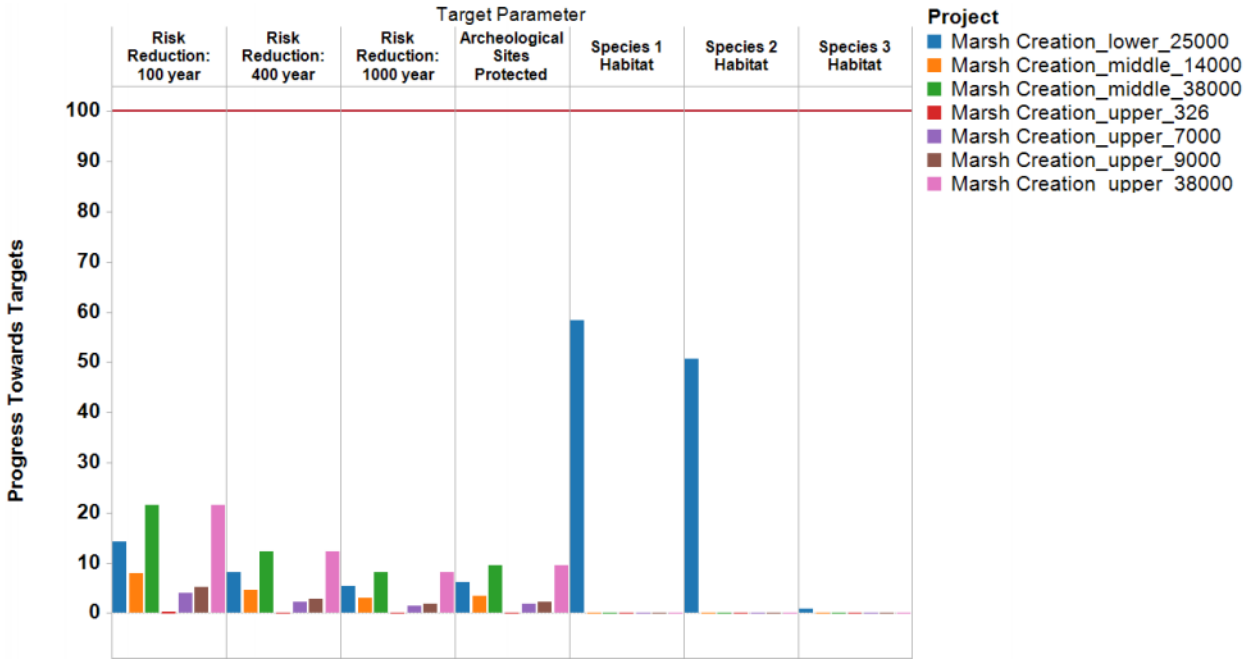

Figure 7: Progress Towards Targets for marsh creation projects for Scenario 5.

Figure 8 displays the progress made individually by each of the Mississippi River diversion projects. In general, the river diversion projects lead to negligible or very little progress towards the targets for reduction of residual risk but have varying effects on the three species considered. River diversions in the lower zone of Planning Unit 1 make positive progress towards targets for all three species with river diversions in the middle zone also having positive progress for species 2 and 3. River diversions in the middle and upper zones lead to significant negative progress towards the target for species 1, however, and diversions in the upper region provide relatively little impact on progress towards the targets for species 2 and 3.

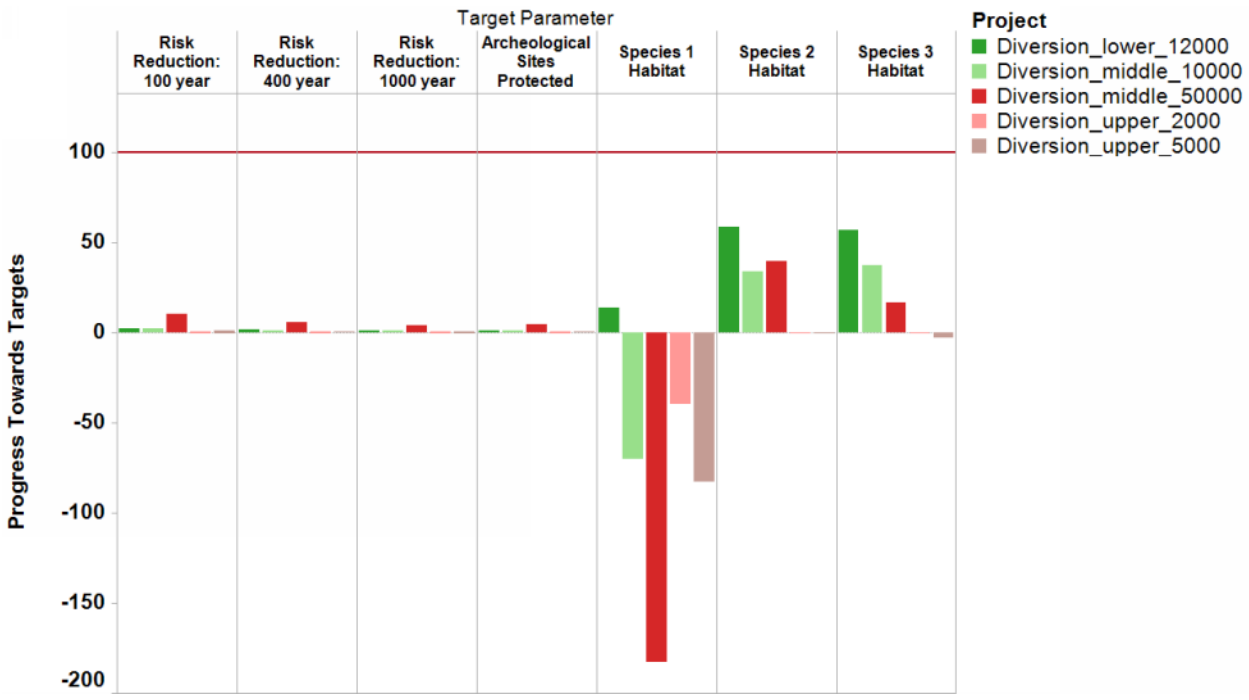

Figure 8: Progress Towards Targets for Mississippi River diversion Projects for Scenario 5.

3.2.3 Decision Criteria Scores

To compare project performance simultaneously across multiple decision criteria in Step 3, the prioritization tool uses a MCDA methodology and calculates a Decision Criteria Score (DCS) for each decision criteria defined in Section 3.1.3. Although there are many ways to calculate DCSs, they are always defined to transform information about project effects as measured by each decision criteria to comparable scales.

In the POC analysis, DCSs are calculated for each of the Decision Criteria listed in section 3.1.3:

- **Progress Towards Targets**: A DCS reflecting progress towards the Master Plan target is calculated using individual progress towards target scores and target weights in a weighted sum calculation.
- **Wetland Area**: A Wetland Area DCS is calculated such that a project that builds the amount of land that is estimated to be lost in the absence of restoration would receive a 100.[9] A project with no effect of wetland area (such as a nonstructural protection project) would receive a 0.

[9] A projects that builds more land than is estimated to be lost in the absence of restoration would receive a score greater than 100.

- **Sustainability:** As described in Table 8, the Notional Sustainability Scores were defined to range between 0 and 100, and need no modification to serve as a Decision Criteria Score.

3.3 Prioritize Individual Projects (Step 3)

Step 3 continues the application of MCDA to combine information from Step 2 along with the Decision Criteria Weights defined in Step 1 to calculate Aggregate Criteria Scores (ACSs).[10] ACSs are scores for each project that describe the relative merit of a project under a specific scenario using a weighted aggregation of the project's performance for each of the Decision Criteria defined in Step 1. These scores then provide the basis for ranking each individual project—the project with the highest ACS is ranked most highly.

Figure 9 shows the 17 projects ranked by their ACSs for Scenario 5 and a set of weights designed to place emphasis on Risk Reduction. The top three ranked projects are those that provide the greatest flood protection—400 and 1000-year nonstructural projects and the Trans-Basin Barrier project. The larger restoration projects also rank highly due to protection from the additional wetland area they provide.

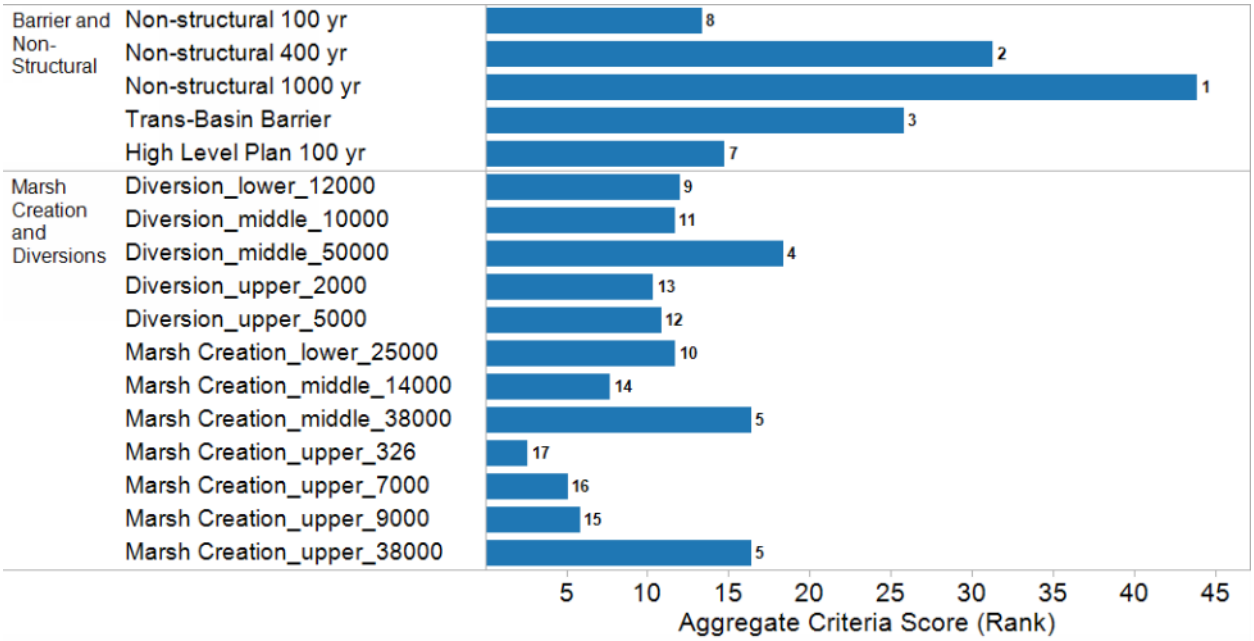

Figure 9: Aggregate Criteria Score and rank for each project using Risk Reduction emphasis for Scenario 5.

[10] Appendix A in Groves et al. (2009) describes the application of MCDA to this step in greater detail and includes the assumptions and requirements for this process to be appropriate.

Figure 10 shows projects ranked by their ACSs again for Scenario 5, but for a different weighting scheme designed to place emphasis on species habitat. In this case the Trans-Basin Barrier ranks low due its negative progress towards targets for species' habitats. Additionally, the river diversion projects in the middle and upper zones of PU1 are ranked low due to their negative impact on Species 1 habitat. The Mississippi River diversion project and the marsh creation project in the lower region, however, rank as the best two performing projects due to their positive impact on all three species' habitat.

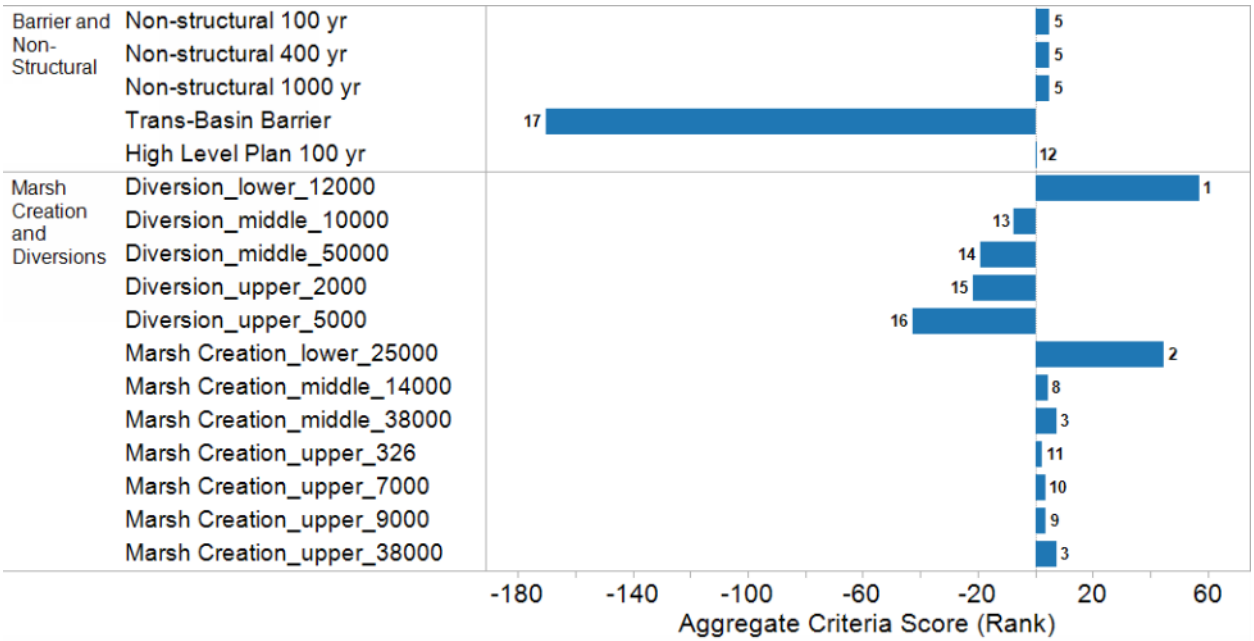

Figure 10: Aggregate Criteria Score and rank for each project using Species Habitat emphasis, for Scenario 5.

Figure 11 shows the rankings based on project ACSs for a third weighting scheme designed to represent a balanced set of preferences across protection and restoration metrics. The Trans-Basin Barrier project still ranks worst among all 17 projects. However, with the balanced weights, there is a mixture of nonstructural, structural, marsh creation, and river diversion projects in the top 9 of the 17 projects evaluated. These projects rank highly under this weighting due to having positive effects across numerous targets. For example, the diversion project in the lower zone is top ranked, in part due to its positive effect habitat for Species 2 and 3. The Marsh Creation Lower 25000 project is highly ranked because of its positive effects on habitat for Species 1 and 2.

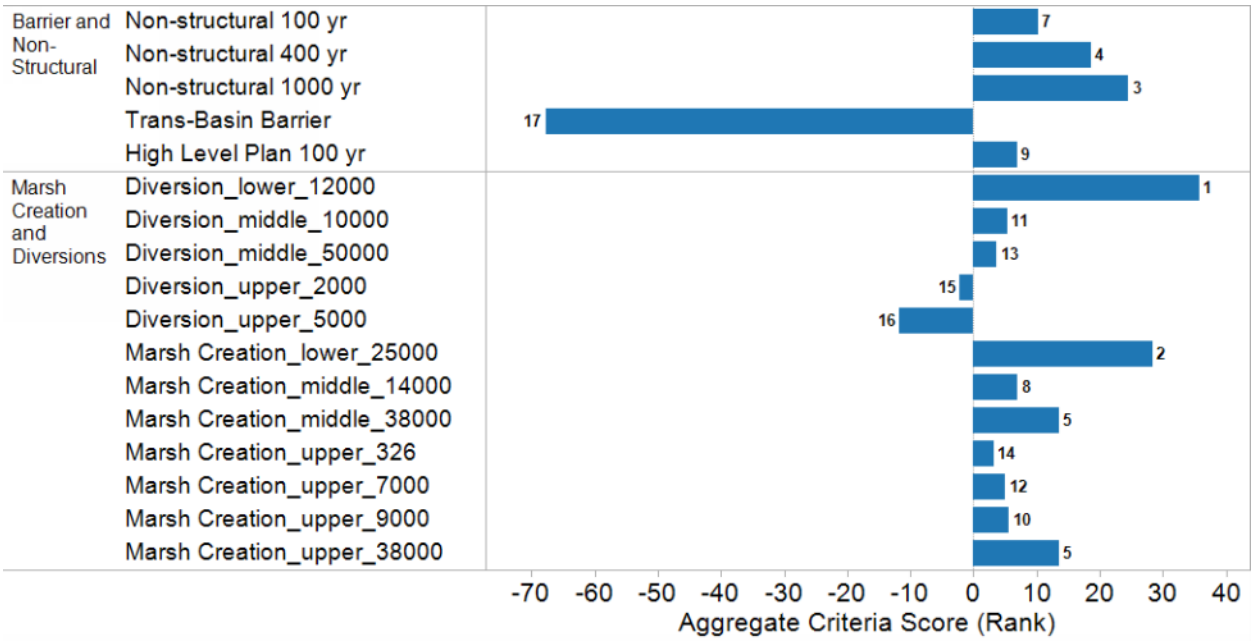

Figure 11: Aggregate Criteria Score and rank for each project using Balance Focus B emphasis for Scenario 5.

3.4 Select Project Portfolios (Step 4)

The final step in the POC analysis uses a linear programming optimization routine to construct different portfolios of projects that meet the implementation constraints defined in Step 1. This step assumes that the ACSs for each project are additive when implemented together in a portfolio. Realizing that this assumption may not hold true, subsequent iterations of the prioritization tool would evaluate the project portfolios together to be sure that project synergies, overlap, and conflicts are properly recognized in prioritization analysis.

3.4.1 Apply Constraints

The POC analysis considers three constraints: funding, the allowable cumulative Mississippi River diversion flow, and the number of nonstructural packages to be implemented when constructing project portfolios. A linear program selects the individual projects that maximize the sum of the ACSs given the constraints. To illustrate how the portfolios are constructed, the following figures first show the same project ranking graphics shown in Section 3.3, but with the selected project indicated by dark green shading. Below the ranking graphs, the cost for each project is shown with the selected projects again shaded dark green. The total cost for the selected structural and nonstructural projects and the selected marsh creation and diversion projects are shown by vertical lines on this graphic. By design, the total cumulative costs for each project category are below the cost thresholds.

The POC evaluated not only 30 scenarios and six sets of weights, but also several combinations of different funding constraints. Figure 12 shows results for the Balanced Focus B weights and Scenario 5 with stringent funding constraints applied—$8 billion and $1 billion for protection and restoration projects, respectively. These funding constraints result in the 7th ranked project (100-year Nonstructural project) being selected, rather than more highly-ranked nonstructural and structural projects. The top ranked project (Diversion_lower_12000) is selected, but several other highly-ranked marsh creation projects are excluded due to limited funding.

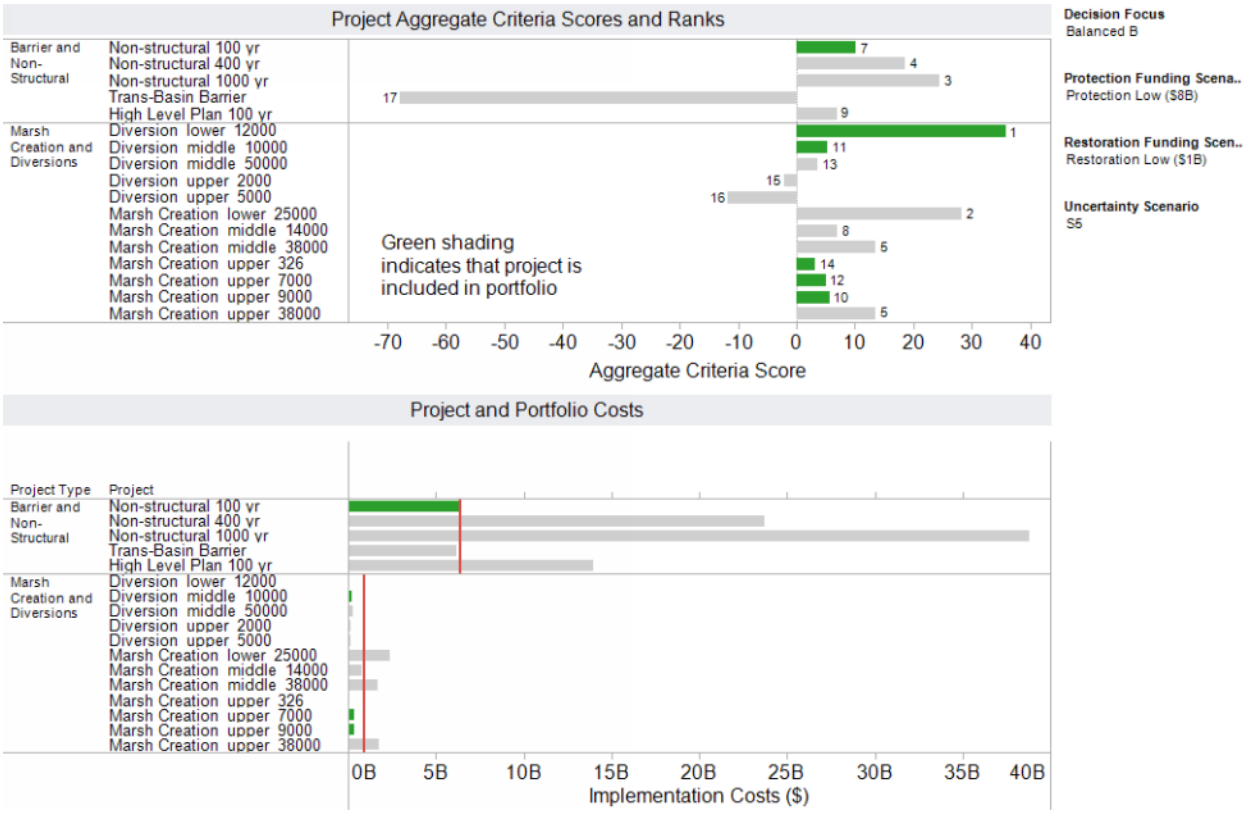

Figure 12: Aggregate Criteria Scores, project rank, and included projects (top) and cumulative costs by project (bottom) for the Balanced Focus B emphasis, low protection and restoration funding, and uncertainty scenario 5.

Figure 15 shows similar results except with less restrictive funding constraints ($40 billion and $6 billion). In this case, the 400-year Nonstructural project is selected along with the High Level Plan (100-year) structural project. Many more restoration projects are funded, but only those with positive ACSs. The Marsh Creation Upper 38000 project is not selected due to the funding constraint and the Diversion Middle 50000 project is not selected due to the Mississippi River flow constraint.

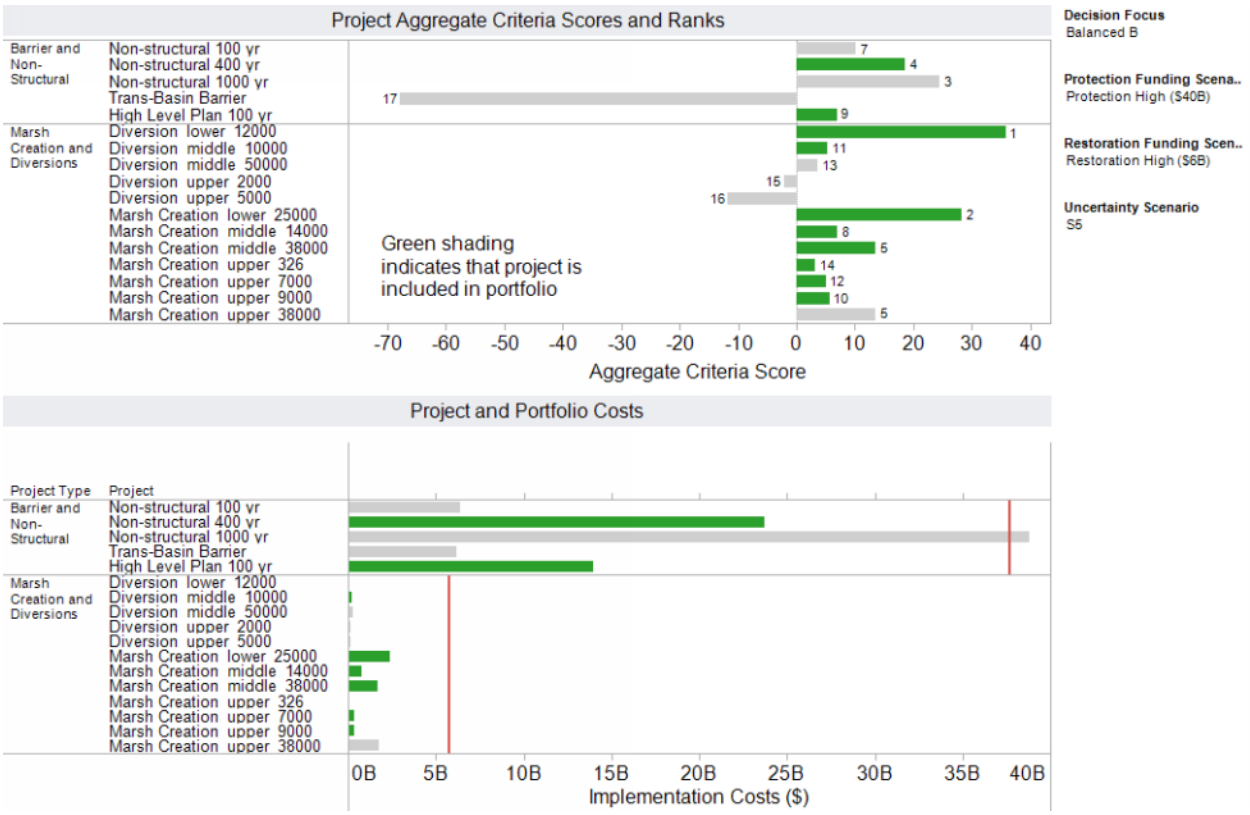

Figure 13: Aggregate Criteria Scores, project rank, and included projects (top) and cumulative costs by project (bottom) for the Balanced Focus B emphasis, high protection and restoration funding, and uncertainty scenario 5.

3.4.2 Assess Portfolio Progress Toward Targets

In order to better understand the portfolios selected for each scenario and set of weights, it is helpful to investigate the aggregate progress of the projects in the portfolio towards the targets for each of the metrics defined in Step 1. Figure 14 shows the aggregate progress made toward individual targets by the project portfolio selected for Scenario 5 with the Balance Focus B weights and high levels of funding for all projects. It is evident that not all targets are reached by the implementation of the selected portfolio. Although this is partly due to the lack of funding, which limits the number of positively-scored projects that could be implemented, there is also a lack of projects to implement to achieve the targets. This information, along with the accompanying details produced by the prioritization tool, provides important guidance for the development of new project concepts to be evaluated in a subsequent iteration.

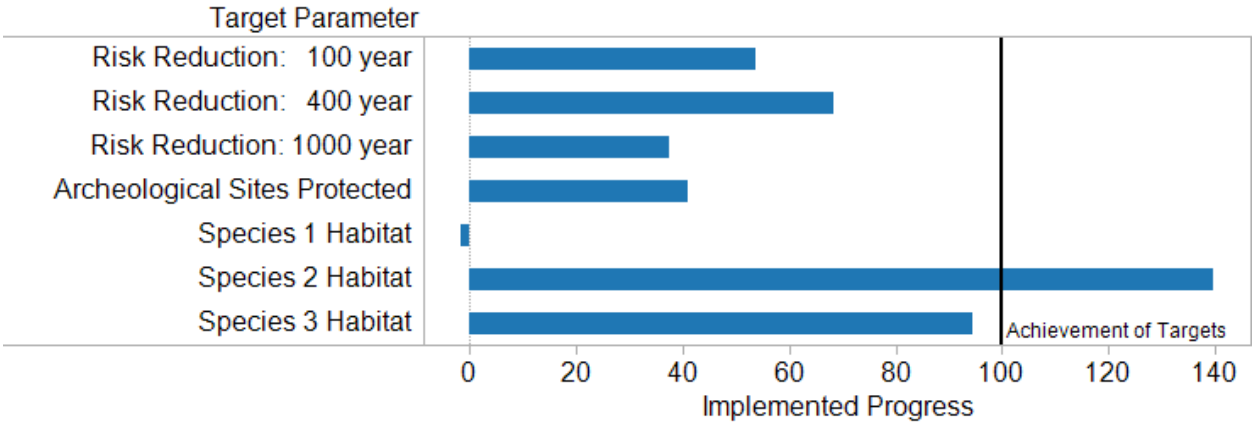

Figure 14: Project portfolio's aggregate progress toward targets for individual metrics.

3.4.3 Consider Uncertainty

Up to this point in the POC analysis, only results for Scenario 5 have been shown. Just as the project ACSs, rankings, and portfolio inclusion varies according to the decision criteria weights, these results also vary across the scenarios. The prioritization tool provides the ability to see results both for individual scenarios and across all of them.

Figure 15 shows the frequency that each project is included in a portfolio across each of the scenarios for the Balanced Focus B weights. Five of the 17 projects are always included in the portfolio, regardless of the scenario, and another two are almost always included (greater than 85% of the time). Five of the 17 are also never included in a portfolio, and one project is very rarely included. This leaves only four projects whose inclusion in a portfolio remains ambiguous or recommendable only under some of the scenarios. In this case, the projects in question include the High Level Plan (100-year) structural project and three of the marsh creation projects. The structural project is included only in scenarios in which the cost of structural project is low. This example thus represents an important debate about such projects—cost estimates are significantly uncertain and improving cost estimates could significantly assist the State in determining which structural projects to implement.

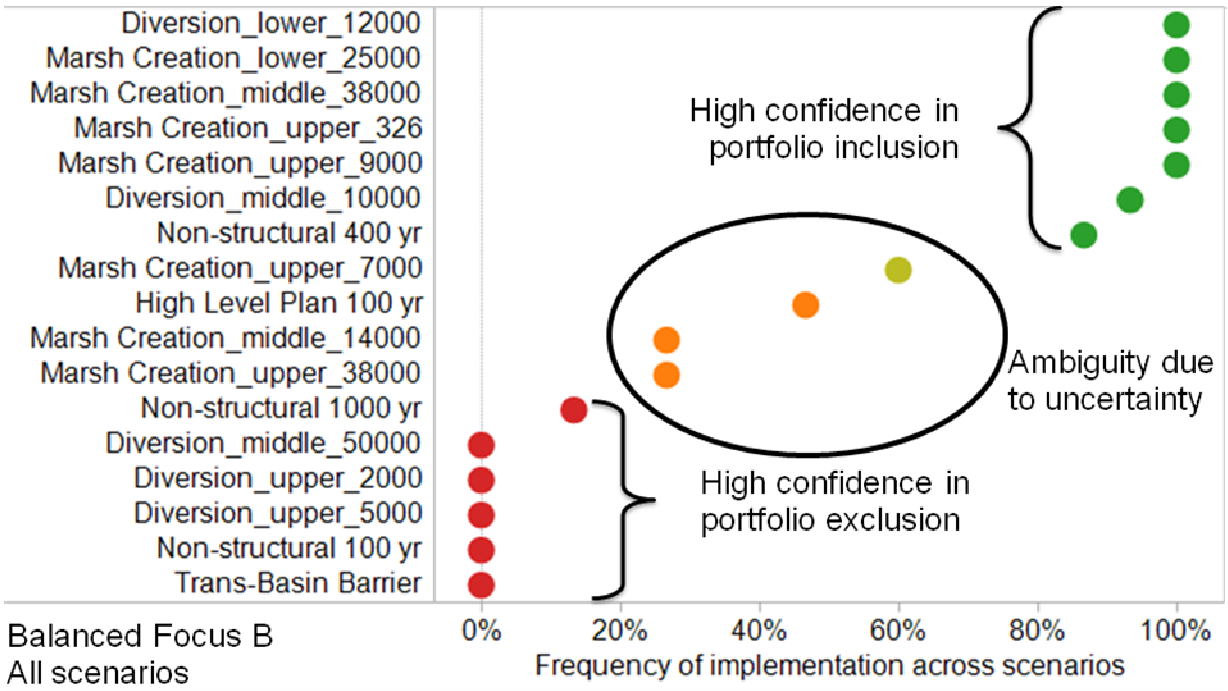

Figure 15: Frequency that each project is included in the portfolio across the scenarios for the Balance Focus B weights.

The analysis so far has focused on a single set of decision criteria weights (Balanced Focus B). Figure 16 shows the same plot as above, but across all the scenarios and three Balanced Focus weight sets (A, B, and C— see Table 6). Although these results still suggest many projects that clearly should be included or excluded, now the inclusion of a few more is dependent upon the weights used or scenarios evaluated.

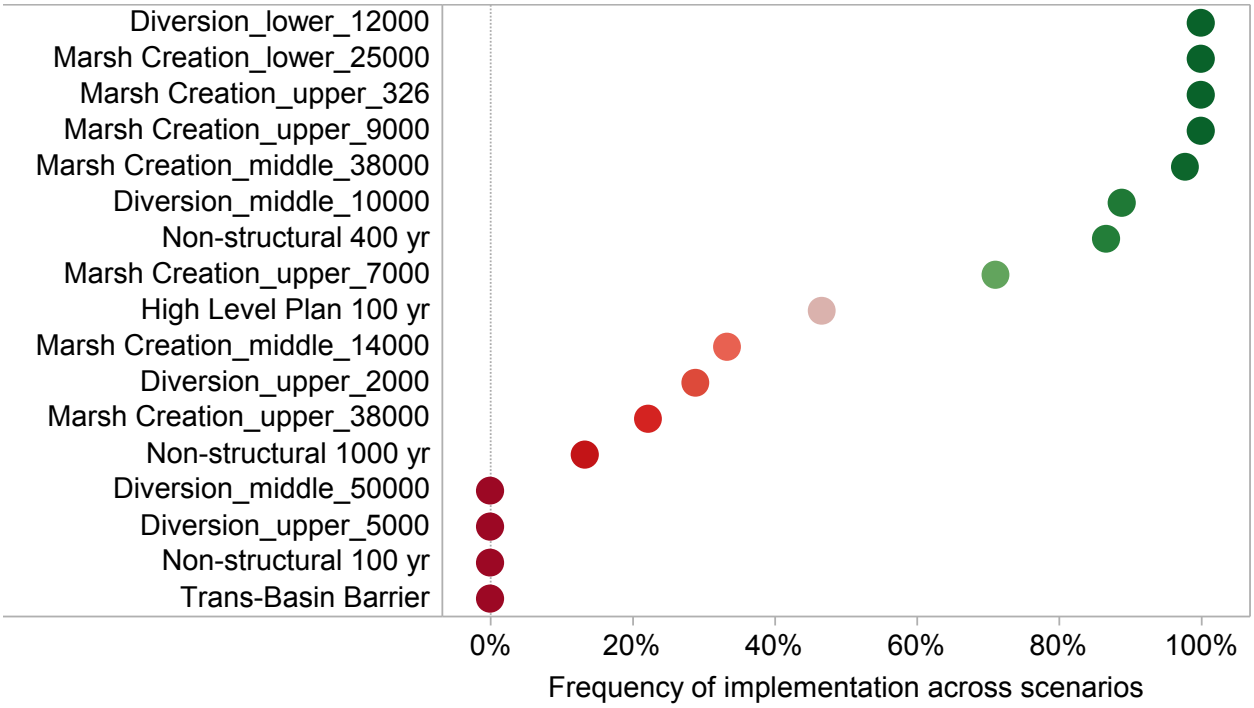

Figure 16: Frequency that each project is included in the portfolio across the 30 scenarios and three sets of weights (Balanced Focus A, B, and C—see Table 6).

3.4.4 Evaluate Robust Portfolios in Another Iteration

The results in Figure 15 and Figure 16 suggest that perhaps only a small number of unique portfolios are recommended when looking across the scenarios for the Balanced Focus B set of weights. Table 11 shows the seven unique portfolios proposed by the prioritization tool for Balanced Focus B. These seven portfolios can now each be evaluated by the project effect models and the three analytic steps of the prioritization tool to develop new rankings of portfolios for consideration by decision makers. This step has not been performed for the POC analysis, but will be an important step in the application of the prioritization tool to the Master Plan Update.

Table 11: Definitions of seven candidate robust portfolios for Balanced Focus B weights. "Xs" indicate inclusion in the portfolio. Shading distinguished between projects that are always included (green), sometimes included (orange), and never included (red).

Project	Portfolio						
	1	2	3	4	5	6	7
Diversion_lower_12000	X	X	X	X	X	X	X
Marsh Creation_lower_25000	X	X	X	X	X	X	X
Marsh Creation_middle_38000	X	X	X	X	X	X	X
Marsh Creation_upper_326	X	X	X	X	X	X	X
Marsh Creation_upper_9000	X	X	X	X	X	X	X
Diversion_middle_10000	X	X	X	X	X	X	
Nonstructural 400 yr	X	X	X		X	X	X
Marsh Creation_upper_7000	X		X		X		X
High Level Plan 100 yr	X		X			X	X
Marsh Creation_middle_14000			X	X			
Marsh Creation_upper_38000	X	X					
Nonstructural 1000 yr				X			
Nonstructural 100 yr							
Diversion_middle_50000							
Diversion_upper_2000							
Diversion_upper_5000							
Trans-Basin Barrier							

3.5 Conclusion

The POC analysis illustrates how the prioritization tool can assimilate estimates of individual project effects on the coast and develop recommendations for a small number of portfolios of projects reflecting uncertainty, different emphases of decision criteria and Master Plan targets, and implementation constraints. This basic framework can be readily expanded to include the analysis of hundreds of projects across all Louisiana coastal planning units. The resulting prioritization and portfolio results can provide valuable analytic analysis to support deliberations and ultimate decisions on coastal restoration and protection project implementation.

4 Glossary

Term	Definition
Aggregate Criteria Score (ACS)	A cardinal score that describes the relative merit of projects based on all decision criteria as weighted by the Decision Criteria Weights
Decision Criteria	Specific factors or concepts used to prioritize projects, e.g. “progress towards target” and “cost efficiency”
Decision Criteria Score (DCS)	A cardinal score that describes the relative merit of projects based on a single decision criterion
Decision Criteria Weights	Weights assigned to the different decision criteria to allow the development of a single prioritized list of projects
Future Without Project (FWOP) Condition	The future condition of the Louisiana coast against which the condition with candidate projects are compared. The FWOP condition changes over time in response to landscape evolution and demographic changes and economic growth.
Goals	Broad articulation of what is desired to be achieved by implementing the Master Plan, e.g. “Reduce risk of damage from storm based flooding” and “Sustain the Louisiana coastal environment to the benefit of ecosystems, communities, and commercial and recreational activities”
Implementation Constraints	Planning conditions or requirements that must be met when implementing project portfolios—used to group individual projects into project portfolios
LACES	Louisiana Applied Coastal Engineering and Science program
Metrics	Factors used to evaluate progress towards the regional targets, e.g. “miles of shoreline protected”, “acres of habitat”, “level of protection provided”
OM&M	Operations, maintenance, and monitoring
Project type	Broad classification of kinds of projects evaluated using Prioritization Tool (e.g. marsh creation, diversion, structural protection, and nonstructural protection)
Project attributes	Technical information about the projects that can be used to develop estimates of their effect relative to the performance metrics
Project effects or outcome	The change to the FWOP condition in terms of the different metrics due to the implementation of a specific project
Project portfolios	Collections of projects within a region
Regions	Geographic areas used for the evaluation of projects and project portfolios
Robust Portfolio	A project portfolio that is estimated to perform satisfactorily across many different scenarios reflecting a wide range of uncertain future conditions
Scenarios	Specific set of assumptions regarding future conditions represented by the Prioritization Tool through specification of values for the uncertain model parameters.

