RESTORE ACT Direct Component Multiyear Plan Narrative

OMB Approval No. 1505-0250

Eligible Applicant Name:	State of Louisiana Coastal Protection and Restoration Authority (CPRA)

Name and Contact Information of the Person to be contacted (POC) on matters concerning this Multiyear Implementation Plan:

POC Name:	Chris Barnes
POC Title:	Legal Advisor - Governor's Office of Coastal Activities
POC Email:	chris.barnes@la.gov
POC Phone:	+1 (225) 342-9036

B. PROVIDE A BRIEF NARRATIVE THAT DEMONSTRATES:

1. The need, purpose, and objectives for each activity, including a detailed description of each activity.

The projects and programs proposed for funding in this Multiyear Implementation and Expenditure Plan ("Plan") include the Houma Navigation Canal Lock Complex ($16,000,000), Calcasieu Ship Channel Salinity Control Measures ($16,000,000) and Adaptive Management ($2,400,000). The remaining available funds will be allocated by the CPRA to the parish matching program (approximately $3,900,000). (See Plan pp. 9-14 and Plan Appendices A-D pp. 21-28.) These projects are described in more detail below.

Houma Navigation Canal Lock Complex (see also Plan Appendix A):

• Need: The project is contained in the 2012 Master Plan as Project 03a.HR.10 and in the 2016 Annual Plan as TE-113 and is needed to reduce salt water intrusion and distribute freshwater within the Terrebonne Basin, an area which is experiencing one of the highest rates of land loss in coastal Louisiana. This project will also mitigate damage to fish, wildlife and natural resources which rely on freshwater inputs and limit the intrusion of salt water into freshwater marsh systems allowing for the maintenance of thousands of acres of wetlands which serve as critical wildlife habitat and nurseries for fisheries. The Houma Navigation Canal ("HNC") Lock Complex will also provide crucial flood protection by blocking storm surge. Additionally, the HNC Lock Complex is part of the Morganza to the Gulf Hurricane Protection Project. The Morganza to the Gulf Feasibility Study, which includes the HNC Lock Complex, was completed and received a Chief of Engineer's Report in 2002 and supplemental report in 2003. Subsequently, the project was authorized under the Water Resources Development Act ("WRDA") in 2007 and received WRDA reauthorization in 2014 per the Post Authorization Change Report and the 2013 Chief's Report and Record of Decision.

• Purpose: The HNC Lock Complex is a hydrologic project that will provide several critical purposes in the Terrebonne Basin; the primary purpose of the project is to reduce salt water intrusion and distribute freshwater within the Terrebonne Basin. A second purpose of the project is to provide storm surge protection as a part of the Morganza to Gulf system. A third purpose is to continue navigation in the HNC for commercial and recreational uses. A fourth purpose is that restoring this coastal ecosystem and lowering the risk associated with sea level rise, subsidence, and tropical events along the coast will also improve the long-term economic health of the region.

• Objectives: Operations to control freshwater distribution will be a key part of the project for the Increase Atchafalaya Flow to Terrebonne project (listed in the Master Plan as 03b.DI.04 and the Annual Plan as TE-110). The structure is a part of the Morganza to the Gulf of Mexico (TE-64) hurricane protection system; Construction and Operation of the structure will be important to the success of the project purposes. A detailed operations and maintenance (O&M) plan will be included in the design of the project. The O&M of the project will aim to maximize environmental benefits while also making navigation and flood control a priority. (Eligible Activity (7)). Further, by allowing for the maintenance of thousands of acres of critical wildlife habitat, key objectives of this project are to restore and protect the natural resources, ecosystems, fisheries, marine and wildlife habitats and coastal wetlands of the Gulf Coast region, as well as mitigate damage to fish, wildlife and natural resources. (Eligible Activities (1) & (2)). As such, this project will contribute to the overall ecological and economic recovery of the Gulf by helping to restore historic salinity regimes in the mid Terrebonne basin and saving an anticipated 3,400 acres of marsh environment from degradation over 50 years. (See Plan Appendix A).

• Funds Requested: The funds that will be requested for this project from the Direct Component are $16,000,000. The estimated engineering and design, as well as construction costs are based off of Alternative 3 from the URS Optimization Study. It is estimated that engineering and design will cost $34,389,521, while construction costs are estimated to be $323,395,211. Of the estimated engineering and design costs, $18,000,000 is being provided by CPRA State Surplus funds. A remaining amount of approximately $16,000,000 is required to complete the engineering and design effort and will be requested from Treasury under the Direct Component.

• High Level Milestones: Engineering and design.

• Measures of Success: Completion of engineering and design milestones. See also Plan Section VII.

Calcasieu Ship Channel Salinity Control Measures (see also Plan Appendix B):

• Need: The project is contained in the 2012 Coastal Master Plan as 004.HR.06 and the 2016 Annual Plan as CS-0065 and is needed to address modifications to hydrology that have caused an increase in salinity levels within the project area, resulting in degradation of the integrity of the surrounding marsh area and increased rates of wetland loss. This project will also mitigate damage to fish, wildlife and natural resources which rely on freshwater inputs and limit the intrusion of salt water into freshwater marsh systems allowing for the maintenance of thousands of acres of wetlands which serve as critical wildlife habitat and nurseries for fisheries.

• Purpose: The purpose of the project is to manage salinities being introduced through the Calcasieu Ship Channel into adjacent water bodies to reduce the rate of wetland loss in the surrounding wetlands. Restoring this coastal ecosystem and lowering the risk associated with sea level rise, subsidence, and tropical events along the coast will also improve the long-term economic health of the region.

