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Appendix A to K. Projects and Programs in the Draft FPL

Appendix A. Laguna Madre

Category 1:

Activity: Bahia Grande Coastal Corridor (BGCC) (Implementation)
Unique Identifier: TX_RESTORE_001_000_Cat1
Location: Texas, Cameron County
Type of Activity: Implementation
FPL Category: 1 – Funding Eligible
Cost Estimate: $19,095,760
Responsible Council Member: State of Texas
Partnering Council Members: Department of the Interior
Originally submitted by: The State of Texas as a component within the proposal "Bahia Grande Coastal Corridor"

Executive Summary: Approximately 6,100 acres of land are targeted to be conserved through fee title and easement acquisition from willing sellers and added to a 105,000-acre corridor of conservation lands that includes the Laguna Atascosa National Wildlife Refuge (NWR), Boca Chica State Park and the Lower Rio Grande Valley NWR. This corridor also connects over 2 million acres of private ranchland located north of Laguna Atascosa NWR with the 1.3 million acre Rio Bravo Protected Area, managed by the Commission Nacional De Areas Naturales Protegidas (CONANP) in Mexico.

PROJECT DESCRIPTION:

Specific Actions/Activities: Texas Parks and Wildlife Department, United States Fish and Wildlife Service (U.S. FWS), The Nature Conservancy and The Conservation Fund have identified multiple parcels with willing sellers totaling over 10,000 acres as high priorities for acquisition. This proposal will target 6,100 acres for acquisition from willing sellers, either through fee simple purchase or conservation easements. This project builds upon the existing network of international, federal, state and local conservation areas; expands the scale of conservation across administrative and political boundaries and supports management and stewardship by the public or private entity best suited for meeting long-term conservation objectives. The lands or conservation easements purchased under this proposal will be held by either by The Nature Conservancy or U.S. FWS.

Deliverables: Approximately 6100 acres of valuable and resilient wildlife habitat will be permanently protected by fee simple purchase or through conservation easements. This will include protecting the remaining 600 acres of the Bahia Grande System and key parcels of the Bahia Grande watershed. It will also complete a critical brush corridor historically used by endangered ocelots.

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Acquisition of these tracts will allow for future restoration activities that include restoration and enhancement of 700-800 acres of drained saline and brackish marsh, 2000 acres of Coastal Prairie and restoration of natural freshwater flows to the Bahia Grande System.

Ecological Benefits/Outcomes and Metrics: This project will connect Laguna Atascosa NWR, Lower Rio Grande Valley NWR and Boca Chica State Park and connect over 2 million acres of intact habitat on private ranchland with the 1.3 million acre Rio Bravo Protected Area, managed by the CONANP in Mexico. This connection would provide additional protection for, and could prevent future listing of state threatened species like the reddish egret, Botteri's sparrow, white-tailed hawk, white-faced ibis, Texas tortoise, Texas indigo snake and Texas horned lizard. Securing additional portions of the Bahia Grande wetland system and portions of its watershed will secure valuable freshwater inflows and allow partners to complete hydrological restoration needed to increase tidal flows and divert fresh water inflows needed to fully restore this system. This will allow oyster beds and seagrasses to return to the system and bring back this once great fishery and the thousands of shorebirds, waterfowl and wading birds that used this system.

Desired future conditions in the BGCC would include stable to increasing populations of coastal grassland birds, including the aplomado falcon; maintenance of healthy lomas that provide for increasing populations of ocelots and other brush dependent species; estuarine and fresh marsh environments that provide historic levels of nursery habitat for commercially and recreationally important fisheries species, as well as improved habitat for shorebirds, wading birds and waterfowl. An Inventorying and Monitoring Plan has been developed for the BGCC. This plan will be used to measure migratory bird use, colonial nesting waterbird colonies, salinity and percent cover of submergent and emergent plants.

Leveraging and Co-Funding:

- **Co-funding:** The Knobloch Foundation will match up to 10% of any funds provided by the RESTORE Council.
- **Building on prior or other investments: The** Migratory Bird Conservation Fund provided $1,000,000 to purchase a portion of a tract in the BGCC. The Knobloch Foundation has contributed $400,000 to purchase a portion of one of the tracts identified in the BGCC.

Duration of Activity: We expect the project to be completed within 3-5 years depending on the scale of funding.

Life of Activity: The project benefits are expected to last in perpetuity.

RESPONSE TO SCIENCE REVIEWS:

Summary of some of the comments which required responses: The objectives and methods used for this proposal have been outlined fairly specifically yet the scientific justification behind the objectives and methods are not specifically justified, it would be good to see a more peer-reviewed publications cited in support of this overall effort. There is no real discussion of alternative methods or approaches to this project. This proposal does not contain an explicitly stated monitoring plan. No milestones are offered to indicate successful progress to achieving project goals.

Methods for restoration of acquired lands are not well described. The proposal mentions restoration of hydrology, but no budget is proposed for land work, only vegetation control and re-vegetation. There is no discussion of the risks posed by proposed transportation projects in this area.

Summary of response: The Scientific underpinnings for objectives are based on the Land Protection Plan and Comprehensive Conservation Plan for Laguna Atascosa National Wildlife Refuge. Many of the objectives are further identified in Recovery Plans and Joint Venture Bird Conservation Plans.

An additional 30 peer reviewed citations supporting the plans for the BGCC have been provided.

There are not many alternative options to describe for the BGCC. These properties are being marketed for sale. Landowners are willing sellers and in one case the landowner wishes to execute a conservation easement. If these lands are not protected they will be sold to developers. The only other option is to locate a conservation buyer that is interested in conserving the land and holding the properties for conservation.

At the time the proposal was submitted, staff was developing an Inventory and Monitoring Plan. A draft of this plan, including milestones for success, has been completed and was submitted in the response. These plans are peer-reviewed.

Methods for restoration are simple and include plugging drainage ditches, installation of water controls structures and installation of culverts to restore hydrology. A budget for wetland restoration was not included as this will be accomplished through existing operational budgets or future grants.