Targets	Quantified representations of the regional visions to compare to progress due to projects, e.g. “X-miles of shoreline protected”, “y-acres of habitat”, or “Protection provided to 100-year storm for community z”
Target Weights	Weights assigned to the different targets to reflect differential importance in terms of achievement
Uncertainties or uncertain factors	Aspects of the future conditions which are uncertain, e.g. “future sea-level rise”, “future demographic patterns”
Uncertain model parameters	Parameters in the models corresponding to identified uncertain factors
Vision	Articulation of the goals for a specific region, e.g. “How much protection for each community” and “what type of commercial and recreational activities should be sustained in a specific region”

5 Bibliography

Commagere, A. M., Fischbach, J., Groves, D. G., O'Connell, M., and Reed, D. J. (2009). "Implications of Future Climate Change and Restoration Policy for Gulf Coast Fisheries: A Pilot Project." RAND Corporation, Santa Monica, CA.

CPRA. (2007). "Louisiana Comprehensive Coastal Protection Mater Plan for a Sustainable Coast." Louisiana Coastal Protection and Restoration Authority, Baton Rouge, LA.

CPRA. (2009). "Fiscal Year 2010 Annual Plan: Integrated Ecosystem Restoration and Hurricane Protection in Coastal Louisiana." Coastal Protection and Restoration Authority of Louisiana, Baton Rouge, LA.

Groves, D. G., and Lempert, R. J. (2007). "A New Analytic Method for Finding Policy-Relevant Scenarios." *Global Environmental Change* 17, 73-85.

Groves, D. G., Reed, D. J., Sharon, C., and Wise, O. (2009). "Proposed Integrated Ecosystem Restoration and Hurricane Protection Prioritization Tool for Louisiana Office of Coastal Protection and Restoration." *PM-3386-OCPR*, RAND Corporation, Santa Monica, CA.

Groves, D. G., Sharon, C., Reed, D., and Commagere, A. (2010). "Integrated Ecosystem Restoration and Hurricane Protection Project Prioritization Tool and Proof-of-Concept Analysis." *PM-3512-OCPR*, RAND Corporation, Santa Monica, CA.

Lempert, R. J., Groves, D. G., Popper, S. W., and Bankes, S. C. (2006). "A General, Analytic Method for Generating Robust Strategies and Narrative Scenarios." *Management Science*, 52(4), 514-528.

Lempert, R. J., Popper, S. W., and Bankes, S. C. (2003). *Shaping the Next One Hundred Years: New methods for quantitative, long-term policy analysis*, RAND, Santa Monica, CA.

USACE. (2009). "Louisiana Coastal Protection and Restoration (LACPR) Final Technical Report." US Army Corps of Engineers, New Orleans, LA.

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Appendix C

Preliminary Inventory of Non-State Coastal Projects

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Program	State Project Number (Federal)	Project Name	Project Type	Agency/Sponsor	Senate District	House District	Parish	Acres Benefited	Construction Completion Date	Feasibility Cost	Engineering, Design, & Landrights Cost	Construction Cost	Project Summary	Planning Unit
CIAP	PO-39	Bald Cypress/Tupelo Coastal Forest Protection	LA	MMS	18	88	Liv.	1,762	Pending	N/A	$3,305,854	N/A	The project location is within Livingston Parish, in the Maurepas Swamp of southeast Louisiana. The project area includes 1,762 contiguous acres of coastal wetland forest, specifically bald cypress-tupelo swamp, with roughly 200 acres fronting the western edge of Lake Maurepas.	1
CIAP	PO-44	Blind River Freshwater Diversion Property Purchase	LA	MMS	18	58	StJa.	68	Pending	N/A	$495,700	N/A	The St. James Parish Council intends to purchase a tract of land extending from the Mississippi River to the Parish Canal in order to secure the required property for a future freshwater diversion. This project will purchase approximately 68 acres of existing agriculture and wetland areas in order to accommodate a proposed freshwater siphon project.	1
CIAP	PO-45	East Bank Wastewater Assimilation Plant	MM	MMS	18	57	StJa.	2,400	Pending	N/A	N/A	$1,003,078	This project will construct a wetland assimilation treatment plant which will collect wastewater from secondary treatment modules in Grand Point, Louisiana. It will pump the wastewater to the pond area that will discharge into seven acres of forested wetland areas that will directly affect 2,400 acres of wetlands.	1
CIAP	PO-43	East LaBranche Shoreline Protection	SP	MMS	19	56	StC.	N/A	Pending	N/A	N/A	$2,425,626	This project involves the continuation of rock shoreline protection project on the south shore of Lake Pontchartrain in St. Charles Parish. The project will consist of installing approximately 15,300 linear feet of rock dike.	1
CIAP	PO-49	French Property Preservation Project	LA	MMS	11	90	StT.	40	2009	N/A	$1,694,664	N/A	This project includes the acquisition of a 40 acre parcel composed of pine trees and mixed hardwoods with inclusion savannas, which lies between the I-12 Service Road and Bayou Liberty in Slidell, Louisiana. This project is to educate the public about the value of wetlands. Invasive plant species will be removed and nest boxes will be installed.	1
CIAP	PO-48	Green Property Preservation Project	LA	MMS	11	89	StT.	27	Pending	N/A	$1,044,905	N/A	This project includes the acquisition of a 27.2 acre parcel to preserve a sensitive wetland composed of pristine cypress swamp and bottomland hardwoods from future commercial or residential development. It is located between Bayou Lacombe and the Tammany Trace linear park south of U.S. 190 in Lacombe, Louisiana within the Bayou Lacombe watershed.	1
CIAP	PO-40	Hydrologic Restoration in the West Lake Maurepas Swamps	HR	MMS	18	88	Liv.	6,458	Pending	N/A	N/A	$3,221,274	The Amite River is located southwest of Lake Maurepas and east of I-10. The objective of this project is to allow floodwaters to introduce additional fresh water, nutrients, and sediment into the western Maurepas Swamp. The exchange of flow would occur during flood events on the river and from runoff of localized rainfall events, and would in turn provide nutrients and sediment to facilitate organic sediment deposition in the swamp, some fluctuation of water levels, improve biological productivity, and prevent further swamp deterioration.	1
CIAP	BS-17	Lake Lery Rim Re-Establishment and Marsh Creation	MC	MMS	1	105	StB.	300	Pending	N/A	N/A	$6,561,211	The project proposes to dredge a waterway through Lake Lery historically used for navigation. The waterway is located approximately along the St. Bernard and Plaquemines Parish line. The project will utilize the dredged material and borrow areas in Lake Lery to create marsh in the open water areas north and east of the lake. It will also re-establish the lake rim by armoring the northern and eastern shoreline of Lake Lery using a rock dike.	1
CIAP	PO-52	Lake Pontchartrain Shoreline Protection	SP	MMS	19	56	Tang.	N/A	Pending	N/A	N/A	$6,598,878	The project is located in Tangipahoa Parish between Pass Manchac and the mouth of the Tangipahoa River. The goal of the proposed project is to construct approximately 12,000 linear feet of foreshore protection.	1
CIAP	PO-47	Manchac Shoreline Protection Project	SP	MMS	19	56	StJo.	N/A	Pending	N/A	N/A	$3,835,459	The proposed project will consist of capping 21,500 linear feet of USACE existing breakwaters and filling in the gaps to create a continuous structure. The project is located in St. John the Baptist Parish near the town of Manchac, near the Manchac Wildlife Management area and Manchac Pass.	1

Program	State Project Number (Federal)	Project Name	Project Type	Agency/Sponsor	Senate District	House District	Parish	Acres Benefited	Construction Completion Date	Feasibility Cost	Engineering, Design, & Landrights Cost	Construction Cost	Project Summary	Planning Unit
CIAP	PO-51	Mandeville Aquatic Ecosystem Restoration Project	MM	MMS	6	89	StT.	N/A	Pending	N/A	N/A	$3,758,364	This project will include an upgrade of the existing wastewater treatment plant and construction of a discharge structure and piping system for wetland assimilation. It will construct 2.5 miles of force main for disbursement of treated effluent into 1.7 square miles of uninhabited wetland adjacent to the western border of the City of Mandeville.	1
CIAP	PO-70	Northshore Beach Marsh Creation/Restoration	MC	MMS	11	90	StT.	600	Pending	N/A	N/A	$2,182,568	This project is located in the Pontchartrain Basin in St. Tammany Parish. Project features include approximately 600 acres of marsh creation via hydraulic dredging and placement of 2 million cubic yards of material. The likely borrow location is Lake Pontchartrain, the Highway 11 Canal, and Bayou Bonfouca and associated canals. The objectives of this project are to create approximately 600 acres of intermediate marsh, reduce erosion of adjacent interior marshes, and maintain and support the integrity of the Lake Pontchartrain shoreline.	1
CIAP	PO-46	Reserve Relief Canal Shoreline Protection Project	SP	MMS	19	57	StJo.	N/A	Pending	N/A	N/A	$2,013,057	The proposed project will consist of approximately 1,400 linear feet of shoreline protection extending in an easterly and westerly direction in St. John the Baptist Parish, where the Reserve Relieve Canal enters Lake Maurepas and entrance protection lining. The proposed feature consists of a foreshore rock dike with gaps for fish and public access to the lake shoreline.	1
CIAP	PO-41	Update of St. Bernard Parish Coastal Zone Management Plan	PL	MMS	1	109	StB.	N/A	Pending	N/A	$200,000	N/A	Funds will be used so that the St. Bernard Parish Coastal Zone Management Plan may be updated.	1
CIAP	PO-71	Waterline Booster Pump Station, East Bank	INF	MMS	18	58	StJa.	N/A	Pending	N/A	N/A	$265,100	The project would construct a waterline booster pump along LA Highway 44 in Convent, Louisiana in St. James Parish. The construction includes housing a 40 hp motor with a 1,100 gallon/minute high-service pump and connecting to the existing 10 inch PVC waterline at two locations in order to establish a loop and by-pass system. The station will have a metal building with a concrete floor to enclose the pump and electrical equipment.	1
CIAP	PO-42	West LaBranche Shoreline Protection	SP	MMS	19	56	StC.	N/A	Pending	N/A	N/A	$1,506,788	This project involves the continuation of the rock shoreline protection project on the south shore of Lake Pontchartrain in St. Charles Parish. The project will consist of installing approximately 2,150 linear feet of rock dike on the existing shoreline and the construction of a 130-foot-long timber pile bridge at the mouth of Bayou LaBranche.	1
CIAP	BA-50	Bayside Segmented Breakwaters at Grand Isle	SP	MMS	8	105	Jef.	N/A	Pending	N/A	N/A	$3,297,361	The project is located in Jefferson Parish, Louisiana, along the bay side of Grand Isle, Louisiana. The purpose of this project is to reduce erosion on the bay side of Grand Isle. Twenty-four 300 foot breakwaters (approximately 1.5 miles) will be constructed on the back-bay side of Grand Isle.	2
CIAP	BA-60	Baytree Freshwater Diversion Property Purchase	LA	MMS	18	58	StJa.	63	Pending	N/A	N/A	$460,174	The St. James Parish Council intends to purchase a tract of land extending from the Mississippi River to the Parish Canal in order to secure the required property for a future freshwater diversion. This project is proposed to purchase approximately 63 acres of existing agriculture and wetland areas in order to accommodate a proposed freshwater siphon project.	2
CIAP	BA-65	Fifi Island Restoration Extension	BI	MMS	8	105	Jef.	6	Pending	N/A	N/A	$2,546,856	The project is located at the eastern tip of Fifi Island, adjacent to Bayou Rigaud, on the northern side of Grand Isle. The project would provide approximately 2,200 linear feet of rock dike protection and create approximately 6 acres of marsh. Additionally, the project will provide protection to the bay side of Grand Isle.	2

Program	State Project Number (Federal)	Project Name	Project Type	Agency/Sponsor	Senate District	House District	Parish	Acres Benefited	Construction Completion Date	Feasibility Cost	Engineering, Design, & Landrights Cost	Construction Cost	Project Summary	Planning Unit
CIAP	BA-51	Goose Bayou Ridge Creation and Shoreline Protection	SP	MMS	8	105	Jef.	1,200	Pending	N/A	N/A	$3,768,416	This project located in Lafitte, Jefferson Parish Louisiana, will improve shoreline protection by creating over 8,000 linear feet of additional shoreline through the use sediment from the Mississippi River, and vegetative planting, along the west side of Goose Bayou. This project will help establish a wetland ridge which will function as habitat for native species of plants and animals.	2
CIAP	BA-64	Jump Basin Dredging and Marsh Creation	MC	MMS	1	105	Plaq.	7	Pending	N/A	N/A	$800,000	The proposed project is located in the Venice area of Plaquemines Parish, and more specifically in the Jump Basin Marina and along the west side of Tidewater Road. The proposed project would use material dredged from the marina to create marsh on the west side of Tidewater Road. Based on preliminary surveys, it is predicted that approximately 65,000 cubic yards of material could be dredged from the marina. Based on water depths in the target area, an initial estimate of 4 to 7 acres of marsh could be created.	2
CIAP	BA-52	Lower Lafitte Shoreline Stabilization at Bayou Rigolettes	SP	MMS	8	105	Jef.	N/A	Pending	N/A	N/A	$4,427,888	This project located within Lafitte, Louisiana will help protect the integrity of wetlands within the Barataria Basin and reduce saltwater intrusion and deterioration of interior marsh. Over 10,600 linear feet of foreshore rock revetment will be constructed, along with a water control structure in order to protect the interior marshes.	2
CIAP	BA-53	Maritime Forest Ridge Restoration	MC VP	MMS	20	54	Laf.	60	Pending	N/A	N/A	$700,000	Distributary ridges and chenier ridges along the coast of Louisiana are disappearing at an alarming rate. Projects such as these help establish ridge habitats and associated wetlands which are extremely important for millions of migrating Neo-tropical songbirds that cross the Gulf of Mexico, in addition to providing wetland habitat for coastal plant and animal species.	2
CIAP	BA-54	Northwest Little Lake Marsh Creation and Enhancement	DM MC VP	MMS	20	54	Laf.	100	Pending	N/A	N/A	$2,432,340	This project, located in Lafourche Parish, will use dedicated dredge material to create 30-40 acres of wetlands in interior open water bodies (enhancing 70-100 acres of marsh) and plant 2 rows of smooth cordgrass along approx. 7,500 linear feet of the lake shoreline.	2
CIAP	BA-63	Small Dredge Program	DM MC	MMS	20	54	Laf.	175	Pending	N/A	N/A	$2,967,252	This program involves the use of a small dredge to hydraulically dredge borrow canals and other open water areas to restore approximately 175 acres of marsh apron along levees, cheniers and roadways in Lafourche Parish.	2
CIAP	BA-57	Tidewater Road Flood Protection	INF	MMS	1	105	Plaq.	N/A	Pending	N/A	N/A	$3,364,310	Tidewater Road is subject to heavy inundation from directional winds that elevate tides over the roadway. Wetland loss in the area is severe, and along much of Tidewater Road's length there is open water in canals and ponds that abut the road shoulder. Tidewater Road is an important access point for the oil and gas industry. This project also proposes to create flood protection along the entire length of Tidewater Road.	2
CIAP	BA-56	Update of the Plaquemines Parish Coastal Management Plan	PL	MMS	7	105	Plaq.	N/A	N/A	N/A	$300,000	N/A	Funds will be allocated to the Parish so that they may update their coastal management plan.	2
CIAP	BA-59	Waterline Booster Pump Station, West Bank	INF	MMS	18	58	StJa.	N/A	2009	N/A	N/A	$256,700	This project would construct a waterline booster pump station in Welcome, Louisiana. The proposed site is located near Section 43, T-11-S, R-3-E, along LA Highway 18. The proposed construction includes the installation of a 40 hp electric motor with a 1,100 gpm high-service pump. The booster pump will be built along the existing waterline and be tied in at two places in order to establish a loop and by-pass system with 10-inch in-line valves. The station will a have metal building with a concrete floor to fully enclose and protect the pump and electrical equipment.	2
CIAP	BA-62	West Bank Wastewater Assimilation Plant	MM	MMS	18	58	StJa.	2,400	Pending	N/A	N/A	$1,488,760	The St. James Parish Council plans to construct a wetland assimilation treatment plant on property owned by the Parish Council in Vacherie, Louisiana. The plant will collect wastewater from secondary treatment modules and pump the wastewater to a sediment pond area. The nine acre pond will discharge into 2,400 acres of forested wetland areas that will directly affect the swamp's composition and structure.	2

Program	State Project Number (Federal)	Project Name	Project Type	Agency/Sponsor	Senate District	House District	Parish	Acres Benefited	Construction Completion Date	Feasibility Cost	Engineering, Design, & Landrights Cost	Construction Cost	Project Summary	Planning Unit
CIAP	BA-61	West Bank Wetland Conservation and Protection	LA	MMS	18	58	StJa.	235	N/A	N/A	$718,620	N/A	The St. James Parish Council would like to purchase several large tracts of existing wetlands to prohibit the destruction of, and aid in the protection of, the parish's coastal wetland areas. This project proposes to purchase approximately 235 acres of existing wetlands from the Bayou Chevreuil Land Co., LLC.	2
CIAP	TE-59	Attakapas Canal Hydrologic Restoration	DM HR VP	MMS	21	60	Asu.	12	Pending	N/A	N/A	$1,025,000	This project will remove excessive accumulated sediment from Attakapas Canal at its intersection with Lake Verret in Assumption Parish for a distance of approximately 2,000 feet improving water quality, fisheries habitat, and sport fishing access. The removed sediment will be beneficially used to restore approximately 12 acres of bald cypress habitat along the shoreline of Lake Verret. As part of the project, cypress trees will be planted at the rate of 302 trees per restored acre.	3a
CIAP	TE-63	Falgout Canal Freshwater Enhancement (Phase I)	HR	MMS	20	51	Ter.	5,000	Pending	N/A	N/A	$3,458,700	The proposed project area is located in the Terrebonne Basin in the marshes adjacent to Falgout Canal, between Bayou Dularge and the Houma Navigation Canal (HNC). This project would include construction/modification of an inlet structure at a site located on the HNC north of Falgout Canal, modeling of the basin, along with channel improvements, as necessary, to improve efficiency of freshwater flow within the basin area.	3a
CIAP	TE-62	Houma Navigation Lock	HR	MMS	20	51	Ter.	N/A	Pending	N/A	N/A	$2,625,173	The Houma Navigational Canal Lock Complex is a key component in the fight to protect and restore the Terrebonne Basin by reducing saltwater intrusion and maximize the use of very limited freshwater from the Atchafalaya River. As an added benefit, this Morganza project feature will provide flood protection and accommodate navigation in a synergistic approach of protecting the ecosystem and supporting regional infrastructure.	3a
CIAP	TE-60	Lake Verret Swamp and Lake Rim Restoration	DM MC	MMS	21	60	Asu.	40	Pending	N/A	N/A	$4,763,906	Located in west-central Assumption Parish, Lake Verret accumulates sediment in its shallow areas. The proposed project will use a hydraulic dredge to remove material that will be used beneficially. The project objective is to remove accumulated sediment from Lake Verret and improve the condition of 40 acres of deteriorating lake rim and adjacent swamp habitat.	3a
CIAP	AT-08	Bayou Amy Boat Launch and Educational Pavilion	PA	MMS	22	46	StMt.	N/A	Pending	N/A	N/A	$390,000	This project located in St. Martin Parish will construct an open-air pavilion and a 1,235 foot long nature trail adjacent to an existing wilderness canoe trail. This project will serve as a gateway to the Atchafalaya Basin providing public access, information and educational opportunities. It will ultimately tie into Lake Fausse Point State Park.	3b
CIAP	AT-10	Beau Bayou Water Quality and Sediment Reduction	HR SNT	MMS	22	46	StMt.	23,000	Pending	N/A	N/A	$3,717,376	This project consists of a combination of multiple actions including dredging, gapping and creating inline-sediment traps in and adjacent to Beau Bayou in St. Martin Parish. This will correct existing sediment overload and lack of oxygen (hypoxia) improving fisheries habitat as well as the overall health of the system.	3b
CIAP	TV-37	Burns Point Recreation Park Improvements	SP	MMS	21	50	StM.	N/A	Pending	N/A	N/A	$1,010,000	This project in St. Mary Parish at the Burns Point Recreation Park adjacent to East Cote Blanche Bay, will provide a 600 foot sheet bulkhead and walkway along the park's shoreline. This will stop the rapid erosion that is occurring at the park's shoreline and provide access for inspection.	3b
CIAP	TV-27	CIAP Vegetative Plantings	VP	MMS	22	49	Ibe.	N/A	Pending	N/A	N/A	$235,074	This project will conduct annual vegetative plantings along approximately 102,000 linear feet of the shorelines of Vermilion Bay, and other areas, that have proven to be sites where plantings might help establish and solidify the shoreline.	3b
CIAP	TV-43	Chenier au Tigre Cement Bag Extension	SP	MMS	26	47	Ver.	N/A	Pending	N/A	N/A	$200,000	This project will install 1,000 feet of cement bags as a breakwater at Chenier au Tigre in Vermilion Parish to slow erosion.	3b
CIAP	AT-07	Deer Island Pass Realignment	DM HR MC	MMS	21	51	StM.	50	Pending	N/A	N/A	$2,767,917	Located in St. Mary Parish, this project near the mouth of Deer Island Bayou will dredge a 5,280 foot long, 280 foot wide channel to improve water and sediment flow into northeast Atchafalya Bay. The dredged material will be beneficially used to reduce shoreline erosion and to create about 30 acres of marsh.	3b

Program	State Project Number (Federal)	Project Name	Project Type	Agency/Sponsor	Senate District	House District	Parish	Acres Benefited	Construction Completion Date	Feasibility Cost	Engineering, Design, & Landrights Cost	Construction Cost	Project Summary	Planning Unit
CIAP	TV-47	Four Mile Canal Hydrologic Restoration	HR	MMS	26	49	Ver.	N/A	Pending	N/A	N/A	$401,430	This project will design a rock plug with a barge bay that will reduce the cross section of the Four Mile Canal to the needed navigation width and depth and help move fresh water through Onion Bayou, the Vermilion River, Schooner Bayou, and Bayou Chene. This project will begin to restore the historic hydrologic flows that existed prior to the boat wake induced erosion that has occurred along Four Mile Canal.	3b
CIAP	TV-46	Henry Hub Access Improvements - Charlie Field Road Bridge Replacement	INF	MMS	26	49	Ver.	N/A	Pending	N/A	N/A	$375,000	This project will replace an existing three span timber bridge with a four span concrete deck bridge for the Charlie Field Road Bridge across a tributary of Bayou Tigre. The bridge is located approximately 2,300 feet south of LA Hwy. 14, in eastern Vermilion Parish.	3b
CIAP	TV-50	Henry Hub Access Improvements - Charlie Field Road Improvements	INF	MMS	26	49	Ver.	N/A	Pending	N/A	N/A	$629,270	This project provides for the widening and reconstruction of Charlie Field Road, a vital link between LA 14 and the Henry Hub, from LA Hwy. 14 to LA Hwy. 331 in eastern Vermilion Parish. The project will widen the existing 18-foot wide roadway to a 20-foot surface for approximately 4,100 feet to provide room for the truck traffic to utilize this stretch of the roadway to access the Henry Hub.	3b
CIAP	TV-44	Henry Hub Acess Improvements - Highway 331 Realignment	INF	MMS	26	49	Ver.	N/A	Pending	N/A	N/A	$275,000	This project will realign approximately 2,000 linear feet of LA Hwy. 331, at a location approximately 3 miles south of LA Hwy.14. This segment of the roadway has a reverse curve that represents a safety hazard for traffic traveling this highway to the Henry Hub.	3b
CIAP	TV-48	Hydrologic Restoration at Little Bayou Chene	HR	MMS	26	47	Ver.	N/A	Pending	N/A	N/A	$500,000	This project is located along the eastern edge of the GIWW at the location of Bayou Chene at the entrance to Little Vermilion Bay. This project will design a rock plug with a barge bay to reduce the cross section of Bayou Chene by approximately 80%, to the depth and width required for navigation interests. Appropriate navigation lighting or signage will be included in the project as required by the U.S. Coast Guard.	3b
CIAP	TV-49	Intracoastal City Street Improvements	INF	MMS	26	47	Ver.	N/A	Pending	N/A	N/A	$525,550	This project provides for the reconstruction of several roadways in the Intracoastal City area to mitigate the damage caused by heavy oilfield support truck traffic over the years. The streets to be improved are as follows: Offshore Road (4,700 linear feet), M. I. Liquid Road (850 linear feet), Barge Road (1,450 linear feet), Teal Road (1,200 linear feet).	3b
CIAP	TV-32	Lake Sand Terracing	MC SP	MMS	22	49	Ibe.	34	Pending	N/A	N/A	$936,342	The project is located in Iberia Parish on the Marsh Island State Wildlife Refuge, and will construct approximately 55 acres of shallow bay bottom terraces planted with native vegetation. The construction of the terraces will result in the direct creation of 34 acres of marsh and it is anticipated that construction of the terraces will result in a 50% reduction in the erosion of the neighboring shoreline.	3b
CIAP	TV-33	Lake Tom/Lake Michael Terracing	MC SP	MMS	22	49	Ibe.	55	Pending	N/A	N/A	$936,342	The project is located in Iberia Parish on the Marsh Island State Wildlife Refuge, and will construct approximately 55 acres of shallow bay bottom terraces planted with native vegetation. The construction of the terraces will result in the direct creation of 55 acres of marsh and it is anticipated that construction of the terraces will result in a 50% reduction in the erosion of the neighboring shoreline.	3b
CIAP	TV-51	Oyster Reef Parallel to Cheniere au Tigre	SP	MMS	26	47	Ver.	N/A	Pending	N/A	N/A	$1,438,984	This project will create a one mile oyster reef 1,300 feet from shore by using approved available materials. Oyster spat are plentiful in this area; therefore, creating this base will establish a living sustainable reef. This project will reduce th shoreline loss rate by half. It will slow down wave energy, attract fish and shellfish habitat, slow coastal erosion, and increase recreational fishing opportunities.	3b
CIAP	TV-36	Planning Assistance and Administration (St. Mary Parish)	PL	MMS	21	50	StM.	N/A	Pending	N/A	$25,000	N/A	This project will provide necessary financial assistance to St. Mary Parish Government to manage and implement the CIAP program.	3b

Program	State Project Number (Federal)	Project Name	Project Type	Agency/Sponsor	Senate District	House District	Parish	Acres Benefited	Construction Completion Date	Feasibility Cost	Engineering, Design, & Landrights Cost	Construction Cost	Project Summary	Planning Unit
CIAP	AT-06	Point Chevreuil Shoreline Protection	MC SP	MMS	21	50	StM.	25	Pending	N/A	N/A	$1,860,165	The project is located in Region 3, Atchafalaya River Basin, St. Mary Parish, along the southeastern shoreline of East Cote Blanche Bay, around Point Chevreuil and the northwestern shoreline of Atchafalaya Bay. The eroding shoreline was caused by the open water fetch and resulting wave energy from East Cote Blanche and Atchafalaya Bays. Project features will protect the natural ridge functions of the Bayou Sale Ridge and protect the adjacent marshes.	3b
CIAP	TV-39	Prien Point Reef Extension	SP	MMS	26	47	Ver.	N/A	Pending	N/A	N/A	$100,000	This project consists of creating approximately 5,000 linear feet of oyster reef by the Louisiana Wetlands Association along the Redfish Point shoreline in Vermilion Bay, using clean graded recycled materials. These reefs will afford the shoreline more protection and improve fish and shellfish habitat within the Acadiana Bays region.	3b
CIAP	TV-45	Shoreline Protection and Marsh Creation at Tiger Point	SP	MMS	26	47	Ver.	N/A	Pending	N/A	N/A	$300,000	This project will install 1,500 feet of cement bags at Tiger Point in Vermilion Parish to slow erosion rates by half.	3b
CIAP	TV-41	Shoreline Protection on Southwest Point at Southwest Pass	SP	MMS	26	47	Ver.	N/A	Pending	N/A	N/A	$117,782	This project is located in Vermilion Parish. The goal of the project is to armor the shoreline via 8,759 linear feet of onshore revetment for the south shoreline of Vermilion Bay at Southwest Point. The funds allocated in the current project would be used to initiate surveying, geotechnical investigation, engineering, design and permit development so that when additional funds become available this project will be able to proceed to construction in a more-timely manner.	3b
CIAP	AT-09	Stephensville Wastewater Assimilation and Facility Restoration	MM	MMS	21	50	StMt.	5	Pending	N/A	N/A	$2,200,002	This project will include an upgrade of the existing wastewater treatment plant infrastructure and construction of a discharge structure and piping system into the adjacent wetlands for wetland assimilation. Stephensville's wastewater facility is located in Stephensville along Bayou Milhomme in Lower St. Martin Parish.	3b
CIAP	TV-38	Thorguson Road Improvements	INF	MMS	21	50	StM.	N/A	Pending	N/A	N/A	$1,156,990	The project is located in Berwick and extends to Morgan City in St. Mary Parish. This project will upgrade Thorguson Road from Hwy 90 to the River Road, as a result it, the project will increase capacity, and improve safety and efficiency during normal operations. The road improvement feature includes the widening of the existing road. The preliminary project benefit is to provide improved traffic flow and safety while increasing roadway access to the industrial and commercial facilities located in Berwick, Louisiana.	3b
CIAP	TV-35	Vermilion Bay Shoreline Restoration	SNT SP	MMS	22	49	Ibe.	132	Pending	N/A	N/A	$4,779,041	The project is located along the Vermilion Bay Shoreline south of Tigre Lagoon; it will establish approx. 8,300 linear feet of shoreline using the wave dampening structure determined to be most feasible. These structures will also allow for sediment trapping and accretion.	3b
CIAP	TV-40	Vermilion Parish CZM Planning and Development	PL	MMS	26	47	Ver.	N/A	Pending	N/A	$100,000	N/A	Funds will be available to assist Vermilion Parish in improvements to the Coastal Zone Management plan for the parish.	3b
CIAP	TV-24	Weeks Bay/Commercial Canal Marsh Creation and Shoreline Protection	MC SNT	MMS	22	49	Ibe. Ver.	N/A	Pending	N/A	N/A	$200,000	Feasibility Study of methods of marsh creation to build landmass and create vegetated wetlands. Project will evaluate various methods to create a sediment deposition field and protect the existing shoreline. This will enhance natural processes to create landmass between Weeks Bay and the GIWW and protect it.	3b
CIAP	CS-48	Bank Stabilization: Dugas Cut to Kelso Bayou	SP	MMS	25	47	Cam.	N/A	Pending	N/A	N/A	$580,000	This project will provide the engineering and design in order to continue the construction of approximately two miles of rip-rap dike from Dugas Landing to Kelso Bayou and reclaim eroded channel bank utilizing spoil material from dredging activities when more funding becomes available to the parish.	4
CIAP	CS-38	Black Lake Ecosystem Restoration	DM MC	MMS	25	47	Cal.	650	Pending	N/A	N/A	$1,339,805	Creation of approxiametly 200 acres marsh through beneficial use of dredged material from the Calcasieu Ship Channel.	4

Program	State Project Number (Federal)	Project Name	Project Type	Agency/Sponsor	Senate District	House District	Parish	Acres Benefited	Construction Completion Date	Feasibility Cost	Engineering, Design, & Landrights Cost	Construction Cost	Project Summary	Planning Unit
CIAP	CS-52	CIAP - Clear Marais Bank Protection	SP	MMS	30	36	Cal.	N/A	Pending	N/A	N/A	$2,000,000	The project is located north of the Gulf Intracoastal Waterway (GIWW) approximately 10 miles northwest of Hackberry in Calcasieu Parish, Louisiana. Th goal of this project is to extend the rock armored shoreline stabilization by one mil adjacent to the GIWW to prevent continued erosion of the GIWW levee and to prevent the encroachment of the GIWW into the marshes north.	4
CIAP	CS-50	East Little Pecan Bayou Restoration	HR	MMS	26	47	Cam.	1,500	Pending	N/A	N/A	$891,494	This project is located along Little Pecan Bayou in the south central portion of Cameron Parish. Project features include the installation of one bulkhead with four 48 inch water control structures at the location of an existing plug. The objective of the proposed project is to repair the water control structures so that pre-Hurricane Rita salinity and water levels can be restored to approximately 1,500 acres of marsh.	4
CIAP	CS-41	Horseshoe Lake Marsh Restoration	HR SP	MMS	30	33	Cal.	1,200	Pending	N/A	N/A	$2,000,000	The project is a 1,200 acre marsh restoration/protection project located in Calcasieu Parish, Louisiana, approximately 3.0 miles northwest of Hackberry. This project proposes four different components: 1. Two water control structures; 2. Four miles of new levee construction; 3. Repair of 1 mile of existing levee on the eastern and western boundaries; and 4. Placement of approximately four miles of rip rap rock dike along the Gulf Intracoastal Waterway (GIWW).	4
CIAP	ME-28	Mermentau Ship Channel Sediment By-Pass	SP	MMS	25	47	Cam.	100	Pending	N/A	N/A	$1,387,688	The project proposes to rebuild 75 to 100 acres of gulf shoreline at Hackberry Beach by moving sediment from the east side of the Mermentau Pass to the west via a hydraulic dredge. The project area is located along the Gulf of Mexico shoreline at the mouth of the Mermentau Ship Channel, south of Grand Chenier.	4
CIAP	ME-30	North Mermentau Restoration	HR SP	MMS	25	47	Cam.	10,000	Pending	N/A	N/A	$3,802,000	This project will replace 12 existing water control structures that are not currently functioning as designed and also refurbish 1.5 miles of adjacent levees. Cameron Parish will purchase the structures that will be installed by the local gravity drainage district. The objective is to restore the pre-Hurricane Rita salinity and water levels to approximately 10,000 acres of marsh.	4
CIAP	CS-44	Rabbit Island	DM MC SP	MMS	25	47	Cal. Cam.	200	Pending	N/A	N/A	$2,000,000	The project is located in the Calcasieu-Sabine Basin, in the West Cove of Calcasieu Lake. The goal of the project is to restore approximately 200 acres of pelican nesting and marsh habitat to Rabbit Island by adding sediment, through the beneficial use of sediment dredged from the Calcasieu Ship Channel, and 2,500 linear feet of small limestone shoreline protection to the west corner of Rabbit Island.	4
CIAP	CS-36	Shoreline Protection at Intracoastal Park	SP	MMS	27	36	Cal.	3	Pending	N/A	N/A	$1,000,000	This is a two phase project that is located on the south side of the Gulf Intracoastal Waterway at LA Highway 27 south. The goal of the project is to restore the existing rock shoreline protection and stabilization for approximately 1,000 feet by placing cellular concrete block revetment along the existing shoreline.	4
CIAP	CS-37	South GIWW Restoration	HR SP	MMS	30	36	Cal.	2,500	Pending	N/A	N/A	$649,535	This project features include the relocation of two existing water control structures (48 inch culverts) that are currently not functioning as designed; the installation of a new water control structure (two 36 inch culverts); and the refurbishment of three miles of adjacent levees.	4
CIAP	ME-27	South Little Pecan Bayou Restoration	HR SP	MMS	25	47	Cam.	24,600	Pending	N/A	N/A	$801,308	This proposal refers to the Chenier Plain portion of Coast 2050, Region 4, Little Pecan mapping unit. Project features include the replacement of three existing water control structures (three 4 inch culverts) that are currently not functioning as designed, one new water control structure (that includes three 48 inch culverts), and the refurbishment of portions of three miles of existing levees (adding in some locations 2 feet of material to return the levees to +3 feet NAVD).	4

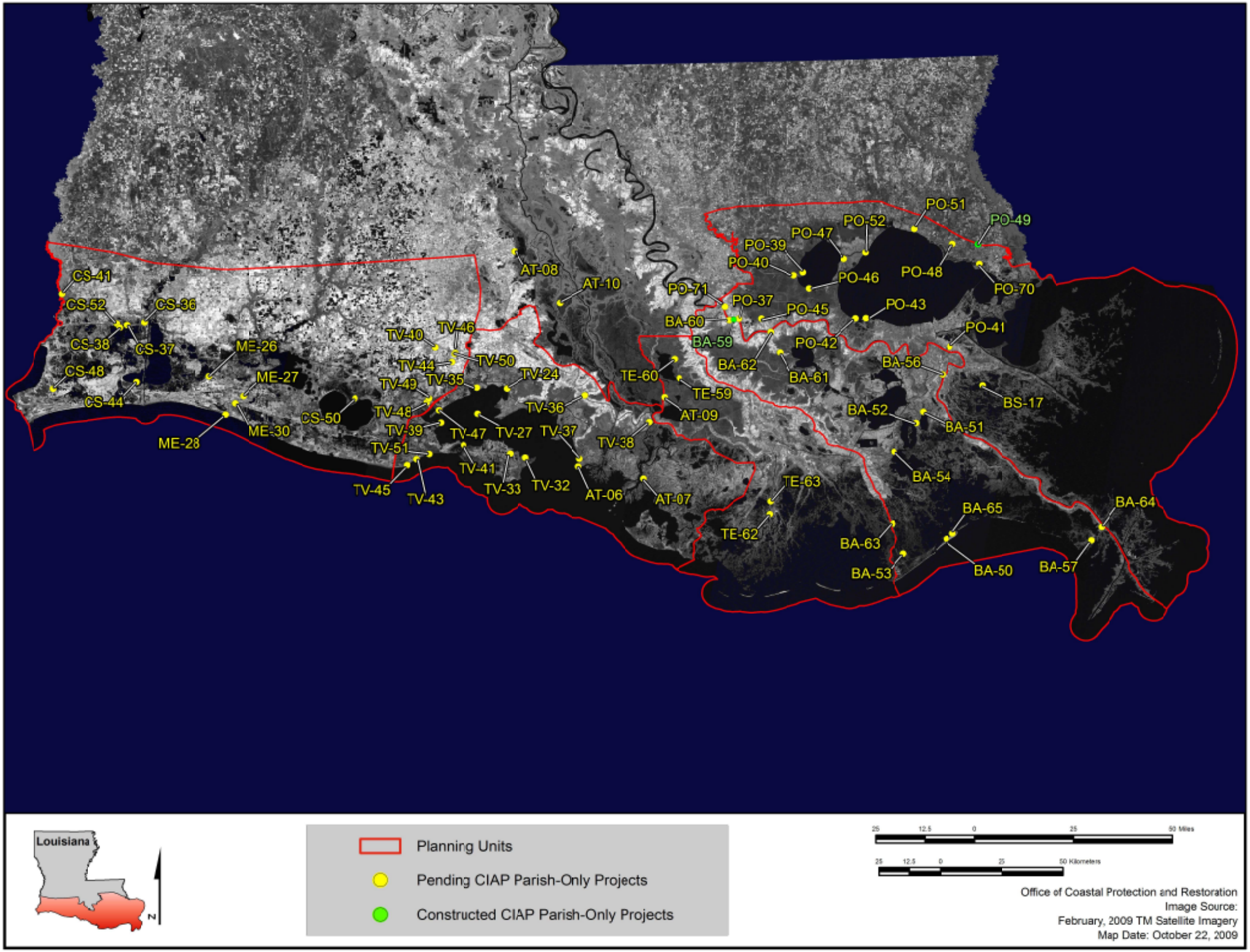
Program	State Project Number (Federal)	Project Name	Project Type	Agency/Sponsor	Senate District	House District	Parish	Acres Benefited	Construction Completion Date	Feasibility Cost	Engineering, Design, & Landrights Cost	Construction Cost	Project Summary	Planning Unit
CIAP	ME-26	West Big Burn Bridge Restoration	HR	MMS	25	47	Cam.	10,000	Pending	N/A	N/A	$1,180,000	This proposal refers to the Chenier Plain portion of Coast 2050, Region 4, Big Burn mapping unit. Project features include the replacement of one existing water control structure (three 8-foot bays) that is currently not functioning as designed.	4

Program: CIAP= Coastal Impact Assistance Program projects

Project Type: BI=Barrier Island; DM=Beneficial Use of Dredged Material; FD=Freshwater Diversion; HP=Hurricane Protection; HR=Hydrologic Restoration; INF=Infrastructure; LA=Land Acquisition; MC=Marsh Creation; MM=Marsh Management; OM=Outfall Management; PA=Public Access; PL=Planning; SD=Sediment Diversion; SNT=Sediment and Nutrient Trapping; SP=Shoreline Protection; VP=Vegetation Planting.