• Objectives: Design, construction, and operation of measures designed to limit the intrusion of saline water into Calcasieu Lake through the Calcasieu Ship Channel. These measures would control salinity spikes, provide storm surge benefits, and would be constructed in a manner that would allow for the continued functioning and, ideally, improvement and increased viability of the Calcasieu Ship Channel and the Port of Lake Charles. Importantly, by allowing for the maintenance of thousands of acres of critical marsh environment which provide essential fish and wildlife habitat, key objectives of this project are to restore and protect the natural resources, ecosystems, fisheries, marine and wildlife habitats and coastal wetlands of the Gulf Coast region, as well as mitigate damage to fish, wildlife and natural resources. (Eligible Activities (1) & (2)). The project also protects the wetlands of the Chenier Plain, which provide storm surge protection to communities and ports in the Lake Charles area. The ports of Lake Charles and Cameron are key parts of the economy of Southwest Louisiana and include critical infrastructure. The loss of wetlands reduces the viability of the ports because of the increased exposure to storm surge. In sum, this project will contribute to the overall ecological and economic recovery of the Gulf by saving an anticipated 21,000 acres of marsh environment from degradation over 50 years. (See Plan Appendix B).

• Funds Requested: The funds that will be requested for this project from the Direct Component are: $16,000,000. The estimated total cost of the project is $434,206,000. This includes an estimated $31,000,000 for engineering, design and permitting, $261,300,000 construction costs and $141,906,000 for operations, maintenance, and monitoring. This cost estimate is based on preliminary design that utilized professional judgment of an interdisciplinary team of engineers and existing data on the topography, bathymetry and geotechnical characteristics of the project sites. Cost estimates for design and operations, monitoring, maintenance and Adaptive Management are based on percentage estimates of the construction cost. The funds that will be requested from Treasury under the Direct Component are $16,000,000. This amount will fund the project development up to the 30% design milestone. In order to reach this milestone, all field data needed to fully design the project will be collected and incorporated into the project. At the 30% design milestone, the project will be developed with sufficient detail to begin the National Environmental Policy Act ("NEPA") process. CPRA has worked with the Chenier Plain Coastal Restoration and Protection Authority, the Cameron Parish Police Jury and Calcasieu Parish Police Jury throughout the plan selection process. All parties regularly communicated about the project status and important decision-making. It is anticipated that this collaboration will continue throughout the project life.

• High Level Milestones: Project development to the 30% design level.

• Measures of Success: Achieving the 30% design level milestone. See also Plan Section VII.

Adaptive Management (see also Plan Appendix C):

• Need: Adaptive Management is a significant strategy employed in the 2012 Coastal Master Plan. Managing complex environments in which the natural and socio-economic systems are highly integrated is inherently difficult. In addition, deltaic environments are uniquely challenged due to the interdependence and delicate balance of water, land and economic systems and future uncertainties regarding the magnitude and rate of climate change impacts. Adaptive Management in deltaic environments encourages an integrated and flexible approach to land and water management that considers risk and uncertainty. It promotes solutions that are sustainable even if conditions change by providing a mechanism for robust decision-making.

• Purpose: Adaptive Management is a key feature of the 2012 Coastal Master Plan process as a business operation strategy and has been presented in the subsequent Annual Plans. As required by state law, the Coastal Master Plan uses an iterative process and must be updated at least every five years to reflect what the state learns over time through monitoring, modeling and the development of new project concepts. As such Adaptive Management is not a project that can be constructed, but a way of doing business that streamlines the implementation of the Coastal Master Plan by maximizing its long-term benefits through institutionalization of the learning process, providing a structured process for resolving uncertainties and integrating new knowledge into the construction and operations of projects, and providing adaptation pathways to allow maximum flexibility for future management decisions. Adaptive Management is a strategy that allows for flexibility in implementation as conditions change, allows for resolution of uncertainties to improve future decision-making, and enables the modification of constructed projects while informing the development of future projects. By allowing flexibility in implementation as conditions change, the Adaptive Management program is also essential to the long-term performance of these projects and the achievement of the greatest amount of positive ecosystem improvement.

• Objective: CPRA's Adaptive Management strategy includes data collection and management, which includes the development and implementation of a System-Wide Assessment and Monitoring Program ("SWAMP") that is currently being designed. The SWAMP program will provide much of the data that will be used to evaluate and manage large-scale projects, such as the HNC Lock Complex and the Calcasieu Ship Channel Salinity Control Measures. Although these projects may also have project-specific Operations, Maintenance, Monitoring and Adaptive Management plans developed which will draw on the SWAMP program (SWAMP will serve as the backbone of any project-related monitoring needs), there may be additional project-specific monitoring added at the project level. However, data management, data availability/sharing, decision-support tool refinement, uncertainty-resolution activities, and other supporting functions will be governed by CPRA's Adaptive Management strategy. Accordingly, this Adaptive Management strategy will play a large role in terms of fulfilling the objectives of the HNC Lock Complex and the Calcasieu Ship Channel Salinity Control Measures projects of maintaining thousands of acres of critical marsh environment which provide essential fish and wildlife habitat. This is because the Adaptive Management strategy will enhance the state's ability to monitor how successfully these projects, as well as other large-scale projects included in the CPRA's Adaptive Management strategy, are restoring and protecting the natural resources, ecosystems, fisheries, marine and wildlife habitats and coastal wetlands of the Gulf Coast region and mitigating damage to fish, wildlife and natural resources. (Eligible Activities (1), (2) & (8)). This project will also contribute to the overall ecological and economic recovery of the Gulf because understanding the trajectory of land loss in coastal Louisiana, the causes of that loss, and the effects of efforts to improve this trajectory towards stability and long term sustainability are of critical importance to the state, the Gulf region, and to the Nation. Application of Adaptive Management principals to the management of our coast will improve decision-making, will build institutional knowledge and capacity to continually improve our understanding of the system, and will facilitate the informed adjustment of management actions to best achieve long-term sustainability. Long-term restoration and protection, specifically in Louisiana's dynamic coastal environment, must be an ongoing series of management decisions based upon a growing knowledge base of research information, updated measurements of ecosystem responses, and evaluations of degrees of progress in reaching goals and targets.