There are multiple proposals for transportation plans in this geography. Partners have worked closely with local authorities and highway departments to ensure that wildlife habitats are protected and corridors are not fragmented by these proposals. We are confident that the BGCC objectives can be met with concurrent with the development of any proposed road projects.

ENVIRONMENTAL COMPLIANCE:

The Council intends to adopt the 2010 Laguna Atascosa National Wildlife Refuge Comprehensive Conservation Plan Environmental Assessment (EA) prepared by the U.S. FWS in order to comply with the National Environmental Policy Act (NEPA) for the proposed funding of this activity. This EA can be found here: (*insert link to EA on Council's website*). Prior to adopting an EA, the Council must determine whether the actions covered by the EA and the Council's proposed activity are substantially the same, and whether the EA adequately addresses potential direct and cumulative effects of the activity proposed for funding. The Council must also determine whether there are new circumstances, new information or changes in the action or its impacts not previously analyzed that may result in significantly different environmental effects from those assessed in the EA.

The Council has coordinated with the State of Texas (the sponsor of this activity) and the U.S. FWS and has determined that the activity the Council proposes to fund has independent utility from all other Gulf restoration activities; is substantially the same as the action covered by the EA; and that there are no new circumstances, cumulative effects, new information or changes in the proposed activity or its impacts not previously analyzed that may result in significantly different environmental effects from those assessed in the EA. The EA addresses the Endangered Species Act (ESA), environmental justice, archeological and historical resources, and other relevant regulatory matters. The U.S. FWS updated the ESA consultation for this EA on March 4, 2015 and found that no changes were required. The U.S. FWS has also informed the Council that it is aware of no potential issues pertaining to the National Historic Preservation Act or Tribal consultation.

The Council invites public comment on the adoption of this EA. The Council will consider all public comments as it determines whether, in order to complete the NEPA compliance process, it will arrive at a Finding of No Significant Impact (FONSI) and approve funding for this activity, or alternatively to develop an Environmental Impact Statement. Such a FONSI would be made available to the public on the Council's web site.

MAP:

Activity: Plug Abandoned Well, Tract 980S #1 (NPS-Padre Island-01); Plug Abandoned Well, Tract 1008S #1 (NPS-Padre Island-02); Plug Dunn McCampbell A-4 Well (NPS-Padre Island-03); Plug Dunn McCampbell 11-4 Well (NPS-Padre Island-03); Plug Dunn McCampbell A-8 Well (NPS-Padre Island-03); Plug State Tract 991-S #1 Well (NPS-Padre Island-03); Plug Dunn-Peach #1 Well (NPS-Padre Island-03); Plug Dunn-Peach #4ST Well (NPS-Padre Island-03); Plug Dunn-Peach #5 Well (NPS-Padre Island-03); Plug Dunn-Peach #6 Well (NPS-Padre Island-03); Plug Dunn-Peach #7C/7T Well (NPS-Padre Island-03) (Implementation)
Unique Identifier: DOI_RESTORE_003_049-051_Cat1
Location: Texas, Kleberg and Kenedy Counties
Type of Activity: Implementation
FPL Category: 1 – Funding Eligible
Cost Estimate: $1,300,000
Responsible Council Member: Department of the Interior (DOI)
Partnering Council Member(s): State of Texas.
Originally submitted by: The DOI as a component within the proposal "Abandoned Oil and Gas Well Plugging and Site Reclamation"

Executive Summary: Unplugged abandoned oil and gas wells pose risks to human safety, environmental risks to surface and subsurface resources through release of contaminants, and may perpetuate habitat loss. These risks increase with time due to continued deterioration, as does the cost to address them. The National Park Service (NPS) will work with the state of Texas to plug and reclaim eleven abandoned wells located in Padre Island National Seashore in order to negate these risks.

PROJECT DESCRIPTION:

Specific Action/Activities: NPS will plug the wells following Railroad Commission of Texas, Oil and Gas Division's plugging standards in addition to BLM Onshore Order No. 2, Section 6 (Texas Administrative Code, Title 16, Part 1, Chapter 3, Rule 3.14, Plugging). The Railroad Commission of Texas' "Well Plugging Primer, January 2000," describes this process (http://www.rrc.state.tx.us/media/6358/plugprimer1.pdf). Plugging operations consist of removing the tubing, packer, and other completion equipment; pumping cement across producing zones; and placing cement plugs at various depths to protect freshwater zones. Finally, a cement plug is set at the surface to cap the well, and wellhead equipment is cut off. A permanent abandonment marker is placed to identify the well's location when appropriate.

Deliverables: Eleven abandoned wells located at Padre Island National Seashore will be plugged per standards established by the Railroad Commission of Texas. These wells have the following identifiers: Tract 980S #1; Tract 1008S #1; Dunn McCampbell A-4; Dunn McCampbell 11-4; Dunn McCampbell A-8; State Tract 991-S #1; Dunn-Peach #1; Dunn-Peach #4ST; Dunn-Peach #5; Dunn-Peach #6; Plug Dunn-Peach #7C/7T.

Ecological Benefits/Outcomes and Metrics: While proper plugging of wells and reclamation of well sites involve relatively small land areas, they represent significant sources of petroleum

pollution that can impact groundwater, springs and seeps, and surface water. Elimination of the potential for contamination from these abandoned wells will result in protection of water quality in the adjacent waterways, improved habitat for dependent wildlife including endangered and migratory species, and improved visitor safety.

Leveraging and Co-Funding: NPS will utilize an additional $200,000 made available through a bond from the parties responsible for well abandonment.

Duration of Activity: Well plugging will be completed within a year of receipt of funds.

Life of Activity: Proper well plugging is considered a permanent fix for potential contamination.

RESPONSE TO SCIENCE REVIEWS:

Comment: The proposal mentions numerous times the high risk / high uncertainty associated with restoration of >3,000 acres of wind tidal flats at Padre Island National Seashore. I would need more information to comment on the potential success of the Padre Island National Seashore project, which constitutes a significant portion of the planned restoration effort.

Response: The NPS provided tested methods for operations in similar areas, established a clear understanding of the habitat of concern, and identified that this effort could result in new methods developed by an expert in the field. Wind tidal flat operations were removed from this proposal.