Agency/Sponsor: MMS=Minerals Management Service.

Parish: Asc.=Ascension, Asu.=Assumption, Cal.=Calcasieu, Cam.=Cameron, Ibe.=Iberia, Jef.=Jefferson, Laf.=Lafourche, Liv.=Livingston, Orl.=Orleans, StC.=St. Charles, StJa.=St. James, StJo.=St. John the Baptist, StM.=St. Mary, StMt.=St. Martin, StT.=St.Tammany, Tan.=Tangipahoa, Ter.=Terrebonne, Plaq.=Plaquemines, Ver.=Vermilion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Louisiana
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Planning Units
Pending CIAP Parish-Only Projects
Constructed CIAP Parish-Only Projects
25 12.5 0 25 50 Miles
25 12.5 0 25 50 Kilometers
Office of Coastal Protection and Restoration
Image Source:
February, 2009 TM Satellite Imagery
Map Date: October 22, 2009

Program	State Project Number	Project Name	Project Type	Agency/Sponsor	Parish	Construction Cost	Project Summary	Planning Unit
HSDRRS	BA-67	New Orleans to Venice	HP	USACE	Plaq.	$627,083,000	The project straddles the Mississippi River in Plaquemines Parish. On the east bank, the project extends 16 miles on the back levee from Phoenix (located 28 miles southeast of New Orleans) down to Bohemia, Louisiana. On the west bank it extends 34 miles from St. Jude (located 39 miles southeast of New Orleans) to Venice, Louisiana, on the back levee and on the mainline levee. (Mainline levees typically run parallel to the channel, and back levees, or "setback" levees, usually serve as a backup to an existing levee that has become endangered due to such actions as river migration or erosion.)	1, 2
HSDRRS	BA-74	Storm-Proofing of Interior Pumping Stations-Jefferson & Orleans Parish	HP	USACE	Jef. Orl.	$275,869,100	Addition of features to stormproof interior pump stations in Orleans and Jefferson Parish.	1
HSDRRS	PO-57	Southeast Louisiana Urban Flood Control Project (SELA)	HP	USACE	Jef. Orl. StT.	$744,000,000	The purpose of the project is to reduce damages due to rainfall flooding in Orleans, Jefferson, and St. Tammany Parishes. In Jefferson Parish, 41 contracts have been awarded to date, with 31 completed. In Orleans Parish, nine contracts have been awarded, with eight having been completed. Overall, the currently scheduled work in Orleans and Jefferson Parishes is about 60 percent complete and should be finished in 2016, if funding is made available. The St. Tammany work is still unscheduled. The Corps is working with the parish administration to complete a study of the W-14 watershed in Slidell and to develop a plan for a parish-wide study.	1
HSDRRS	PO-60	Permanent Closure of Canals and Pumps	HP	USACE	Jef. Orl.	$804,000,000	The proposed action consists of a new permanent pump station and closure (i.e. gates) at or near the mouth of each of the outfall canals operating in series with the existing Sewerage and Water Board of New Orleans (SWBNO) pump stations (PS). The pumping capacity at 17th Street would fall between the range of 10,500 and 12,500 cfs. The pumping capacity at Orleans Avenue would be 2,700 cfs. The pumping capacity at London Avenue would fall between the range of 8,000 and 9,000 cfs. Under normal conditions, the flow from the canals would discharge through open gates directly into Lake Pontchartrain without having to operate the new pumping station. During those events where the combination of storm surge from Lake Pontchartrain and flow from the existing SWBNO pump stations could create a condition where the safe water elevation in the canals is exceeded, the gates would be closed and the new pump stations operated.	1
HSDRRS	PO-62	West Shore Lake Ponchartrain	HP	USACE	Asc. StJa. StJo.	$250,000,000	This project is in the Feasibility Study Phase. A public Scoping meeting was held in January of 2009 and data collection began in the summer of 2009. The project is expected to provide hurricane protection to existing development in the LaPlace-Reserve-Garyville area and allow for projected future development. Protection will be provided from the West Guide Levee of the Bonnet Carre Floodway westward to the Hope Canal in the Garyville community, and will include protection of portions of I-10, I-55 and U.S. 51, designated hurricane evacuation routes for this area and the New Orleans Metropolitan area.	1

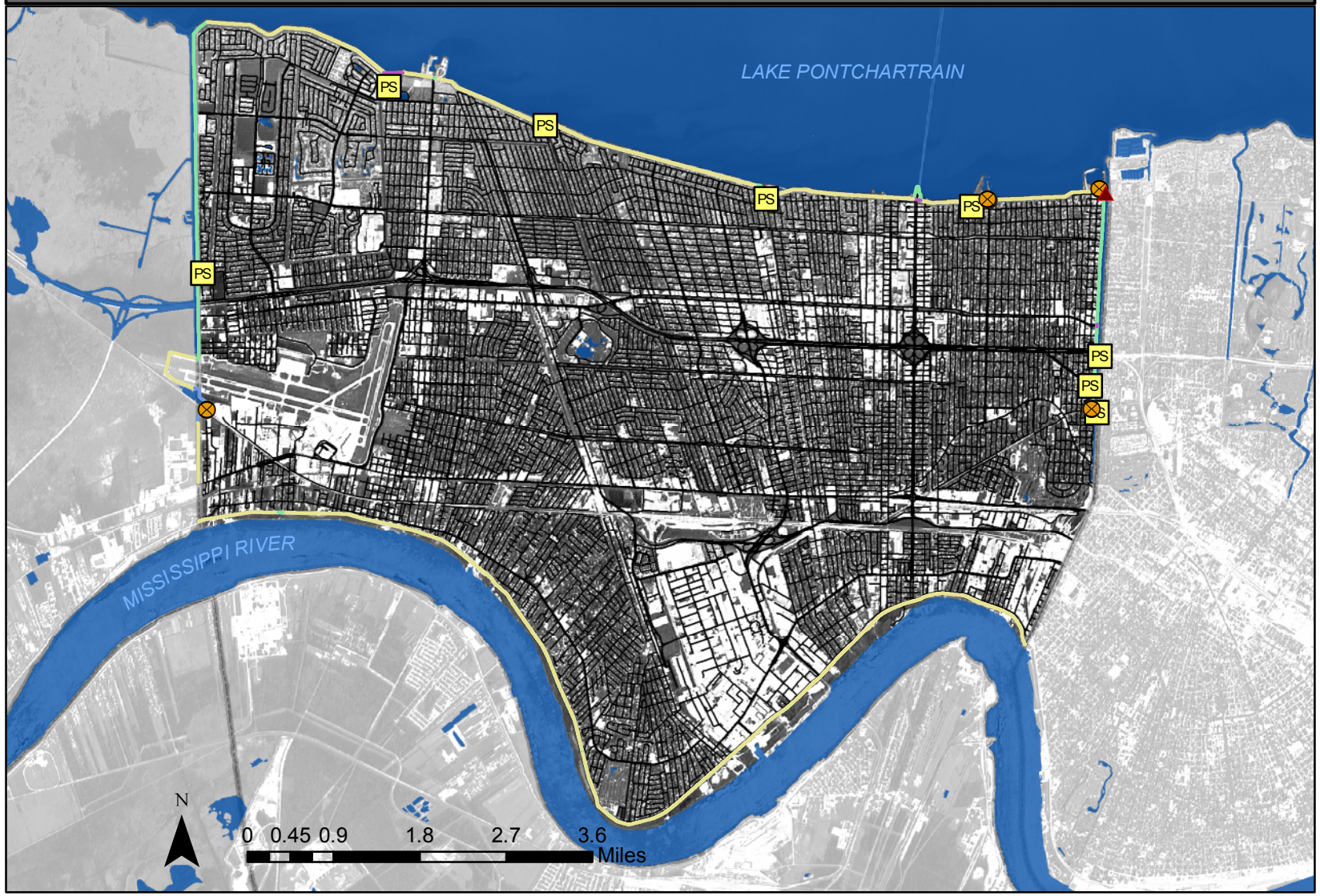
Program: HSDRRS=Hurricane Storm Damage Risk Reduction System.

Agency/Sponsor: USACE=U.S. Army Corps of Engineers.

Parish: Asc.=Ascension, Jef.=Jefferson, Orl.=Orleans, StJa.=St. James, StJo.=St. John the Baptist, Plaq.=Plaquemines, StT.=St. Tammany.

Project Type: HP=Hurricane Protection.

EAST JEFFERSON LEVEE DISTRICT LEVEE ALIGNMENTS & STRUCTURES



Legend

Levee Construction Type

- Earthen Levee
- I-Wall
- Sheet Pile
- Control Structure
- Control Structure
- Flood Gate
- Pump Station
- Water Bodies

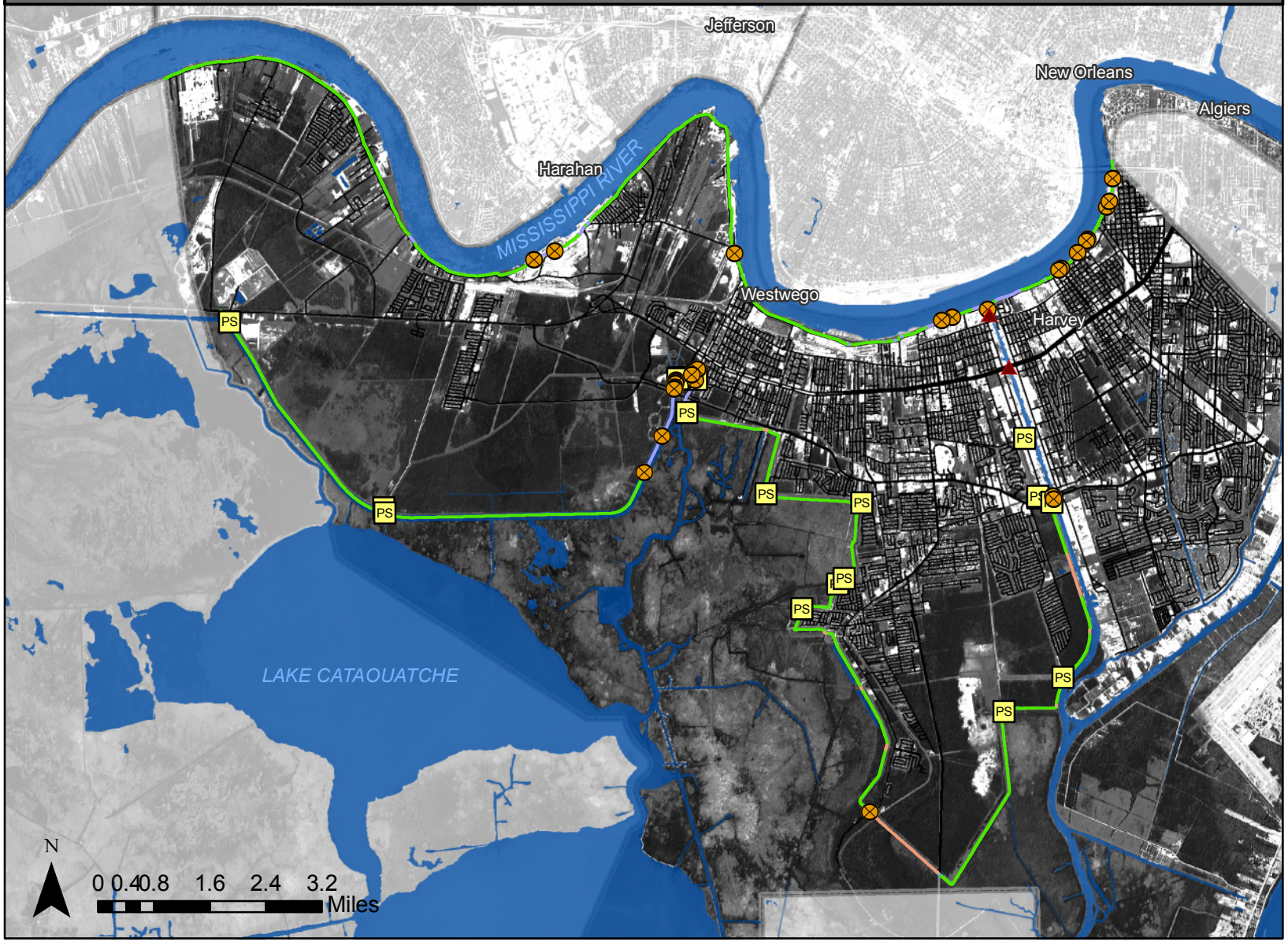
Map by: Louisiana Office of Coastal Protection & Restoration

Date: April 28, 2009

Imagery: 2000 SPOT

Data Sources:
USACE
LA OCPR

WEST JEFFERSON LEVEE DISTRICT LEVEE ALIGNMENTS & STRUCTURES



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Levee construction type

- Earthen Levee
- I-Wall
- Sheet Pile
- Control Structure
- Control Structure
- Flood Gate
- Pump Station
- Water Bodies

Map by: Louisiana Office of Coastal Protection & Restoration

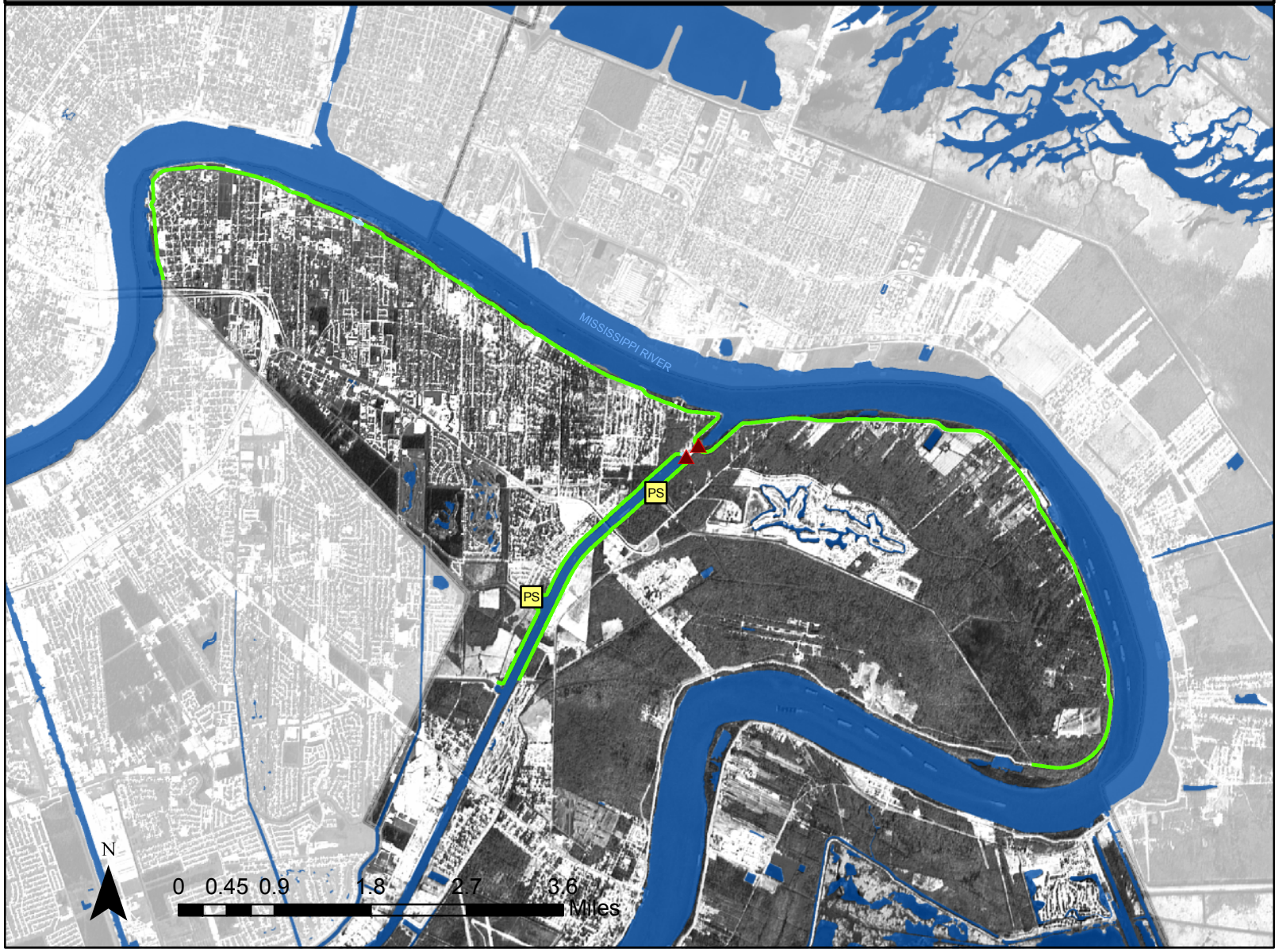
Date: April 28, 2009

Imagery: 2000 SPOT

Data Sources:
USACE
LA OCPR

CPRA
Coastal Protection and Restoration Authority of Louisiana

ALGIERS LEVEE DISTRICT LEVEE ALIGNMENTS & STRUCTURES



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Levee Construction Type

- Earthen Levee
- I-Wall
- Control Structure
- Control Struture
- PS Pump Station
- Water Bodies

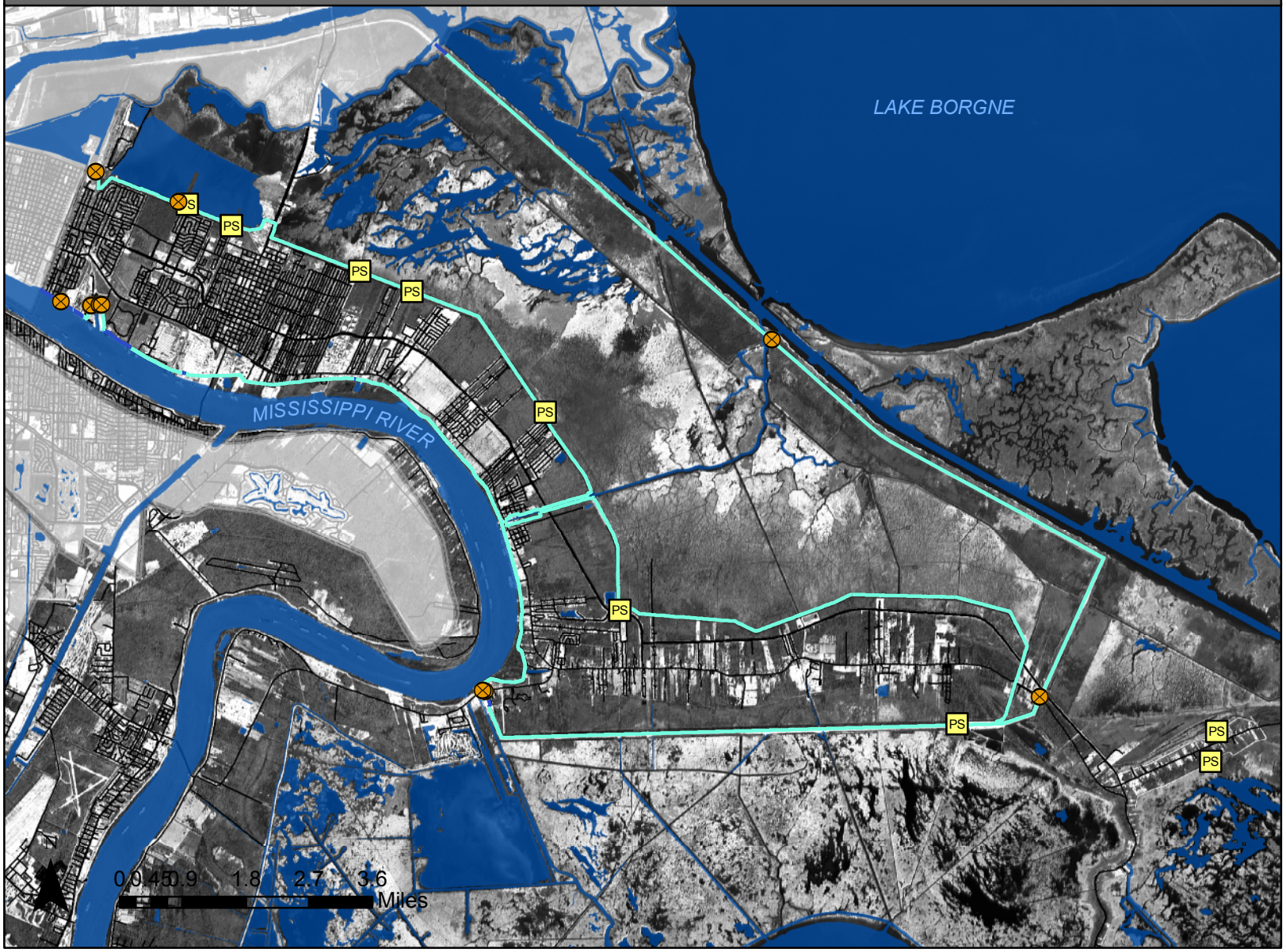
Map by: Louisiana Office of Coastal Protection & Restoration

Date: April 28, 2009

Imagery: 2000 SPOT

Data Sources:
USACE
LA OCPR

LAKE BORGNE BASIN LEVEE DISTRICT LEVEE ALIGNMENTS & STRUCTURES



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Levee Construction Type

- Earthen Levee
- I-wall
- Control Structure
- Flood Gate
- Pump Station
- Water Bodies

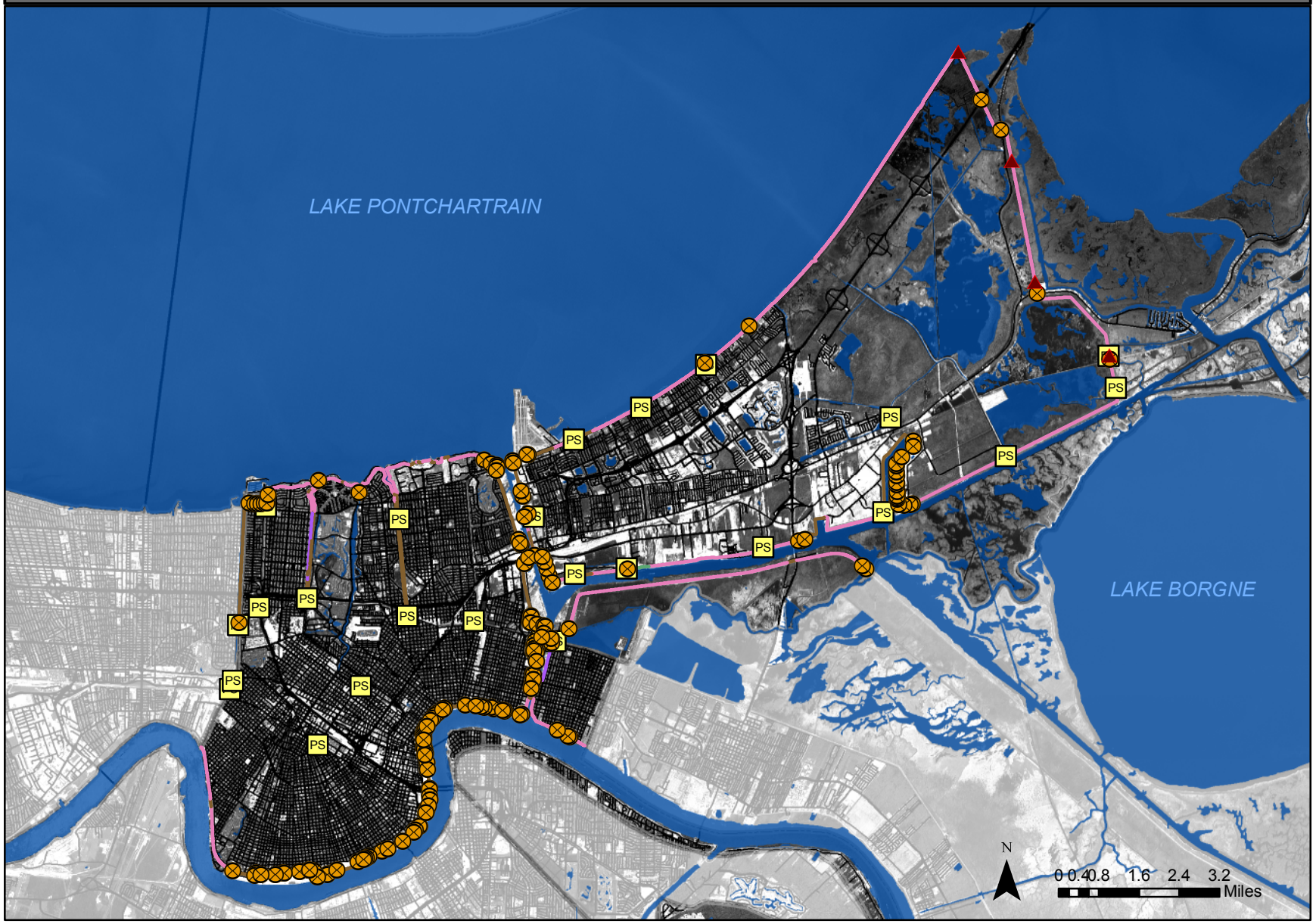
Map by: Louisiana Office of Coastal Protection & Restoration

Date: April 28, 2009

Imagery: 2000 SPOT

Data Sources:
USACE
LA OCPR

ORLEANS LEVEE DISTRICT LEVEE ALIGNMENTS & STRUCTURES



Legend

- Earthen Levee
- I-Wall
- T-Wall
- L-Wall
- Sheet Pile
- Control Stucture
- Flood Gate
- Pump Station
- Water Bodies

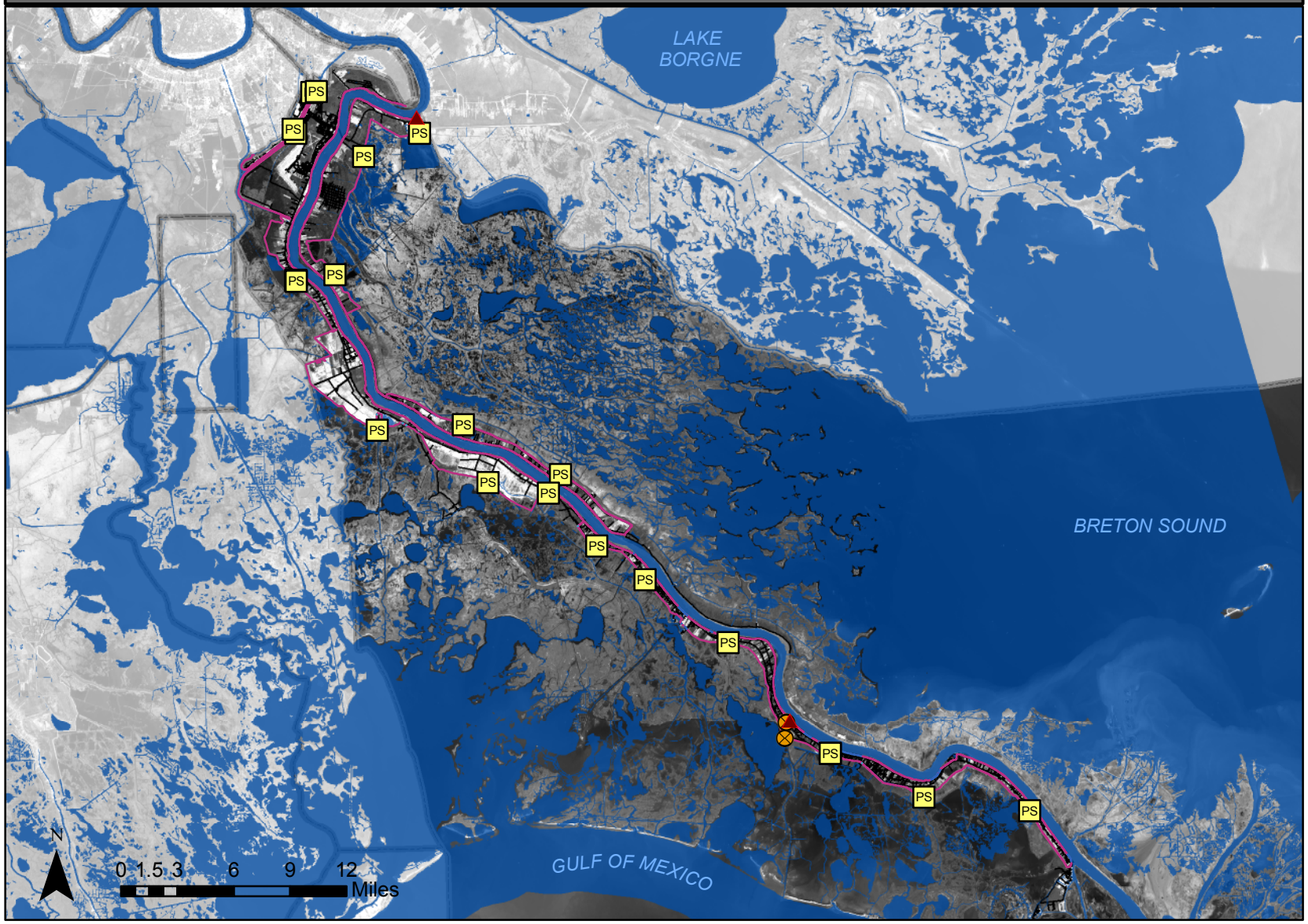
Map by: Louisiana Office of Coastal Protection & Restoration

Date: April 28, 2009

Imagery: 2000 SPOT

Data Sources:
USACE
LA OCPR

PLAQUEMINES PARISH GOVERNMENT LEVEE ALIGNMENTS & STRUCTURES



Legend

Levee Construction Type

- Control Structure
- Earthen Levee
- I-Wall
- L-Wall
- Sheet Pile
- Structure Gap
- T-Wall
- Control Structure
- Flood Gate
- Pump Station
- Water Bodies

CPRA
Coastal Protection and Restoration Authority of Louisiana

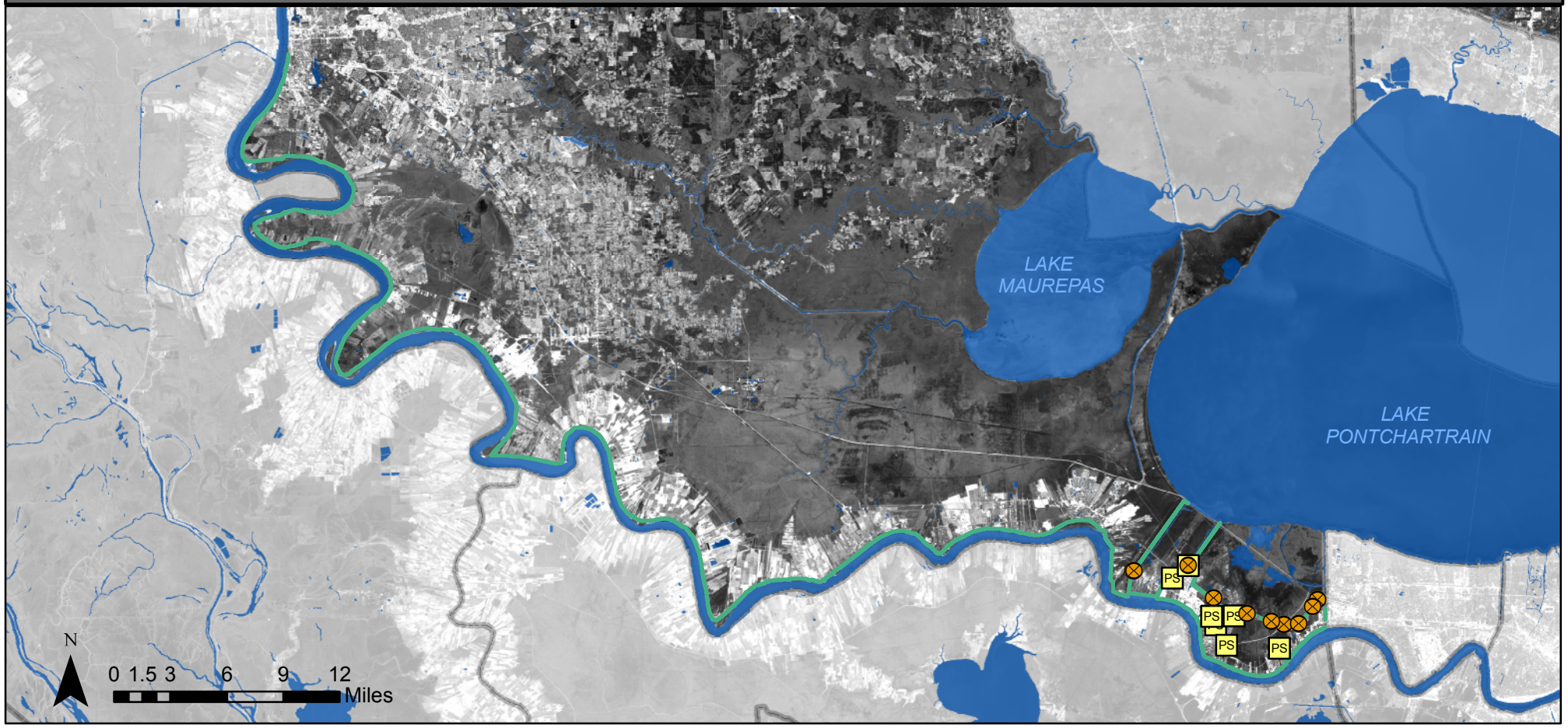
Map by: Louisiana Office of Coastal Protection & Restoration

Date: April 28, 2009

Imagery: 2000 SPOT

Data Sources:
USACE
LA OCPR

PONTCHARTRAIN LEVEE DISTRICT LEVEE ALIGNMENTS & STRUCTURES



Map by: Louisiana Office of Coastal Protection & Restoration

Date: April 28, 2009

Imagery: 2000 SPOT

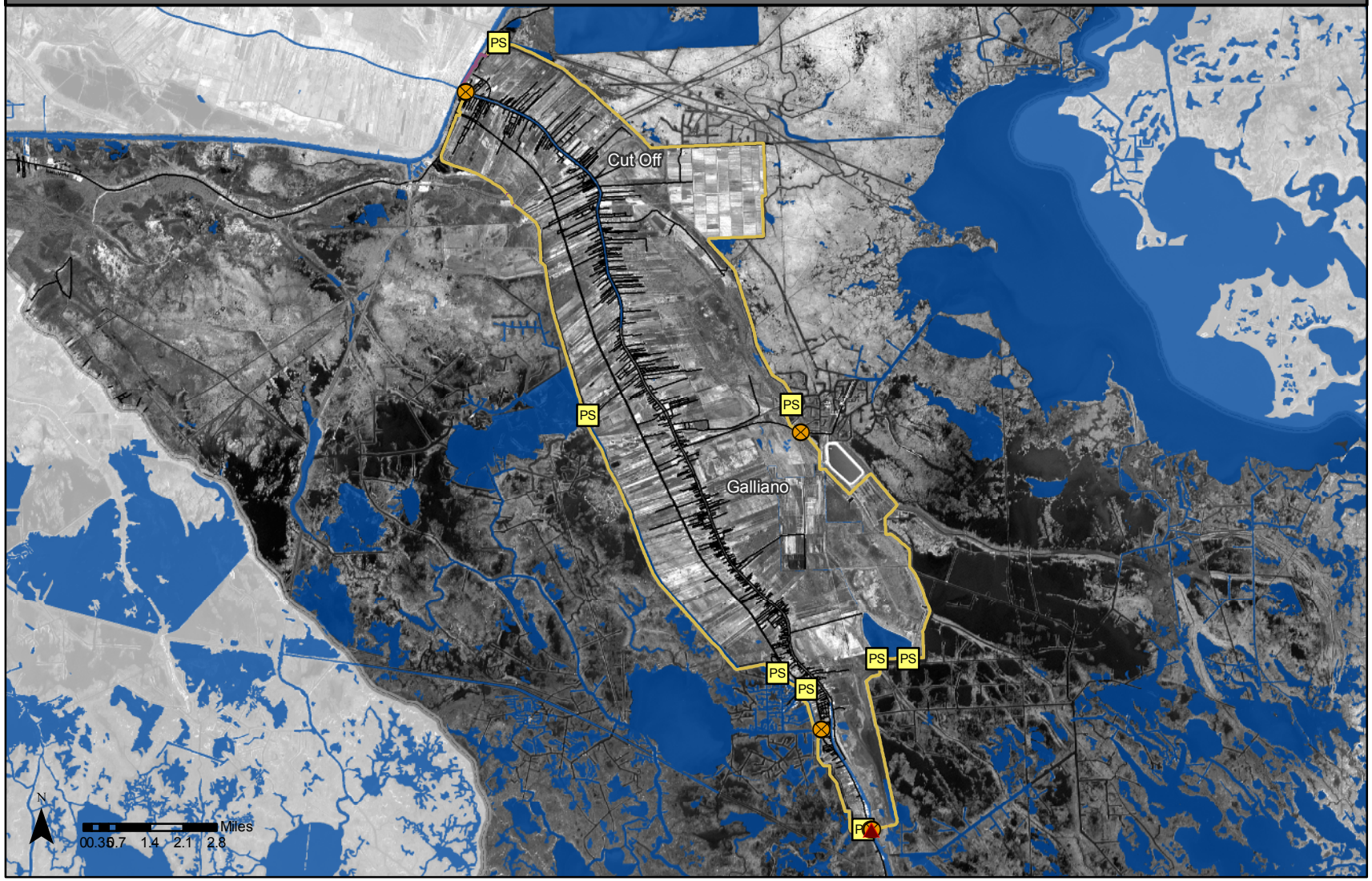
Data Sources:
USACE
LA OCPR

Legend

Levee Construction Type

- Control Structure
- Earthen Levee
- I-Wall
- L-Wall
- Sheet Pile
- Structure Gap
- T-Wall
- Flood Gate
- Pump Station
- Water Bodies