• Funds Requested: The funds that will be requested for this project from the Direct Component are: $2,400,000, which is approximately 7.5% of the total available funding. CPRA anticipates similarly proportioned requests as additional Direct Component and Spill Impact Component funding is made available.

• High Level Milestones: Major milestones include the collection of data and enhanced data management.

• Measures of Success: CPRA will be implementing adaptive management strategies to increase the body of scientific and technical knowledge about Louisiana's coast and its interaction with natural and human systems. Louisiana's Coastal Master Plan has articulated 5 objectives with which will be used to evaluate success: 1) Flood Protection: Reduce economic losses from storm surge based flooding to residential, public, industrial, and commercial infrastructure; 2) Natural Processes: Promote a sustainable coastal ecosystem by harnessing the natural processes of the system; 3) Coastal Habitats: Provide habitats suitable to support an array of commercial and recreational activities coast wide; 4) Cultural Heritage: Sustain, to the extent practicable, the unique cultural heritage of coastal Louisiana by protecting historic properties and traditional living cultures and their ties and relationships to the natural environment; and, 5) Working Coast: Promote a viable working coast to support regionally and nationally important businesses and industries. Additionally, as discussed above, CPRA's development of SWAMP as a component of its adaptive management framework will orchestrate the collection and management of natural and human system information to evaluate these criteria. (See also Plan Section VII).

CPRA-Parish Matching Opportunities Program (see also Plan Appendix D):

• Need: The CPRA recognizes (i) the importance of parish-state partnerships in working together to achieve comprehensive integrated coastal protection as identified in Louisiana's Coastal Master Plan, as well as (ii) the fact that because Louisiana's Coastal Master Plan is a resource-limited approach to coastal restoration and protection, it is not possible to include every worthy project in the Coastal Master Plan.

• Purpose: This matching program is designed to help parishes prioritize Coastal Master Plan projects while also recognizing and responding to the needs of parishes to implement projects that may not be specifically contained in the Coastal Master Plan but are nevertheless consistent with the Coastal Master Plan. This approach will allow the CPRA to connect large scale projects with strategic local projects in a way that can maximize efficiencies and the impact of RESTORE Act funds.

• Objective: The CPRA intends to allocate up to ten percent (10%) of the funds it receives under the Direct Component and the Spill Impact Component of the RESTORE Act for project and program matching opportunities for eligible parishes (i.e. those identified in 33 U.S.C. §1321(t)(1)(D)(i)(II)).

• Funds Requested: Funds will be requested after matching projects have been solicited, identified, publicly reviewed and selected. The state has committed to setting aside up to 10% of the total funds the state receives through both the Direct Component and the Spill Impact Component for matching opportunities with coastal Parishes. Once matching projects have been solicited and identified for matching funds under the program identified in this Multiyear Implementation and Expenditure Plan, those projects will undergo the

same procedure for public comment as outlined in Plan Section III.

2. How the applicant made the multiyear plan available for 45 days for public review and comment, in a manner calculated to obtain broad-based participation from individuals, businesses, Indian tribes, and non-profit organizations, such as through public meetings, presentations in languages other than English, and postings on the Internet. The applicant will need to submit documentation (e.g., a copy of public notices) to demonstrate that it made its multiyear plan available to the public for at least 45 days. In addition, describe how each activity in the plan was adopted after consideration of all meaningful input from the public.

The projects selected for inclusion in this Plan are the result of decades of planning and the information developed through the Coastal Master Plan process. Louisiana's Coastal Master Plan, on which this RESTORE Act Multiyear Implementation and Expenditure Plan is based, represents the result of a broad-based collaboration among local, state and national stakeholders and uses cutting edge technical analysis to think big and evaluate the needs of the entire coast. (See generally Plan pp. 5-9.)

Louisiana's Coastal Master Plan

The CPRA established a strategic outreach and engagement framework for the State of Louisiana's 2012 Coastal Master Plan, which helped guide communications and interactions with diverse audiences throughout the planning process. (See 2012 Coastal Master Plan at pp. 120, 122, 126 & 160-163). These audiences included key citizen groups and organizations, non-governmental organizations, local and state officials, business groups and the general public. CPRA's outreach and engagement framework provides a variety of ways for stakeholders and citizens to learn about and participate in the master planning process, including small group gatherings, web offerings, direct communication with local and state government, and through monthly public meetings.

The CPRA's public outreach efforts for the 2012 Coastal Master Plan began with a meeting of 40 state legislators as well as coastal parish officials to gain their perspective about how coastal action affects communities. CPRA also met with community groups including rotary clubs, advocacy organizations, and school groups across the coast. Other groups were established to provide structured and ongoing advice from key businesses and industries, federal agencies, non-profits, Native American groups, and local organizations as well as coastal scientists and planning experts. These groups provided recommendations and guidance as the plan was developed so that the finished product would reflect broad perspectives and the best possible technical approach. These groups included a framework development team, focus groups of key coastal industries, a science and engineering board, and technical advisory committees.

Ten regional community meetings were held from July through September of 2011, where further input was received from residents. Approximately 600 citizens attended those regional community meetings. Together with online input, a total of 800 citizens expressed their views concerning coastal priorities. Once the draft plan was compiled, it was made available on the CPRA website, and three open house public hearings were held to receive feedback on the draft plan in Houma, New Orleans, and Lake Charles. All told, more than 2,200 comments were received at public hearings, via email, the website, and mail.