Comment: I believe literature sources are represented in a fair and unbiased manner. My only additional comment is that there are not really any outside references (e.g. from published literature from peer-reviewed journal sources).

Response: The NPS provided more than 70 additional references including peer reviewed journals and publicly available information from a variety of sources to establish a clear understanding and examples for a proven process to accomplish the established project goals.

Comment: Though the methods appear to be based on best available science, it is difficult to determine if the proposed restoration is justified because the risks of damage from abandoned oil and gas features has not been quantified. There is little to no scientific analysis of the hazards posed from abandoned oil and gas wells in terms of documented disturbances or statistical likelihood of impacts. Instead, the proposal lists possible impacts and risks with no discussion of the likelihood of such impacts (for example based on type or age of infrastructure or level of exposure to natural hazards).

Response: The Executive Summary of the original proposal provides an itemized list of the potential hazards to human safety and the environment associated with abandoned oil and gas features. Supplemental literature was provided to support these potential hazards. The rapid

corrosion of abandoned wellbores and pipelines, especially in these austere environments, is well established and some of the National Seashore's abandoned wells date to the 1950s.

Comment: "This proposal does not full[ly] characterize the scientific basis for this study. The proposal list[s] potential impacts of abandoned oil and gas wells without a treatment of the likelihood of such negative impacts. If a subset of this proposal is funded, it should focus on those abandoned oil and gas features that are most likely to cause negative impacts."

Response: Proposed wells were evaluated and prioritized in order to identify abandoned wells most likely to cause negative impacts. Eleven of those wells have been chosen for the current proposal. Additional supporting literature was provided to characterize the scientific basis for this operation.

ENVIRONMENTAL COMPLIANCE:

DOI has advised the Council that this proposed activity has independent utility from all other Gulf restoration activities and would be covered by the DOI National Environmental Policy Act (NEPA) Categorical Exclusion (CE) for removal of non-historic materials and structures in order to restore natural conditions (See the DOI documentation regarding the use of a CE for this activity*: insert link to DOI CE document and DOI CE*). The Council intends to use this CE for this proposed activity, consistent with Section 4(d)(4) of the Council's NEPA Procedures (*insert link to Procedures*). Based on information provided by DOI, the Council has determined that this proposed activity would not have significant effects on the environment individually or cumulatively. Based on information provided by DOI, the Council has also considered potential extraordinary circumstances, including potential negative effects to threatened and endangered species, essential fish habitat, Tribal interests, and historic properties, where applicable, and has determined that no such circumstances apply.

MAP:

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Activity: Bahia Grande Wetland System Restoration (Planning)
Unique Identifier: DOC_RESTORE_001_001_Cat1
Location: Texas, Cameron County
Type of Activity: Planning
FPL Category: 1 – Funding Eligible
Cost Estimate: $ 404,318
Responsible Council Member: Department of Commerce (DOC)/National Oceanic and Atmospheric Administration (NOAA)
Partnering Council member(s): Department of Interior (DOI)/U.S. Fish & Wildlife Service U.S. FWS), Texas Parks and Wildlife Department
Originally submitted by: The DOC as a component within the proposal "Connecting Coastal Waters: Restoring Coastal Wetland Hydrology".

Executive Summary: The Bahia Grande Wetland System Restoration project is part of the *Connecting Coastal Waters* initiative NOAA will lead with partners to implement projects that restore the extent, functionality, and resiliency of Gulf Coast wetlands, and provide a science-based inventory of wetland hydrology restoration projects that make the greatest contribution to that goal. This project will complete planning and design with local partners to restore a natural hydrology to 800 acres of wetlands within the Bahia Grande ecosystem in Texas. A restoration plan, engineering design, regulatory compliance, monitoring and evaluation plan, and outreach and education plan will be completed to implement a project to restore freshwater flows to La Laguna Larga in the upper Bahia Grande wetland system.

PROJECT DESCRIPTION:

Specific Actions/Activities: The *Connecting Coastal Waters* initiative will restore and enhance ecosystem resilience, sustainability, and natural defenses by reestablishing natural hydrology and connectivity between freshwater and marine habitats in priority areas across the Gulf Coast. Bahia Grande is a large coastal wetland ecosystem that has been greatly affected by hydrological modifications such as channelization, ditching, and road construction. This project will complete the planning, engineering, and design required to restore freshwater flow to La Laguna Larga in the upper Bahia Grande System and enhance 800 acres of wetlands. The project will be implemented in cooperation with the Laguna Atascosa National Wildlife Refuge, the State of Texas, and other partners. Plans will also be developed for a robust monitoring and evaluation approach using objective measures of success. In addition, an outreach and education plan will be developed to engage the public and to transfer best practices to restoration practitioners and stakeholders.

Task 1: Planning and Local Involvement: A project team will be assembled to provide technical input and expertise. This task will also evaluate restoration strategies to address site-specific requirements and coordinate with state and federal regulatory agencies to incorporate their input at the earliest stages of project implementation.

Deliverable 1: Project team member's list, roles, and team description.

Task 2: Engineering and Design: This task will evaluate restoration techniques capable of achieving the desired project outcomes. Engineering studies, modeling, if necessary, and a final design will be completed and approved by a professional engineer.

Deliverable 2.1: Plan of Work for Completion of Design.

Deliverable 2.2: Final Design Report, including summary of environmental studies and models, a design drawings and specifications package approved by a professional engineer; and a project construction cost estimate.

Task 3: Regulatory Compliance: NOAA will conduct early coordination with regulatory agencies and ensure that all local, state, and federal permits are obtained prior to initiating construction. NOAA will also ensure compliance with the National Environmental Policy Act (NEPA).

Deliverable 3.1: Documentation of approval of all regulatory requirements, including NEPA evaluation, NOAA and DOI consultation letters, and final approved permits.

Task 4: Monitoring and Evaluation Plan: A monitoring and evaluation plan that builds on identified goals and objectives will be developed. The monitoring plan will detail specific parameters, collection methods, and quality assurance and quality control procedures. The data collected before and after project construction will identify problems, document progress toward goals and objectives, and inform adaptive management decision-making. The evaluation plan will identify project specific measures of success in meeting restoration goals and objectives.