SOUTH LAFOURCHE LEVEE DISTRICT LEVEE ALIGNMENTS & STRUCTURES



Legend

Levee construction types

- Earthen Levee
- I-Wall
- Sheet Pile
- Control Structure
- Flood Gate
- Pump Station
- Water Bodies

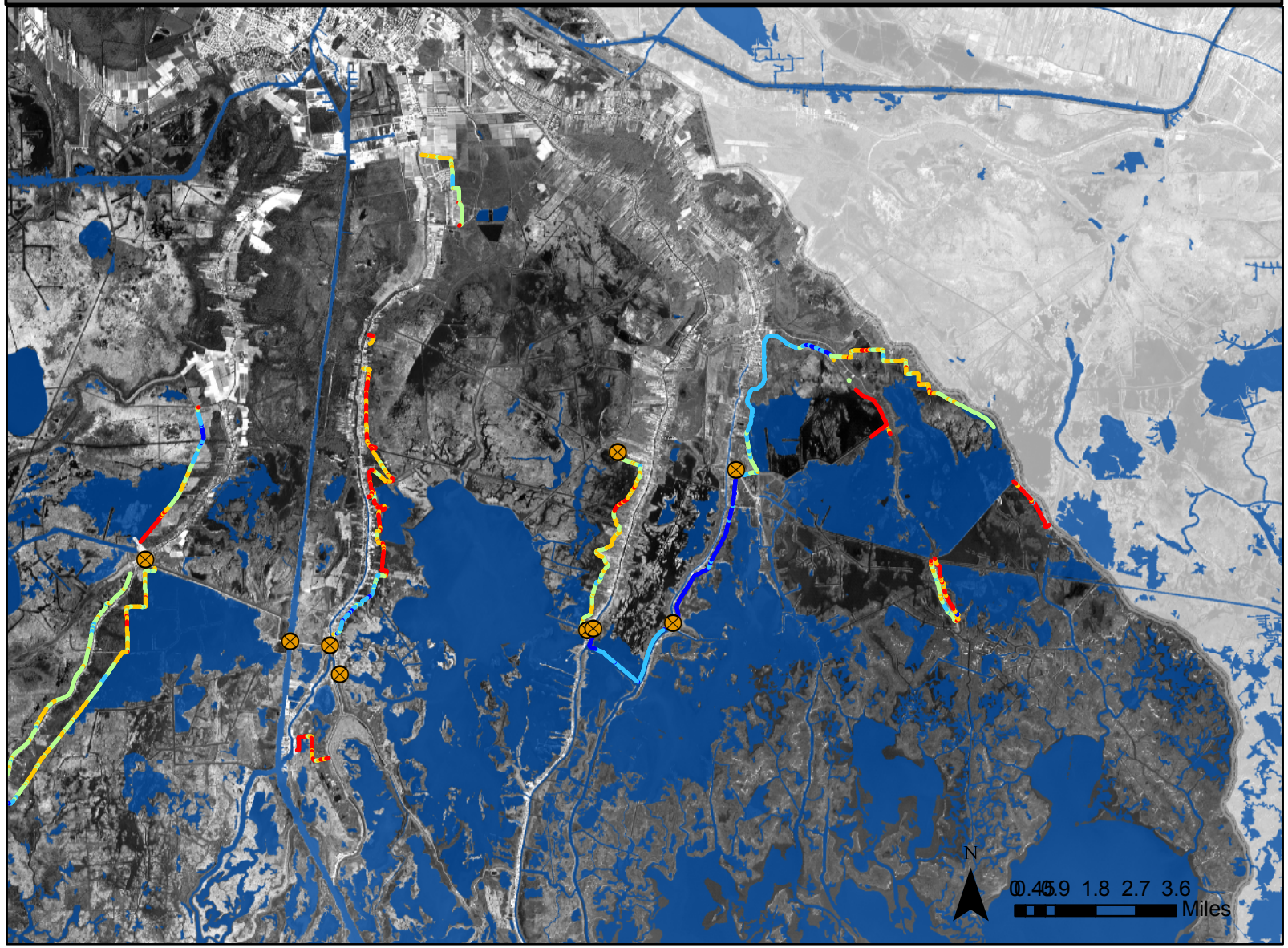
Map by: Louisiana Office of Coastal Protection & Restoration

Date: April 28, 2009

Imagery: 2000 SPOT

Data Sources:
USACE
LA OCPR

TERREBONNE LEVEE & CONSERVATION DISTRICT LEVEE ELEVATIONS & STRUCTURES



Legend

Elevation (Ft)

- 2.44 - 5.51
- 5.52 - 6.81
- 6.82 - 8.25
- 8.26 - 9.96
- 9.97 - 12.67
- Flood Gate
- Water Bodies

Map by: Louisiana Office of Coastal Protection & Restoration

Date: April 28, 2009

Imagery: 2000 SPOT

Data Sources:
USACE
LA OCPR

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Appendix D

Three-Year Spending Projections

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Table D-1. Coastal Impact Assistance Program (CIAP) Projected Expenditures[1]

Project ID	Project Name	FY 2011	FY 2012	FY 2013	Project Total (FY 2011- FY 2013)
Restoration Projects					
BA-43 (EB)	**Long Distance MS River Sediment Pipeline**	$1,700,824	$26,272,176	$0	$27,973,000
BA-45 (EB)	**Caminada Headlands**	$931,816	$931,816	$31,136,368	$33,000,000
BA-58	**Fringe Marsh Repair**	$1,294,639	$0	$0	$1,294,639
LA-12	**Performance Evaluation**	$1,000,000	$1,000,000	$1,000,000	$3,000,000
LA-13	**Coastal Forest Conservation Initiative**	$15,614,554	$0	$0	$15,614,554
MR-16	**Mississippi River Strategic Plan**	$1,500,000	$0	$0	$1,500,000
PO-35 (EB)	**Violet Diversion[2]**	$0	$0	$0	$0
PO-36 (EB)	**Orleans Land Bridge SP & Marsh Creation**	$22,163,816	$0	$0	$22,163,816
PO-37 (EB)	**Blind River Freshwater Diversion**	$657,127	$0	$0	$657,127
PO-73	**Central Wetlands Assimilation**	$5,495,495	$0	$0	$5,495,495
TV-11B (EB)	**Freshwater Bayou Bank Stabilization (CIAP)**	$11,940,437	$0	$0	$11,940,437
Infrastructure Projects					
AT-05	**Morgan City Industrial Road- Alignment Two**	$2,390,852	$0	$0	$2,390,852
BA-55	**LA 1 Improvements- Fourchon to Leeville Bridge**	$24,239,089	$0	$0	$24,239,089
TV-23	**Port of Iberia Bridge Replacement- Unifab Road**	$12,196	$0	$0	$12,196
TV-25	**Port of Iberia Bridge Replacement- Port Road over Rodere Lateral**	$680,000	$0	$0	$680,000
TV-28	**Port of Iberia Bridge Replacement- Port Road over Commercial Canal**	$944,444	$0	$0	$944,444
TV-30	**Port of Iberia Bridge Replacement- David Dubois Road over Commercial Canal**	$513,333	$0	$0	$513,333
TV-31	**Acadiana Regional Airport**	$626,168	$0	$0	$626,168
CIAP Program Management		$1,000,000	$1,000,000	$1,000,000	$3,000,000
	TOTALS	**$91,704,790**	**$28,203,992**	**$32,136,368**	**$152,045,150**

Notes:

1- Funding shown in table represents CIAP expenditures only. Some projects have multiple funding sources.

2- Project has been incorporated into the MRGO Ecosystem Restoration Features Study under development by the USACE.

Table D-2. Coastal Wetlands Planning, Protection and Restoration Act (CWPPRA) Projected Expenditures

Project ID	Project Name	FY 2011	FY 2012	FY 2013	Project Total (FY 2011- FY 2013)
Engineering and Design (P1)					
BA-34[1]	Mississippi River Reintroduction Into Northwest Barataria Basin	$16,687	$0	$0	$16,687
BA-40[1]	Riverine Sand Mining/Scofield Island Restoration	$13,772	$0	$0	$13,772
BA-47	West Point a la Hache Marsh Creation	$54,524	$0	$0	$54,524
BA-48[1]	Bayou Dupont Marsh and Ridge Creation Project	$77,365	$848	$0	$78,213
BA-68	Grand Liard Marsh and Ridge Restoration	$195,740	$67,034	$0	$262,774
BS-12	White Ditch Resurrection and Outfall Management	$11,260	$5,261	$0	$16,881
BS-15	Bohemia Mississippi River Reintroduction Project	$14,293	$2,310	$0	$16,604
BS-16	Caernarvon Outfall Management/Lake Lery Shoreline Protection Project	$87,524	$0	$0	$87,524
BS-18	Bertrandville Siphon	$27,624	$0	$0	$27,624
CS-49-CU2	Cameron-Creole Freshwater Introduction	$12,665	$5,309	$0	$17,973
ME-17[1]	Little Pecan Bayou Hydrologic Restoration	$29,139	$14,689	$0	$43,828
ME-24	Southwest Louisiana Gulf Shoreline Nourishment and Protection	$52,344	$0	$0	$52,344
MR-15	Venice Ponds Marsh Creation and Crevasses	$54,333	$20,542	$0	$74,875
PO-29[1]	River Reintroduction into Maurepas Swamp	$34,702	$28,427	$0	$63,129
PO-34	Alligator Bend Marsh Restoration and Shoreline Protection	$146,377	$0	$0	$146,377
TE-49	Avoca Island Diversion and Land Building	$12,743	$0	$0	$12,743
TE-51	Madison Bay Marsh Creation and Terracing	$128,250	$0	$0	$128,250
TE-66	Central Terrebonne Freshwater Enhancement Project	$139,251	$82,406	$0	$221,657
TV-20	Bayou Sale Shoreline Protection	$5,049	$0	$0	$5,049
TE-72	Lost Lake Marsh Creation and Hydrologic Restoration	$139,213	$139,213	$69,606	$348,032
ME-31	Freshwater Bayou Marsh Creation	$145,560	$145,560	$72,780	$363,900
PO-75	LaBranche East Marsh Creation	$154,276	$154,276	$77,138	$385,691
BA-76	Cheniere Ronquille Barrier Island Restoration	$205,156	$205,156	$102,578	$512,889
Construction (P2)					
BA-04c	West Pointe a la Hache Outfall Management	$120,837	$0	$0	$120,837
BA-27c	Barataria Basin Landbridge Shoreline Protection, Phase 3 - CU7 and CU8	$4,990,618	$0	$0	$4,990,618
BA-38B	Pelican Island and Pass La Mer to Chaland Pass Restoration	$4,145,684	$0	$0	$4,145,684
CS-49-CU1	Cameron-Creole Freshwater Introduction-Vegetative Plantings	$148,530	$0	$0	$148,530
ME-20	South Grand Chenier Hydrologic Restoration Project	$2,533,578	$0	$0	$2,533,578
ME-21	Grand Lake Shoreline Protection	$0	$1,415,314	$0	$1,415,314
TE-43	GIWW Bank Restoration of Critical Areas in Terrebonne	$1,428,323	$0	$0	$0
TE-52	West Belle Pass Barrier Headland Restoration	$4,051,800	$0	$0	$4,051,800
Demonstration Projects (P1 & P2)					
LA-08	Bioengineered Oyster Reef Demonstration	$227,016	$0	$0	$227,016
LA-16	Non-rock Alternatives to Shoreline Protection Demo	$38,585	$202,331	$0	$240,916
TE-53	Enhancement of Barrier Island Vegetation Demo	$0	$0	$0	$0
SubTotal		$19,442,815	$2,488,675	$322,102	$22,253,593
Adjustment for Outlying Years		N/A	$13,511,325	$15,677,898	$29,189,222
Total State Expenditures		$19,442,815	$16,000,000	$16,000,000	$51,442,815

Notes:

1- Projects where the state is the lead agency and has already expended the state cost share for project execution.

2- Because CWPPRA projects compete for funding annually, CWPPRA expenditures as presented in Appendix C (which include projected expenditures for approved projects only) do not adequately capture likely CWPPRA expenditures in outlying years. State's estimated CWPPRA expenditures for FY 2012 - FY 2013 are therefore based on prior years' expenditures.

Table D-3. Louisiana WRDA Projected Expenditures

Project ID	Project Name	FY 2011	FY 2012	FY 2013	Project Total (FY 2011 - FY 2013)
Initial LCA Projects					
PO-67	Small Diversion at Hope Canal	$0	$52,500,000	$0	$52,500,000
LA-10	Barataria Basin Barrier Shoreline Restoration	$629,483	$1,813,724	$10,750,043	$13,193,250
BA-71	Medium Diversion with Dedicated Dredging at Myrtle Grove	$1,333,334	$1,333,333	$1,333,333	$4,000,000
Additional LCA Projects					
TE-67	Maintain Land Bridge Between Caillou Lake and Gulf of Mexico	$533,332	$437,502	$500,004	$1,470,838
TE-68	Stabilize Gulf Shoreline at Point Au Fer Island	$533,332	$447,919	$500,004	$1,481,255
BS-19	Modification of Caernarvon Diversion	$159,311	$279,095	$375,000	$813,406
BA-72	Modification of Davis Pond Diversion	$159,311	$279,095	$375,000	$813,406
TE-70	Terrebonne Basin Barrier Shoreline Restoration	$2,258,707	$4,196,477	$51,737,000	$58,192,184
PO-68	Small Diversion at Convent / Blind River[1]	$1,074,525	$1,528,333	$36,540,000	$39,142,858
PO-69	Amite River Diversion Canal Modification	$241,888	$188,552	$2,089,500	$2,519,940
BS-20	Medium Diversion at White Ditch	$6,614,633	$9,221,567	$35,462,000	$51,298,200
TE-71	Convey Atchafalaya River Water to Northern Terrebonne Marshes	$3,532,459	$7,904,462	$92,029,000	$103,465,921
LA-18	Investigations of Modifications of Existing Structures	$0	$60,000	$350,000	$410,000
LA-19	Beneficial Use of Dredged Material	$3,500,000	$3,500,000	$3,500,000	$10,500,000
Long term, Large Scale Studies					
MR-16	Mississippi River Hydrodynamic and Delta Management Study[1]	$2,000,000	$4,500,000	$4,500,000	$11,000,000
Long term, Large Scale Studies					
	Science and Technology[2]	$3,500,000	$3,500,000	$3,500,000	$10,500,000
	Demonstration Projects	$5,250,000	$3,500,000	$3,500,000	$12,250,000
Other Projects					
PO-35 (EB)	Violet Diversion[3]	$0	$0	$0	$0
PO-58	Donaldsonville to the Gulf	$715,000	$2,000,000	$2,000,000	$4,715,000
LA-20	Southwest Coastal Louisiana	$2,000,000	$500,000	$0	$2,500,000
TOTAL Expenditures		**$30,535,315**	**$94,190,059**	**$245,540,884**	**$370,266,258**
Surplus Expenditures for WRDA		**($2,010,041)**	**($1,333,333)**	**($1,333,333)**	**($4,676,707)**
CIAP Expenditures for WRDA		**($2,157,127)**	**$0**	**$0**	**($2,157,127)**
Trust Fund Expenditures for WRDA		**$26,368,147**	**$92,856,726**	**$244,207,551**	**$363,432,424**

Notes:

1- All or a portion of project funding is through CIAP; CIAP expenditures are not included in total WRDA expenditures.

2- Ongoing program; not included in total WRDA expenditures.

3- Project has been incorporated into the MRGO Ecosystem Restoration Features Study under development by the USACE.

Table D-4. 2007 Surplus Projected Expenditures

Project ID	Project Name	FY 2011	FY 2012	FY 2013	Project Total (FY 2011 - FY 2013)
BA-43	Mississippi River Long Distance Sediment Pipeline	$7,333,500	$7,333,500	$7,133,000	$21,800,000
BA-75-1	Jean Lafitte Tidal Protection	$5,925,581	$0	$0	$5,925,581
BA-75-2	Rosethorne Tidal Protection	$144,144	$1,355,856	$1,000,000	$2,500,000
BA-75-3	Lafitte Tidal Protection	$2,360,996	$0	$0	$2,360,996
BA-75-4	Lafitte Levee Protection	$7,412,763	$0	$0	$7,412,763
CS-33	Cameron Parish Shoreline	$28,836,001	$0	$0	$28,836,001
ME-25SF	Marsh Creation Near Freshwater Bayou	$3,852,000	$0	$0	$3,852,000
N/A	East of Harvey Canal	$70,000	$0	$0	$70,000
N/A	Forty Arpent Levee	$1,200,000	$0	$0	$1,200,000
N/A	Raising of LA 23	$1,200,000	$0	$0	$1,200,000
N/A	St. Charles Parish West Bank	$2,000,000	$0	$0	$2,000,000
TE-64	Morganza to the Gulf	$4,050,000	$0	$0	$4,050,000
TE-72	HNC - (Portion of Morganza to the Gulf)	$39,500,000	$0	$0	$39,500,000
PO-72	Biloxi Marsh	$21,450,000	$0	$0	$21,450,000
PROG	S&T	$12,500,000	$5,000,000	$4,500,000	$22,000,000
Total		**$137,834,985**	**$13,689,356**	**$12,633,000**	**$164,157,341**

* Funding allocated to Emergency Reserve was utilized for this project.

Table D-5. 2008 Surplus Projected 3-Year Expenditures

Project ID	Project Name	FY 2011	FY 2012	FY 2013	Project Total (FY 2011 - FY 2013)
TE-64	Morganza to the Gulf	$30,000,000	$0	$0	$30,000,000
BA-25	Bayou LaFourche	$8,000,000	$0	$0	$8,000,000
BA-33	Myrtle Grove	$1,333,334	$1,333,333	$1,333,333	$4,000,000
PO-30	Hope Canal/Maurepas (Landrights and Design)	$3,000,000	$0	$0	$3,000,000
BA-45	Caminada Barrier Shoreline/Elmers	$1,350,000	$28,650,000	$0	$30,000,000
LA-20	Southwest/Chenier	$500,000	$0	$0	$500,000
BA-43	Mississippi River Long Distance Sediment Pipeline	$5,000,000	$10,000,000	$0	$15,000,000
CS-04	Cameron Creole Levee	$1,000,000	$0	$0	$1,000,000
CS-33	Cameron Parish Shoreline	$15,000,000	$0	$0	$15,000,000
TE-65	Larose to Golden Meadow	$15,000,000	$0	$0	$15,000,000
N/A	Franklin Canal	$300,000	$0	$0	$300,000
N/A	Emergency Response	$8,341,110	$0	$0	$8,341,110
LA-24.2	Madisonville Bulkhead*	$500,000	$0	$0	$500,000
N/A	Intelligent Flood Protection, Monitoring, Warning and Response System (Smart Levee)*	$3,000,000	$0	$0	$3,000,000
N/A	St. Mary Levee District O&M*	$25,000	$0	$0	$25,000
LA-25.1	Incentive for Innovative Dredging Technology	$500,000	$500,000	$500,000	$1,500,000
LA-25.2	Beneficial Use/Mitigation Banking	$350,000	$350,000	$280,000	$980,000
LA-25.3	Pre-clearing Beneficial Use Sites	$2,000,000	$0	$0	$2,000,000
LA-25.4	Carbon Credits Program	$500,000	$500,000	$340,000	$1,340,000
LA-25.5	Programmatic NEPA/EIS for Master Plan	$2,000,000	$0	$0	$2,000,000
LA-25.6	Non-Structural Pilot Program	$700,000	$700,000	$600,000	$2,000,000
TV-11B.1	AGMAC/Freshwater Bayou	$1,000,000	$0	$0	$1,000,000
Total		**$99,399,444**	**$42,033,333**	**$3,053,333**	**$144,486,110**

* Funding allocated to Emergency Reserve was utilized for this project.

Table D-6. 2009 Surplus Approved Expenditures

Project ID	Project Name	FY 2011	FY 2012	FY 2013	Project Total (FY 2011 - FY 2013)
AT-12	Alexandria to the Gulf	$280,658	$0	$0	$280,658
AT-13	Atchafalaya Basin Natural Resources Inventory and Assessment	$750,000	$375,000	$0	$1,125,000
BA-66	SE La Hurricane LERRDS	$76,300,000	$0	$0	$76,300,000
BA-75-4	Lafitte Levee Protection	$7,412,763	$0	$0	$7,412,763
CS-53	Cameron-Creole Levee	$11,600,000	$0	$0	$11,600,000
LA-27	Barrier Island Maintenance Program	$2,390,000	$0	$0	$2,390,000
PO-58	Donaldsonville to the Gulf	$176,707	$0	$0	$176,707
PO-74	North Shore Hurricane/Flood Protection Plan	$639,416	$161,168	$0	$800,584
TE-64	Morganza to the Gulf	$7,730,000	$0	$0	$7,730,000
TE-65	Larose to Golden Meadow	$4,820,000	$0	$0	$4,820,000
TV-54	South Central Coastal Plan	$356,667	$357,664	$355,689	$1,070,020
TV-55	Morgan City/St. Mary Flood Protection	$3,741,938	$0	$0	$3,741,938
TV-56	Four-Mile Canal Storm Surge Reduction Construction	$0	$6,280,000	$0	$6,280,000
TV-57	Delcambre-Avery Canal Engineering-Design	$774,726	$65,799	$0	$840,525
N/A	Beneficial Use/Beneficial Use of Twin Span Debris	$4,090,000	$0	$0	$4,090,000
N/A	Reserve Fund Contingency	$13,550,000	$0	$0	$13,550,000
N/A	Innovative Programs	$1,940,000	$0	$0	$1,940,000
N/A	University Partnerships	$1,930,000	$0	$0	$1,930,000
N/A	LCA	$970,000	$0	$0	$970,000
Total		**$139,452,875**	**$7,239,631**	**$355,689**	**$147,048,195**

Table D-7. CWPPRA Monitoring Projected Expenditures

Project ID	Project Name	FY 2011	FY 2012	FY 2013	Project Total (FY 2011 - FY 2013)
BA-02	GIWW (Gulf Intracoastal Waterway) to Clovelly Hydrologic Restoration	$82,703	$39,073	$43,736	$165,512
BA-03c	Naomi Outfall Management	$0	$8,854	$0	$8,854
BA-20	Jonathan Davis Wetland Protection	$38,761	$15,172	$15,567	$69,500
BA-27	Barataria Landbridge Shoreline Protection (Phases 1 and 2)	$0	$0	$0	$0
BA-27c	Barataria Landbridge Shoreline Protection (Phase 3)	$0	$8,628	$3,385	$12,013
BA-38	Barataria Barrier Island Complex Project: Pelican Island and Pass La Mer to Chaland Pass Restoration	$13,858	$18,374	$0	$32,232
BS-03a	Caernarvon Diversion Outfall Management	$0	$24,969	$0	$24,969
BS-11	Delta Management at Fort St. Philip			$19,492	$19,492
CS-09	Brown Lake Hydrologic Restoration	$26,272	$36,543	$20,519	$83,334
CS-11b	Sweet Lake/Willow Lake Hydrologic Restoration	$0	$0	$0	$0
CS-17	Cameron Creole Plugs	$12,546	$0	$0	$12,546
CS-18	Sabine National Wildlife Refuge Erosion Protection	$4,792	$0	$0	$4,792
CS-20	East Mud Lake Marsh Management	$35,378	$36,332	$28,627	$100,337
CS-21	Highway 384 Hydrologic Restoration	$9,974	$10,901	$0	$20,875
CS-22	Clear Marais Bank Protection	$6,157	$0	$0	$6,157
CS-23	Replace Sabine Refuge Water Control Structures at Headquarters Canal, West Cove Canal, and Hog Island Gully	$4,047	$10,420	$4,260	$18,727
CS-24	Perry Ridge Shore Protection	$5,071	$0	$9,600	$14,671
CS-27	Black Bayou Hydrologic Restoration	$16,678	$11,568	$18,577	$46,823
CS-28	Sabine Refuge Marsh Creation, Cycles 1-3	$7,269	$0	$0	$7,269
CS-30	GIWW - Perry Ridge West Bank Stabilization	$5,165	$0	$0	$5,165
CS-31	Holly Beach Sand Management	$8,195	$0	$0	$8,195
ME-04	Freshwater Bayou Wetland Protection	$0	$0	$8,550	$8,550
ME-09	Cameron Prairie National Wildlife Refuge Shoreline Protection	$0	$0	$0	$0
ME-11	Humble Canal Hydrologic Restoration	$20,234	$21,005	$31,991	$73,230
ME-13	Freshwater Bayou Bank Stabilization	$0	$0	$0	$0
ME-14	Pecan Island Terracing	$0	$0	$0	$0
ME-19	Grand-White Lakes Landbridge Protection	$0	$0	$12,451	$12,451
MR-03	West Bay Sediment Diversion	$2,747	$2,818	$146,660	$152,225
MR-09	Delta-Wide Crevasses	$0	$15,152	$8,183	$23,335
PO-06	Fritchie Marsh Restoration	$4,515	$4,632	$22,906	$32,054
PO-16	Bayou Sauvage National Wildlife Refuge Hydrologic Restoration, Phase 1	$0	$0	$10,307	$10,307
PO-17	Bayou LaBranche Wetland Creation	$7,978	$4,458	$53	$12,489
PO-18	Bayou Sauvage National Wildlife Refuge Hydrologic Restoration, Phase 2	$0	$0	$10,307	$10,307
PO-22	Bayou Chevee Shoreline Protection	$10,579	$6,189	$0	$16,768
PO-24	Hopedale Hydrologic Restoration	$18,097	$29,809	$38,747	$86,653
TE-22	Point Au Fer Canal Plugs	$0	$4,917	$0	$4,917
TE-23	West Belle Pass Headland Restoration	$0	$0	$7,155	$7,155
TE-26	Lake Chapeau Sediment Input and Hydrologic Restoration, Point Au Fer Island	$28,171	$62,589	$26,656	$117,416
TE-28	Brady Canal Hydrologic Restoration	$20,275	$97,664	$21,343	$139,282
TE-44	North Lake Mechant Landbridge Restoration	$0	$0	$0	$0
TE-45	Terrebonne Bay Shore Protection Demonstration	$65,709	$0		$65,709
TV-03	Vermilion River Cutoff Bank Protection	$8,415	$6,317	$0	$14,731
TV-04	Cote Blanche Hydrologic Restoration	$17,025	$29,988	$24,716	$71,730
TV-09	Boston Canal/Vermillion Bay Bank Restoration	$0	$0	$4,789	$4,789
TV-12	Little Vermilion Bay Sediment Trapping	$0	$0	$0	$0
TV-13a	Oaks/Avery Canal Hydrologic Restoration, Increment 1	$19,140	$18,819	$0	$37,959
TV-14	Marsh Island Hydrologic Restoration	$13,065	$9,797	$12,385	$35,248
TV-17	Lake Portage Land Bridge	$0	$0	$0	$0
TV-18	Four Mile Canal Terracing and Sediment Trapping	$0	$0	$2,411	$2,411
CRMS	Coastwide Reference Monitoring System (CRMS) - Wetlands	$7,500,000	$8,000,000	$8,000,000	$23,500,000
	Total	$8,012,813	$8,534,989	$8,553,373	$25,101,175
	State 15% Cost Share	**$1,201,922**	**$1,280,248**	**$1,283,006**	**$3,765,176**

Table D-8. Projected Expenditures for Monitoring of State Only Projects
(amounts shown are 100% state)

Project ID	Project Name	FY 2011	FY 2012	FY 2013	Project Total (FY 2011 - FY 2013)
BA-04	West Point a la Hache Siphon	$75,000	$75,000	$30,000	$180,000
CS-02	Rycade Canal	$25,000	$25,000	$5,000	$55,000
	Total	**$100,000**	**$100,000**	**$35,000**	**$235,000**

Table D-9. Projected Expenditures for Monitoring of WRDA Projects
(amounts shown are 100% state; the cost share is 75% federal:25% state)

Project ID	Project Name	FY 2011	FY 2012	FY 2013	Project Total (FY 2011 - FY 2013)
BA-01	Davis Pond Freshwater Diversion	$184,665	$193,898	$285,129	$663,692
BS-08	Caernarvon Freshwater Diversion	$147,836	$155,228	$172,119	$475,183
	Total State Share	**$332,501**	**$349,126**	**$457,248**	**$1,138,875**

Table D-10. CWPPRA Projects with O&M Budget Project Expenditures
(amounts shown are 100% State; the cost share is 85% federal:15% State)

Project ID	Project Name	FY 2011	FY 2012	FY 2013	Project Total (FY 2011 - FY 2013)
AT-02	Atchafalaya Sediment Delivery	$584	$189	$811	$1,583
AT-03	Big Island Mining	$584	$1,089	$811	$2,483
BA-02	GIWW (Gulf Intracoastal Waterway) to Clovelly Hydrologic Restoration	$239,447	$3,276	$3,372	$246,095
BA-03c	Naomi Outfall Management	$951	$964	$978	$2,893
BA-04c	West Point a la Hache Outfall Management	$0	$0	$940	$940
BA-19	Barataria Bay Waterway Wetland Restoration	None	None	None	-
BA-20	Jonathan Davis Wetland Protection	$555	$570	$585	$1,710
BA-23	Barataria Bay Waterway West Side Shoreline Protection	$43,411	$1,719	$1,764	$46,893
BA-26	Barataria Bay Waterway East Side Shoreline Protection	$173,736	$563	$578	$174,876
BA-27	Barataria Basin Landbridge Shoreline Protection, Phases 1 and 2	$596	$4,561	$626	$5,783
BA-27c	Barataria Basin Landbridge Shoreline Protection, Phase 3	$596	$3,976	$626	$5,198
BA-27d	Barataria Basin Landbridge Shoreline Protection Phase 4	$5,459	$598	$614	$6,671
BA-35	Pass Chaland to Grand Bayou Pass Barrier Shoreline Restoration	$102,087	$86,980	$94,839	$283,906
BA-36	Dedicated Dredging on the Barataria Basin Landbridge	None	None	None	-
BA-37	Little Lake Shoreline Protection/ Dedicated Dredging Near Round Lake	$596	$5,461	$626	$6,683
BA-38	Pelican Island and Pass La Mer to Chaland Pass Restoration	$1,139	$59,090	$1,636	$61,865
BA-39	Mississippi River Sediment Delivery System	$1,021	$480	$842	$2,343
BA-41	South Shore of the Pen Shoreline Protection and Marsh Creation	$8,280	$8,305	$270,782	$287,367
BA-42	Lake Hermitage Marsh Creation	$0	$893	$908	$1,801
BS-03a	Caernarvon Diversion Outfall Management	$9,515	$9,533	$9,551	$28,599
BS-11	Delta Management at Fort St. Philip	$729	$748	$767	$2,244
CS-04A	Cameron-Creole Maintenance (See Note 4)	$12,600,000	$3,163	$391,562	$12,994,724
CS-11B	Sweet Lake/Willow Lake Hydrologic Restoration	$886	$913	$940	$2,740
CS-17	Cameron Creole Plugs	$886	$913	$940	$2,740
CS-18	Sabine National Wildlife Refuge Erosion Protection	$886	$913	$940	$2,740
CS-20	East Mud Lake Marsh Management	$1,861	$1,888	$1,915	$5,665
CS-21	Highway 384 Hydrologic Restoration	$2,476	$2,653	$2,830	$7,960
CS-22	Clear Marais Bank Protection	$2,011	$913	$940	$3,865
CS-23	Replace Sabine Refuge Water Control Structures at Headquarters Canal, West Cove Canal, and Hog	$127,500	$2,413	$2,440	$132,353
CS-24	Perry Ridge Shore Protection	$886	$913	$940	$2,740
CS-27	Black Bayou Hydrologic Restoration	$1,336	$1,363	$1,390	$4,090
CS-28	Sabine Refuge Marsh Creation, Increment 1	None	None	None	-
CS-29	Black Bayou Culverts Hydrologic Restoration	$3,886	$3,913	$3,940	$11,740
CS-30	GIWW - Perry Ridge West Bank Stabilization	$886	$913	$940	$2,740
CS-31	Holly Beach Sand Management	$21,375	$913	$940	$23,228
CS-32	East Sabine Lake Hydrologic Restoration	$886	$913	$940	$2,740
CS-49	Cameron-Creole Freshwater Introduction - Vegetative Plantings	$881	$75,751	$908	$77,540
LA-03B	Coastwide Nutria Control Program	$508,900	$511,936	$514,972	$1,535,808

Project ID	Project Name	FY 2011	FY 2012	FY 2013	Project Total (FY 2011 - FY 2013)
ME-04	Freshwater Bayou Wetland (Phases 1 &2)	$886	$913	$940	$2,740
ME-09	Cameron Prairie National Wildlife Refuge Shoreline Protection	$2,011	$913	$940	$3,865
ME-11	Humble Canal Hydrologic Restoration	$2,386	$2,413	$2,440	$7,240
ME-13	Freshwater Bayou Bank Stabilization	$886	$913	$940	$2,740
ME-14	Pecan Island Terracing	$2,011	$913	$940	$3,865
ME-16	Freshwater Introduction South of Highway 82	$67,500	$2,413	$2,440	$72,353
ME-19	Grand-White Lakes Landbridge Protection	$886	$913	$940	$2,740
ME-20	South Grand Chenier Hydrologic Restoration Project	$0	$126,892	$5,698	$132,590
ME-21	Grand Lake Shoreline Protection	–	–	–	-
ME-22	South White Lake Shoreline Protection	$886	$913	$940	$2,740
MR-03 (COE)	West Bay Sediment Diversion	$0	$1,500,000	$0	$1,500,000
MR-06	Channel Armor Gap Crevasse	None	None	None	-
MR-09	Delta Wide Crevasses	$838	$859	$882	$2,579
PO-06	Fritchie Marsh Restoration	$555	$569	$584	$1,709
PO-16	Bayou Sauvage National Wildlife Refuge Hydrologic Restoration, Phase 1	$13,373	$2,948	$3,024	$19,345
PO-17	Bayou LaBranche Wetland Creation	None	None	None	-
PO-18	Bayou Sauvage National Wildlife Refuge Hydrologic Restoration, Phase 2	$6,999	$2,564	$2,631	$12,194
PO-19	Mississippi River Gulf Outlet (MRGO) Disposal Area Marsh Protection	None	None	None	-
PO-22	Bayou Chevee Shoreline Protection	$528	$0	$541	$1,069
PO-24	Hopedale Hydrologic Restoration	$1,844	$1,892	$1,941	$5,677
PO-27	Chandeleur Islands Marsh Restoration	None	None	None	-
PO-30	Lake Borgne Shoreline Protection	$1,069,592	$672	$695	$1,070,959
PO-33	Goose Point/Point Platte Marsh Creation	None	None	None	-
TE-20	Isles Dernieres Restoration East Island	None	None	None	-
TE-22	Point au Fer Canal Plugs	$1,410	$347,243	$1,499	$350,152
TE-23 (COE)	West Belle Pass Headland Restoration	$0	$106,890	$1,224	$108,114
TE-24	Isles Dernieres Restoration Trinity Island	None	None	None	-
TE-25	East Timbalier Island Sediment Restoration, Phase 1	None	None	None	-
TE-26	Lake Chapeau Sediment Input and Hydrologic Restoration, Point Au Fer Island	$1,415	$1,465	$1,508	$4,388
TE-27	Whiskey Island Restoration	None	None	None	-
TE-28	Brady Canal Hydrologic Restoration	$187,491	$13,608	$14,014	$215,114
TE-30	East Timbalier Island Sediment Restoration, Phase 2	None	None	None	-
TE-34	Penchant Basin Natural Resources Plan Increment 1	$0	$1,075	$9,054	$10,129
TE-37	New Cut Dune and Marsh Restoration	None	None	None	-
TE-39	South Lake Decade Freshwater Introduction	$1,072	$1,101	$1,132	$3,305
TE-40	Timbalier Island Dune and Marsh Restoration	None	None	None	-
TE-43	GIWW Bank Restoration of Critical Areas in Terrebonne	$2,313	$939	$140,940	$144,192
TE-44	North Lake Mechant Landbridge Restoration	$7,432	$820	$836	$9,087
TE-46	West Lake Boudreaux Shoreline Protection and Marsh Creation	$877	$882	$908	$2,668
TE-48	Raccoon Island Shoreline Protection/Marsh Creation	$1,387	$575	$1,414	$3,376

Project ID	Project Name	FY 2011	FY 2012	FY 2013	Project Total (FY 2011 - FY 2013)
TE-50	Whiskey Island Back Barrier Marsh Creation	$961	$977	$995	$2,932
TV-03	Vermilion River Cutoff Bank Protection	$1,636	$913	$940	$3,490
TV-04	Cote Blanche Hydrologic Restoration	$94,500	$1,551	$1,596	$97,647
TV-09	Boston Canal/Vermilion Bay Bank Protection	$2,011	$913	$940	$3,865
TV-12	Little Vermilion Bay Sediment Trapping	$2,011	$913	$940	$3,865
TV-13a	Oaks/Avery Canal Hydrologic Restoration, Increment 1	$886	$913	$940	$2,740
TV-14	Marsh Island Hydrologic Restoration	$886	$913	$940	$2,740
TV-15	Sediment Trapping at “The Jaws”	$886	$913	$940	$2,740
TV-17	Lake Portage Land Bridge	$886	$913	$940	$2,740
TV-18	Four Mile Canal Terracing and Sediment Trapping	$2,011	$913	$940	$3,865
TV-21	East Marsh Island Marsh Creation	$101,016	$893	$908	$102,817
	Total	**$15,447,103**	**$2,931,400**	**$1,529,207**	**$19,907,710**

Notes:

1. Table shows all constructed CWPPRA projects and those projects scheduled to complete within the next two years. Demonstration and vegetative planting projects are not shown as they have no O&M budgets. Other projects without O&M budgets have "none" entered in the budget columns.
2. State share is based on CWPPRA cost share of 85% federal/15% state.
3. Projects that the Army Corps of Engineers is responsible for O&M are shown in green with (COE) after the project number.
4. Cameron Creole (CS-04a) budget for 2011 will be paid with 2008 & 2009 Surplus Funds.