The 2012 Coastal Master Plan was also published on CPRA's website and made available for public comment from January 12, 2012 through February 25, 2012 (45 days). The comments were reviewed and considered with great care in order to incorporate them into the final plan. Project-specific comments were further evaluated to determine the implications of each proposed change. In some cases, significant changes were made to the draft plan regarding project location and design. The final plan was submitted and approved by the CPRA Board in a public meeting before proceeding to the legislature for final approval. During the legislative process, the Coastal Master Plan was considered, debated, and open to further public input before receiving final approval by four committees: the House Transportation Committee, the House Natural Resources Committee, the Senate Transportation Committee, and the Senate Natural Resources Committee. Following approval by all four committees, the plan moved to the floor of the respective houses of the legislature where it was unanimously passed. All comments received on the plan as well as transcripts from the town hall meetings and other information related to the public outreach effort are available in Appendix G of the 2012 Coastal Master Plan. The 2012 Coastal Master Plan was formally approved by the Louisiana Legislature on May 22, 2012.

In addition, the CPRA Board holds monthly meetings to provide the public with updates related to projects, programs, and policies. A public comment period is included at the close of each monthly meeting allowing the opportunity for citizens to ask questions or provide comments for the record. The HNC Lock Complex, the Calcasieu Ship Channel Salinity Control Measures project, Adaptive Management and the Parish Matching Program, which are proposed herein for Direct Component funding, have been identified and discussed specific to RESTORE Act funding at numerous CPRA Board meetings over the past two years. Specifically, these projects were discussed at the following meetings: November 28, 2012, May 15, 2013, August 20, 2014, October 15, 2014, November 12, 2014, February 11, 2015, and April 15, 2015. Moreover, at each of these meetings, there was also a public comment period dedicated to comments related to the RESTORE Act. The CPRA Board officially approved these four projects for Direct Component funding on February 11, 2015 and these projects are listed in the FY 2016 Annual Plan for Direct Component funding. (See 2016 Annual Plan pp. 3, 11, 14, 32, 40, 53, 60, & Table B-15). The Annual Plan is also subject to extensive public comment and legislative approval.

CPRA staff regularly attends these meetings and are available before and after to discuss agency initiatives with members of the public. Meeting details, including itemized agendas, are posted to CPRA's online calendar which is located at www.coastal.la.gov.

The RESTORE Act Multiyear Implementation and Expenditure Plan

In addition, the Multiyear Implementation and Expenditure Plan was published on May 20, 2015, and made available for public review and comment for a minimum of forty five (45) days in a manner calculated to obtain broad-based participation from individuals, businesses, Indian tribes, and non-profit organizations in accordance with 31 C.F.R. §§34.303(a)(8) and 34.503(g). (See Attachment A, CPRA Board Resolution 2015-05-01). The CPRA received public comment that was supportive of the Plan in general and especially with respect to the matching program. The Plan was then adopted by the CPRA Board after consideration of all meaningful input. The Plan was made available for public review and comment in a number of ways.

On May 21, 2015, the Louisiana Coastal Protection and Restoration Authority issued a press release seeking public feedback on its Draft Multiyear Implementation and Expenditure Plan. The release stated that public comments on the Multiyear Implementation and Expenditure Plan would be accepted until July 6, 2015, and could be submitted via email to: coastal@la.gov, or via regular mail to: CPRA, Attn: Jenny Kurz, P.O. Box 44027, Baton Rouge, LA 70804. (Attachment B, CPRA Press Release). CPRA also made the plan available for download on its website during the comment period.

The Draft Multiyear Implementation and Expenditure Plan was also discussed at the Louisiana House Natural Resources Committee Meeting on May 27, 2015 and the Parishes Against Coastal Erosion meeting on June 30, 2015. (Attachment C, Meeting Agendas).

Advertisements to solicit public comment on the Plan were run in the following press outlets (Attachment D, Press Invoices):

Abbeville Meridional 6/11
Baton Rouge Advocate 6/11
Belle Chasse Plaquemines Gazette 6/16
Houma Daily Courier 6/11
Lafayette Daily Advertiser 6/11
Lake Charles American Press 6/11
Morgan City Daily Review 6/10
New Orleans Times-Picayune 6/10

Louisiana State Register (Attachment E, State Register Notice): June 20, 2015 (monthly publication)

In addition, letters were sent via email and certified mail/return receipt requested on May 22, 2015 to the following federally recognized Indian Tribes informing them of the public comment period for the Plan and inviting them to comment (Attachment F, Tribal Letters and Certified Mail documentation):

Chitimacha Tribe of Louisiana
Coushatta Tribe of Louisiana
Jena Band of Choctaw Indians
Tunica-Biloxi Indian Tribe

The selection of the projects and programs described in this Plan were finalized upon conclusion of the public comment period. (Attachment G, CPRA Board Resolution 2015-07-01). As projects become available for matching opportunities in the future, and as the funds available under the Spill Impact Component become certain, the Plan will be amended to add projects. Amendments to the Plan will undergo the same procedure for public comment as outlined above.

3. How each activity included in the applicant's multiyear plan matrix is eligible for funding and meets all requirements under the RESTORE Act.

Louisiana's Coastal Master Plan is required by law to be updated every five years in order to take into account the best available science and the ever-changing conditions on the ground. (See Plan p. 5). The Coastal Master Plan, on which the Multiyear Implementation and Expenditure Plan is based, is guided by a mission which is comprehensive in scope and based on a broad range of objectives, principles, decision drivers and decision criteria. (Coastal Master Plan pp. 44-63). This mission represents the result of a broad-based collaboration among local, state and national stakeholders and uses cutting edge technical analysis to “think big and evaluate the needs of the entire coast”. (Id. at 45). To anchor its mission in more detail, the Coastal Master Plan orients its efforts about five objectives which seek to improve flood protection for families and businesses, re-create the natural processes that built Louisiana’s delta and coastal habitats, and ensure the protection of the state’s working coast. Accordingly, the Multiyear Implementation and Expenditure Plan, and the Coastal Master Plan by which the Plan is guided, are based on a common mission that is clearly consistent with the goals and objectives of the RESTORE Council’s Comprehensive Plan. (See Plan pp. 3-4).