Deliverable 4.1: Monitoring and Evaluation Plan.

Task 5: Outreach and Education Plan: The project team will develop a strategy for public engagement in cooperation with partners and existing community groups. Strategies may include site tours, presentations, outreach materials, videos, and other efforts to share project success.

Deliverable 5.1: Outreach and Education Plan.

Task 6: Inventory of Coastal Wetland Hydrology Restoration Opportunities: NOAA will lead a collaborative, science-based inventory of coastal wetland hydrology restoration projects to meet the Council's goals for ecosystem restoration. This task will expand the 2012 hydrology restoration inventory conducted by NOAA and Sea Grant to be compatible with the goals of the Council and to focus on coastal wetland hydrology, a regionally significant need for ecosystem restoration.

Deliverable 6.1: Inventory plan of work including focal areas, data standards, and project screening criteria to ensure that the best available science is applied to the inventory.

Deliverable 6.2: Inventory report and online map of coastal wetland hydrology restoration opportunities.

Ecological Benefits/Outcomes and Metrics: Bahia Grande is a federally protected 20,000-acre coastal ecosystem that has been greatly affected by hydrological modifications. For more than seven decades, Bahia Grande and two smaller saltwater lagoons between Brownsville and Port Isabel have been cut off from the Laguna Madre Bay, landlocked behind spoil banks deposited

during the dredging of the 17-mile long Brownsville Ship Channel in the early 1930s. This isolation left the Bahia Grande a vast flat of dry sediment with little to no value as habitat for fish and wildlife. This project will restore natural wetland hydrology by restoring the flow of freshwater from north of Highway 100 to La Laguna Larga and moderating salinity levels to 800 acres of this section of the Bahia Grande wetland system.

Leveraging and Co-Funding: The Bahia Grande Restoration Partnership, a coalition of 65 partners including NOAA, was formed to work towards restoration of Bahia Grande, including a restoration project in 2005 that reconnected the Bahia Grande with tidal waters. This project builds on these efforts by completing the planning required to implement activities included in the Bahia Grande restoration master plan using proven restoration techniques with a high likelihood of success.

Building on prior or other investments:

- $13,000. Ducks Unlimited has performed an elevation survey of the area to base future engineering design upon.
- Ducks Unlimited produced a conceptual design for the project and the U.S. FWS refuge staff has coordinated with Texas Department of Transportation regarding the need to reroute the water from the roadside ditch and under Highway 100. Upon funding of the project, U.S. FWS engineering staff will begin to produce preliminary construction design plans to inform the next phase of this project.
- NOAA will work with U.S. FWS to incorporate this project into their routine monitoring and outreach programs.

Adjoining:

- $2. 5million. Texas General Land Office (Coastal Impact Assistance Program-CIAP and National Fish and Wildlife Gulf Environmental Benefit Fund-NFWF GEBF Funding), Bahia Grande Main Channel Construction. This project will widen the channel connecting the Bahia Grande system to the Brownsville Ship channel to increase tidal flushing and lower salinities for the system.
- $1.5 million. U.S. FWS and Ducks Unlimited (NFWF GEBF Funding), Wetland Restoration at Paso Corvino (Bahia Grande). This project will reconnect the Paso Corvino wetlands to the Bahia Grande to restore additional wetlands within the Bahia Grande System.

Duration of Activity: 2 years.

Life of Activity: N/A (Planning)

RESPONSE TO SCIENCE REVIEWS:

Comment: External science review of the *Connecting Coastal Waters* (CCW) proposal, which included a total of eleven projects, resulted in one all or mostly positive response and two generally positive responses, but with a need for more information. Reviewers requested information related to outcomes that will come from planning, engineering, design, and

permitting including: site-specific conditions, evaluation of uncertainties, risk, and mitigation, and measures of success.

Response: This project will implement the planning, engineering, design, and permitting necessary to provide the detailed, site-specific information requested by external science reviewers. This project will also build on the approach to planning and monitoring described in the CCW proposal to develop site-specific, science-based objectives and a detailed monitoring and evaluation plan with measures of success. Additional evaluation of project uncertainties, risk, and mitigation will be completed through the environmental compliance process.

Comment: Another comment stated that Highway 100 was likely a greater contributor to hydrologic isolation than the dredging of the Brownville Ship Channel.

Response: Highway 100 is responsible for isolating this area for freshwater flows southward into the Bahia Grande system. The dredging of the Brownsville Ship Channel isolated the entire Bahia Grande from tidal flows. Both of these activities have affected the Bahia Grande on a landscape scale. At this time, there is no culvert under Highway 100. The planning phase of the project will determine the proper location of the culvert under this highway to most effectively move freshwater into the system.

ENVIRONMENTAL COMPLIANCE:

Council approval of funding for this proposed activity would not involve or lead directly to ground-disturbing activities that may have significant effects on the environment individually or cumulatively, nor would it commit the Council to a particular course of action affecting the environment. The Council has considered potential extraordinary circumstances, including potential negative effects to threatened and endangered species, essential fish habitat, Tribal interests, and/or historic properties, where applicable, and has determined that no such circumstances apply. Accordingly, the Council has determined that this proposed activity would be covered by the Council's NEPA Categorical Exclusion for planning, research or design activities. (See the Council's NEPA Procedures, Section 4(d)(3): *insert link to Procedures*.)

MAP:

Category 2:

Activity: Bahia Grande Wetland System Restoration (Implementation)
Unique Identifier: DOC_RESTORE_001_001_Cat2
Location: Texas, Cameron County
Type of Activity: Implementation
FPL Category: 2 – Prioritized for Further Review
Cost Estimate: $968,863
Responsible Council Member: Department of Commerce (DOC)/National Oceanic and Atmospheric Administration (NOAA)
Partnering Council member(s): Department of Interior/U.S. Fish & Wildlife Service (U.S. FWS), Texas Parks and Wildlife Department
Originally submitted by: The DOC as a component within the proposal "Connecting Coastal Waters: Restoring Coastal Wetland Hydrology".