Table D-11. O&M Projected Expenditures for CWPPRA Projects without Federal Cost Share (all amounts shown are 100% state)

Project ID	Project Name	FY 2011	FY 2012	FY 2013	Project Total (FY 2011 - FY 2013)
PO-17	Bayou LaBranche Wetland Creation	$1,250	$1,250	$1,250	$3,750
TE-20	Isles Dernieres Restoration East Island	$2,500	$2,500	$2,500	$7,500
TE-24	Isles Dernieres Restoration Trinity Island	$2,500	$2,500	$2,500	$7,500
TE-27	Whiskey Island Restoration	$2,500	$2,500	$2,500	$7,500
TE-25	East Timbalier Island Sediment Restoration, Phase 1	$2,500	$2,500	$2,500	$7,500
TE-30	East Timbalier Island Sediment Restoration, Phase 2	$2,500	$2,500	$2,500	$7,500
PO-27	Chandeleur Islands Marsh Restoration	$1,250	$1,250	$1,250	$3,750
TE-37	New Cut Dune and Marsh Restoration	$2,500	$2,500	$2,500	$7,500
TE-40	Timbalier Island Dune and Marsh Restoration	$2,500	$2,500	$2,500	$7,500
TE-50	Whiskey Island Back Barrier Marsh Creation	$2,500	$2,500	$2,500	$7,500
	Total State Share	**$22,500**	**$22,500**	**$22,500**	**$67,500**

Table D-12. Projected Expenditures for Maintenance for State Only Projects (all amounts shown are 100% state)

Project ID	Project Name	FY 2011	FY 2012	FY 2013	Project Total (FY 2011 - FY 2013)
	Maintenance Surveys	$100,000	$100,000	$100,000	$300,000
	GPS Network (continued development & maintenance)	$100,000	$100,000	$100,000	$300,000
	Total State Share	**$200,000**	**$200,000**	**$200,000**	**$600,000**

Table D-13. Projected Expenditures for Structural Operations/Inspections of State Projects (all amounts shown are 100% state)

Project No.	Project Name	FY 2011	FY 2012	FY 2013	Project Total (FY 2011 - FY 2013)
CS-02	Rycade Canal Marsh Management	$10,000	$10,000	$10,000	$30,000
PO-01	Violet Siphon	$224,000	$24,000	$24,000	$272,000
TE-03	Bayou LaCache Wetlands	$75,000	$75,000	$75,000	$225,000
FTL-01	Fort Livingston (Navigation Aids Inspection & Maintenance	$8,000	$8,400	$8,820	$25,220
TV-13b	Oaks Avery Structures (Navigation Aids Inspection & Maintenance				$0
	Periodic Inspection of Projects	$50,000	$50,000	$50,000	$150,000
	Total State Share	**$367,000**	**$167,400**	**$167,820**	**$702,220**

Table D-14. Projected Expenditures for O&M of WRDA Projects (all amounts shown are 100% state)

Project ID	Project Name	FY 2011	FY 2012	FY 2013	Project Total (FY 2011 - FY 2013)
BA-01	Davis Pond Freshwater Diversion	$729,740	$780,820	$835,480	$2,346,040
BS-08	Caernarvon Freshwater Diversion	$1,418,820	$1,518,150	$1,624,400	$4,561,370
	Total State Share	**$2,148,560**	**$2,298,970**	**$2,459,880**	**$6,907,410**

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Appendix E

Barrier Island Status Report

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BARRIER ISLAND STATUS REPORT

In compliance with Act 523 of the 2009 Regular Legislative Session, the Office of Coastal Protection and Restoration (OCPR) is providing this barrier island status report as part of the Annual Plan document, which will be submitted to each member of the Louisiana Legislature. The act requires that the report indicate the condition of all barrier islands, provide the status of all barrier island stabilization and preservation projects under construction, and outline future plans for restoration and maintenance of the barrier islands and coastal passes. Because the Annual Plan provides information about all coastal restoration projects in Louisiana (including location, status, features, acres benefited, cost, and funding source), it is appropriate to include a report on the status of the barrier islands.

INTRODUCTION

The recent hurricane seasons of 2005 and 2008 have clearly demonstrated the advantages of robust barrier islands and a well-managed coastline in terms of shoreline resilience and hurricane damage reduction. These events have also highlighted the ecological concerns related to the massive loss of coastal wetland systems (Ewing and Pope, 2006[1]). These coastal landscapes can provide a significant and potentially sustainable buffer from wind and wave action as well as storm surges generated by tropical storms and hurricanes. In addition, barrier shorelines are unique habitats that represent the foundation for complex and productive coastal ecosystems. Because barrier islands migrate and deteriorate over time, restoration of these habitats will require regular inputs of sand pumped from offshore areas. Such maintenance events are the most cost-effective way to ensure the longevity of the barrier islands.

The Barrier Island Comprehensive Monitoring (BICM) Program provides information on the status and trends of the Louisiana shoreline. Additionally, the Barrier Island Maintenance Program (BIMP) provides a framework for prioritizing planning, design, and construction of barrier island maintenance projects.

BARRIER ISLAND COMPREHENSIVE MONITORING (BICM) PROGRAM

The development of a comprehensive program to evaluate the state's barrier shoreline was initiated by a Louisiana Department of Natural Resources (LDNR) workgroup in 2002 (now headed by OCPR). This workgroup developed a monitoring framework to assess shoreline processes and resulting habitats, and the changes in these ecosystems over time. The initial plan was then reviewed in 2004 by the Louisiana Shoreline Science Restoration Team (SSRT) working under the Louisiana Coastal Area (LCA) program. The LCA study recommended the establishment of a coordinated System-wide Assessment and Monitoring Program (SWAMP), which would integrate the environmental monitoring of wetlands (Coastwide Reference Monitoring System, or CRMS-*Wetlands*), rivers and inshore waters (CRMS-*Waters*), near-shore waters, and barrier islands (BICM). The BICM program is currently funded by the LCA Science and Technology (LCA S&T) office and OCPR's Louisiana Applied Coastal Engineering and Science Division (LACES). It is implemented by OCPR, along with the University of New Orleans, Pontchartrain Institute for Environmental Sciences (UNO/PIES) and the U.S. Geological Survey (USGS). Initial goals of the BICM

[1] Ewing, L. and Pope, J., 2006. Viewing the Beach as an Ecosystem? *Shore & Beach*, 74 (1), 2.

program were to establish baseline conditions for the state's barrier shoreline after hurricanes Katrina and Rita, as well as to refine the methods and products for use in programs other than LCA (such as the Coastal Wetlands Planning, Protection, and Restoration Act, or CWPPRA; the Coastal Impact Assistance Program, or CIAP; and the Barrier Island Maintenance Program, or BIMP).

The advantage of BICM over project-specific monitoring is the ability to provide long-term data on all of Louisiana's barrier shorelines, instead of just those areas with constructed projects. As a result, a greater amount of long-term data will be available to evaluate constructed projects, facilitate planning and design of future barrier island projects, assist operations and maintenance activities, and determine storm impacts. Because data will be collected for the entire barrier island system concurrently, BICM data will be more consistent, accurate, and complete than other barrier island data collection efforts.

Data Collection

Initial BICM datasets collected include 1) post-storm damage assessment, 2) shoreline position, 3) land/water analysis, 4) topography, 5) bathymetry, 6) habitat composition, and 7) sediment composition. Additionally, these datasets will be compared to historic datasets that will be standardized and provided digitally to user groups for future use. Data collection for all seven BICM components initiated in 2005 was completed in 2008. Final datasets and reports are currently available through the LDNR web site.

Post-storm assessment products included an aerial video survey of the entire coastline and photographs of the majority of the shoreline. Photography of particular shoreline locations were then matched with historic photographs to provide time-series datasets for shoreline evaluations and comparisons (Figure 1). These datasets have already proven invaluable in assessment of the impacts of Hurricanes Gustav and Ike in 2008 and in the planning of LCA projects currently in the feasibility stage. These photos have also allowed assessment of impacts for documentation of damage claims to FEMA.

Figure 1. Photo comparison of Elmer's Island shoreline in Lafourche Parish, LA immediately after Hurricanes Katrina and Rita in 2005, and approximately 18 months later. (photos from Westphal 2009[2])

A combination of CRMS-*Wetlands* and UNO photography and Quickbird satellite imagery was collected for the entire Louisiana coast. Shoreline positions using post-storm photography have been developed along with complete 1880s,

[2] Westphal, K. 2009. Louisiana Barrier Island Comprehensive Monitoring Program (BICM) - Volume 1: Barrier Shoreline Post-Storm Assessment. Part 3: 2005-2007 Photo-Pairs. Prepared for the LA Dept. of Natural Resources, Coastal Restoration Division by the University of New Orleans, Pontchartrain Institute for Environmental Sciences. New Orleans, LA. 27 pp.

1930s, 1990s, and 2004 shorelines. The imagery has been analyzed, and datasets for historic, long-term, short-term, and near-term erosion rates for the entire coastline have been provided (Figure 2). Additionally, land/water change maps and graphs have been developed with the shoreline changes (Figures 3 and 4).

LiDAR data has been collected for all three portions of the coast; the Chandeleur Islands, from Raccoon Island to Sandy Point, and the Chenier Plain from Sabine Pass to the Mermentau River Outlet. Data, grid models, and change models for all coastal areas are complete. USGS has continued to fly LiDAR for the Chandeleur region and has provided an additional four surveys of the area (Figure 5). Additionally, LiDAR was flown by USGS for the Teche and Lafourche Deltaic Regions in early 2008 and again after Hurricane Gustav.

Bathymetry surveying was conducted in both 2006 and 2007. The Chenier plain area and the southern Chandeleur Islands were surveyed to complete the coast-wide coverage areas begun in 2006. Surveys covered from 6km offshore to 2km bayward of the shoreline. In addition to bathymetry data, USGS collected seismic data along all the offshore lines and did a complete sidescan sonar mosaic of the gulf side of the Chandeleur Islands. Data, grid models, and change models from all field work are finalized (Figures 6 and 7).

Also, habitat analysis of the aerial photography has been completed. Detailed habitat data for all BICM shoreline areas is available for 1996/98, 2002, 2004, and 2005, along with change maps showing habitat differences for all time periods (Figures 8 and 9).

Collection of surficial sediments for sediment budget development was conducted in 2008, and analysis is underway. Sediment characterization analysis, reports, and distribution maps will be completed in early 2010.

Planning and design of the BICM program will continue to refine future data collection, analysis, products, tools, and timelines for future programmatic monitoring. The next BICM Program data collection will be initiated in 2011.

Barrier Shoreline Condition

Louisiana's barrier shoreline is one of the fastest eroding shorelines in the world. Due to the geologic setting and the potential changes in sea level during coming decades, these shoreline habitats and the services they provide are some of the most vulnerable features of our coastal landscape.

Current shoreline erosion data from BICM (Martinez et al. 2009[3]) indicate that most of Louisiana's shoreline is eroding faster than ever before, with some short-term (1996 – 2005) erosion rates more than double the historic (1890s – 2005) averages (Figures 10 and 11). The Chandeleur Islands have exhibited the largest changes in erosion rates. Historic erosion rates of approximately 27 ft/yr have increased within the past decade to over 125 ft/yr, predominantly due to storm activities. This has lead to a decrease in the overall size of Breton Island by approximately 776 acres, or 95% (Table 1). Additionally, over 66% (85.1 acres) of the land area remaining in 2004 was removed by Hurricanes Katrina and Rita in 2005. When compared to the fact that only 18% (150.7 acres) of the land mass was lost between 1850 and 1920, this emphasizes the need to maintain the islands so that they are more sustainable during storm events. The data seems to indicate that there is a "tipping point" beyond which

[3] Martinez, L., S. O'Brien, M. Bethel, S. Penland, and M. Kulp. 2009. Louisiana barrier island comprehensive monitoring program (BICM) – Volume 2: Shoreline change and barrier island land loss 1800s-2005. Prepared for the La. Department of Natural Resources, Coastal Restoration Division by the Univ. of New Orleans, Pontchartrain Institute for Environmental Sciences. New Orleans, LA 32 pp.

restoration costs increase exponentially and results may become less predictable.

The large reduction of Breton Island within the last decade, along with the extreme loss experienced from Hurricane Katrina, emphasizes the need to maintain flexibility in setting restoration priorities. McBride and Byrnes (1997[4]) predicted that Breton Island would disappear in 2106 based on the land loss rates through the 1980s. When compared to other islands that were projected to be lost in the early 2000s, the restoration of Breton Island was a comparatively low priority. However, based on BICM data collected after Hurricanes Katrina and Rita, the projected disappearance for Breton Island based on the land loss rates through 2005 (does not include impacts from Hurricanes Gustav and Ike in 2008) is now 2013 (Table 1). More dramatic even than Breton Island are Grand Gossier and Curlew Islands, which were predicted by McBride and Byrnes (1997[4]) to last until 2174, yet these islands were both reduced to shoals by Hurricane Katrina in 2005.

The good news is that restoration efforts on other islands have shown benefits. McBride and Byrnes (1997[4]) predicted Timbalier Island would disappear by 2046, based on data through the 1980s. However, restoration completed just prior to Hurricanes Katrina and Rita added approximately 10 years of life to the island. Also, McBride and Byrnes (1997[4]) predicted that the Isles Dernieres would disappear by 2017; however, the CWPPRA barrier island restoration projects constructed on the islands have increased their life span by approximately 16 years. However, additional storms, increasing erosion rates, and predicted sea-level rise still need to be taken into account for designing future projects.

In summary, datasets and analysis ongoing under BICM are beginning to show information which will hopefully increase our ability to forecast priority areas and better predict project outcome. The main indications are that:

1. Coastal shoreline erosion rates are increasing (Figures 10 and 11).
2. Along the central coast of Louisiana, interior wetland loss results in increasing tidal prism (volume of water that flows through inlets during each tidal cycle) (Figure 12). Sand is sequestered in expanding ebb tidal deltas as inlets widen and deepen, and these processes occur at the expense of barrier island sand volume. This sequestering of sand volume offshore has dominated over relative sea-level rise in reducing island area.
3. Hurricane impacts and subsequent recovery processes dominate Chandeleur Islands evolution, whereby sand is removed from the central portion of the island and distributed laterally, ultimately coming to rest in deepwater sinks at the flanks of the barrier island arc (Figure 13).
4. Seafloor change analysis results show that long-term sediment transport trends are ~2 orders of magnitude greater than calculated predictions of longshore sediment transport potential in the nearshore zone based on historical wave data (millions of cubic meters per year instead of tens of thousands) (Figure 14).
5. The identification and quantification of these sediment transport processes, pathways, and sinks is crucial for successful sediment budget management and sediment allocation and project prioritization.

[4] McBride, R.A. and M.R Byrnes. 1997. Regional variations in shore response along barrier island systems of the Mississippi River delta plain: historical change and future prediction. Journal of Coastal Research 13(3):628-655.

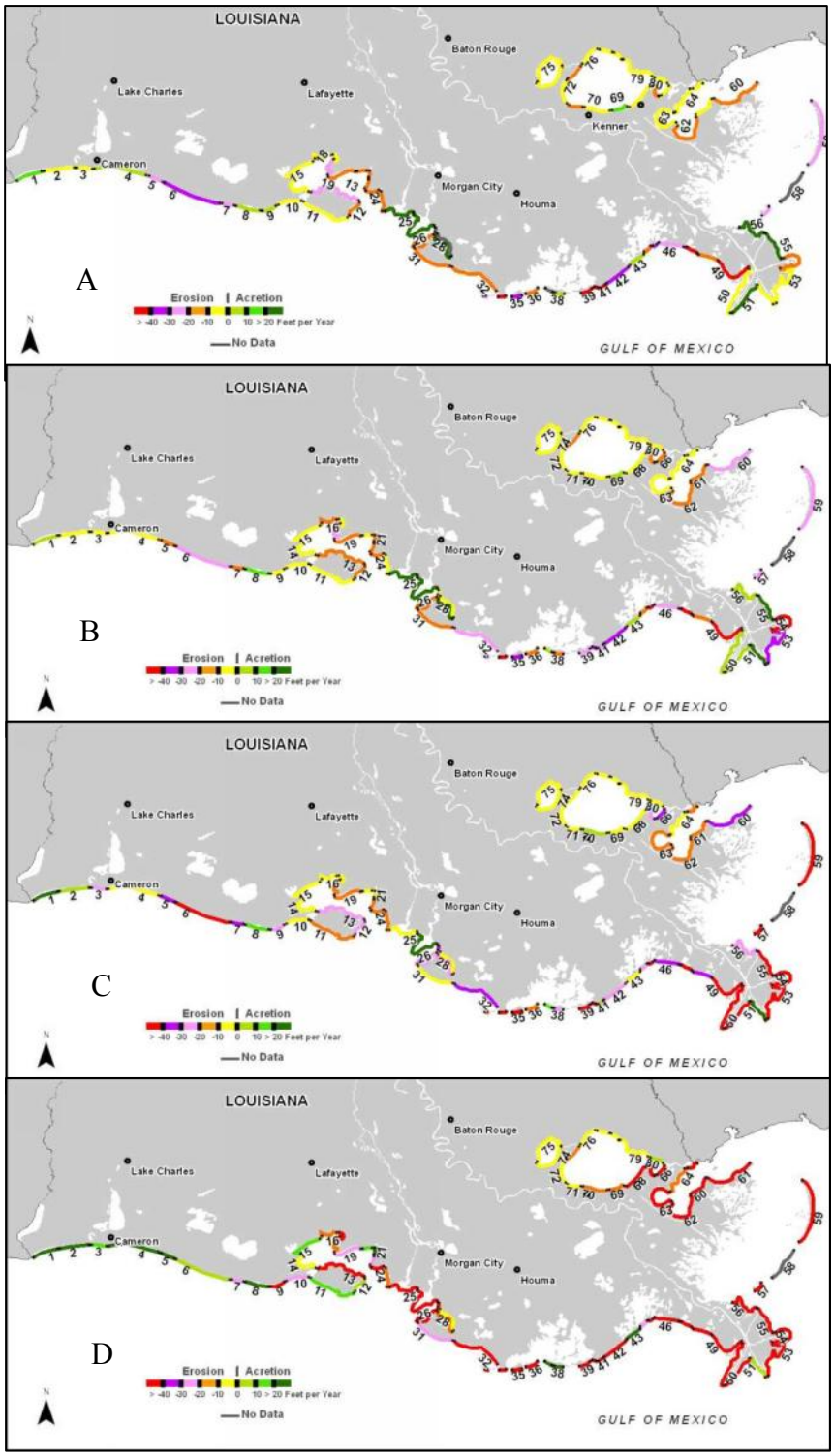

Figure 2. Shoreline erosion rates for sections of the Louisiana coast. A) Historic (1850s-2005), B) Long-term (1920s–2005), C) Short-term (1996-2005), and D) Near-term (2004-2005) (Martinez et al. 2009[3]).

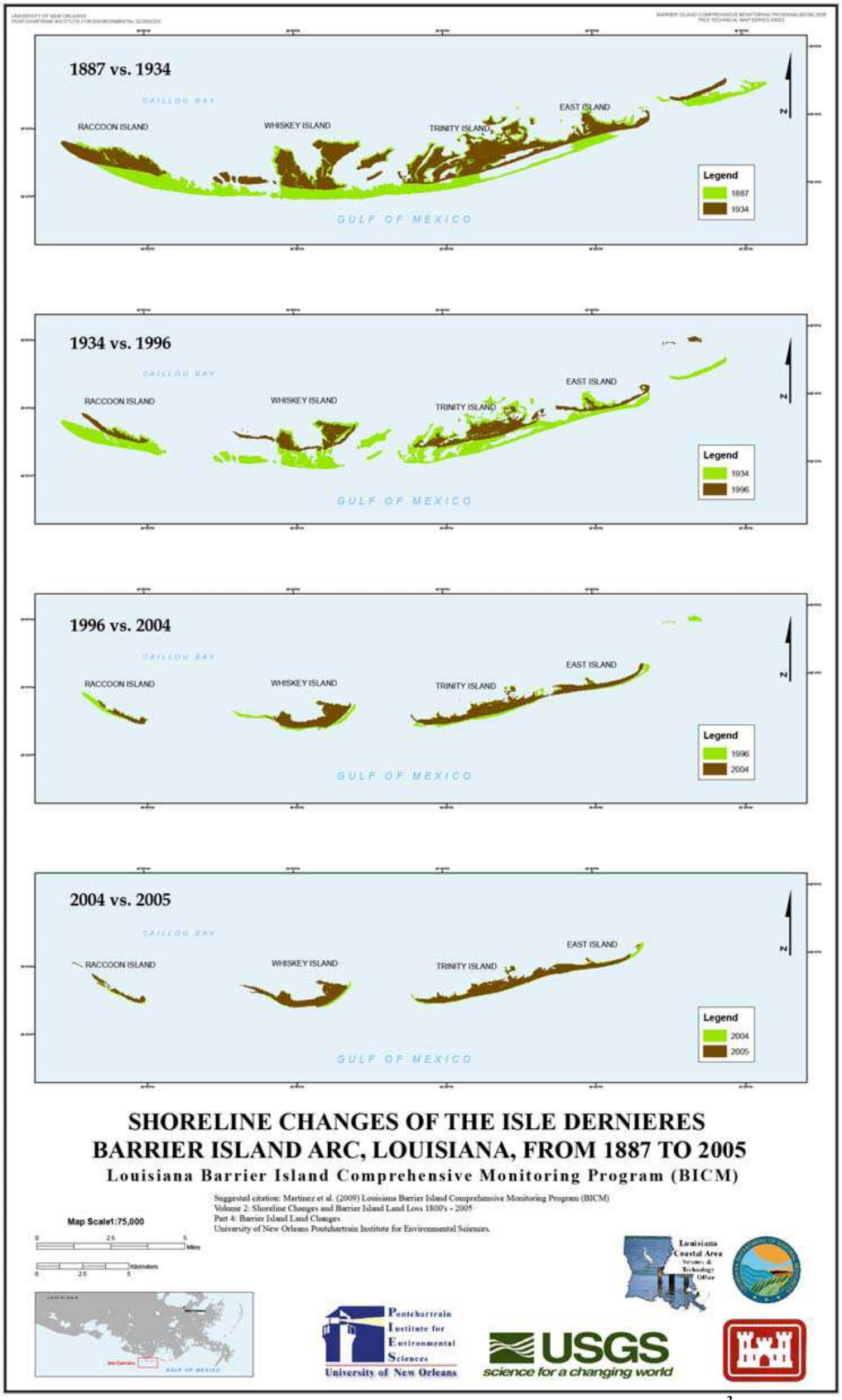

Figure 3. Historical overlays for the Isle Dernieres for 1887 – 2005 (Martinez et al. 2009[3]).

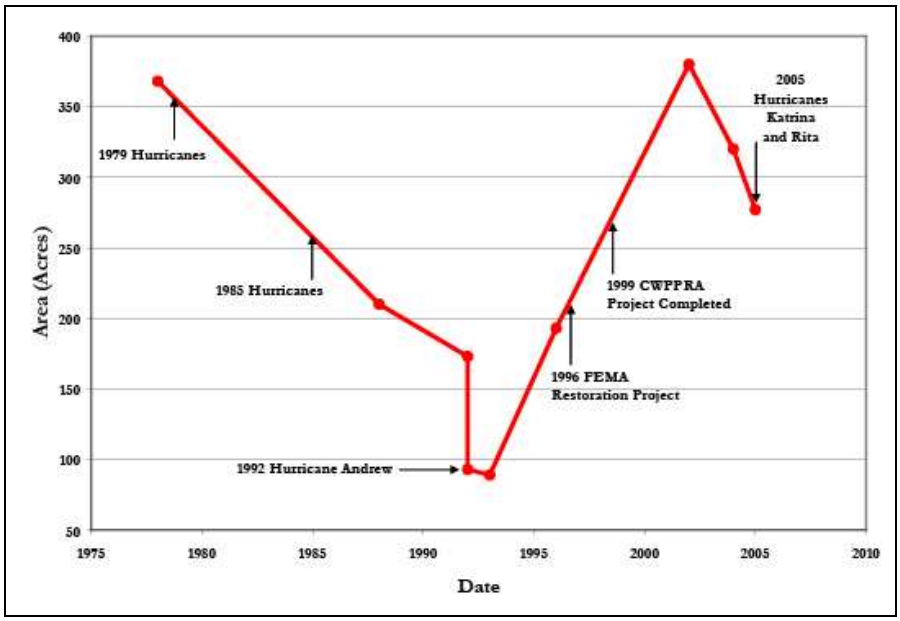

Figure 4. A time-series documenting the historical area changes in East Island (TE-20) between 1978 and 2005. Significant shoreline events are illustrated along the time-series line (Martinez et al 2009[3]).

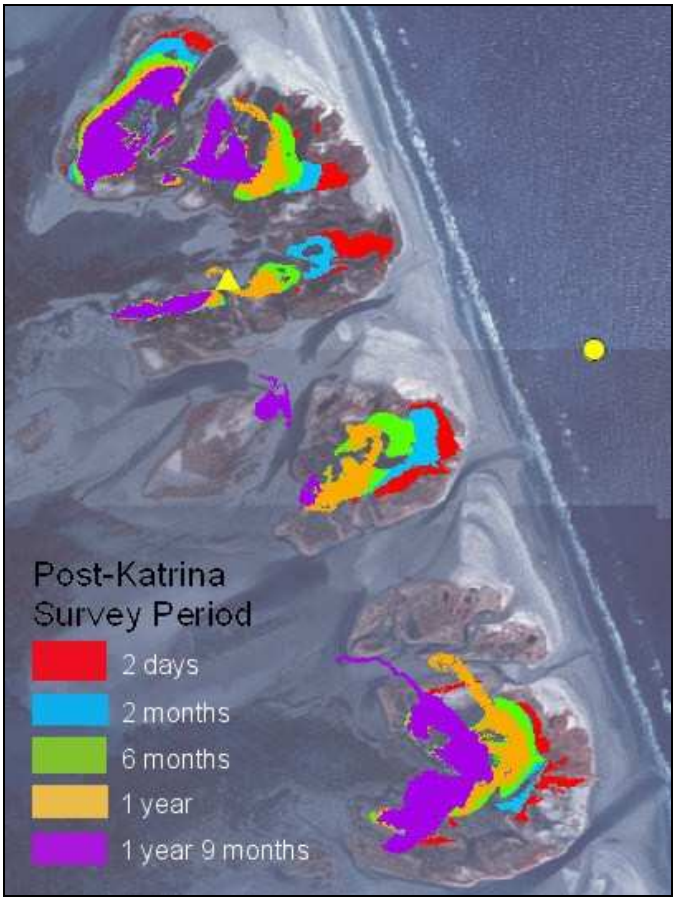

Figure 5. Draft LiDAR surveys of a portion of the Northern Chandeleur Islands. Colored portions are the land areas above MHW (courtesy of USGS).

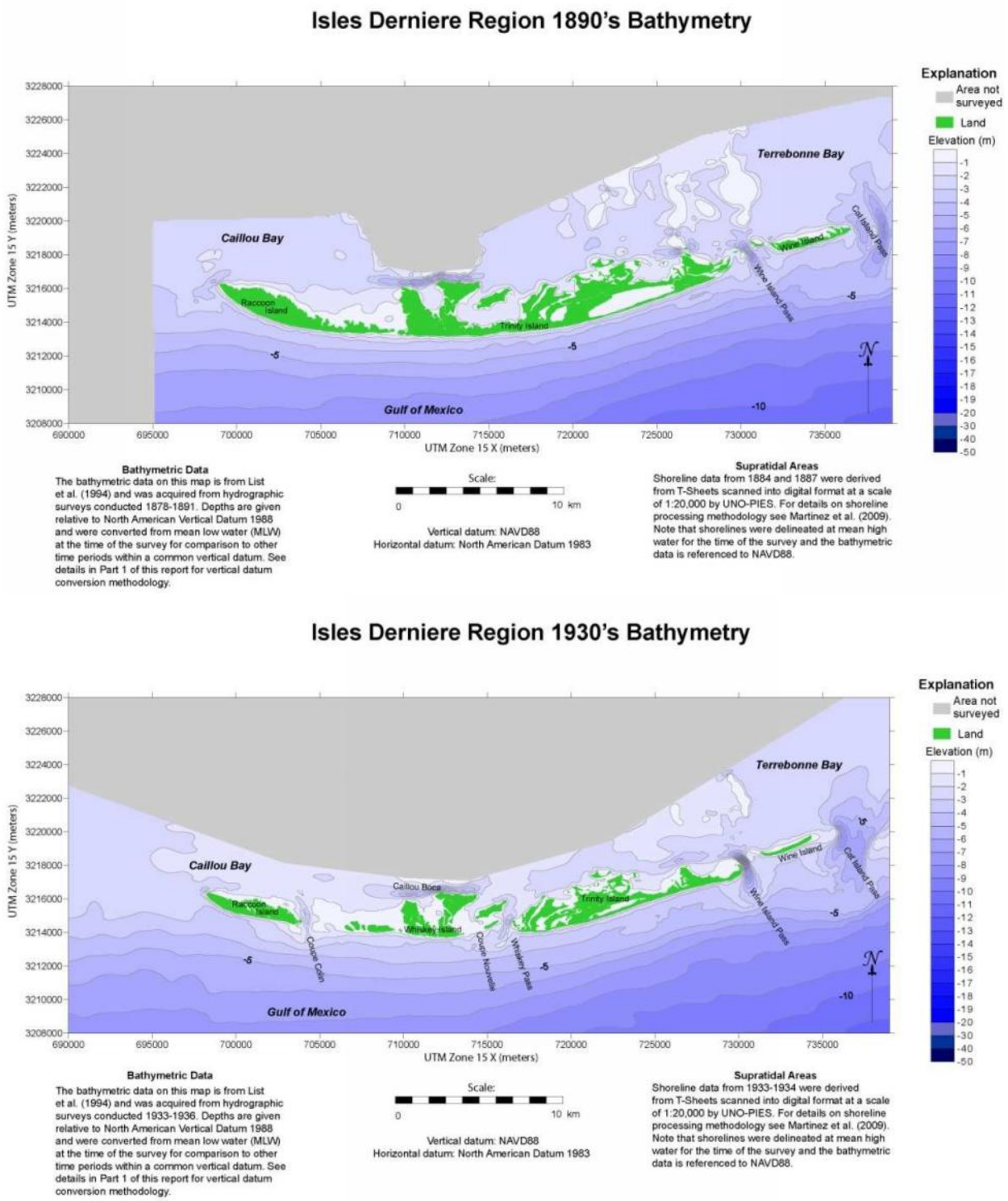

Figure 6. Bathymetric maps for the Isle Dernieres - 1890s and 1930s (Miner et al. 2009[5]).

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[5] Miner, M., M. Kulp, J. Motti, D. Weathers, P. McCarty, M. Brown, J. Torres, L. Martinez, J. Flocks, N. Dewitt, N. Ferina, B.J. Reynolds, D. Twichell, W. Baldwin, B. Danforth, C. Worley, and E. Bergeron. 2009. Louisiana Barrier Island Comprehensive Monitoring Program (BICM) - Volume 3: Bathymetry and Historical Seafloor Change 1869 – 2007. Part 2: South Central Louisiana and Northern Chandeleur Islands, Bathymetry Maps. Prepared for the LA Dept. of Natural Resources, Coastal Restoration Division by the University of New Orleans, Pontchartrain Institute for Environmental Sciences. New Orleans, LA. 27 pp.

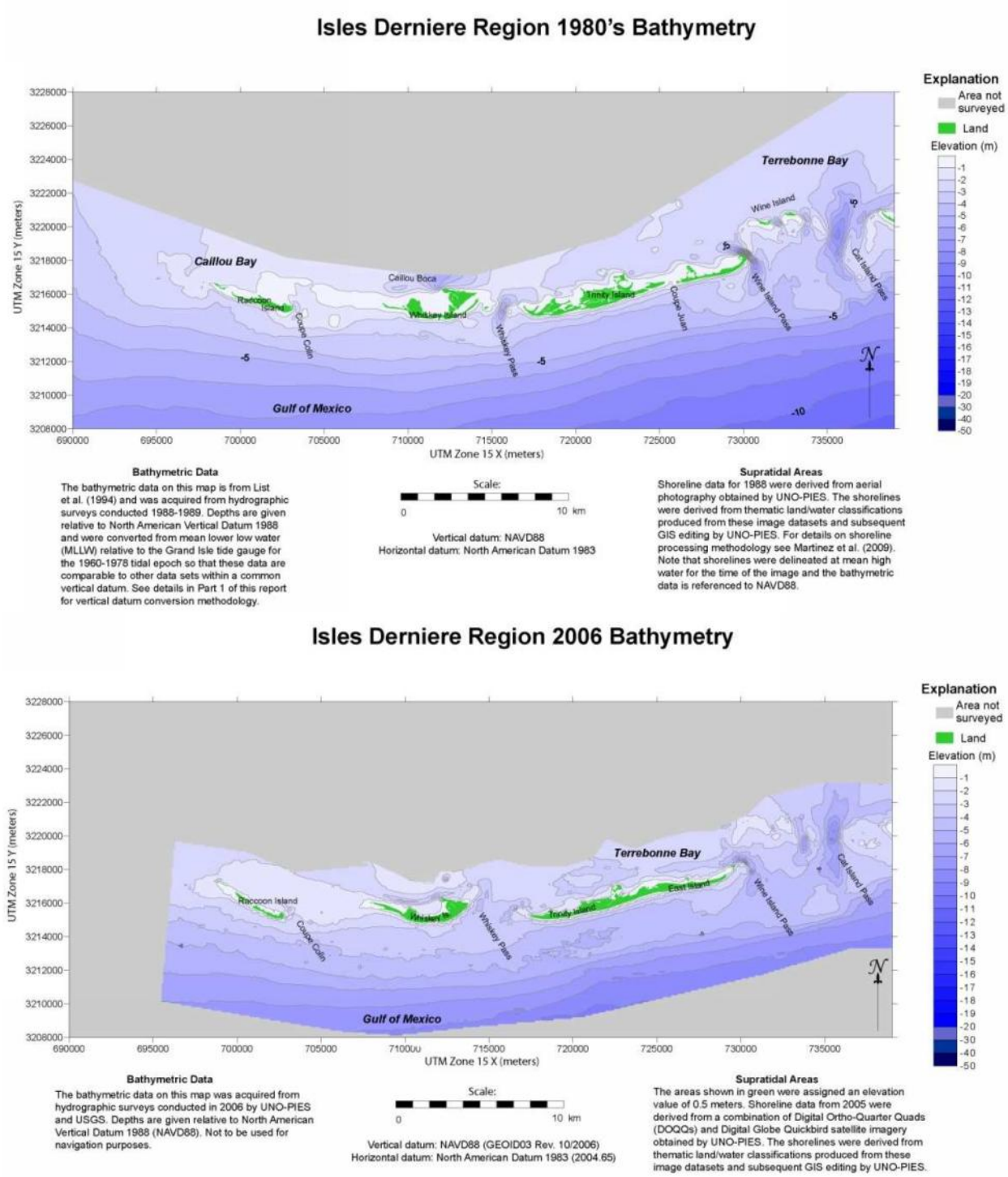
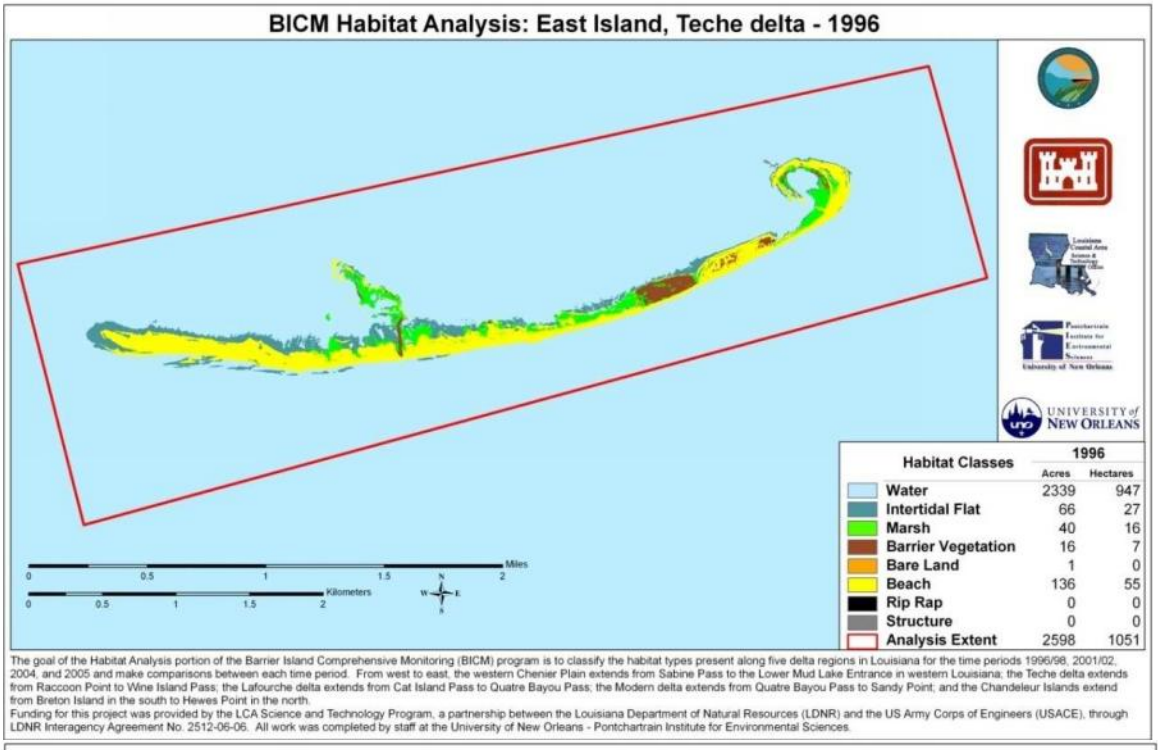


Figure 7. Bathymetric maps for the Isle Dernieres - 1980s and 2006 (Miner et al. 2009[5])



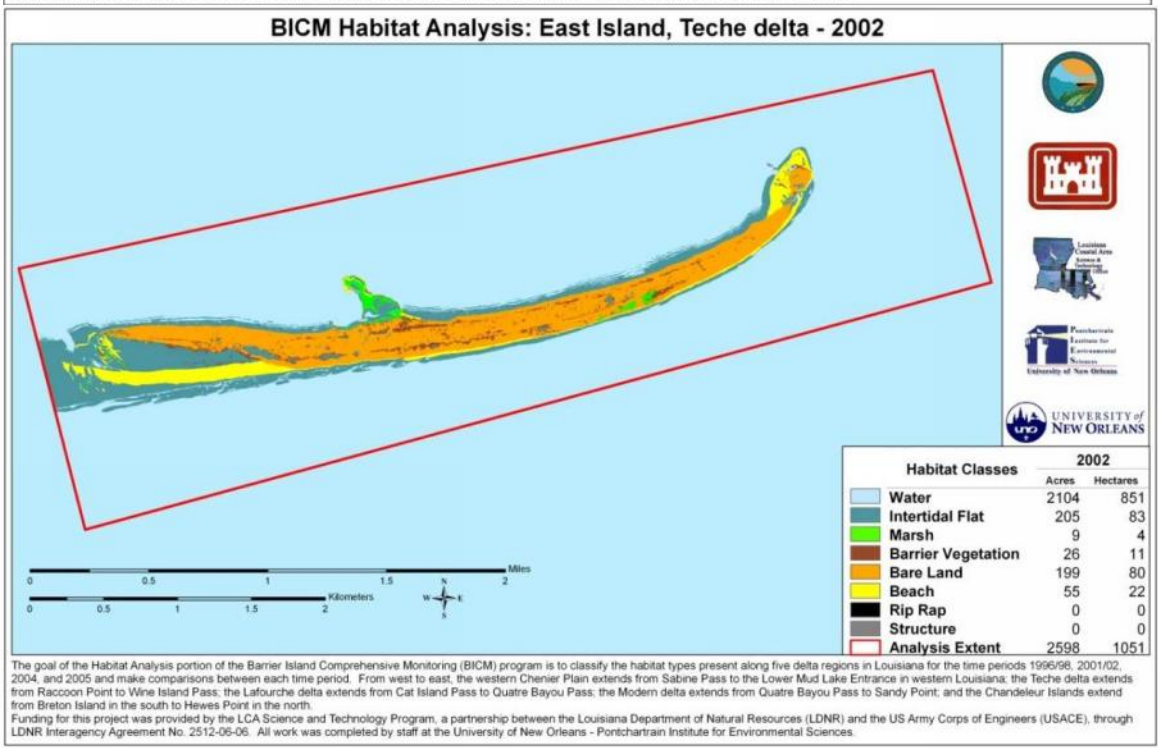
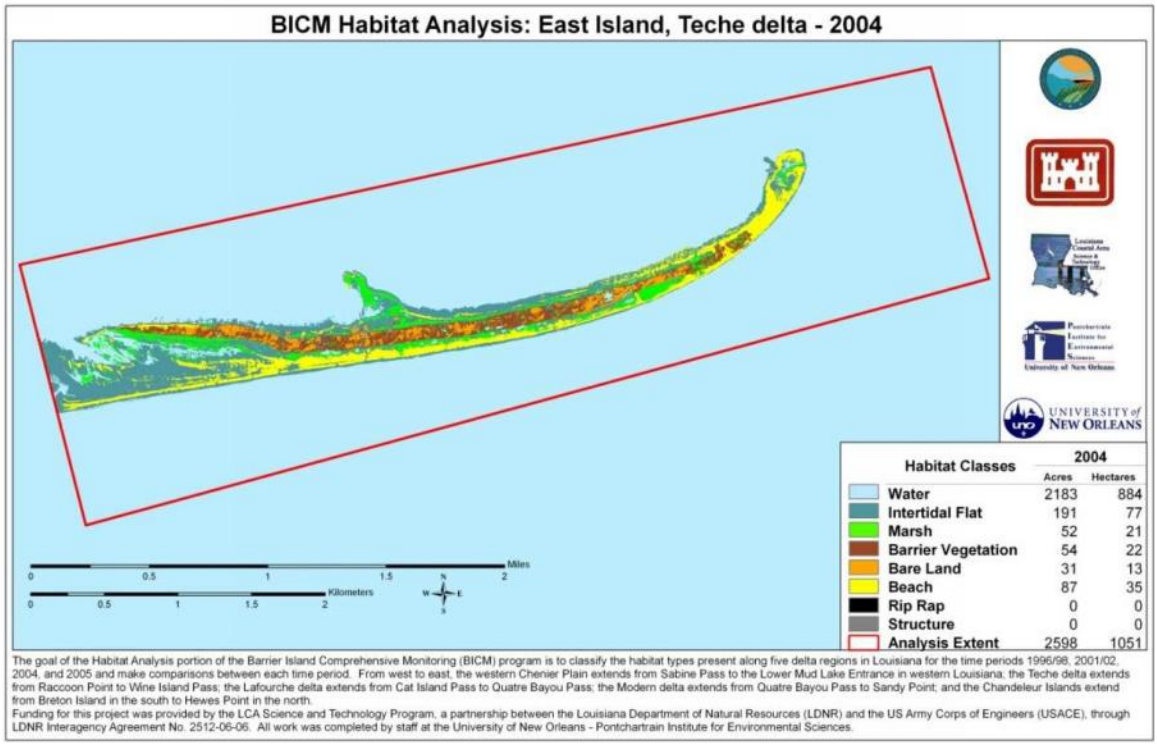


Figure 8. Habitat classification maps of East Island (TE-20), Isle Dernieres, Terrebonne Parish, LA for 1996 and 2002 (Fearnley et al. 2009[6]).