Additionally, all of the activities proposed for funding under this Plan are eligible activities under 31 C.F.R. §34.201. (See also Plan pp. 2-3). With regard to the HNC Lock Project and the Calcasieu Salinity Control Measures Project, by allowing for the maintenance of thousands of acres of critical wildlife habitat, key objectives of both projects are to restore and protect the natural resources, ecosystems, fisheries, marine and wildlife habitats and coastal wetlands of the Gulf Coast region, as well as mitigate damage to fish, wildlife and natural resources. (Eligible Activities (1) & (2)). Likewise, the Adaptive Management strategy will enhance the state’s ability

to monitor how successfully these projects, as well as other large-scale projects included in the Coastal Protection and Restoration Authority's Adaptive Management strategy, are restoring and protecting the natural resources, ecosystems, fisheries, marine and wildlife habitats and coastal wetlands of the Gulf Coast region and mitigating damage to fish, wildlife and natural resources. (Eligible Activities (1) (2) & (8)). Moreover, the operations and maintenance of the HNC Lock project will aim to maximize environmental benefits while also making navigation and flood control a priority. (Eligible Activity (7)). (See Plan Section V, pp. 9-14). Consequently, each activity in the Plan is designed to protect or restore natural resources and is based on the best available science in accordance with 31 C.F.R. §34.303(c).

Similarly, while projects to be funded under the matching program have not yet been solicited or selected, the matching program is designed to help parishes prioritize Coastal Master Plan projects while also recognizing and responding to the needs of parishes to implement projects that may not be specifically contained in the Coastal Master Plan but are nevertheless consistent with the Coastal Master Plan and consistent with the goals and objectives of the RESTORE Act and the RESTORE Council's Comprehensive Plan. This approach will allow the CPRA to connect large scale projects with strategic local projects in a way that can maximize efficiencies and the impact of RESTORE Act funds. (See Plan p. 14).

4. How the applicant will evaluate success of the activities included in the matrix.

At the project-scale level, performance measures will track the progress towards meeting management goals and objectives. (See Plan pp. 18-19.) Establishment of detailed monitoring requirements will be finalized for the Calcasieu Ship Channel Salinity Control Measures and the HNC Lock Complex projects upon completion of the engineering and design phase of these projects. However, monitoring for the Calcasieu Ship Channel Salinity Control Measures will likely include surface and marsh porewater salinity, which can use previous studies, including work done as part of the Southwest Coastal Louisiana Study to establish background conditions for comparison of project effects. Other monitoring parameters for these projects could include water level conditions in emergent marshes, local hydrodynamics near project features, and fish and wildlife monitoring. Monitoring parameters for the HNC Lock Complex project are in development and will likely also include surface and marsh porewater salinity, water level conditions, local hydrodynamics near project features, and fish and wildlife.

Additionally, the Adaptive Management funds will allow CPRA to monitor these projects over time and tailor performance measures to help reduce uncertainty surrounding predictive models and inform whether intended results are being achieved or if additional actions are needed to fulfill program expectations.

CPRA is currently working with the Water Institute of the Gulf to more fully develop a System-wide Assessment and Monitoring Program ("SWAMP") that will bring existing monitoring and assessment programs under one comprehensive umbrella in an effort to avoid duplication and improve efficiency. SWAMP is envisioned to be a scalable program that will allow for data assessments to be completed at the project-, basin-, and program-scales. Individual projects will generate monitoring plans which will nest within the larger SWAMP framework and will allow for periodic assessment of project performance against performance expectations. Concurrent with this effort, existing monitoring programs, such as Coastwide Reference Monitoring System ("CRMS") and Barrier Island Comprehensive Monitoring ("BICM") programs are being incorporated into the SWAMP design framework, and projects that require monitoring strategies are being informed and nested within this overall framework. That is not to say that some projects will not require additional monitoring to supplement SWAMP; however, SWAMP will provide the backbone to facilitate comprehensive programmatic performance assessment.

5. How the activities included in the multiyear plan matrix were prioritized and the criteria used to establish the priorities.

The projects selected in the Plan were prioritized for RESTORE Direct Component purposes due to their regional nature and far-reaching benefits to the overall ecological and economic recovery of the Gulf. In addition, these projects were identified as top performers through the Coastal Master Plan's Planning Tool. (See generally Plan pp. 7 & 14-18). For example, the Coastal Master Plan's Planning Tool's modeling results showed that in certain cases, the sustainability of marsh creation projects increased from being completely unsustainable to being sustainable for more than 50 years when modeled as part of a group of projects including hydrologic restoration and salinity control structures. (See 2012 Master Plan p. 90).

More particularly, the CPRA developed a robust decision-making process to ensure that formulation of the 2012 Coastal Master Plan was based on the best science and technical information available, while still incorporating an extensive public outreach campaign. This same process also informed the prioritization and selection of projects for funding under the Annual Plan and this Multiyear Implementation and Expenditure Plan specific to the RESTORE Act. More specifically, the process was guided by clearly-articulated objectives developed for the 2007 Master Plan and by planning principles developed to aid in meeting those objectives. The objectives were clearly defined to reflect key issues affecting communities in and around Louisiana's coast:

1. Reduce economic losses from storm surge flooding,
2. Promote a sustainable coastal ecosystem by harnessing the natural processes of the system,
3. Provide habitats suitable to support an array of commercial and recreational activities coast wide,
4. Sustain the unique cultural heritage of coastal Louisiana, and
5. Promote a viable working coast to support regionally and nationally important businesses and industries.