Executive Summary: The Bahia Grande Wetland System Restoration project is part of the *Connecting Coastal Waters* initiative NOAA will lead with partners to restore the extent, functionality, and resiliency of Gulf Coast wetlands and provide a science-based inventory of wetland hydrology restoration projects that make the greatest contribution to that goal. NOAA will work with partners to implement this project to restore freshwater flows to 800 acres of wetlands by re-routing freshwater flow north of Highway 100 into the Bahia Grande wetland system. NOAA will also work with partners to conduct monitoring of restoration outcomes, outreach and educational activities to share restoration practices and engage stakeholders.

PROJECT DESCRIPTION:

Specific Actions/Activities: The *Connecting Coastal Waters* initiative will restore and enhance ecosystem resilience, sustainability, and natural defenses by reestablishing natural hydrology and connectivity between freshwater and marine habitats in priority areas across the Gulf Coast. Bahia Grande is a large coastal wetland ecosystem that has been greatly affected by hydrological modifications such as channelization, ditching, and road construction. This project will implement restoration activities, conduct monitoring to assess restoration outcomes, and engage in outreach and educational activity with restoration practitioners and stakeholders. The restoration of freshwater flows to 800 acres of wetlands will be accomplished by either filling a ditch that diverts freshwater flow or by installing a fixed crest weir in the ditch to divert water into the Bahia Grande. Land grading may be needed to ensure the desired water flow into the Bahia Grande. A monitoring plan will be implemented before and after construction to support an adaptive management approach. Outreach and educational activities will be conducted to share restoration practices and project results.

Task 1: Planning and Local Involvement: A project team will be assembled to provide technical input and expertise during the construction and monitoring of this project. Team members will provide a multi-disciplinary approach to evaluate monitoring data and recommend any corrective actions necessary to meet restoration goals.

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Deliverable 1: Project team member's list, roles, and team description.

Task 2: Construction: NOAA will develop a contract statement of work, select a construction contractor, determine a schedule, and finalize construction plans. The construction task includes both the action of restoring the site and post-construction management including monitoring of the construction. Monitoring will occur before, during, and after construction to ensure work is progressing and completed as designed.

Deliverable 2.1: Construction Plan of Work and Bid Documents.

Deliverable 2.2: Final construction as-built drawings and construction completion report.

Task 3: Monitoring and Evaluation: This task will implement a monitoring and evaluation plan developed through the project planning phase. The data collected before and after project construction will document progress toward achieving restoration project goals and objectives and inform adaptive management decision-making. Three types of monitoring will be conducted: 1) Pre-implementation monitoring—provides baseline information to compare with post implementation data to determine whether the restoration is having the desired effect; 2) Implementation monitoring—ensures the project is being implemented as planned and identifies needed modifications; and 3) Effectiveness monitoring—enables evaluation of whether a project has met its objectives.

Deliverable 3.1: Semi-annual Monitoring Reports and Data Sheets.

Deliverable 3.2: Final Monitoring and Evaluation Report.

Task 4: Outreach and Education: The project team will implement the Outreach and Education Plan developed through the project planning phase in cooperation with partners and existing community groups. Strategies may include site tours, presentations, interpretive outreach materials, videos, and other efforts to share project success. Activities conducted will be documented, including copies of materials produced, and compiled into a final report.

Deliverable 4.1: Outreach and Education Report.

Ecological Benefits/Outcomes and Metrics: Bahia Grande is a federally protected 20,000-acre coastal ecosystem that has been greatly affected by hydrological modifications. For more than seven decades, Bahia Grande and two smaller saltwater lagoons between Brownsville and Port Isabel have been cut off from the Laguna Madre Bay, landlocked behind spoil banks deposited during the dredging of the 17-mile long Brownsville Ship Channel in the early 1930s. This isolation left the Bahia Grande a vast flat of dry sediment with little to no value as habitat for fish and wildlife. This project will restore natural wetland hydrology by restoring the flow of freshwater from north of Highway 100 to La Laguna Larga in the upper Bahia Grande System and moderating salinity levels to 800 acres of this section of the Bahia Grande wetland system.

Measures of Success: Specific metrics to evaluate the ecological benefits and outcomes will be established in the planning phase of this project. Potential measures of success include:

Restoration extent: Acres of wetlands with restored freshwater flows.

Hydrology Parameters: Water depth, salinity, flow patterns.

Leveraging and Co-Funding: The Bahia Grande Restoration Partnership, a coalition of 65 partners including NOAA, was formed to work towards restoration of Bahia Grande, including a restoration project in 2005 that reconnected the Bahia Grande with tidal waters. This project builds on these efforts by implementing activities included in the Bahia Grande restoration master plan using proven restoration techniques with a high likelihood of success.

Building on prior or other investments: NOAA will work with the U.S. FWS to incorporate this project into their routine monitoring and outreach programs.

Adjoining:

- $2. 5million. Texas General Land Office (Coastal Impact Assistance Program-CIAP and National Fish and Wildlife Gulf Environmental Benefit Fund-NFWF GEBF Funding), Bahia Grande Main Channel Construction. This project will widen the channel connecting the Bahia Grande system to the Brownsville ship channel to increase tidal flushing and lower salinities throughout the system. This is the main component of the Bahia Grande Restoration Plan.
- $1.5 million. U.S. FWS and Ducks Unlimited (NFWF GEBF Funding), Wetland Restoration at Paso Corvino (Bahia Grande). This project will reconnect the Paso Corvino wetlands to the Bahia Grande to restore additional wetlands within the Bahia Grande System. This is a major component of the Bahia Grande Restoration Plan.

Duration of Activity: 3 years.

Life of Activity: Life span of culverts is conservatively estimated to be 25 years. The Bahia Grande (including the Channel F site) is protected in perpetuity as part of the U.S. National Wildlife System. With periodic maintenance, the life span of this project can be greatly lengthened.