[6] Fearnley, S, L. Brien, L. Martinez, M. Miner, M. Kulp, and S. Penland. 2009. Louisiana Barrier Island Comprehensive Monitoring Program (BICM) - Volume 5: Chenier Plain, South Central Louisiana, and Chandeleur Islands, Habitat Mapping and Change Analysis 1996 – 2005. Part 2: Habitat, Habitat Change, Land Loss, and Mosaic Maps. Prepared for the LA Dept. of Natural Resources, Coastal Restoration Division by the University of New Orleans, Pontchartrain Institute for Environmental Sciences. New Orleans, LA. 296 pp.



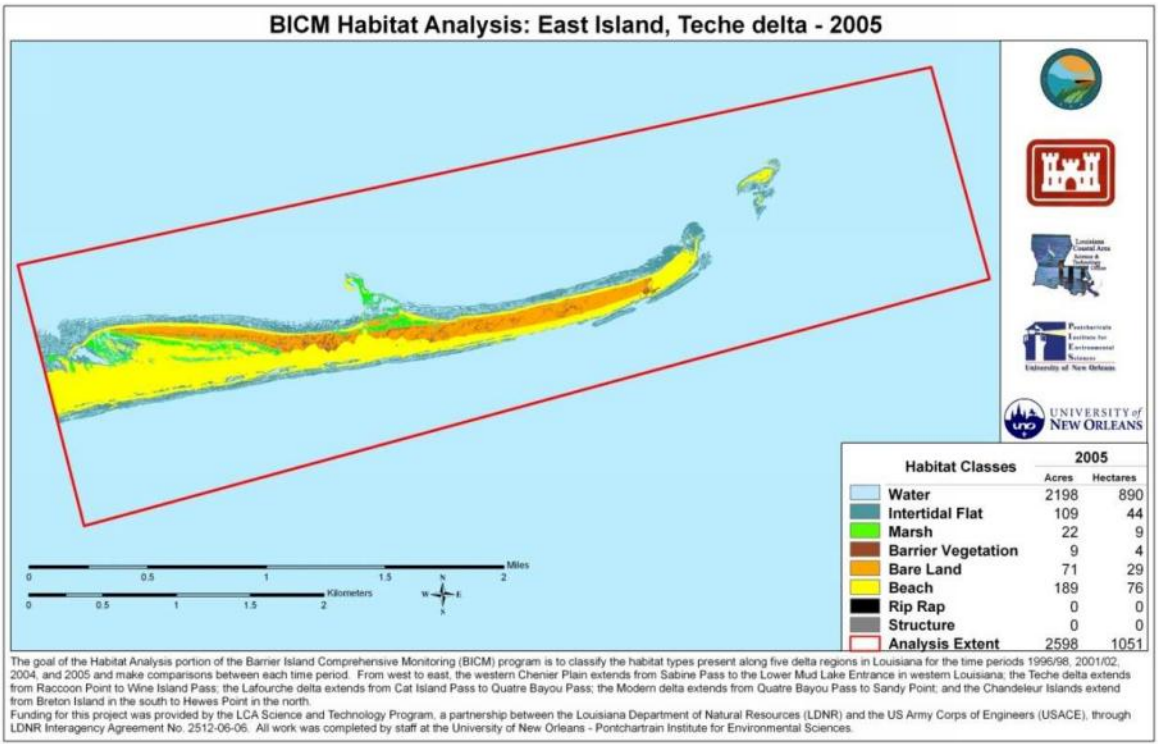


Figure 9. Habitat classification maps of East Island (TE-20), Isle Derniers, Terrebonne Parish, LA for 2004 and 2005 (Fearnley et al. 2009[6]).

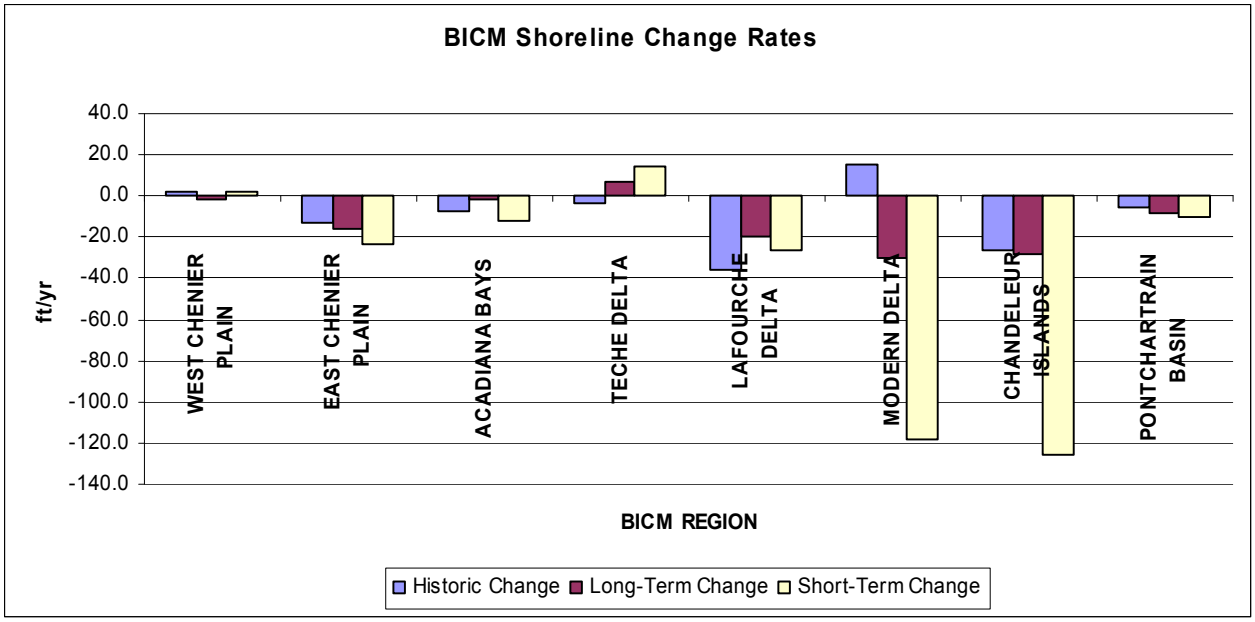


Figure 10. Average shoreline erosion rates for BICM Regions of the Louisiana Coast developed from aerial photography for Historic (1890s – 2005), Long-term (1930s – 2005), and Short-term (1996 – 2005) periods (adapted from Martinez et al. 2009[3]).

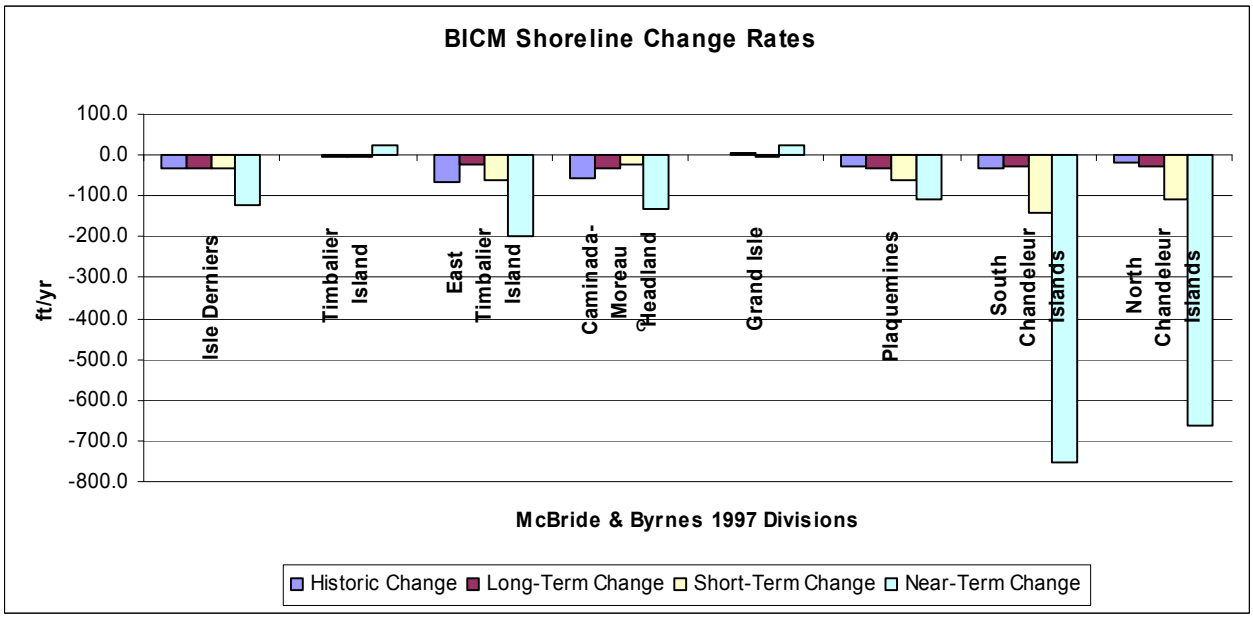


Figure 11. Average shoreline erosion rates for various sections of the Louisiana Coast including the direct impacts of Hurricanes Katrina and Rita (Near-Term 2004- 2005) (adapted from Martinez et al. 2009[3]). Note that the Timbalier Island shoreline accreted due to the 2004/05 CWPPRA restoration project (TE-40) (McBride and Byrnes 1997[4]).

Table 1. Historical (1800s-2005), long term (1930s-2005), and short term (1996-2005) barrier island changes in acres and the projected date of disappearance (adapted from Martinez et al. 2009[3]).

Island	1800s	1922-30s	1996-98	2004	2005	Projected Year of Disappearance
Breton	820.4	669.7	212.3	128.7	43.6	2013
Chandeleur	6,827.50	6,140.60	4,333.10	2,789.60	913.9	2026
Grand Gossier/Curlew	1,119.40	71.7	595.5	75.2	0	
New Harbor	177.9	232.3	85.7	76.9	87	2135
North	1,455.50	966.2	125.8	77.1	79.7	2013
Freemason	538.7	247.1	28.8	17.6	4.8	2006
Isle Derniers	8,727.80	4,838.30	1,566.50	1,613.90	1,595.50	2033
Timbalier	3,669.50	2,646.50	1,147.40	1,028.40	1,069.40	2056
East Timbalier	476.9	229.8	311.7	311.4	245.3	2138
Grand Isle	2,616.80	2,347.50	2,439.50	2,232.00	2,286.00	2867
Grand Terre	4,198.30	2,614.40	1,093.40	1,021.10	997.7	2044
Shell Island	313.8	432.4	89.7	56.5	51	2029

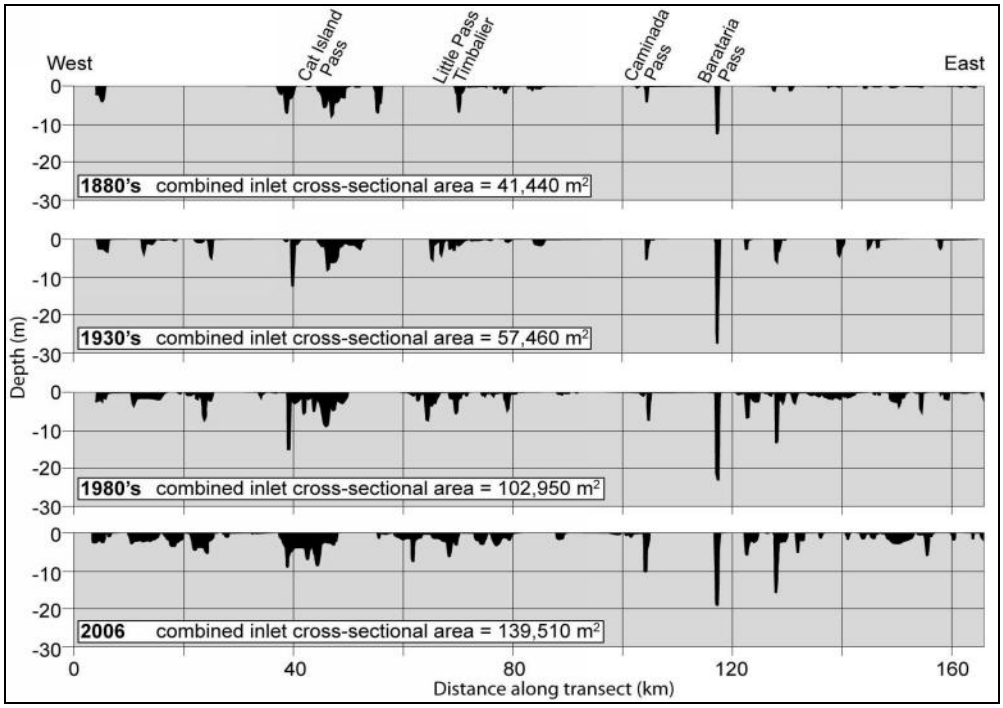
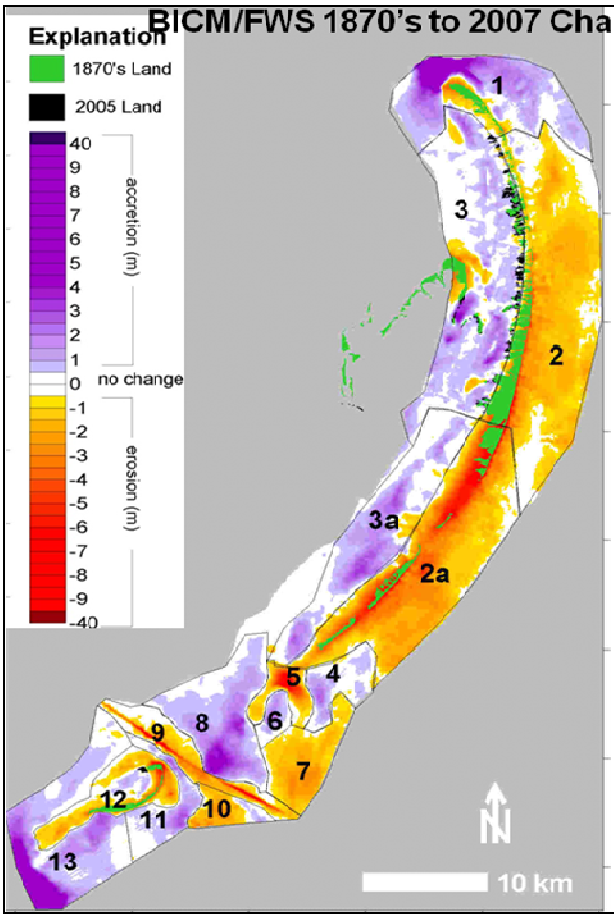


Figure 12. Combined tidal inlet cross-sectional area for Raccoon Point to Sandy Point for each time period covered by the study (1880–2006). Profiles trend along the barrier shoreline and intersect inlets at the location of minimum throat cross-sectional area for each time period. Note the widening and deepening at existing inlets as additional, stable inlets simultaneously form, resulting in a >threefold increase in combined cross-sectional area during the past 125 years in response to an increasing tidal prism associated with interior marshland loss (Miner et al. 2009b[7]).

[7] Miner, M. D., M. A. Kulp, D. M. Fitzgerald, J. G. Flocks, and H. D. Weathers. 2009. Delta lobe degradation and hurricane impacts governing large-scale coastal behavior, South-central Louisiana, USA. Geo-Marine Letters 29:441-453.



Zone	Net vol ($x10^6$ m^3)	Net vol Error +/-($x10^6$ m^3)
1. Hewes Point/ North Inlet	128.77	35.67
2. Northern Chandeleur Shoreface	-285.29	59.41
3. Northern Chandeleur Backbarrier	84.11	46.69
2a. Southern Chandeleur Shoreface	-405.14	45.78
3a. Southern Chandeleur Backbarrier	75.47	33.78
4. Updrift Curlew Pass Ebb Delta	12.68	6.94
5. Curlew Pass Inlet Scour	-33.61	5.30
6. Downdrift Curlew Pass Ebb Delta	7.39	2.61
7. Grand Gosier Shoreface	-55.99	11.37
8. Updrift MRGO	91.04	19.71
9. MRGO	-52.08	7.10
10. Downdrift MRGO shoreface	-19.62	4.45
11. Breton Pass Ebb delta and inlet fill	20.04	5.79
12. Breton Island Nearshore/Backbarrier	-47.58	11.06
13. Downdrift Breton Island	176.35	2.10
TOTAL	-303.47	296.66

Figure 13. 1870s to 2006-07 seafloor change from Breton Island to Hewes Point. Note the large magnitude of erosion on the center shoreface as well as the large deposition zones at each terminal end of the arc (courtesy of UNO/PIES).

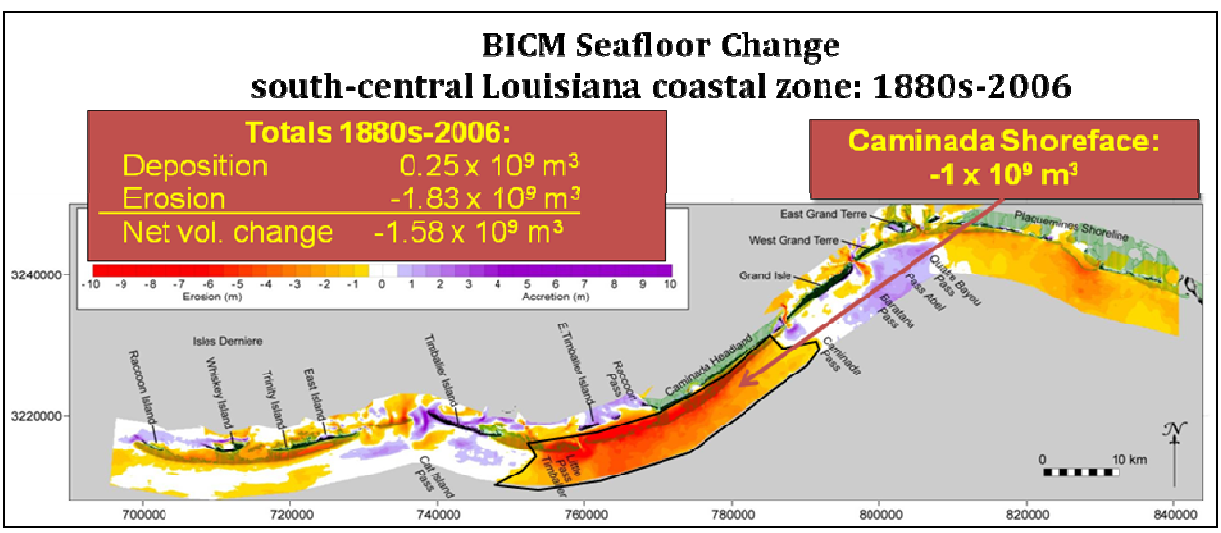


Figure 14. 1880s to 2005 seafloor change from Raccoon Point to Sandy Point. Note the large magnitude of erosion fronting the Caminada Headland and the Plaquemines barrier shoreline, as well as the deposition at ebb-tidal deltas in the coastal bights at Cat Island Pass and the Barataria Inlets. The map coordinate system is UTM Zone 15 N meters (Miner et al. 2009b[7]).

BARRIER ISLAND MAINTENANCE PROGRAM (BIMP)

Several legislative programs have been established at the state and federal levels that call for execution of a program to stabilize and preserve Louisiana's barrier islands and shorelines. Act 407, authored by Representative Gordon Dove during the 2004 Regular Session, outlined the process by which the CPRA would annually develop a list of priority projects to be submitted to the House and Senate Committees on Natural Resources. These projects would be funded by the Barrier Island Stabilization and Preservation Fund, which was established by Act 786 of the 2004 Session to provide appropriations, donations, grants and other monies for the program. Act 523 of the 2009 Regular Session transferred responsibility for this fund to the CPRA. The legislation requires this fund to be used exclusively by the CPRA to support the Barrier Island Stabilization and Preservation Program, with all interest earnings and unencumbered monies remaining in the fund at the end of the fiscal year.

In accordance with this legislation, and with the understanding that maintenance is an integral part of stabilization, preservation, and restoration of any barrier island or shoreline, BIMP was conceptualized by the OCPR. BIMP will provide the framework for categorizing, prioritizing, selecting, and funding state barrier island maintenance projects, while coordinating with CWPPRA and other existing restoration mechanisms.

Rationale

The BIMP program is necessary to quickly coordinate and fund the maintenance of previously constructed barrier shoreline restoration projects in Louisiana. This program can act as a comprehensive management approach to prioritizing rehabilitation efforts in coordination with other restoration initiatives (CWPPRA, LCA, etc.).

During the past decade, numerous barrier islands and headlands in Louisiana have been or are currently being restored by the State and its federal partners through CWPPRA and other sources. CWPPRA projects have a design life of 20 years; however, scheduled maintenance of these projects has not been incorporated into their funding or design. Design of these projects relies heavily on numerical models for predicting their longevity and ultimate success. Inherent in these models are certain assumptions and the realization that there are significant uncertainties about the physical processes that affect the stability of these land masses. If the project is impacted by more events than assumed in the model, the condition of the barrier island or headland deteriorates considerably, thereby reducing the life of the project. The project then requires maintenance to sustain the predicted design template. Maintenance costs can increase exponentially when not performed in a timely manner. Therefore, BIMP is a tool that can be used to formulate a much needed component of maintenance planning for existing projects without maintenance funds. This strategy will address the need for timely and cost-effective maintenance of barrier shoreline projects to ensure their long-term success.

Program Area

BIMP encompasses all barrier islands, headlands, and sandy shorelines, restored or otherwise (Figure 15). Based on the geographic and geologic setting, Louisiana's barrier shoreline will be treated as a series of eight coastal segments (Campbell et al. 2005[8]).

[8] Campbell, T., L. Benedet, and C. W. Finkl. 2005. Regional strategies for barrier island restoration. *In:* Finkl, C.W. and S. M. Khalil, (eds.), *Louisiana Barrier Island Restoration.* West Palm Beach, Florida: *Journal of Coastal Research*, Special Issue No. 44, 240–262.

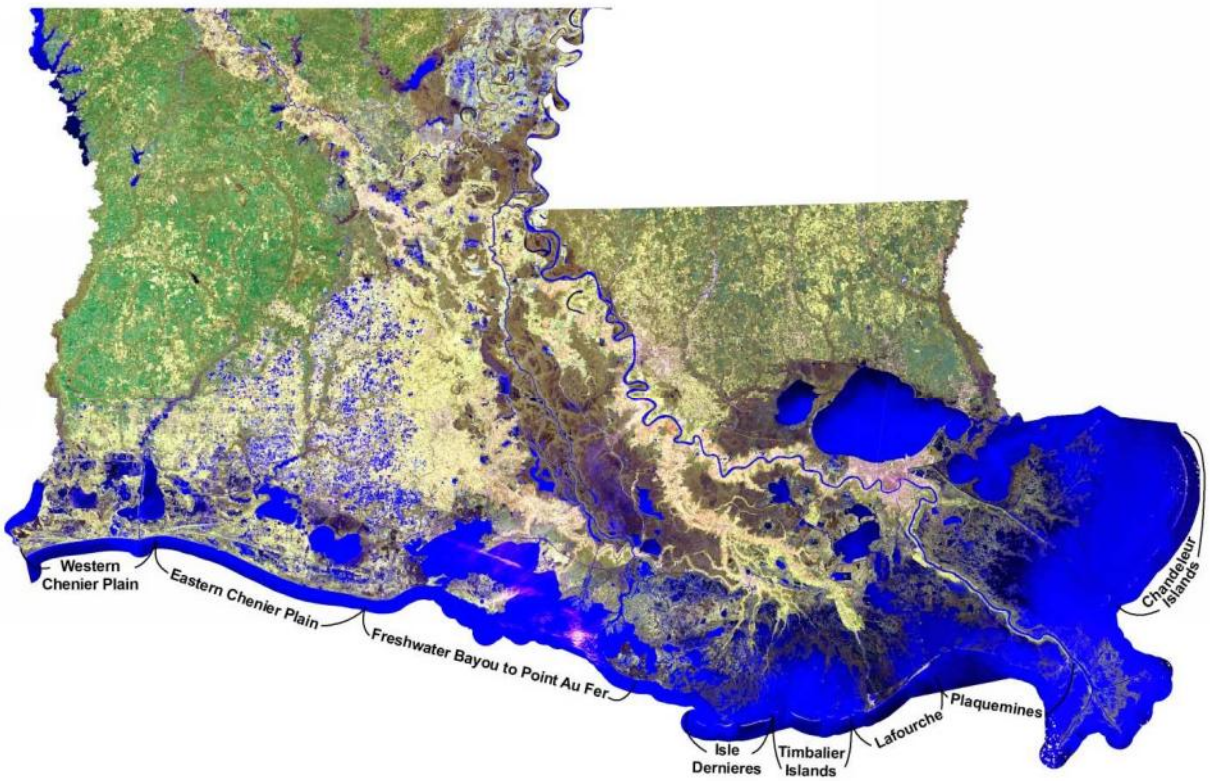


Figure 15. Various coastal segments including sandy shorelines, headlands, and barrier islands.

1. Chandeleur Islands - Northern Chandeleur Islands (Freemason Islands, North Islands, and New Harbor Islands) and Southern Chandeleur Islands (Breton Island, Grand Gosier Island, and Curlew Islands)
2. Plaquemines - Sandy Point, Pelican Island, Shell Island, Chaland Headland (Pass La Mer area), Chenier Ronquille, and East & West Grand Terre Islands
3. Lafourche - Grand Isle and Caminada-Moreau Headland
4. Timbalier Islands - Timbalier and East Timbalier Islands
5. Isle Dernieres - Raccoon, Whiskey, Trinity, East, and Wine Islands
6. Freshwater Bayou to Point Au Fer – Point Au Fer, Marsh Island, and Chenier au Tigre
7. Eastern Chenier Plain - Freshwater Bayou to Calcasieu Pass
8. Western Chenier Plain - Calcasieu Pass to Sabine Pass

Grouping these apparently disparate and disjointed units of barrier islands, headlands, and sandy shorelines into coastal segments will facilitate the development of a regional long-term strategy for shoreline maintenance, including project prioritization and development. It should be noted that any modification or alteration to an area within a segment will affect the remainder of the segment due to coastal processes and morphodynamics, and, consequently, the sediment budget.

Funding and Timeline

As part of BIMP, the OCPR will formulate an annual list of potential projects based on inspections of previously constructed projects, post-storm assessments, BICM data, and existing

project maintenance schedules. Data from these sources will be used to identify existing projects with an immediate need for repairs. All projects will be compiled and ranked by December 1st of each year. This list, along with recommended funding levels, will be provided to both the House and Senate Committees on Natural Resources for approval and funding. Funding will come from the Barrier Island Stabilization and Preservation Fund as set forth in House Bill No. 1034, Act No. 786 of the 2004 Session.

BIMP Projects

1. The 2006/2007 BIMP projects approved for implementation were the Bay Champagne Marsh Creation and Bay Champagne Sand Fencing projects. Bay Champagne is a 250-acre body of water just east of Port Fourchon in Lafourche Parish. Currently, only a narrow dune feature separates the bay from the Gulf, and a breach of this dune would expose interior marsh to increased erosion. These restoration projects would create 70 acres of marsh in the bay, as well as utilize sand fencing to stabilize the fore and back dune areas. The total cost of the projects combined was estimated at $2,820,000. These projects were discontinued due to a lack of close proximity sediment sources. Additionally, the Caminada Headland project currently under design should address the Bay Champagne area-of-need when it is constructed.

2. The 2007/2008 BIMP selections were the Sediment Bypassing at the Mermentau Jetties and the East Grand Terre Vegetative Plantings projects. The former project will pair $1,387,688 in Calcasieu Parish CIAP funds with $2,750,000 in BIMP funds to hydraulically dredge material adjacent to the east Mermentau Jetty and move it to the west side. This will allow the littoral drift to disperse the material on the beach front. The goal of this project is to rebuild approximately 75 to 100 acres of gulf shoreline at Hackberry Beach. This project is currently under design. The East Grand Terre Vegetative Plantings project will be implemented following construction of the East Grand Terre Island Restoration CIAP project that is currently under construction. The total cost of the BIMP planting project is approximately $750,000. Although these projects were selected in 2007/2008, they will be funded with 2008/2009 BIMP funds.

3. The BIMP project approved for implementation in the 2008/2009 cycle was the 2009 Sand Fencing Project, which consists of installation of 34,000 linear feet of sand fencing within the project areas of five constructed barrier island restoration projects in Terrebonne and Plaquemines Parishes. The proposed sand fencing will be installed on Trinity/East Islands in the eastern Isles Dernieres (TE-20 East Island, TE-24 Trinity Island, and TE-37 New Cut project areas); Timbalier Island (TE-40 Timbalier Island project area); and near Chaland Pass (BA-38 Chaland Headland project area). Installation of the sand fencing will facilitate the capturing of wind-blown sand and building of additional sand dunes on the islands. It is estimated that the work will be completed by the end of February 2010. The construction contract amount is $198,200. No additional projects were selected this cycle, as the Sediment Bypassing at the Mermentau Jetties and East Grand Terre Vegetative Plantings projects are expected to use funds from this funding cycle.

BARRIER SHORELINE RESTORATION PROJECTS

Constructed Projects

The following barrier shoreline projects have been constructed under CWPRRA and CIAP (Figure 16):

1. Pass Chaland to Grand Bayou Pass Barrier Shoreline Restoration (BA-35) (2009) - This project includes the deposition of dredged material and vegetation plantings. These features will act as a buffer against wave and tidal energy, thereby protecting the mainland shoreline from breaching and continued erosion.
2. EB - Rockefeller Refuge Shoreline Protection Demonstration (ME-18) (2009) – This project will determine the best option for combating erosion in the high energy system of the Gulf shoreline at the Rockefeller Wildlife Refuge by analyzing four different test sections of shoreline protection. The alternatives include a 700 feet section of beach fill with gravel/crushed stone, a 500 feet section of reef breakwater with grave/crushed stone beach fill, a 500 feet section of reef breakwater with lightweight aggregate core, and a 500 feet section of concrete panel breakwater. This project was designed with CWPPRA funds, and was constructed using CIAP 2007 funds. The project is currently in the performance evaluation phase.
3. Whiskey Island Back Barrier Marsh Creation (TE-50) (2009) - The goal of this project is to enhance the function of Whiskey Island as a protective barrier for back-bay and inland areas. Dredged material was deposited on the island's back-barrier area to widen the marsh platform on the central and eastern portions of Whiskey Island.
4. New Cut Dune and Marsh Restoration (TE-37) (2007) - The objective of this project was to close the breach between East and Trinity Islands that was originally created by Hurricane Carmen (1974) and subsequently enlarged by Hurricane Juan (1985). The project created barrier island dunes and marsh habitat and lengthened the structural integrity of the eastern Isles Dernieres by restoring the littoral drift and adding sediment to the near-shore system.
5. Timbalier Island Dune and Marsh Creation (TE-40) (2004) – Timbalier Island is migrating rapidly to the west/northwest; therefore, the western end of Timbalier Island is undergoing lateral migration by spit-building processes at the expense of erosion along the eastern end. The objective of this project is to restore the eastern end of Timbalier Island by the direct creation of beach, dunes, and marsh.
6. Holly Beach Sand Management (CS-31) (2003) - The purpose of the project is to protect existing coastal wetlands by restoring and maintaining the integrity and functionality of the remaining chenier/beach ridge. This objective was accomplished through beach renourishment, installation of sand fencing, vegetation plantings, and monitoring of the shoreline response.
7. Vegetative Plantings of a Dredged Material Disposal Site on Grand Terre Island (BA-28) (2001) - The goal of this project is to stabilize dredged material sites on West Grand Terre Island. This objective was achieved through vegetation plantings and by purchasing grazing rights on the island for the 20-year life of the project.
8. Chandeleur Islands Marsh Restoration (PO-27) (2001) - This project is intended to accelerate the recovery period of barrier island areas overwashed by

Hurricane Georges in 1998 through vegetation plantings. The overwash areas, which encompass 364 acres, are located at 22 sites along the Chandeleur Sound side of the island chain and were planted with smooth cordgrass (*Spartina alterniflora*).

9. Chenier Au Tigre Sediment Trapping Demonstration (TV-16) (2001) – This demonstration project was intended to test the effectiveness of rock breakwaters that are designed to trap and retain sediment from gulf tides, stabilize the existing shoreline from ongoing erosion, and build up portions of the coastline that have already eroded. Increased sediment accretion on the Gulf of Mexico side of the chenier is expected to act as a buffer between the higher salinity Gulf water and the brackish marsh, which lies immediately behind the chenier.
10. East Timbalier Island Sediment Restoration, Phase 1 (TE-25) (2000) - The objective of this project is to strengthen and thus increase the life expectancy of East Timbalier Island. The project called for the placement of mined sediment in three embayments along the landward shoreline of East Timbalier Island. The project also included aerial seeding of the dune platform, installation of sand fencing, and dune vegetation plantings.
11. East Timbalier Island Sediment Restoration, Phase 2 (TE-30) (2000) - The project goal is to strengthen and increase the life expectancy of East Timbalier Island by placing dredged material along its landward shoreline. Additional rock was placed on the existing breakwater in front of the island which will help protect the created area from erosion.
12. Isles Dernieres Restoration East Island (TE-20) (1999) - The project objective is to restore the coastal dunes and wetlands of the Eastern Isles Dernieres. Approximately 3.9 million cubic yards of sand were dredged from Lake Pelto and used to build a retaining dune, which was then hydraulically filled to create an elevated marsh platform. Sand fences and vegetation were also installed to stabilize the sand and minimize wind-driven transport.
13. Isles Dernieres Restoration Trinity Island (TE-24) (1999) - The project objectives include the restoration of the dunes and marsh of Trinity Island. Approximately 4.85 million cubic yards of sand were dredged from Lake Pelto and used to build a retaining dune, which was then hydraulically filled to create an elevated marsh platform at the bay side of the island. Sand fences and vegetation were also installed to stabilize the sand and minimize wind-driven transport.
14. Whiskey Island Restoration (TE-27) (1999) - The objective of this project is to create and restore beaches and back island marshes on Whiskey Island. The project consisted of creating 523 acres of back island marsh and filling in the breach at Coupe Nouvelle. The initial vegetation planting of smooth cordgrass (*Spartina alterniflora*) on the bayside shore was completed in July 1998 and additional vegetation seeding and planting was carried out in spring 2000.
15. Raccoon Island Breakwaters Demonstration (TE-29) (1997) – The goal of this project is to reduce shoreline erosion and increase land coverage. Eight segmented breakwaters were constructed along the eastern end of the island to reduce the rate of shoreline retreat, promote sediment deposition along the beach, and protect seabird habitat. Project effectiveness was determined by monitoring changes in the shoreline, wave energy, and elevations

along the beach, and by surveys of the gulf floor between the shoreline and the breakwaters.

16. Timbalier Island Planting Demonstration (TE-18) (1996) - For this project, sand fences were installed and vegetation suited to the salinity and habitat type of Timbalier Island was planted in several areas on the island to trap sand and buffer wind and wave energy.