Evaluating Projects

The purpose for the 2012 Coastal Master Plan was to identify coastal protection and restoration projects that would improve the lives of coastal residents by creating a more resilient south Louisiana. Achieving this goal required new tools that helped us better understand our coast and how projects could provide benefits. The coast is a complex system. We needed to better understand how it is changing today and the kinds of changes we can expect in the future. We also had hundreds of project ideas and different views about how to move forward, and needed a way to sort through our many options and find those that would work best for us.

To meet these needs, CPRA used a systems approach to coastal planning and a science-based decision making process that resulted in a plan that was both funding- and resource- constrained. These tools helped us understand the practical implications of different project options and how gains in one area might create losses in another. Based on the preferences we wanted to explore, our tools helped identify strategies for investing in coastal protection and restoration projects. This analysis improved our understanding of how projects were affected by our budget and the river water and sediment that we have to work with. We also used the tools to consider possible future coastal conditions that could affect the way our projects operate, along with other factors such as construction time.

The Predictive Models

The 2012 Coastal Master Plan analyzed both protection and restoration measures, which influenced the models we selected and how they work. To estimate risk reduction outcomes, we used models that evaluated storm surge and the risk of expected annual damages. To estimate restoration outcomes, the models looked at how land changes throughout the coast—where land is building and where it is disappearing. These models examined how water moves through the coastal system as well as how salt and fresh water affect vegetation and habitats for key species and ecosystem services.

The integrated suite of Predictive Models developed for the Coastal Master Plan assessed how Louisiana's coastal landscape may change and how much damage communities may face from storm flooding over the next 50 years if we take no further action and for comparison then assessed how the coastal ecosystem and our level of risk could change if certain risk reduction and restoration projects are constructed. The models incorporated what we know about the way the coast works, and they made it easier to identify projects that best achieve our objectives.

Ecosystem services are benefits that the environment provides to people. In Louisiana, these range from providing the right habitats for oysters and shrimp to nature-based tourism. We could not detail the economic aspect of ecosystem services in our analysis. Instead, we focused on proxy characteristics of the coast, such as provision of habitat (i.e. habitat suitability indices) and other factors that can support ecosystem services.

The Predictive Models used in the Coastal Master Plan were organized into seven linked groups, involving the work of over 60 scientists and engineers. Each group worked on a different aspect of how the coastal system changes over time. Our effort was based on existing models where they were appropriate. New models were developed for vegetation, nitrogen uptake, barrier shorelines, flood risk, and to reflect potential for nature based tourism, fresh water availability, and support for agriculture/ aquaculture.

The models were designed to work together, following the precedent set by earlier state planning efforts, such as the Coastal Louisiana Ecosystem Assessment and Restoration ("CLEAR") work conducted for the Louisiana Coastal Area Study. We also found new ways to link the expanded set of models to more fully capture how the coast works as a system. The level of modeling in the 2012 Coastal Master Plan was a significant technical achievement in the systems approach, the linked nature of the models, and in the breadth of subjects evaluated.

6. The relationship, if any, between the activities the applicant included in the multiyear plan matrix and other activities funded under the RESTORE Act.

At this time the CPRA anticipates that it may request additional Direct Component funds and Spill Impact Component funds for the projects included in the Multiyear Implementation Plan matrix. However, any such funding requests would be subject to approval from the CPRA Board and the public comment process required by the U.S. Department of Treasury and/or the RESTORE Council as outlined in the the State of Louisiana's Multiyear Implementation and Expenditure Plan.

RESTORE ACT Direct Component Multiyear Plan Matrix — Department of the Treasury		OMB Approval No. 1505-0250
Applicant Name:	Coastal Protection and Restoration Authority	