RESPONSE TO SCIENCE REVIEWS:

External science review of the Connecting Coastal Waters proposal, which included a total of eleven projects, resulted in one all or mostly positive response and two generally positive, but with a need for more information. Reviewers requested information related to outcomes of planning, engineering, design, and permitting including, site-specific conditions, evaluation of uncertainties, risk, and mitigation, measures of success, and data quality standards. This project will implement restoration activities with detailed restoration plans, certified engineering and design, and approved permits completed by the project planning phase (Category 1). The project's construction design as well as the monitoring and evaluation plan will incorporate necessary steps to mitigate for project uncertainties and risk that will be identified in greater detail through the permitting and environmental compliance process conducted under the planning phase (see additional information below). This project will also implement a detailed monitoring and evaluation plan developed under the planning phase that will collect data to evaluate project specific measures of success. Data collected under this proposal will undergo verification to ensure the quality, utility, and integrity of information collected.

Another review included a project specific comment that Highway 100 was likely a greater contributor to hydrologic isolation than the dredging of the Brownville Ship Channel. Highway 100 is responsible for isolating this area for freshwater flows southward into the Bahia Grande system. The dredging of the Brownsville Ship Channel isolated the entire Bahia Grande from tidal flows. Both of these activities have affected the Bahia Grande on a landscape scale. At this time, there is no culvert under Highway 100. The planning phase of the project will determine the proper location of the culvert under this highway to most effectively move freshwater into the system.

ENVIRONMENTAL COMPLIANCE:

The Council proposes to list this activity as a priority for potential future funding. Notwithstanding anything to the contrary set forth herein, at this time the Council is not approving or committing any funds for the implementation of this activity. Additional environmental compliance information is needed before the Council considers whether to approve funding for implementation of this activity. If sufficient additional environmental compliance information becomes available between the issuance of this draft FPL and completion of the final FPL, the Council may consider such information and thereafter approve this activity for funding, and move it to FPL Category 1. In such case the final FPL would include information necessary to demonstrate compliance with NEPA and other applicable laws. Where applicable, the final FPL would also inform the public of any comment opportunities pertaining to environmental compliance. In some cases, Council approval of funding for an activity in Category 1 would not be final until after the public has had an opportunity to provide comments, and the Council has considered such comments as it prepares required decision documentation (such as a Finding of No Significant Impact for use of an Environmental Assessment).

MAP:

Appendix B. Matagorda Bay

Category 1:

Activity: Matagorda Bay System Priority Landscape Conservation (Implementation)
Unique Identifier: TX_RESTORE_002_000_Cat1
Location: Texas, Matagorda County
Type of Activity: Implementation
FPL Category: 1 – Funding Eligible
Cost Estimate: $6,500,000
Responsible Council Member: State of Texas
Partnering Council Member(s): N/A
Originally submitted by: The State of Texas as a component within the proposal "Matagorda Bay System Priority Landscape Conservation"

Executive Summary: The Matagorda Bay System Priority Landscape Conservation Project aims to conserve strategic lands adjacent to the Matagorda Bay/San Antonio Bay complex to help ensure long-term native diversity, productivity and resiliency of the entire bay estuary complex. In this activity, the State of Texas will acquire approximately 6,500 acres of high-quality coastal habitats including emergent marshes, tidal flats, lagoons and coastal prairie with several miles of frontage on the Matagorda Bay system.

PROJECT DESCRIPTION:

Specific Actions/Activities: Texas Parks and Wildlife Department (TPWD) has a Land Conservation Program Team with expertise in negotiating, structuring, performing due diligence, identifying and resolving title issues and closing land transactions. The 6,500-acre subject tract is available from a willing seller, and a commitment to acquire the subject tract for conservation has already been negotiated. There are no comparable sales for this tract because of its uniqueness, but TPWD will work with the seller and appropriate brokers to arrive at a fair market value, expected to be in the range of $700 - $1,000/acre in accordance with negotiations to date. Surveying is problematic along this shifting shoreline, but historical records, deeds and existing surveys will define any additional surveying needed to clearly establish the boundaries of the subject tract. TPWD will be responsible for due diligence including Phase I environmental reports, title and mineral runs, review of title commitments and structuring the closing.

Deliverables: There is a single deliverable that is acquisition of the subject 6,500-acre tract by TPWD and integration of the tract into the coastal conservation management system of TPWD and the conservation community. This integration includes establishing a schedule for baseline inventory, monitoring and management as appropriate.

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Ecological Benefits/Outcomes and Metrics: The ecological benefits of this component of the project consist of removing a large swath of coastal wetlands and bay front from development that would be detrimental to a range of ecological values, including emergent marshes that are important nurseries for crustaceans and fin fish; critical habitat for piping plovers; habitats modeled as extremely high quality for expanding populations of whooping cranes; nesting and foraging habitat for sea turtles; nearshore oyster reefs and seagrass beds; storm surge absorption and buffering; and sediment and nutrient attenuation. Threats to the property include wind farm development, ranching and potentially residential development.

Outcomes and metrics include the number of acres conserved, the area of high-quality and target habitats conserved, the potential for long-term management of the acquisition tract and the adjacent bay system, miles of contiguous shoreline protected, and the quality and quantity of storm surge protection and sediment and nutrient attenuation protected for future generations.

Metrics are both qualitative and quantitative. Fortunately, decades of data collected in the adjacent bay system provide a good baseline for understanding the dynamics of the system, measuring the responses of protective and management measures, and adapting management to achieve long-term ecosystem goals of protecting native diversity and productivity. These historical data include limited terrestrial surveys for specific features such as piping plover habitat; sea-rise and whooping crane habitat modeling underway by U.S. Fish and Wildlife Service; and 80 years of historic aerial imagery.

Leveraging and Co-Funding:

- The Knobloch Foundation has committed to provide 10% of the project cost, estimated at $650,000 including purchase price and all due-diligence costs, which will be higher than normal due to the complex surface and mineral history of the subject tract. In addition, TPWD is in the process of acquiring the undivided ownership interest in 289 acres of land adjacent to the subject tract, valued at $200,000.

Duration of Activity: Closing would likely occur within 6 months of available of funding.