Projects Funded for Construction

The following barrier shoreline projects have been funded and are in various stages of construction under CWPPRA and CIAP (Figure 11):

1. Barataria Barrier Island Complex Project: Pelican Island and Pass La Mer to Chaland Pass Restoration (BA-38) - The objectives of this project are to create barrier island habitat, enhance storm-related surge and wave protection, prevent overtopping during storms, and increase the volume of sand within the active barrier system. This project includes dedicated dredging of local, near shore sand sources to directly create beach, dune, and wetland habitats. The Chaland Headland portion of this project was constructed in 2007; construction of the Pelican Island segment is pending.
2. Raccoon Island Shoreline Protection/ Marsh Creation (TE-48) – The goal of this project is to protect the Raccoon Island rookery and seabird colonies from an encroaching shoreline by reducing the rate of erosion along the western end of the island and creating more land along the northern shoreline. This goal will be accomplished through the construction of eight additional breakwaters and a terminal groin along the gulf side of the island, adjacent to the Raccoon Island Breakwaters Demonstration (TE-29) project. In addition, dredged material will be used to create marsh on the bay side of the island. The shoreline protection (Phase A) component of this project was constructed in 2007; construction of the marsh creation (Phase B) component is pending.
3. West Belle Pass Barrier Headland Restoration (TE-52) – The goals of this project are to re-establish the eroded West Belle Pass headland via dune and marsh creation and to prevent increased erosion along the adjacent bay shoreline. The project will create a continuous headland approximately 9,300 feet in length, 120 acres of beach/dune habitat, and 150 acres of marsh habitat. This project was approved for construction funding in 2010.
4. Enhancement of Barrier Island Vegetation Demonstration (TE-53) – The goal of this project is to test several technologies or products to enhance the establishment and growth of key barrier island and salt marsh vegetation. The project will focus on enhancing the establishment and growth of transplants of both dune vegetation (*Panicum amarum* and *Uniola paniculata*) and marsh vegetation (*Spartina alterniflora* and *Avicennia germinans*). Construction began in 2009.
5. East Marsh Island Marsh Creation (TV-21) – The goal of this project is to re-create brackish marsh habitat in the open water areas of the interior marsh primarily caused by hurricane damage. This project is expected to go to construction in spring 2010.
6. EB - East Grand Terre Island Restoration (BA-30) - The goal of this project is to stabilize and benefit 1,575 acres of barrier island habitat and extend the island's life expectancy. Dredged material will be used to create dune and marsh habitat on East Grand Terre Island. This project will be constructed

using CIAP 2007 funds, and it is currently under construction.

Future Projects

The following barrier shoreline projects are in various stages of design under CWPPRA, CIAP, Surplus, and LCA (Figure 11):

1. Riverine Sand Mining/Scofield Island Restoration (BA-40) - The goals of this project are to repair breaches and tidal inlets in the shoreline, reinforce the existing shoreline with sand, increase the width of the island with back barrier marsh to increase island longevity, and to re-establish a sandy dune along the length of the shoreline to protect the newly constructed marsh platform from sea level rise and storm damage. The project will create and nourish existing island habitat through the introduction of riverine sand and offshore fine sediment.
2. Southwest Louisiana Gulf Shoreline Nourishment and Protection (ME -24) – Sediment from the Gulf of Mexico will be used to rebuild approximately 9 miles of shoreline between Dewitt Canal and Constance Lake. The project shoreline would be maintained and increased by creating beach nourishment feeder berms in shallow open gulf water from additional dredge material in three to five year maintenance cycles.
3. Ship Shoal: Whiskey West Flank Restoration (TE-47) – The objective of this project is to rebuild dunes and a marsh platform on the west flank of Whiskey Island through the deposition of dredged material transported from Ship Shoal. This project will provide a barrier to reduce wave and tidal energy, thereby protecting the mainland shoreline from continued erosion.
4. EB – Lake Sand Terracing (TV-32) – The objective of this project is to construct about 55 acres of shallow bay bottom terraces planted with native vegetation on Marsh Island. The construction of the terraces will result in the creation of 34 acres of marsh, and it is anticipated that construction of the terraces will result in a 50% reduction in the erosion of the neighboring shoreline. This project will be constructed with Iberia Parish CIAP funds.
5. EB – Lake Tom/Lake Michael Terracing (TV-33) - The project is located on the Marsh Island State Wildlife Refuge and will construct approximately 55 acres of shallow bay bottom terraces planted with native vegetation. The construction of the terraces will result in the direct creation of 55 acres of marsh and it is anticipated that construction of the terraces will result in a 50% reduction in the erosion of the neighboring shoreline. This project will be constructed with Iberia Parish CIAP funds.
6. EB - Bayside Segmented Breakwaters at Grand Isle (BA-50) – The purpose of this project is to reduce erosion on the bay side of Grand Isle. Twenty-four 300 foot breakwaters (approximately 1.5 miles) will be constructed on the back-bay side of Grand Isle. This project will be constructed with Jefferson Parish CIAP funds.
7. EB – Chenier au Tigre Cement Bag Extension (TV-43) – The goal of this project is to install cement bags to create approximately 1,000 linear feet of breakwater to slow Gulf shoreline erosion. This project will be constructed with Vermilion Parish CIAP funds.
8. EB – Oyster Reef Parallel to the Coastline at Chenier au Tigre (TV-51) – The goal of this project is to create a one mile oyster reef 1,300 feet from shore by using approved, available materials. Oyster spat are plentiful in this area; therefore, creating the base will establish

a living, sustainable reef. This project will be constructed with Vermilion Parish CIAP funds.

9. EB – Shoreline Protection and Marsh Creation at Tiger Point (TV-45) – The goal of this project is to install cement bags as breakwaters for approximately 1,500 feet to slow erosion and facilitate marsh accretion along the Gulf of Mexico shoreline near Freshwater Bayou. This project will be constructed with Vermilion Parish CIAP funds.
10. SF - Cameron Parish Shoreline (CS-33) - The goal of this project is to nourish 5-6 miles of the Gulf shoreline west of the Calcasieu Ship Channel using sand mined from an offshore borrow site. This project will be funded with Surplus 2007/2008 funds.
11. Stabilize Gulf Shoreline at Point Au Fer Island – This LCA project will protect the integrity of Point au Fer Island, which maintains separation of Four League Bay from the Gulf of Mexico. This project will also increase the island's resistance to storms and erosion and increase habitat for many species of indigenous and migratory wildlife. The objectives will be reached through the placement of material on the beach from dredging of offshore sources, the Atchafalaya River, or upland disposal sites. The design may include offshore segmented breakwaters or groins to help reduce erosion and trap sediments that would otherwise be lost from the system.
12. Terrebonne Basin Barrier Shoreline (TBBS) Restoration –This LCA project will restore the Timbalier and Isle Dernieres barrier island chains by widening the islands and increasing dune crest elevation. By restoring the integrity and function of the barrier shoreline of Terrebonne Basin, this project will reduce the marine influence of back barrier ecosystems by reducing storm surges, wave energy, and salt water intrusion in estuaries, bays and wetlands.

The following two projects are part of LCA's Barataria Basin Barrier Shoreline (BBBS) Restoration project:

13. Caminada Headland Restoration – The Caminada-Moreau Headland protects the highest concentration of near-gulf oil and gas infrastructure in the coastal area. This reach of the Barataria shoreline also supports the only land-based access to the barrier shoreline in the Deltaic Plain. This project would restore degraded areas of the headland through the creation of dunes, berms, and marsh habitat. The objective of this project is to restore and maintain the headland, and thereby protect unique coastal habitats, continue sand transport to Grand Isle, and protect Port Fourchon and the only hurricane evacuation route available to the region. CIAP 2007 and Surplus 2008 funds have been allocated to implement a portion of this project.
14. Shell Island Restoration - Shell Island is a barrier island in the Plaquemines barrier island system and a critical component of the Barataria shoreline. This project would restore this barrier island through the creation of dune and marsh habitat. The overall goal of this project is to prevent intrusion of the Gulf of Mexico into interior bays and marshes, which would result in a permanent modification of the tidal hydrology of the Barataria Basin. The project would also help restore natural sand transport along this reach of the coast, as well as protect nearby highways, ports, and oil and gas facilities. This segment of the shoreline has been nearly lost, and failure to take restorative action could result in the loss of any future options for restoration.

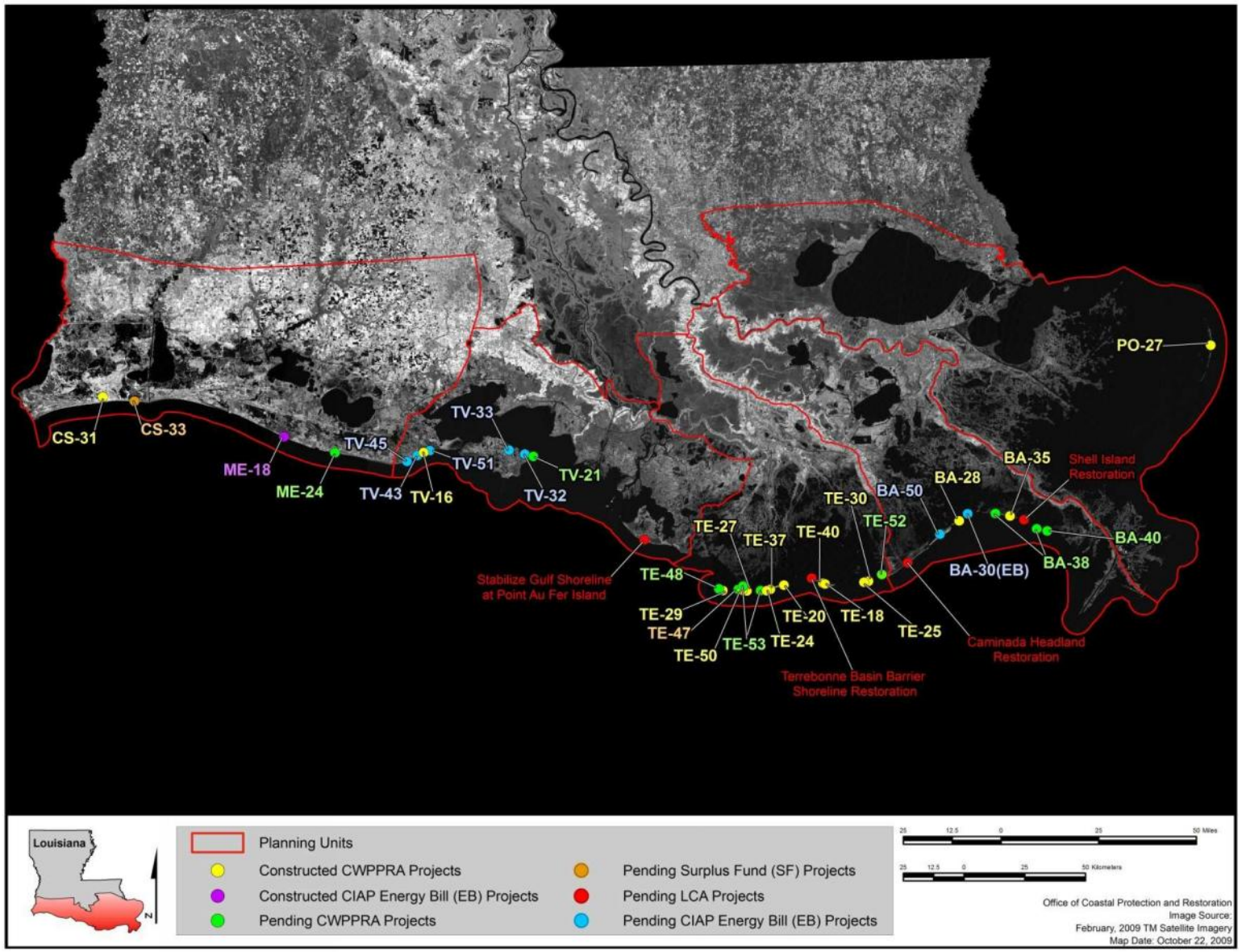


Figure 16. Location of barrier island, barrier headland, and sandy shoreline restoration projects in Louisiana (includes: constructed CWPPRA and CIAP projects and pending CWPPRA, LCA, CIAP, and Surplus Fund projects).

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Appendix F

Candidate Community Development Block Grant Projects

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Table F-1. Inventory of Proposed State CDBG Projects

Project	Project Estimate	State CDBG Funds	Parish CDBG Funds	Other Funds	Brief Project Description
Grand Bayou Levee	$ 8,000,000	$ 5,000,000	$ 3,000,000	$ -	This project will provide protection to residents in the area and complement already constructed levees. The levee will fill in the missing gap that is currently in the existing levee system. This 2.5 mile levee will be constructed along Grand Bayou and tie into the existing levee systems on each end. The proposed height of 8 - 10 ft. is sufficient to alleviate inundation from more frequent storm events.
Flood Control Structure at Boston Canal	$ 5,800,000	$ 5,800,000	$ -	$ -	This project is included in Vermilion Parish's "Hurricane Protection Plan". It was included in their list of "New Start" projects. This area has experienced flooding caused by tidal surges from tropical storms that originate in Vermilion Bay and travel inland through existing canals. These flood waters inundate homes and property causing substantial damage. The Henry Hub, a major processing and conveyance plant for the entire nation, is situated in the area and had major damage caused by past hurricane events. This project will construct a flood control structure at the intersection of Boston Canal and the GIWW that could be closed in the event of a hurricane or tropical storm, which would aid in stemming the rise of flood waters. The project is estimated to benefit 25,000 acres.
Madisonville Bulkhead Project	$ 1,080,000	$ 490,000	$ -	$ 590,000	The project involves the construction of improvements to the existing bulkhead along the shore of Lake Pontchartrain and the Tchefuncte River. The existing bulkhead is in a state a major disrepair from erosion and land loss due to wave action associated with storms and hurricanes and provides little benefit to the existing road, parking lot and boat ramps. The construction of the improvement will afford protection to these features while allowing continued access to the lake and river for a variety of recreational opportunities.
St. Mary Levee (Franklin Canal)	$ 5,135,000	$ 4,635,000		$ 500,000	This project includes the construction of a sinkable barge which would be placed in the event of a storm on the Franklin Canal in St. Mary Parish, operated by the St. Mary Levee District. The area (low income housing) surrounding the canal has experienced repetitive flooding from hurricane tidal surges.
Restore Lafitte Levees and Associated Drainage Facilities to Protect Local Communities/Critical Infrastructure	$ 500,000	$ 500,000	$ -	$ -	Lafitte Mayor Tim Kerner advised that a recently constructed levee known as the Fisher Basin Levee has incurred the following damage due to the recent hurricane season. Flood fighting activities during the previous hurricanes required the use of heavy vehicles and equipment along the levee, resulting in settling and rutting of a recently built levee reach. A 4-inch lift of material is needed immediately to address this issue and repair the levee. About a 5-milestretch needs this lift.
Front Ridge Chenier Terracing/Protection	$ 1,900,000	$ 1,900,000	$ -	$ -	This project is located in Vermilion Parish, south of Front Ridge. The most significant environmental problem affecting the marshes in this area is deterioration and conversion to open water. Initially, much of the loss in the area occurred from salt water intrusion. Large open water areas contributed to further marsh deterioration through wave action associated with increased fetch. New open water areas were created adjacent to Front Ridge after Hurricanes Rita, Gustav, and Ike and erosion from the increased wave energy now threatens the ridge. This project would construct approximately 85,000 linear feet of marsh terraces. These terraces will reestablish emergent marsh and create submerged aquatic habitat by reducing wave energy associated with fetch. The terraces and associated emergent wetland vegetation will also help to reduce storm surge.
East LaBranche Shoreline Protection	$ 3,425,626	$ 1,000,000	$ -	$ 2,425,626	Located in St. Charles Parish, this funding will augment CIAP funding from St. Charles Parish and will allow completion of the 15,300 linear foot shoreline protection foreshore dike along an unprotected portion of Lake Pontchartrain.
Rosethorne Wetland Assimilation Project	$ 1,000,000	$ 1,000,000	$ -	$ -	This project is located in Jefferson Parish and the project budget is $1,000,000. The town of Jean Lafitte treatment facility is located approximately 1,000 feet from Louisiana Highway 45 and Louisiana Highway 3134 and currently discharges treated municipal effluent into Bayou Barataria. This project will utilize secondarily treated municiapl effluent diverted from the Rosethorne facility to restore and sustain coastal wetland habitat. The project will repair damaged critical infrastructure as well as reduce the cost of future operation, maintenance and permit compliance monitoring and will restore rapidly degraded coastal wetlands that in addition to their ecological value, protect the metropolitan New Orleans area from tropical storm events.
St Tammany Parish Marsh Nourishment Project Coin du Lestin	$ 1,500,000	$ 1,500,000	$ -	$ -	This project involves the dredging the mouths of three canals that will be used for marsh nourishment in the Big Branch Marsh National Wildlife Refuge. The debris is composed of marsh grass and silt that clogged the mouth of the canals during Hurricane Katrina. Removal of at least 65,000 cubic yards of debris is necessary for to restore pre-storm drainage and removal of 99,000 cubic yards to return the canals to pre-storm navigability.
Restoration of Bayou Lafourche Capacity	$ 2,700,000	$ 2,700,000	$ -	$ -	Bayou Lafourche provides drinking water for 300,000 people. This project would replace the existing pumps which were installed in 1955. These pumps are well beyond their service life and currently need custom manufactured replacement parts for servicing. This project will also include the replacement of two pump motors and provide for a backup generator system.
General Admin. (2%)	$ 547,666	$ 547,666	$ -	$ -	
Program Delivery (3%)	$ 821,499	$ 821,499	$ -	$ -	
Contingency	$ 1,489,132	$ 1,489,132	$ -	$ -	
Total	$ 33,898,923	$ 27,383,297	$ 3,000,000	$ 3,515,626	

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Appendix G

Compilation of Project Concepts for Future Consideration

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DRAFT - Inclusion on this list does not constitute an endorsement by OCPR.

Number	Project Name	Project Descriptions	Benefit area (acres)	Project Type[1]	Cost ($1,000)	Parish	Planning Unit	MP Measure	UEA	Source
PC1	Chandeleur Island Restoration	Replenish sand and plant dune vegetation.	1,000	BI	$150,000	St. Bernard Parish	1	1-27		LPBF/CRCL; similar project proposed for PPL 20
PC10	Breton Landbridge Marsh Restoration	Maintain the landbridge between the Bayou Terre aux Boeufs and River aux Chenes ridges and restore critical wetlands destroyed by Hurricane Katrina.	700	MC	$35,000	Plaquemines	1	1-22		PPL 16 Project
PC11	Breton Marsh Restoration Project	Marsh creation from Lake Lery sediment pumped via pipeline.	618	MC	$17,000	Plaquemines	1			PPL 19 project; similar project proposed on PPL 20
PC12	Caernarvon marsh creation	Create marsh on the north and west sides of Lake Lery using material from the lake.	6,910	MC	$150,000	Plaquemines/St. Bernard	1			NOFO
PC13	Sediment Delivery at Labranche Wetlands	Sediment mined from Miss. River delivered to Labranche via pipeline to create marsh.	3,500	MC	$138,750	St. Charles	1			LCA Comprehensive Study
PC14	Northshore Beach Marsh Creation/Restoration	Create approximately 600 acres of intermediate marsh in St. Tammany parish in open water areas along the northshore near the community of Northshore Beach and east of the mouth of Bayou Liberty, south of Slidell.	600	MC	$7,000	St. Tammany	1	1-12		CIAP Tier 2 proposed St. Tammany Parish
PC15	North Shore Marsh Restoration Project	Marsh creation from Lake Pontchartrain sediment within Big Branch NWR.	450	MC	$16,000	St. Tammany	1			PPL 19 project, also proposed for PPL 20
PC16	Bayou Bonfouca Marsh Creation	Placing sediment hydraulically dredged from Lake Pontchartrain and placed in open water sites to create approximately 416 acres of emergent marsh and nourish an additional 42 acres. Containment dikes would be gaped to allow for fisheries access. Marsh adjacent to the marsh rim would be sufficient as to not allow any breaches.	458	MC	$17,700	St. Tammany	1	1-20		PPL 19 project, also proposed for PPL 20
PC17	Central Wetlands Assimilation Project	An augmented version of the $40,000,000 proposed 10,000 acre Central Wetlands project in the CIAP plan based on additional work done through the feasibility study. This includes introduced water from all of the Orleans East bank and St. Bernard parish sewage treatment facilities.	32,000	MC & FD	$65,000	Orleans/St. Bernard	1	1-17	1-17	CIAP Tier 2
PC18	Lake Pontchartrain Fringe marsh & shoreline stabilization Orleans Parish	Placement of wave dampening structures such as reef balls or I-10 demo concrete to encourage natural accretion and re-vegetation of shoreline & provide buffer for levee.	50	MC & SP	$1,500	Orleans Parish	1			LPBF/CRCL
PC186	Delacroix Wetland Restoration	Creation of approximately 468 acres of marsh using material dredged from Lake Lery.	468	MC	Not identified	St. Bernard	1	1-22		PPL20 Project
PC187	Irish Bayou and Brazilier Island Marsh Creation	Creation of approximately 375-400 acres of marsh with sediment dredged from Lake Pontchartrain; construction of a 4,980 linear foot rock dike south of I-10 to Irish Bayou; construction of a 12,880 linear foot rock dike from Irish Bayou to the existing PO-22 project.	417	MC/SP	$24,000	Orleans	1	1-14	1-14	PPL20 Project
PC188	Kenner Effluent Discharge to Restore/Sustain LaBranche Marsh and Wetlands	Discharge of sanitary sewer overflow into the LaBranche wetlands during wet weather events.			$4,000	Jefferson/St.Charles	1			PPL20 Project
PC189	Lake Lery Marsh Restoration - Voss Family Property	Creation of approximately 850 acres of marsh using material dredged from Lake Lery.	850	MC	Not identified	St. Bernard	1			PPL20 Project
PC19	Lake Pontchartrain Fringe marsh & shoreline stabilization Jefferson Parish	Segmented breakwaters and marsh creation along shoreline to restore natural shoreline function and provide buffer for levee.	40	MC, HP and SP	$62,000	Jefferson Parish	1	1-13		LPBF/CRCL
PC190	Lake Lery Shoreline Marsh Creation	Creation/nourishment of 460 acres of marsh along the eastern shoreline of Lake Lery.	460	MC/VP	$19,000	St. Bernard	1	1-22		PPL20 Project
PC191	Northwest Lake Pontchartrain Shoreline Protection	Construction of a foreshore rock dike (five to seven miles) along Lake Pontchartrain in critical areas with high erosion rates.		SP	$15,000	St. Tammany/Tangipahoa	1			PPL20 Project
PC192	Proctor Point Shoreline Stabilization	Construction of approximately 8.4 miles of continuous breakwaters in Lake Borgne similar to nearby PO-30 and PO-32 projects.	1,000	SP	Not identified	St. Bernard	1	1-20	1-20	PPL20 Project
PC193	Reggio Area Marsh Creation	Creation of approximately 400 acres of marsh using material dredged from Lake Lery.	400	MC	Not identified	St. Bernard	1	1-22		PPL20 Project
PC194	Unknown Pass to Rigolets Shoreline Protection	Foreshore rock (four miles) dike along the Lake Borgne shoreline from Unknown Pass to Rigolets.		SP	$10,000	Orleans	1	1-14	1-14	PPL20 Project
PC2	Breton Basin Oyster Barrier Reef Demonstration	Placement of oyster reef structure around the perimeter of small islands of imminent loss.	10	BI/SP	$2,000	Plaquemines	1	1-22		LPBF/CRCL

1- Project Type Key: MC=Marsh Creation; FD=Freshwater Diversion; SD=Sediment Diversion; MM=Marsh Management; SP=Shoreline Protection; HR=Hydrologic Restoration; DM=Beneficial Use of Dredged Material; VP=Vegetative Planting;SNT=Sediment and Nutrient

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Number	Project Name	Project Descriptions	Benefit area (acres)	Project Type[1]	Cost ($1,000)	Parish	Planning Unit	MP Measure	UEA	Source
PC20	Dedicated Sediment Delivery and Water Conveyance for Marsh Creation west of Big Mar	Marsh creation with sediment from Mississippi River; conveyance channel from Delacroix Canal to Big Mar.	500	MC, HR	$14,900	Plaquemines	1	1-22		PPL 19 Project
PC21	Fritchie Marsh-Northshore Marsh Creation and Terracing Project	Using Lake Pontchartrain as a possible borrow source for marsh creation; dredging Salt Bayou to historic depth; culvert installation under Highway 190; create 100,000 linear feet of terraces.	489	MC, HR, DM	$16,000	St. Tammany	1	1-14	1-14	PPL 19 project; similar project proposed for PPL 20
PC22	Plaquemines Parish Reach C	Development of Cypress & Scrub Brush ridges and brackish marsh.	1,550	MC, MM, SP, HR, DM, VP, SNR, HP	$75,000	Plaquemines	1			PP
PC23	Plaquemines Parish Reach "i"	Development of Cypress & Scrub Brush ridges and brackish marsh.	1,750	MC, MM, SP, HR, DM, VP, SNR, HP	$82,500	Plaquemines	1			PP
PC24	Seven Lagoons/GIWW Marsh Creation, Shoreline Protection, and Terracing	Dedicated dredging from Lake Borgne for marsh creation; "soft" shoreline protection along Lake Borgne; create terraces; vegetative plantings.	200	MC, SP, DM, VP	$15,000	Orleans	1	1-14	1-14	PPL 19 project
PC25	Bayou Bienvenue Restoration	BU from dredging from Lake Borgne for wetland creation; restoring bankline of Bayou Bienvenue; vegetative plantings; wastewater assimilation.	348	MC, VP	$38,900	Orleans/St. Bernard	1	1-17	1-17	PPL 19 Project
PC26	Lake Pontchartrain Fringe Marsh & Shoreline Stabilization at Causeway Bridge	Segmented breakwaters and marsh creation along shoreline-demonstration project at south end of Causeway Bridge.	5	MC/SP	$400	Jefferson Parish	1	1-13		LPBF/CRCL
PC27	Orleans Landbridge Marsh Creation and Shoreline Protection	Dedicated dredging to restore and nourish marsh along the weakened shoreline of Lake Pontchartrain and two sections of rock dike, one east of Chef Pass and a second section west of The Rigolets at Hospital Wall.	200	MC/SP	$25,000	Orleans	1	1-14	1-14	PPL 17 Project; similar project proposed for PPL 20
PC28	Wills Point Marsh Creation	Marsh creation in open water near Wills Point using Mississippi River sediments.	700	MC/SP	$40,000	Plaquemines	1	1-22		PPL 16 Project; similar project proposed PPL 20
PC3	Thin mat dredge fill downstream from Caernarvon	Convey sediment slurry from the Mississippi River into impounded areas downstream from Caernarvon to fill open water areas where marsh was removed by Hurricane Katrina. Slurry would be conveyed through a dredge pipeline and deposited to the required depth. At Little Lake, about 12 inches of slurry was placed in open water areas. The area is composed of 5 impounded areas and the area benefited could be as large as approximately 16,000 acres. This project should be phased, filling two of the impounded areas first, and using the results of that phase to design the next. Full-scale fill is probably logistically not feasible, but acreage could be scaled to available funding.	up to 16,000	DM	27/acre	Plaquemines	1			TNC
PC30	Restoration of Bayou la Loutre Ridge	Rebuild elevation of natural ridge and re-forest.	1,500	ridge restoration	$90,000	St. Bernard Parish	1	1-25		LPBF/CRCL
PC31	American/California Bay diversion with sediment enrichment	110,000 cfs uncontrolled diversion with sediment enrichment.	200,000	SD	$149,900	Plaquemines	1			LCA Comprehensive Study
PC32	Pass-a-Loutra Crevasse Maintenance	Restore 20 existing crevasses.	10,000	SD	$5,000	Plaquemines	1			LDWF
PC33	Eloi Bay Oyster Reefs	Construct vertical oyster reefs using bio-engineered technology. Induced oyster reefs will be strategically located to provide optimal protection as breakwaters and marine ecosystems. Provide long-term protection and stability to the existing marsh and the marsh and pond habitat leeward of the bioengineered reef.		SP	$20,064	St Bernard	1			PPL19 Project/TNC
PC34	Lake Pontchartrain Shoreline Protection	Extension and modification of shoreline protection efforts on lake Pontchartrain.	3 annually	SP	$14,000	Tang & St. John	1	1-11	1-11	CIAP Tier 2
PC35	Biloxi Marsh Land bridge Stabilization and Reef Creation North near Miss. Sound	Construction of oyster reefs to stabilize shoreline and create oyster reef habitat around the Biloxi Marsh Land Bridge.	140	SP & Reef restoration	$45,000	St. Bernard Parish	1	1-24	1-24	LPBF/CRCL
PC36	Biloxi Marsh Land bridge Stabilization and Reef Creation South near Chandeleur Sound	Construction of oyster reefs to stabilize shoreline and create oyster reef habitat around the Biloxi Marsh Land Bridge.	140	SP & Reef restoration	$50,000	St. Bernard Parish	1	1-24	1-24	LPBF/CRCL
PC38	Manchac Breakwaters	Increase height of and reduce width between existing breakwaters along the northwest shore of Lake Pontchartrain in the vicinity of Manchac WMA; plug 4th canal.	800	SP/HR	$3,000	St. John	1	1-11	1-11	LDWF

1- Project Type Key: MC=Marsh Creation; FD=Freshwater Diversion; SD=Sediment Diversion; MM=Marsh Management; SP=Shoreline Protection; HR=Hydrologic Restoration; DM=Beneficial Use of Dredged Material; VP=Vegetative Planting;SNT=Sediment and Nutrient

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Number	Project Name	Project Descriptions	Benefit area (acres)	Project Type[1]	Cost ($1,000)	Parish	Planning Unit	MP Measure	UEA	Source
PC39	Irish Bayou to Chef Menteur Pass Shoreline Protection and Marsh Creation	1. Approximately 20,700 linear feet of rock dike will be constructed along the –2.0 foot contour extending from Point aux Herbes to Chef Menteur Pass. 2. Approximately 46 acres of marsh will be created by hydraulically dredging material from Lake Pontchartrain.	400	SP/MC	$40,000	Orleans	1			PPL 14 Project
PC4	Opportunistic use of Bonnet Carre	Freshwater diversion through spillway to reduce salinity and nourish marsh.	5,500	FD	$17,000	St. Charles	1			LCA Comprehensive Study
PC5	Caernarvon to Pearl River Hurricane Protection	This measure will provide hurricane protection to concentrated, distributed and strategic assets located in the upper and central Pontchartrain Basin. This storm barrier will work in conjunction with the existing levee systems in order to reduce the risk of targeted assets to the 0.2% standard of protection. Project will require additional raisings to account for settlement and subsidence over the 50 Year Life.	596000	HP	$6,000,000	St. Bernard, Orleans, St. Tammany, Jefferson, Tangipahoa, St. John the Baptist, St. Charles, Livingston	1	1-1	1-1	
PC6	West Shore (Advanced Measures)	Provide initial first lift construction to limit inundation from hurricane storm surges along the current locally preferred alignment from Bonnet Carre Spillway continuing westward parallel to I-10. This will provide immediate relief from lower level hurricane storm surges that currently inundate the area. Funds utilized to construct Advanced Measures will be used to off-set the Total Project Cost by crediting towards the Non-Federal Share of the project.	67839	HP	$50,000	St. Charles, St. John the Baptist, and St. James Parishes	1	1-5		Authorized by resolutions requesting a review of the Lake Pontchartrain and Vicinity, Louisiana, report adopted by the committee on Public Works of the U.S. House of Representatives, dated 29 July 1971; and by the Committee on Public Works of the U.S. Senate, dated 20 September 1974.
PC7	Central Wetlands Unit Restoration	To restore the entire CWU using wetland assimilation and planting cypress trees.	20,000	HR/VP	$60,000	St. Bernard and Orleans Parishes	1	1-17	1-17	LPBF/CRCL Part through CWPPRA;
PC8	Grand Coin Pocket Marsh Creation East Orleans Land bridge	Marsh creation within new open water marsh along the south bank of The Rigolets Pass to prevent new pass from Rigolets to Lake St. Catherine.	100	MC	$5,000	Orleans Parish	1	1-14	1-14	LPBF/CRCL
PC9	Bayou Bienvenue Restoration	BU from port of NO dredging or dedicated dredging from Lake Borgne for wetland platform creation at the headwaters of Bayou Bienvenue. Planting and wastewater assimilation.	450	MC	$35,000	Orleans/St. Bernard	1	1-17	1-17	PPL 18 Project
PC195	Beneficial Use of Mississippi River Dredge Material via Hopper Dredge Pumpout Stations	Creation of 4-8 mooring/pumpout sites along either side of the Mississippi River in the vicinity of Head of Passes, West Bay and East Bay to be used by the USACE when performing maintenance dredging of the river to pump the material to the marsh along the river.	2,000	DM	$10,000	Plaquemines	1, 2			PPL20 Project
PC196	White Ditch Marsh Creation Sediment Delivery	Creation/nourishment of 380 acres of marsh with sediment dredged from the Mississippi River.	218	MC/VP	$19,500	Plaquemines	1, 2	1-22		PPL20 Project
PC183	East Golden Meadow Marsh Creation	Create approximately 290 acres of marsh just to the east of the hurricane protection levee. The proposed marsh creation will help protect the levee. Material for marsh creation will be excavated from nearby open water area or from Little Lake.	290	MC	$15,000	Lafourche	2	2-15	2-15	PPL 18 Project; also proposed for PPL 20
PC184	Northeast Little Lake Marsh Creation and Shoreline Protection	Create approximately 200 acres of marsh and install approximately 35,000 feet of shoreline protection along the northeast shoreline of Little Lake and east and west banks of Harvey Cutoff.	400	MC/SP	$20,000	Jefferson	2	2-15	2-15	PPL 17 Project; similar project proposed for PPL 20
PC197	Backfilling Oil & Gas Canals in Jean Lafitte National Park	Backfill a system of oil and gas canals (~15 miles of canals) at strategic locations in Jean Lafitte National Park.		HR	$18,389	Jefferson	2			PPL20 Project
PC198	Bayou Dupont Marsh and Ridge Creation Phase II	Creation of roughly 340 acres of marsh and ridge via confined disposal of sediment dredged from the Mississippi River.	340	MC	$29,400	Jefferson	2	2-13	2-13	PPL20 Project
PC199	Coastwide Planting	Facilitation of a consistent and responsive planting effort in coastal Louisiana that is flexible enough to routinely plant on a large scale and ve able to rapidly respond to "hot spots" following storms or other damaging events.	600	VP	$10,000	Plaquemines	2			PPL20 Project
PC200	Mississippi River Reintroduction North of Lac des Allemands	Diversion of 400-1,000 cfs of Mississippi River water into the swamps northwest of Lac des Allemands via a siphon.		FD/HR	$9,784	St. John	2	2-11		PPL20 Project
PC201	South Lake Salvador Shoreline Restoration	Creation of approximately 400 acres of marsh via confined disposal of sediment dredged from Lake Salvador; construction of approximately 2.5 miles of hard shoreline stabilization along the south shore of the lake.	490	MC/SP	$19,200	Lafourche	2			PPL20 Project

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Number	Project Name	Project Descriptions	Benefit area (acres)	Project Type[1]	Cost ($1,000)	Parish	Planning Unit	MP Measure	UEA	Source
PC40	East Caminada Headland Beach Restoration	Restore approximately 760 acres of marsh and 660 acres of beach and dune habitat across the eastern 7 miles of the Caminada Headland. Note, this is a portion of the WRDA LCA BBBS project.	1,420	BI	$78,859	Lafourche	2	2-17	2-17	CIAP Tier 2 proposed by Lafourche Parish
PC41	East Timbalier Island Restoration	Create 190 acres of supratidal habitat and 180 acres of intertidal habitat on East Timbalier Island.	370	BI	$20,000	Terrebonne	2	3a-14	3a-14	CIAP Tier 2 proposed by Lafourche Parish
PC42	Sawdust Bend Marsh Creation	Dredge spoil marsh creation.	55	DM	$1,000	Plaquemines	2			LDWF
PC43	Bayou Dupont Sediment Delivery - Marsh Creation 3	Use sediment from the Mississippi River to create emergent brackish marsh.	550	DM, MC	$30,000	Plaquemines	2	2-13	2-13	PPL 19 project; also proposed for PPL 20
PC44	West Point a la Hache	Dredge sediment from the Mississippi River to restore marsh habitat.	> 240	DM, MC	$13,000	Plaquemines	2	2-14	2-14	PPL 19 project
PC46	Red Pass Crevasses	Enlarge existing small crevasses, or construct new ones, to move freshwater, sediment, and nutrients into shallow open water areas to build new land and sustain existing and new land.	100	SD	$5,000	Plaquemines	2			PPL 17 Project
PC47	Baptiste Collete Bayou Crevasses	Construct 5 crevasses in the Baptiste Collette Subdelta by dredging cuts between Baptiste Collette Bayou and shallow open water receiving areas.	550	SD	$5,000	Plaquemines	2			PPL 18 Project
PC48	Home Place Siphon	A 1,500-2,000 cfs siphon will be constructed along the west bank of the Mississippi River in order to: create marsh and/or reduce rate of wetland loss, restore intermediate and fresh marshes, and increase SAV cover.	> 10,000	FD	$23,000	Plaquemines	2			PPL 19 project
PC49	Naomi Siphon Improvements	Improvements to the Naomi Siphon in order to address mechanical shortcomings that are associated with reduced or lost siphon operations.	13,140	FD	$5,400	Plaquemines	2			PPL 19 project; also proposed for PPL 20
PC50	Monsecour Siphon	1,000-2,000 cfs siphon on the Mississippi River on left descending bank of Mississippi.	5000-10,000	FD	$25,000	Plaquemines	2			PPL 19 project; similar project proposed for PPL 20
PC51	Donaldsonville Diversion	1,000 cfs controlled diversion into upper Barataria Basin.	50,000	FD	$14,500	St. James	2	2-11		LCA Comprehensive Study
PC52	Pikes Peak diversion	1,000 cfs controlled diversion into upper Barataria Basin.	90,000	FD	$11,800	St. James	2	2-11		LCA Comprehensive Study
PC53	Lac des Allemands diversion	1,000 cfs controlled diversion into upper Barataria Basin.	13,600	FD	$17,000	St. John the Baptist	2	2-11		LCA Comprehensive Study
PC54	Edgard diversion	1,000 cfs controlled diversion into upper Barataria Basin.	90,000	FD	$13,100	St. John the Baptist	2	2-11		LCA Comprehensive Study
PC55	Donaldsonville to the Gulf (Advanced Measures)	Provide initial first lift construction to limit inundation from hurricane storm surges along the GIWW alignment. This will provide for a surge reduction barrier until such time as flood control and navigation structures can be constructed, along with additional levee lifts. Funds utilized to construct Advanced Measures will be used to off-set the Total Project Cost by crediting towards the Non-Federal Share of the project.	743,528	HP	$100,000	Charles, St. John the Baptist	2	2-1	2-1	Authorized by a resolution adopted by the Committee on Transportation and Infrastructure of the US House of Representatives on May 6,1998. 2000 WRDA allowed WIK credit.
PC56	Woodlands Trail and Park Forest Management - Orleans Parish	Invasive species removal, reforestation, and wetland acquisition of 212 acres.	212	HR/VP	$3,000	Orleans	2			
PC57	Woodlands Trail and Park Forest Management - Plaquemines Parish	Invasive species removal and reforestation of 609 acres.	609	HR/VP	$1,000	Plaquemines	2			
PC58	Elmer's Island Headland Restoration	Re-establish 2 miles of barrier headland via beach, dune, and marsh creation in order to reduce erosion of adjacent interior marshes and close existing breaches and prevent future breaching of the headland.	250	BI	$40,000	Jefferson	2	2-6		PPL 18 Project
PC59	Marsh Creation in Caminada Headland from Offshore Sources - Lake Laurier South Shore	Identify offshore sediment sources suitable for marsh creation, permit and manage sources, identify sediment delivery routes to Lake Laurier South shore and create aprox. 2000 acres of marsh.	2,000	MC	$50,000	Lafourche	2	2-17	2-17	TFO
PC60	North Bayou L'Ourse Ridge Marsh Creation	Create approx. 1800 acres of marsh north of Bayou L'Ourse ridge to BA-37 project. There are 2 landowners, potential identified borrow area (BA-37) in Little Lake, and area has potential containment features existing on 3 sides.	1,800	MC	$30,000	Lafourche	2	2-16		TFO
PC61	Marsh Creation at Wetland creation and Restoration feasibility sites	Sediment mined from Mississippi River to be placed at sites along Bayou Lafourche.	10,000	MC	$300,113	Lafourche	2	2-15	2-15	LCA Comprehensive Study
PC62	Romere Pass Marsh Creation	Dedicated dredging from Romere Pass to create marsh.	400	MC	$25,000	Plaquemines	2			PPL 16 Project