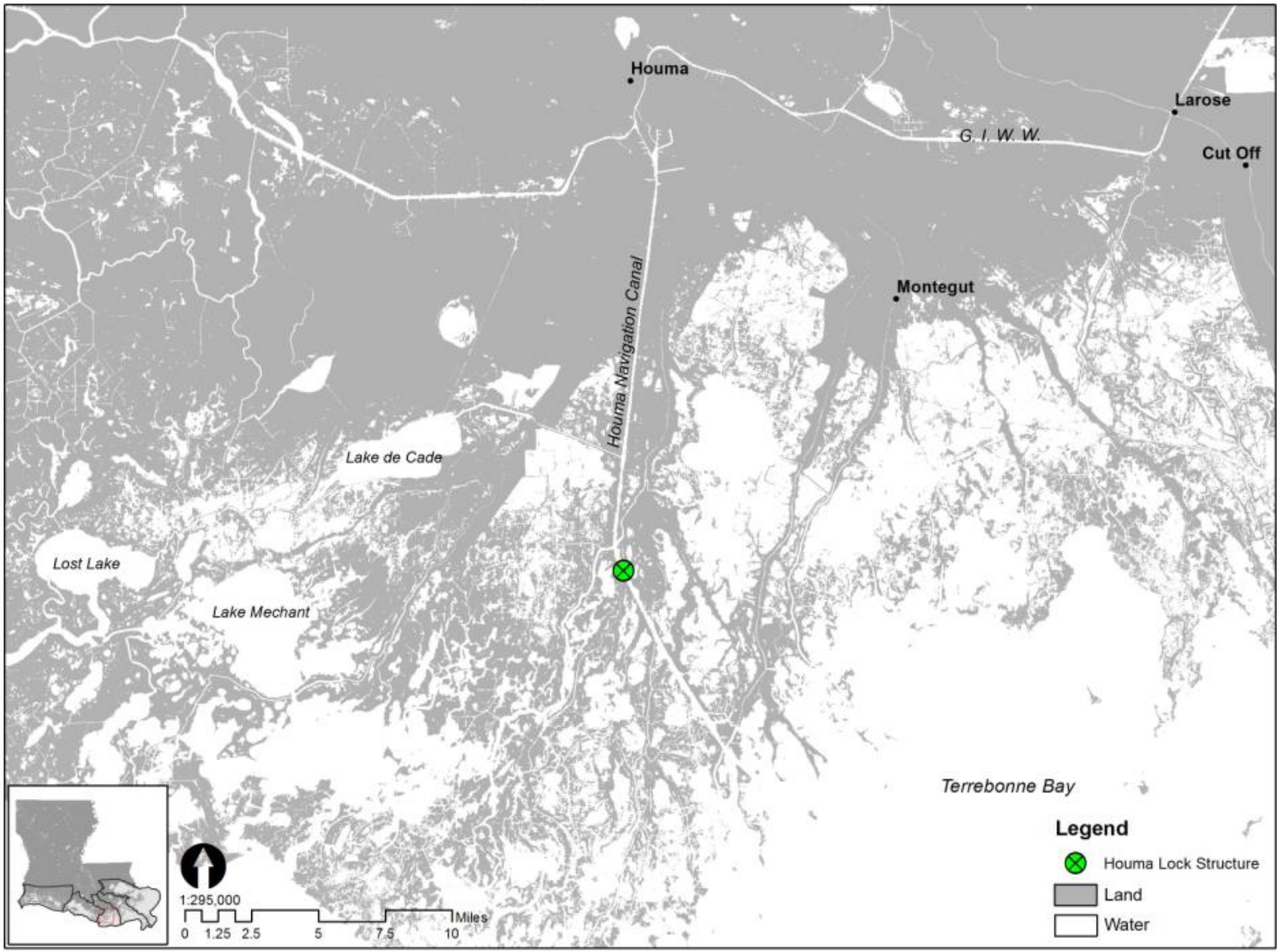
1. CUMULATIVE DIRECT COMPONENT ALLOCATION AVAILABLE FOR DISTRIBUTION TO APPLICANT:	$39,404,635.85	2. TOTAL ALLOCATIONS PLUS KNOWN FUNDS NOT YET DEPOSITED IN TRUST FUND FOR DIRECT COMPONENT:	$39,404,635.85

3. Primary Direct Component Eligible Activity Further Described in Application (Static Field)	4. Activity Number and Activity Title (Static Field)	5. Location - Municipality(ies) (Static Field, locations also shown on attached map)	6. Total Funding Resources For Activity Budget (refer to Instructions)				7. Proposed Start Date mm/yyyy	8. Actual Start Date mm/yyyy (Static Field)	9. Proposed End Date mm/yyyy	10. Actual End Date mm/yyyy (Static Field)	11. Proposed High Level Milestones Further Described in Application
			6a. Direct Component Contribution	6b. Other RESTORE Act Contribution	6c. Other Third Party Contribution	6d. Total Project Budget					
Restoration and protection of the natural resources, ecosystems, fisheries, marine and wildlife habitats, beaches, and coastal wetlands of the Gulf Coast Region	Houma Navigation Canal Lock Complex*	Terrebonne Basin - see map attached in Appendix A to the Plan	$16,000,000.00	Not applicable at this time.	$18,389,521.00	$34,389,521.00	Nov-15		Apr-18		Completion of Engineering and Design.
Restoration and protection of the natural resources, ecosystems, fisheries, marine and wildlife habitats, beaches, and coastal wetlands of the Gulf Coast Region	Calcasieu Ship Channel Salinity Control Measures*	Calcasieu, Cameron and Vermilion Parishes - see map attached in Appendix B to the Plan	$16,000,000.00	Not applicable at this time.	$15,000,000.00	$31,000,000.00	Nov-15		May-18		Project development to the 30% design level.
Planning assistance	Adaptive Management	Louisiana coastal area	$2,400,000.00	Not applicable at this time.	$0.00	$2,400,000.00	Nov-15		Apr-18		Collection of data and enhanced data management within the Louisiana coastal area.
	12. TOTAL FUNDING FOR BUDGET (refer to Instructions)		$34,400,000.00	$0.00	$33,389,521.00	$67,789,521.00					