Life of Activity: More than 100 years. Portions of the subject tract reach elevations of 12 to 15 feet, and although subject to erosion and overwashing events during hurricanes, have historically been rebuilt between storms as a result of local sediment dynamics. Likewise, much of the subject property is below one meter in elevation, but as it is subject to the same processes as adjacent barrier islands, is expected seek elevation equilibrium as storm washover events add sediments that will in part offset relative sea level rise. Even if much of the tract is ultimately submerged, the biological values as an increasingly wet system, and the value for storm surge protection and sediment/nutrient attenuation in the adjacent bay system are expected to be very significant for many decades to come.

RESPOSE TO SCIENCE REVIEWS:

Comment: Questions centered primarily around the availability of scientific literature available to substantiate the benefits of land conservation for achieving ecological benefits, and potential risks to the project due to lack of future funding and due to climate change and sea-level rise.

Response: There is a tremendous body of data that speaks to the negative biological impacts of coastal resource exploitation and development in watersheds that provide inflows to estuarine and marine systems. Likewise there is a significant body of data that articulates the values of conserving lands adjacent to shallow water and emergent systems, lands that protect wetlands, streams, and intact native vegetation cover, and lands that protect important habitat for coastal species, especially species in decline and species of greatest conservation need. In addition, it is considered to be intuitive that the protection of habitat to prevent fragmentation, pollution, invasive species, upsetting nutrient and sediment dynamics, draining wetlands or bulkheading waterfronts, and displacement of fish and wildlife, contributes to long-term conservation of native ecosystem health, diversity and productivity.

Risks associated with future lack of funding will not seriously affect the conservation value of the project, as most of these coastal systems require little active management. Funding may provide more opportunities for monitoring and certain limited active management such as prescribed fire and site/species-specific exotic species control. However, the primary benefits of long-term conservation of ecological values will remain intact. Sea-level rise may affect the project on a site-by-site basis. Tracts proposed for acquisition are being selected on the basis of their contribution to landscape-scale protection of fish and wildlife values, and the expectation that there is room and topography to accommodate a shift of habitats up-gradient as waters rise over the next century.

Comment: Questions focused on lack of specificity regarding individual tracts in the overall landscape project strategy, lack of specificity regarding specific threats such as sea-level rise, and lack of specificity regarding monitoring protocols that will be employed to quantify project results.

Response: The lack of specificity regarding individual tracts is intentional, to protect landowners and sensitive land negotiations. The component proposed for the next phase of the Landscape Conservation Project involves approximately 5,500 acres and several miles of tidal coastline. The tract will be altered by sea-level rise, as it has been by generations of tropical storms. The applicant has reviewed a number of models and recent assessments of the projected rate and risks of sea-level rise. Past history of sea-level fluctuations, the geology of the landform, and the geological processes involved, including deposition of sediments by tropical storms during washover events, causes the project sponsor to believe that the subject tract will resist sea-level rise to a greater extent than that suggested by its current elevation and topography. The tract will have extreme biological value for a suite of coastal species, including listed species and species affected by the Deepwater Horizon oil spill, even as the land

form and proportions of wetlands habitats fluctuations over time is response to changes in sea-level.

The protocols for baseline inventory, ongoing monitoring both on land and in adjacent estuarine waters, and for making informed decisions about management actions, are well established by TPWD from decades of experience in coastal sampling, monitoring and land management.

Comment: Similar questions regarding lack of detail, better articulation of short-term and long-term threats to the project, quantification of project monitoring metrics, and potential project failure such as unwilling sellers and/or the consequences of "no action."

Response: As above, project metrics, including management plans, assembling and supplementing current inventories, defining adaptive management actions, and establishing monitoring and reporting metrics, will begin once the subject tract is under contract, and be fully formalized and adopted after acquisition. All such assessments, management actions and monitoring metrics will be fully consistent with current scientific standards. TPWD has considerable experience with preparing and implementing such plans. The consequences of "no action" are as stated above and include the potential for accelerated degradation of coastal resources.

Comment: Additional information needed.

Response: For specific activities of the project that are funded and acquired, there will be a need for more clearly defined monitoring schedules to gauge project values and success, and to help guide future land conservation decision-making.

ENVIRONMENTAL COMPLIANCE:

The Council intends to adopt the 2013 Texas Mid-coast National Wildlife Refuge Complex Comprehensive Conservation Plan and Environmental Assessment (EA) prepared by the U.S Fish and Wildlife Service (U.S. FWS) in order to comply with the National Environmental Policy Act (NEPA) for the proposed funding of this activity. This EA can be found here: (insert link to EA on Council's website). Prior to adopting an EA, the Council must determine whether the actions covered by the EA and the Council's proposed activity are substantially the same, and that the EA adequately addresses potential direct and cumulative effects of the activity proposed for funding. The Council must also determine whether there are new circumstances, new information or changes in the action or its impacts not previously analyzed that may result in significantly different environmental effects from those assessed in the EA.

The Council has coordinated with the State of Texas (the sponsor of this activity) and the U.S. FWS and has determined that the activity the Council proposes to fund has independent utility from all other Gulf restoration activities; is substantially the same as the action covered by the EA; and that there are no new circumstances, cumulative effects, new information or changes

in the proposed activity or its impacts not previously analyzed that may result in significantly different environmental effects from those assessed in the EA. The EA addresses the Endangered Species Act (ESA), environmental justice, archeological and historical resources, and other relevant regulatory matters. On January 27, 2015, the U.S. FWS informed the Council that no new species have been listed since the time when the EA was prepared and ESA consultation was originally conducted for this proposed activity. (Note: The EA does not discuss Tribal consultation, as presumably there are no Tribal interests. This should be confirmed by Texas and U.S. FWS.)

The Council invites public comment on the adoption of this EA. In order to complete the NEPA compliance process the Council will consider any public comments as it determines whether to develop a Finding of No Significant Impact (FONSI) and approve funding for this activity, or alternatively to develop an Environmental Impact Statement. Such a FONSI would be made available to the public on the Council's web site.