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PC63	Delta National Wildlife Refuge Marsh Creation	Dedicated dredging from passes on DNWR to create marsh.	550	MC	$35,000	Plaquemines	2			PPL 16 Project
PC64	East Bay Terraces	Construct terraces in East Bay.	5,000	MC	$750	Plaquemines	2			LDWF
PC65	Home Place Marsh Creation	Create and nourish marsh between the hurricane protection levee and Bay Lanaux/Bay de la Cheniere. The proposed marsh creation will help protect the levee.	800	MC, HP	$25,000	Plaquemines	2	2-15	2-15	PPL 19 project; similar project proposed for PPL 20
PC66	Plaquemines Parish Reach B-2	Development of Cypress & Scrub Brush ridges and brackish marsh.	800	MC, MM, SP, HR, DM, VP, SNR, HP	$40,000	Plaquemines	2	2-16		PP
PC67	Plaquemines Parish Reach B-1	Development of Cypress & Scrub Brush ridges and brackish marsh.	1,350	MC, MM, SP, HR, DM, VP, SNR, HP	$65,000	Plaquemines	2	2-16		PP
PC68	Plaquemines Parish Reach A	Development of Cypress & Scrub Brush ridges and brackish marsh.	1,550	MC, MM, SP, HR, DM, VP, SNR, HP	$75,000	Plaquemines	2	2-16		PP
PC69	Plaquemines Parish Area 4	Development of Cypress & Scrub Brush ridges and brackish marsh.	1,200	MC, MM, SP, HR, DM, VP, SNR, HP	$60,000	Plaquemines	2	2-16		PP
PC70	Plaquemines Parish Area 5	Development of Cypress & Scrub Brush ridges and brackish marsh.	1,100	MC, MM, SP, HR, DM, VP, SNR, HP	$55,000	Plaquemines	2	2-16		PP
PC71	Plaquemines Parish Area 6	Development of Cypress & Scrub Brush ridges and brackish marsh.	800	MC, MM, SP, HR, DM, VP, SNR, HP	$40,000	Plaquemines	2	2-16		PP
PC72	Bayou Grande Cheniere Marsh Creation	Marsh creation with sediment from Mississippi River pumped via pipeline; create 60,000 linear feet of terraces.	550	MC, SNR	$25,000	Plaquemines	2	2-14		PPL 19 Project
PC73	Bayou Dupont to Bayou Barataria Marsh Creation	Create and nourish marsh between Bayou Dupont and Bayou Barataria from material excavated from the Mississippi River. Consideration will be given to re-establishing ridge elevation along the former Bayou Barataria ridge in the southern portion of the project area. 1,740 feet of bankline protection will be established along the east bank of the Barataria Bay Waterway.	503	MC, SP	$23,000	Jefferson	2	2-13	2-13	PPL 19 project; similar project proposed for PPL 20
PC74	Wisner Wildlife Management Area Marsh Creation	Dedicated dredging to create marsh on Wisner WMA.	350	MC/SNT	$30,000	Lafourche	2	2-17	2-17	PPL 16 Project
PC75	Bayou Thunder Marsh Creation and Shoreline Protection	Create 110 acres and nourish an additional 195 acres of saline marsh. Provide shoreline protection to about 1,500 linear feet of Bay St. Honore to complement existing protection.	150	MC/SP	$20,000	Lafourche/Jefferson	2	2-17	2-17	PPL 17 Project
PC76	Barataria Basin Land Bridge	To maintain or lower the hydrologic connections between Little Lake and Lake Salvador.	15,000	MC/SP/HR	$390,000		2			LPBF/CRCL
PC77	Golden Meadow to Myrtle Grove Land Bridge	To maintain or lower the hydrologic connections between Little Lake and Barataria Bay.	6,000	MC/SP/HR	$160,000		2			LPBF/CRCL
PC79	Grand Bayou Ridge Restoration	Creation of approximately 342 acres of saline marsh, nourishing 140 acres of saline marsh and constructing 31 acres maritime ridge habitat by restoring the Grand Liard Ridge to further reduce wave and tidal setup and provide fallout habitat for neotropical migrant birds.	513	RR	$36,000	Plaquemines	2	2-16		CIAP Tier 2 proposed by Plaquemines Parish
PC80	Boothville Diversion	60,000 cfs uncontrolled diversion into Yellow Cotton Bay with sediment enrichment.	132,000	SD	$139,500	Plaquemines	2			LCA Comprehensive Study
PC81	Freshwater Bayou Crevasses	2 crevasses off South Pass into Garden Island Bay.	1,000	SD	$300	Plaquemines	2			LDWF
PC82	Reef construction Grand Isle	Using bioengineered reefblk materials, protect rapidly eroding shoreline on back bay of Grand Isle. These materials provide advantages over non-biotic materials for two reasons:1)provides fisheries habitat, 2) can be self-sustaining (as oyster reefs grow) in subsiding areas.	2,000	SP	$2,600	Jefferson	2	2-6		TNC
PC83	Bayou Villars Shoreline Stabilization Project	Install approximately 31,000 tons of rock along 5,500 linear feet of shoreline from existing pipeline crossing north of Bayou Villars to the north bank of the mouth of Bayou Villars; install approximately 44,000 tons of rock along 8,000 linear feet of shoreline from existing pipeline crossing south of Bayou Villars the south bank of the mouth of Bayou Villars.	200	SP	$10,000	Jefferson	2			PPL 19 project
PC84	Timkin WMA Shoreline Protection	1-mile of rock shoreline protection.	400	SP	$1,500	St. Charles	2			LDWF
PC85	Lake Salvador Shoreline Protection	2-miles of rock shoreline protection.	5,000	SP	$3,000	St.Charles	2			LDWF

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PC86	Caminada Breakwaters	One mile extension of existing Caminada Breakwaters to protect the vulnerable Bay Champagne area of the Caminada Headlands. Already claiming benefits through the CIAP and WRDA project, this project would reduce the long term erosion rate of the beach nourishment effort and conserve the sand placed through the beach nourishment effort.	NA	SP & BI	$30,000	Lafourche	2			Companion to CIAP & WRDA projects
PC87	Jean Lafitte Shoreline Protection	Stop shoreline erosion by constructing 48,000 linear feet of onshore rock dike along the southeast portion of Lake Salvador at the Barataria Preserve of Jean Lafitte National Historical Park and Preserve and lands south of Bayou Villars.	450	SP	$25,000	Jefferson	2	2-18		PPL 16 Project
PC88	Lake Boeuf Hardwood Plantings	Purchase 500 acres of sugarcane and restore bottomland hardwood wetlands.	500	VP	$1,200	Lafourche	2			LDWF
PC89	Salvador WMA Reforestation	Removal of Chinese tallow; planting of hardwoods.	600	VP	$500	St. Charles	2			LDWF
PC90	Bayou L'Ours Ridge Restoration and Terracing	Restore the function of the Bayou L'Ours ridge, partially restore the hydrology of the bayou, and halt the deepening of gaps. Terraces will be created in areas near the ridge to help restore the ridge's natural function and prevent further degradation of the ridge.	325	VP, HP	$7,000	Lafourche	2	2-15	2-15	PPL 19 project, also proposed for PPL 20
PC78	Barataria and Terrebonne Basins Stormwater Redirection	Re-route or manage the outfall of stormwater discharge at six sites within the Terrebonne and Barataria basins into marshes that are currently stressed.	4,200	OM, MC	$2,100	Terrebonne, Jefferson/St. Charles, Plaquemines	2, 3a			PPL 19 project
PC91	Larose to Golden Meadow (Advanced Measures)	Provide various improvements to the Larose to Golden Meadow Hurricane Protection Project. Improvements include berm and/or levee improvements ranging from +13 to +16 feet, overtopping/erosion protection, and pump station upgrades.	39,363	HP	33,000	Lafourche	2,3a	2-3		Flood Control Act of 1965 (PL 89-298)
PC100	Gibson to Houma Hurricane Protection	This measure will provide hurricane protection to concentrated, distributed, and strategic assets from Gibson to Miners Canal through construction of 17 miles of levees and other flood control structures. Project will require additional raisings to account for settlement and subsidence over the 50 Year Life.	50000	HP	$1,000,000	Terrebonne	3a	3a-2	3a-2	
PC101	Morganza to the Gulf (Advanced Measures)	Continues to implement first lift construction along the authorized alignment to an elevation of 10 feet and construction of flood control and navigation structures. This will provide immediate relief from lower level storms that currently inundate the area. Funds utilized to construct Advanced Measures will be used to off-set the Total Project Cost by crediting towards the Non-Federal Share of the project.	220159	HP/FD	$500,000	Terrebonne, Lafourche	3a	3a-1	3a-1	Energy and Water Development Appropriations Act of 2004 (P.L. 108-137), Partial authorization for construction of Reach J1; Water Resources Development Act of 2007
PC102	Grand Bayou Hydrologic Restoration	Restoration of levee integrity and adding 2 water-control structures.	2,055	HR	$1,100	Lafourche	3a			LDWF
PC103	St. Louis Canal Hydrologic Restoration	Removing structure and restore dimensions of St. Louis Canal to restore freshwater conveyance into marsh.	10,000	HR	$500	Lafourche	3a			LDWF
PC104	Blue Hammock Bayou FW introduction	Increase Atchafalaya River flow into SW Terrebonne by increasing the cross-section of Blue Hammock Bayou.	50,000	HR	$18,500	Terrebonne	3a	3a-11	3a-11	LCA Comprehensive Study
PC105	Bully Camp Terraces	Terraces on Pointe-aux-Chenes Wildlife Management Area.	2,000	MC	$1,000	Lafourche	3a			LDWF
PC106	South Lake Decade Marsh Creation and Nourishment	Create approximately 350 acres of marsh and nourish an additional 150 acres of marsh in strategic locations to enhance and maintain the structural integrity of the lake shorelines.	500	MC	$21,000	Terrebonne	3a			PPL 19 Project
PC107	Madison/Terrebonne Bays Marsh Creation	Dedicated dredging from either Lake Barre or Madison Bay to create and restore about 430 acres of saline marsh directly west of Bayou de Mangue. Vegetative plantings will be installed.	430	MC	$24,000	Terrebonne	3a			PPL 19 Project
PC108	Marsh Creation in Central Terrebonne Offshore Sediment Delivery - 4 Point/Sweetwater Pond	Identify offshore sediment sources suitable for saline marsh creation, permit and manage sources, identify sediment delivery routes to lower Terrebonne and create aprox. 6500 acres of marsh (potential area would be HNC channel and Bourg property - see map) (could be phased to small marsh sections created).	6,500	MC	$150,000	Terrebonne	3a	3a-9	3a-9	TFO

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PC109	Marsh Creation in Central Terrebonne Offshore Sediment Delivery - Casse-tete Island	Identify offshore sediment sources suitable for saline marsh creation, permit and manage sources, identify sediment delivery route and create aprox. 1500 acres of marsh.	1,500	MC	$50,000	Terrebonne	3a			TFO
PC110	Southeast Lake Boudreaux (Highway 56) Marsh Creation	Create/restore approximately 2,000 acres located between the southeast shoreline of Lake Boudreaux and LA Highway 56 in Terrebonne Parish, LA. The project area can be filled in phases. The TE-46 project has its borrow area in the Lake.	2,000	MC	$50,000	Terrebonne	3a			TFO
PC111	Southwest Lake Decade Marsh Creation	Create approximately 1,550 acres of marsh by hydraulic dredging material from Lake Decade. This newly created marsh will serve as a landbridge between Lake Decade and Lake Mechant which will help to reduce the amount of salt water affecting the area.	1,550	MC	$30,000	Terrebonne	3a			TFO
PC112	Maintain Land Bridge between Bayous Dularge and Grand Caillou	Marsh creation to close trenasses and open water areas to maintain the land bridge and maintain salinity regimes.	1,000	MC	$8,100	Terrebonne	3a	3a-13	3a-13	LCA Comprehensive Study
PC113	Montegut Terraces	Terraces on Pointe-aux-Chenes Wildlife Management Area.	100	MC	$500	Terrebonne	3a			LDWF
PC115	Bully Camp Hydrologic Restoration	Restoration of water-management unit.	1,100	MM	$3,000	Lafourche	3a			LDWF
PC116	North Catfish Lake Shoreline Protection	Construct approximately 20,000 linear feet of foreshore protection a long the northern half of Catfish Lake. The newly protected shoreline will be planted with smooth cordgrass.	260	SP	$8,000	Lafourche	3a			PPL 19 project; similar project proposed for PPL 20
PC117	Reef construction Sister Lake	Using oyster shells, build and monitor reef along rapidly eroding areas of Sister Lake.	1,000	SP	$1,000	Terrebonne	3a			TNC
PC118	Terrebonne Bay Shoreline Protection/Marsh Creation	Strengthen or restore approximately 31,000 feet of shoreline along the northern bank of Terrebonne Bay by creating a 2 foot high earthen berm with a 50 foot crown which would be planted with smooth cordgrass. Directly behind the berm, 235 acres of emergent marsh would be created and 300 acres of marsh would be nourished. This project also proposes to reduce the channel cross section of two of the major bayous that convey high saline waters directly from Terrebonne Bay into Madison Bay and Bayou Terrebonne.	300	SP/MC	$30,000	Terrebonne	3a			PPL 18 Project; similar project proposed for PPL 20
PC119	Lake Boudreaux-Lake Quitman Shoreline Protection and Marsh Creation	Construct 19,600 linear feet of hard shoreline protection along the southern shoreline of Lake Boudreaux and northern shoreline of Lake Quitman. Behind the shoreline protection, marsh would be created and nourished through the deposition of hydraulically dredged material from Lake Boudreaux.	200	SP/MC	$30,000	Terrebonne	3a			PPL 18 Project
PC120	Bay Raccourci Shoreline Restoration and Marsh Creation	Restore approximately 25,500 linear feet of Bay Raccourci shoreline which would effectively complete the restoration of that shoreline. Shoreline restoration would be accomplished by creating an earthen berm planted with smooth cordgrass. Directly behind the berm approximately 390 acres of intermediate to brackish marsh would be created by dredging material from Lake Decade or Lake Mechant.	390	SP/MC	$17,000	Terrebonne	3a			PPL 19 project; similar project proposed for PPL 20
PC202	Bayou Dularge Freshwater Introduction and Terracing	Construct 130,000 linear feet of terraces in the open water areas flanking Bayou Dularge and Falgout Canal; direct 300 cfs of stormwater discharge into the terrace field.	250	SNT/FD	$7,100	Terrebonne	3a			PPL20 Project
PC203	Lake Barre Marsh Creation	Creation/nourishment of 553 acres of saline marsh through dedicated dredging.	356	MC	$25,900	Terrebonne	3a			PPL20 Project
PC204	Lake Hackberry Northeast Floating Marsh Restoration	Installation of 26,600 feet of "single row" and approximately 10,835 feet of "double row" groups of floating mat units northeast of Lake Hackberry.		MC	$3,000	Terrebonne	3a			PPL20 Project
PC205	Raccoon Island West Protection and Restoration	Extension of existing breakwaters on the gulf side of the island and addition of sediment to the spit on the western end of the island.	230	BI	$32,100	Terrebonne	3a			PPL20 Project
PC206	St. Louis Canal Freshwater Introduction	Convey freshwater, nutrients, and sediments from the Atchafalaya River east via the GIWW and Bayou Terrebonne into the Central Terrebonne marshes.	280	FD	$3,500	Terrebonne	3a			PPL20 Project

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PC93	Whiskey Back Barrier - Supplemental Beach Fill	Beach/dune nourishment using approx. 3 million cu. yards from known borrow area found under TE-50 sediment search. Cost shavings if we can do a change order to add this work to the TE-50 contract (will not have to pay much mobilization with dredge out there).	150	BI	$20,000	Terrebonne	3a	3a-14	3a-14	TFO
PC94	Trinity Island Back Barrier Marsh Creation and Beach Nourishment	Dredged material will be placed on the backside of the island in areas without marsh, creating a backbarrier marsh to allow island rollover and a beach will be nourished along the Gulf shoreline. The former will provide a stable backbarrier platform onto which the island can migrate landward, while the latter will provide additional sand for shoreline stabilization re-distribution by currents and waves along the entire island's Gulf shore.	200	BI	$20,000	Terrebonne	3a	3a-14	3a-14	TFO
PC95	East Island Back Barrier Marsh Creation and Beach Nourishment	Dredged material will be placed on the backside of the island creating a backbarrier marsh to try to anchor the western end of Cat Island pass and a beach will be nourished along the Gulf shoreline. The former will provide a stable backbarrier platform onto which the island can migrate landward, while the latter will provide additional sand for shoreline stabilization re-distribution by currents and waves along the entire island's Gulf shore (could be combined with Trinity for cost savings).	300	BI	$20,000	Terrebonne	3a	3a-14	3a-14	TFO; similar project proposed for PPL 20
PC96	Timbalier Island Shoreline Nourishment	100 acres of beach nourishment/creation on Timbalier Island to close Gustav/Ike cut and creation of 60 acres of oil field canal on Island bayside. This cost included 5 million to do a comprehensive sediment identification and permitting to allow quick implementation of added projects and overall management of sediment resources.	160	BI/MC	$35,000	Terrebonne	3a	3a-14	3a-14	TFO; similar project proposed for PPL 20
PC97	Ship Shoal: Whiskey West Flank (TE-47)	Restore restoring roughly 387 acres of barrier island habitat into the island's western flank - 1) 52 acres of 7-foot high, 150-foot wide dunes; 2) 114 acres of above-tide habitat at an elevation of 4 feet; 3) 208 acres of intertidal habitat at an elevation of 2 feet; 4) 8 acres of subtidal habitat. All areas will be planted and have sand fencing placed in order to trap wind-blown sediment.	387	BI/MC	$40,000	Terrebonne	3a	3a-14	3a-14	TFO
PC98	Bayou Terrebonne Freshwater Diversion	Divert freshwater from Bayou Terrebonne into Point-aux-Chenes WMA.	8,100	FD	$1,000	Terrebonne	3a			LDWFNominated but not accepted by CWPPRA; similar project proposed for PPL 20
PC99	Falgout Canal Terracing and Freshwater Enhancement	Three sets of six 36" flapgated culverts will be installed through the road separating the Falgout Canal from the marshes to the south to introduce freshwater, nutrients, and sediment. Approximately 100,000 linear feet of earthen terraces will be constructed in the broad, shallow open water south of Falgout Canal to facilitate marsh development.	100	FD/SNT	$10,000	Terrebonne	3a			PPL 16 Project
PC121	Cote Blanche Freshwater and Sediment Introduction and Shoreline Protection	Project features would include channel enlargement, spoilbank gapping, and structural measures where necessary to increase freshwater and sediment input from the GIWW into interior Cote Blanche marshes through multiple avenues to further reduce emergent marsh loss and accelerate sediment accretion to promote land building. Project features would also include construction of approximately 26,000 linear feet of armored protection parallel to the northern shoreline of East Cote Blanche Bay.	580	FD/SD/SNT	$19,982	St. Mary	3b	3b-17		PPL 19 project; similar project proposed for PPL 20
PC122	Lafayette and Vicinity Hurricane Protection	This measure will provide a 0.1% annual probability level of protection for concentrated and strategic assets for Metropolitan Lafayette and vicinity. The proposed alignment begins east of Abbeville and ends east of New Iberia. Project will require additional raisings to account for settlement and subsidence over the 50 Year Life.	64,000	HP	$1,100,000	Vermilion, Iberia Parishes	3b	3b-1	3b-1	
PC123	Rebuild Point Chevreuil Reef	Rebuild historic reefs between Point Chevreuil and Marsh Island to restore historic hydrologic conditions.	3,000	HR	$76,600	St. Mary, Iberia	3b			LCA Comprehensive Study

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PC124	Penchant Basin Plan	Increase the efficiency of Bayou Penchant to convey flow from area wetlands to reduce excessive flooding.	153,000	HR	$9,720	Terrebonne	3b			LCA Comprehensive Study
PC125	Point au Fer Island Marsh Creation Project	Dredging approximately 20,000,000 cubic yards of material from a previously permitted 1,200 acre borrow site in the Atchafalaya Bay (which has been documented to have infilled since TE-26 project) to create approximately 3,000 acres of marsh east and west of Lake Chapeau.	3,000	MC	$70,000	Terrebonne	3b	3b-16	3b-16	TFO
PC126	Cheniere au Tigre Headland Restoration	Placed dredged material linearly along the unvegetated portion of the gulf shoreline, in a continuous alignment roughly parallel to the existing rock breakwaters for about 6,000 feet in order to prevent breaching and increased saltwater intrusion into the brackish marshes and channels/canals north of the chenier. Dredged material may be planted or allowed to revegetate naturally.	NA	MC	$5,000	Vermilion	3b	3b-10		PPL 19 Project
PC127	South Marsh Island Marsh Creation	Dedicated dredging from Cote Blanche Bay or GOM to create marsh on Marsh Island.	300	MC/HR	$15,000	Iberia	3b	3b-15		PPL 16 Project
PC128	Bayou Piquant Restoration	Re-establish about 4.3 miles of bank lines of Bayou Piquant by creating approximately 60 acres of fresh marsh. Additionally, 1.5 miles of the bayou would be cleared, snagged, and/or spray dredged to re-establish hydrology of reached silted in adjacent forested wetlands.	60	MC/HR	$6,000	Terrebonne	3b			PPL 19 Project
PC129	State Wildlife Chenier and Marsh Creation	Re-establish approximately 35 acres of the Fearman Lake peninsula with borrow from sediments from Vermilion Bay that acts as a natural terrace to break the fetch in the lake, and create approximately 87,000 linear feet of vegetated terraces in the Lake. Each created area would be planted with appropriate species.	120	MC/SNT	$6,000	Vermilion	3b	3b-12	3b-12	PPL 19 Project
PC131	Vermilion River Dedicated Dredging	Dredge spoil would be placed in marsh lobes along Four Mile canal to recreate the canal bank. Openings would be left to allow for small boat traffic and water flow into the terrace fields of the TV-18 terraces for sediment trapping. Both the dredge spoil and what remains of the west bank would be armored with rock.	130	MC/SP	$2,000	Vermilion	3b			PPL 19 Project
PC132	Bird Island/Southwest Pass Marsh Creation and Shoreline Protection	Nearshore rock breakwaters on the east and west shore of SW Pass with marsh creation behind rocks from flotation canal.	200	MC/SP	$20,000	Vermilion/Iberia	3b	3b-9	3b-9	PPL 15 Project
PC133	Deer Island Pass Sediment Delivery	A 5,280 foot long, 280 foot wide, and 12 foot deep sediment delivery channel would be hydraulically dredged across the shallow flat between the Lower Atchafalaya River and the northern end of Deer Island Pass. Dredged material would be placed in three marsh creation cells (68 acres total) along the eastern bank of the Lower Atchafalaya River. The sediment delivery channel would be re-dredged at target years 6, 11, and 16 to maintain channel efficiency.	350	SD/MC	$10,000	St. Mary	3b			PPL 16 Project
PC134	Marsh Island Terracing	Construction of approximately 155,000 linear feet of terraces on marsh island.	167	SNT	$3,400	Iberia	3b	3b-15		CIAP Tier 2
PC135	Bateman Island Sediment Retention and Marsh Restoration	Approximately 21.3 acres of freshwater marsh would be created by virtue of 31,000 linear feet of constructed terraces. 38 acres would be protected and directly benefited by reducing or eliminating shoreline erosion rates around the perimeter of Sweetbay Lake.	60	SNT	$1,000	St. Mary	3b			PPL 19 Project
PC136	East Atchafalaya Bay Sediment Trapping	Construct approximately 120,000 linear feet of earthen terraces in the East Atchafalaya Bay extending out from Palmetto Bayou and Plumb Bayou into the bay. The terrace construction will consist of a bifurcated channel design to both direct flows and mimic deltaic formation.	150	SNT	$10,000	St. Mary/Terrebonne	3b			PPL 17 Project
PC137	Vermilion Bay Shoreline Protection	The project will reestablish bay rim function by repairing a breach with 9,330 linear feet of rock riprap. Additionally, 5 miles of shoreline east of Avery Canal will be stabilized through a 5-year series of intensive, low-cost, vegetative plantings.	150	SP	$5,000	Iberia	3b	3b-17		PPL 16 Project

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Number	Project Name	Project Descriptions	Benefit area (acres)	Project Type[1]	Cost ($1,000)	Parish	Planning Unit	MP Measure	UEA	Source
PC138	Point Chevreuil Shoreline Protection	20,000 linear feet of foreshore rock dike or rock revetment parallel to the existing eastern shoreline of East Cote Blanche Bay, from Bayou Sale southward to Point Chevreuil and the northern shoreline of Atchafalaya Bay from Point Chevreuil eastward to an existing pipeline crossing. Marsh creation with material from dredging an access channel.	150	SP	$15,000	St. Mary	3b			PPL 15 Project
PC139	Marone Point Shoreline Protection	Construction of approximately 26,000 linear feet of armored protection parallel to the existing northern shoreline of East Cote Blanche Bay.	250	SP	$20,000	St. Mary	3b			PPL 17 Project
PC140	Maintain Northern Shore of East Cote Blanche Bay	Shoreline stabilization from Point Marone to Jackson Bayou to protect interior wetlands.	1,000	SP	$9,100*	St. Mary	3b	3b-17		LCA Comprehensive Study
PC141	Reef construction Acadiana Bays	Using reefblock bioengineered materials, protect eroding shoreline of Audubon's Rainey Refuge across from Marsh Island. Use of bioengineered materials provides two advantages over non-biotic materials:1) provides fisheries habitat, 2) can be self-sustaining (as oyster reefs grow) in subsiding areas.	3,000	sp	$3,000	Vermillion	3b			TNC
PC207	Marsh Nourishment on Point au Fer Island by Beneficial Use of Dredged Material	Beneficial use of 2-4 million cubic yards of dredged material from the Atchafalaya navigation canal to nourish Point au Fer marsh.	10,000	MN	$40,000	Terrebonne	3b			PPL20 Project
PC208	Shark Island Shoreline Protection	Construction of 19,300 linear feet of armored protection parallel to the existing eastern shorleine of Vermilion abay from Mud Point to Blue Point.	2,900	SP	$9,700	Iberia	3b	3b-17		PPL20 Project
PC209	West Wax Lake Wetlands Diversion	Restoration and maintenance of the hydrologic connection between Wax Lake Outlet and distributary channels to sustain hydrologic processes and wetlands.	20,480	HR	Not identified	St. Mary	3b			PPL20 Project
PC142	Southwest Coastal (Advanced Measures)	Provide initial first lift construction to limit inundation from hurricane storm surges. This will provide immediate relief from lower level storms that currently inundate the area. Funds utilized to construct Advanced Measures will be used to off-set the Total Project Cost by crediting towards the Non-Federal Share of the project.	69,000	HP, HR, MC, SP	$100,000	Calcasieu, Cameron, Vermilio	4	4-1, LSP4	4-1, LSP4	December 7, 2005 – Committee on Transportation and Infrastructure, U.S. House of Representatives, Resolution, Docket 2747, Southwest Coastal Louisiana, LA
PC143	Calcasieu Lock Replacement	Lock replacement.		HR	$125,000	Calcasieu and Cameron Parishes	4	4-9		LPBF/CRCL
PC144	Salinity Control at Oyster Bayou	Gated structure or rock weir for salinity control west of Calcasieu Ship Channel.	9,000	HR	$400	Cameron	4			LCA Comprehensive Study
PC145	Salinity Control at Long Point Bayou	Gated structure or rock weir for salinity control north of Sabine National Wildlife Refuge.	14,000	HR	$300	Cameron	4			LCA Comprehensive Study
PC146	Salinity Control at Alkali Ditch	Gated structure or rock weir for salinity control northwest of Hackberry at the GIWW.	7,500	HR	$800	Cameron	4			LCA Comprehensive Study
PC147	Salinity Control at Black Lake Bayou	Gated structure or rock weir for salinity control north of Hackberry near Calcasieu Ship Channel.	7,000	HR	$500	Cameron	4			LCA Comprehensive Study
PC148	Modify Cameron-Creole control structures	Lower fixed crest weirs to reduce impoundment within Cameron-Creole marshes.	58,000	HR	$600	Cameron	4			LCA Comprehensive Study
PC149	Salinity Control at Black Bayou	Gated structure or rock weir for salinity control at intersection of Black Bayou and Sabine Lake.	74,500	HR	$500	Cameron	4			LCA Comprehensive Study
PC150	Salinity Control at Highway 82 Causeway	Rock weir at Highway 82 near Sabine-Neches waterway.	34,000	HR	$8,000	Cameron	4	4-20		LCA Comprehensive Study
PC151	Repair of the Cameron Creole Watershed levee	Repair damages from Hurricanes Rita and Ike	100,000	HR	$12,000	Cameron Parish	4			LPBF/CRCL
PC152	Repair of the structures on Sabine National Wildlife Refuge	Repair damages from Hurricane Ike.	125,000	HR	$3,000	Cameron Parish	4			LPBF/CRCL
PC153	Freshwater Introduction at Rollover Bayou	Move freshwater south across Highway 82.	7,000	HR, FD	$4,000	Vermilion	4	4-20		LCA Comprehensive Study
PC154	East Sabine Hydrologic Restoration	Salinity control structures, terracing, and shoreline protection.	35,000	HR, SNR, SP	$10,740	Cameron	4	4-17		LCA Comprehensive Study
PC155	Salinity Control and Storm Surge Protection on Calcasieu Ship Channel	To control salinity, provide ecosystem benefits and offer storm surge protection.		HR/HP	$200,000	Cameron and Calcasieu Parishes	4	4-9		LPBF/CRCL
PC156	Constriction of Sabine Pass	This project will limit the flow of Gulf strength saline water from the Sabine-Neches Channel into Sabine lake to mimic historical hydrology.		HR/HP	$10,000	Cameron Parish	4	4-14		LPBF/CRCL

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PC157	Calcasieu River Ship Channel Sediment Bypass	Restore Gulf barrier shoreline and stop shoreline erosion for a 3-mile distance west of Calcasieu pass by transportation of about 2 million cubic yards of sediment westward from the east jetty area.	50	BI	$15,000	Cameron	4	4-10		PPL 16 Project
PC159	East Cove Marsh Creation	Create approximately 592 acres of marsh via beneficial use of maintenance dredged material from the Calcasieu Ship Channel. Additionally, approximately 100 acres of adjacent existing marsh will be nourished.	600	MC	$20,000	Cameron	4	4-13		PPL 17 Project
PC160	Oyster Bayou Marsh Creation	Sediment will be mined from the east side of the Calcasieu Ship Channel jetties or offshore and placed in multiple disposal areas to create saline marsh.	400	MC	$24,000	Cameron	4	4-10		PPL 19 Project
PC161	Cameron-Creole Watershed Grand Bayou Marsh Creation	Place approximately 3.2 million cubic yards of material dredged from Calcasieu Lake borrow site located approximately 2,000 feet west of Grand Bayou into two marsh creation areas north of Grand Bayou in the western portion of the Cameron-Creole Watershed to restore 515 acres of brackish marsh. Following construction, retention levees will be degraded, trenasses will be constructed, and possible vegetative plantings installed.	600	MC	$20,000	Cameron	4			PPL 19 project; similar project proposed for PPL 20
PC163	Kelso Bayou Restoration	Structure and marsh creation at Kelso Bayou, to limit salt water intrusion into the Black Lake region, north of Hackberry.		MC/HR	$5,000	Cameron Parish	4			LPBF/CRCL
PC164	North Willow Lake Restoration	Protect approximately 7,000 linear feet of Willow Lake shoreline, construct approximately 150 acres of marsh, and create approximately 60,000 linear feet of terraces with approximately 300 foot spacing.	200	MC/SNT/SP	$10,000	Cameron	4			PPL 19 project; similar project proposed for PPL 20
PC165	Kelso Bayou Marsh Creation	Create approximately 127 acres of marsh. The created marsh and a portion of the Calcasieu Ship Channel would be protected with a rock dike. The exchange at Kelso Bayou would be reduced from over 200 feet wide and 10 feet deep to 60 feet wide and 6 feet deep, which would reduce the cross sectional area over 80%.	130	MC/SP	$10,000	Cameron	4			PPL 19 project; similar project proposed for PPL 20
PC166	Southeast White Lake Shoreline and Marsh Creation	Install approximately 26,000 linear feet of rock shoreline protection with fish dips, and create approximately 75 acres of marsh with material from dredging an access channel.	150	MC/SP	$20,000	Vermilion	4	4-7		PPL 17 Project
PC167	Black Bayou Terraces	Construct up to 261,000 linear feet of earthen terraces, oriented in such a way as to reduce wind generated wave fetch. Terraces would be planted with wetland vegetation.	300	SNT	$20,000	Calcasieu/Cameron	4			PPL 18 Project; similar project proposed for PPL 20
PC168	Lower Mud Lake Sediment Trapping	Construct sediment trapping terraces to dissipate wave energy and allow sediment to drop out of the water column and increase accretion, which would permit emergent vegetation to establish. Distributaries would be dredged to direct sediments to the project and distribute that sediment throughout the project area.	600	SNT	$4,000	Cameron	4			PPL 19 project; similar project proposed for PPL 20
PC169	Gum Cove Terracing	Construct approximately 250,000 linear feet of terraces with approximately 300 foot spacing to compliment a Ducks Unlimited terracing project to be constructed this spring.	300	SNT	$5,000	Cameron	4			PPL 19 Project
PC170	Terracing at Dyson's Ditch	Construction of a minimum of 200,000 linear feet of earthen terraces in open water areas through the project area. Terraces would be planted with wetland vegetation and would be oriented in a non-linear way that would reduce wind generated wave fetch.	200	SNT	$15,000	Vermilion	4			PPL 18 Project
PC171	Front Ridge Chenier Terracing/Protection	Construct approximately 85,000 linear feet of terraces with approximately 300 foot spacing in order to re-establish emergent marsh and create submerged aquatic vegetation habitat by reducing wave energy associated with fetch.	100	SNT	$2,000	Vermilion	4			PPL 19 Project
PC172	Holly Beach Breakwaters west (to Long Beach) and east extension	Extend breakwaters west to Long Beach and east to the Calcasieu Ship Channel	100	SP	$40,000	Cameron	4	4-10		PPL 14 Project

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PC173	Mermentau Ship Channel Sediment By-Pass Project	2-3 million cubic yards of subtidal sediment would be transported in two dredging events in target year 1 and 10 from the east side of the Mermentau Ship Channel 2-3 miles westward via a hydraulic dredge placed east of the east jetty.		SP	$15,000	Cameron	4			PPL 19 Project
PC174	Shoreline Protection of Grand Lake	Armoring of the Umbrella Point area of Grand Lake and the armoring of the Southeast portion of Grand Lake near Chenier Dufon.	540	SP	$8,600	Cameron Parish	4	4-6		LPBF/CRCL
PC175	Gulf Shoreline Stabilization	Shoreline stabilization from Mermentau Ship Channel to Rollover Bayou.	5,500	SP	$69,000	Cameron, Vermilion	4	4-11	4-11	LCA Comprehensive Study
PC176	Rockefeller Gulf of Mexico Shoreline Stabilization, Joseph's Harbor East	Construction of 10,000 linear foot near-shore breakwater along the Gulf of Mexico shoreline from the eastern bank of Joseph's Harbor eastward.	200	SP	$25,000	Cameron/Vermilion	4	4-11	4-11	PPL 17 Project; similar project proposed for PPL 20
PC177	Beach Nourishment of Cameron Shoreline	Replenish sand beaches and vegetative plantings from Holly Beach to Constance Beach.	40,000	SP/BI/VP	$50,000	Cameron Parish	4	4-10		LPBF/CRCL
PC178	Protection and Restoration of the Chenier Ridges	Restoration of chenier ridges throughout the Chenier Plain, including filling sand pits, elevating ridges in sections and planting forests.		VP/HP	$20,000	Cameron and Vermilion Parish	4			LPBF/CRCL
PC185	Cameron Habitat Restoration and Marsh Creation	Beneficial use of material dredged from the Cameron Loop waterway from its northern mouth to the southern outlet, along with one mile of the companion East Fork located due north of the Loop.		DM	$10,000	Cameron	4			Cameron Parish
PC210	Cameron Meadows Marsh Creation and Wetland Restoration	Construction of 600 acres of marsh in adjacent areas using material dredged from the Gulf of Mexico; construction of 10,000 linear feet of terraces; clearing 50,000 linear feet of drainage canals.		MC/SNT/HR	$27,188	Cameron	4			PPL20 Project
PC211	Grand Lake Shore Protection at Lacassine Point	Construction of a 15,350 linear foot rock breakwater; planting two rows of bullwhip on the marsh side of the breakwater.	69	SP/VP	$3,777	Cameron	4	4-6		PPL20 Project
PC212	Holly Beach Breakwaters	Construction of 15,000 linear feet of breakwaters to protect critical shoreline along Highway 82.	137	SP	$17,000	Cameron	4			PPL20 Project
PC213	Umbrella Bay Shoreline Protection	Construction of approximately 40,000 linear feet of foreshore segmented rock breakwater.	275	SP	$12,000	Cameron	4	4-6		PPL20 Project
PC179	Expanded Home Elevation Assistance			HP	$200,000	Statewide	State			LPBF/CRCL
PC180	Coastal Wetlands Restoration through the Assimilation of Treated Sanitary Effluent	Proposal by LDEQ to increase the use of wastewater assimilation through the coastal parishes.	8,000	FD	$20,000	Statewide	State			CIAP Tier 2
PC181	Coastal Forest	Monitoring and management of forests acquired through CIAP Coastal Forest and continued acquisition of coastal forest.	1000 annually		$1,000	Statewide	State			CIAP

* = 2003 dollars

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