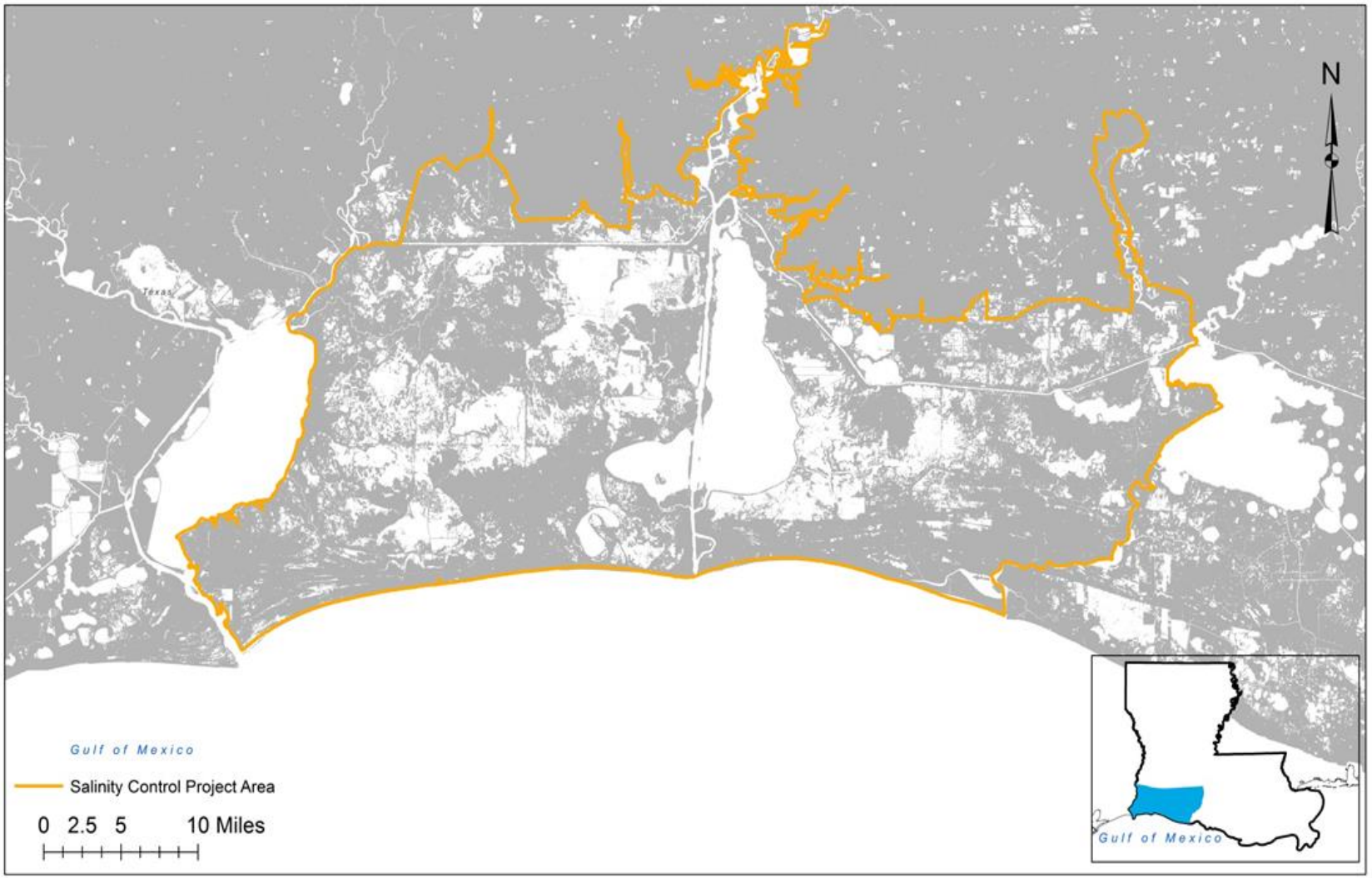
According to the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number. The valid OMB control number for this information collection is 1505-0250. Comments concerning the time required to complete this information collection, including the time to review instructions, search existing data resources, gathering and maintaining the data needed, and completing and reviewing the collection of information, should be directed to the Department of the Treasury, RESTORE Act Program, 1500 Pennsylvania Ave., NW, Washington, DC 20220.

*HNC Lock Complex - $18M of total budget has been provided from State Surplus funds. Funding for the remaining $389,521.00 is TBD. *Calcasieu Ship Channel Salinity Control Measures - funding for the remaining $15M listed in 6c is TBD.

Houma Navigation Canal Lock Complex



Calcasieu Ship Channel Salinity Control Measures



Adaptive Management Program Area

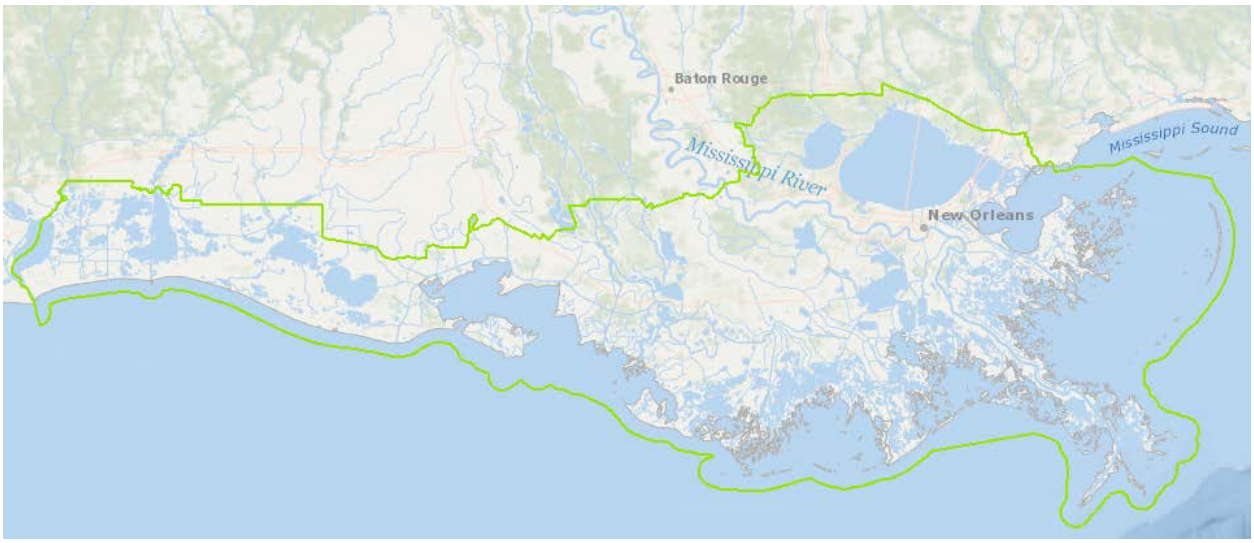


Figure 1. Location of Louisiana's Coastal area which is defined in La. R.S. 49:214.2(4) as the Louisiana Coastal zone (outlined in green) and contiguous areas subject to storm or tidal surge and the area comprising the Louisiana Coastal Ecosystem as defined in Section 7001 of P.L. 100-114, which is the location of adaptive management activities related to the implementation of CPRA's Coastal Master Plan.