MAP:

Category 2:

NONE

Appendix C. Galveston Bay

Category 1:

Activity: Bayou Greenways Trails Future Trails (Planning)
Unique Identifier: TX_RESTORE_003_000_Cat1
Location: Texas, Harris County
Type of Activity: Planning
FPL Category: 1 – Funding Eligible
Cost Estimate: $355,450
Responsible Council Member: State of Texas
Partnering Council member(s): N/A
Originally submitted by: The State of Texas as a component within the proposal "Bayou Greenways 2020 - Clear Creek Riparian Corridor Acquisition"

Executive Summary: The Clear Creek Riparian Corridor Acquisition project, located in Harris County Texas, is part of an overarching initiative called the Bayou Greenways project which aims to acquire, preserve and restore nearly 4,000 acres of riparian buffer corridors along the major waterways (bayous and creeks) running predominately through Harris County and the City of Houston. The planning activity includes completing all due diligence for the acquisition of 80 to 100 acres of land in the Clear Creek Greenway project area and funding to begin managing the acquisition process. This includes the $150,000 budgeted for due diligence in the project application, plus $205,450 to begin administration and management for the project – totaling $355,450, 5% of the $7,109,000 proposed project budget.

PROJECT DESCRIPTION:

Specific Actions/Activities: The Houston Parks Board will hire a land agent to begin negotiations on properties that are currently listed for sale. At the same time the Texas Commission on Environmental Quality will contract with a land surveyor to provide strip maps showing parcel ownership from titles/deeds, an appraisal company to provide strip appraisals to determine basic land value of all parcels and an environmental company to provide preliminary environmental designation of the parcels. Once a contract is signed with the parcel owner, the contract is sent to a title company to determine if there is a clear title. Other due diligence includes property survey and a Phase I environmental report of the specific property. Should the Phase I environmental report require additional investigation, a Phase II environmental report will be provided.

Deliverables: Preliminary due diligence deliverables include strip map surveys to determine ownership and size of properties, strip appraisals to provide property value of all parcels along the bayou and strip environmentals to determine, in general, if the parcels have any known

environmental issues. Final due diligence deliverables include clear title, boundary survey and environmental Phase I report (Phase II if required).

Ecological Benefits/Outcomes and Metrics: The primary objective of this proposal is to restore and conserve habitat, with secondary goals to restore water quality, replenish and protect living coastal and marine resources, enhance community resilience and restore and revitalize the Gulf economy. The project achieves the goal of habitat protection by purchasing and preserving land in perpetuity as parkland and the goal of habitat restoration through a robust (and already funded) maintenance program.

The measures of success are directly related to the acquisition and long-term management of riparian corridors to enhance habitat, improve water quality and floodwater mitigation. The project's goals will be its measures of success - specifically for this project, acquisition of 80-100 acres of newly preserved green space to add to the 4,000 acres of green space to create 300 miles of connected riparian corridors.

Further, analysts estimate that the full Bayou Greenways project will conservatively generate more than $117 million in health, environmental, and economic benefits to Harris County every year on an overall investment for the region of $490 million.

Leveraging and Co-Funding:

- **Adjoining:** The Houston Parks Board and the City of Houston are committed to completing the Bayou Greenways project within the city limits by the year 2020. The Houston Parks Board has raised over $90 million to-date in a capital campaign to raise $120 million to match the City of Houston's $100 million bond commitment for the Bayou Greenways 2020 project. The countywide Bayou Greenways initiative is being implemented simultaneously by the Houston Parks Board and is anticipated to continue through 2025.
- **Building on prior or other investments:** The Bayou Greenways project has received several local, state and federal grants, some of which include: 2006 Coastal and Estuarine Land Conservation Program (CELCP) grant in the amount of $374,338 for land acquisition for lower Brays Bayou Greenway; 2006 Coastal Impact Assistance Program (CIAP) grant in the amount of $738,000 for land acquisition for Sims Bayou Greenway; 2009/2010 CIAP grant in the amount of $200,000 for land acquisition for Brays Bayou Greenway; 2009 Statewide Transportation Enhancement Program (TE) grant in the amount of $1,970,390 for construction of shared-use path along Brays Bayou Greenway; Cypress Creek Greenway received a Houston-Galveston Area Council (H-GAC) Regional Plan for Sustainable Development Case Study grant in 2012; 2014 H-GAC Transportation Improvement Program (TIP) grant in the amount of $3,978,230 (CMAQ funding) for shared use path construction along Halls Bayou Greenway; 2014 TE grant in the amount of $607,430 for construction of shared-use path along Hunting Bayou Greenway; and 2014 TE grant in the amount of $1,844,655 for construction of a bike/pedestrian bridge and trail segment along Brays Bayou Greenway.

Duration of Activity: Once funded, the due diligence Activity will be completed within four to six months.

Life of Activity: Not applicable for planning Activity.

RESPONSE TO SCIENCE REVIEWS:

Comment: Clarify the science or *new science* regarding land purchase for creating riparian corridors.

Response: There is considerable scientific literature documenting the numerous benefits - improved habitat, improved water quality, flood mitigation - provided by streamside riparian buffers. The proposal references national and regional studies, scientific literature, peer reviewed reports and publicly available information documenting the benefits provided by riparian buffers. The referenced literature strongly supports establishment, preservation and restoration of riparian buffers. Furthermore, preserving and restoring the bayou corridors has long been emphasized as a significant conservation priority within the region and specifically within the Galveston Bay Estuary Program's strategic plan.

Comment: Expand on or fully explain the uncertainties.

Response: Not being able to acquire all the land needed was cited as an uncertainty that would impede the ability to create a complete, connected greenway/riparian system that would impede or negatively affect the intended results. Another risk or uncertainty is having an insignificant buffer to provide the desired result. While the minimum width for this program is 200 feet, this proposal seeks to acquire entire parcels along the bayou corridors to achieve the highest maximum benefit for flood mitigation and water quality improvements. The proposal also maintains that the riparian corridors must be properly managed or the intended results will not be met. Additionally, although studies note that the best biological health is impossible unless human presence is very low and the natural vegetation and soil systems are well preserved near streams and throughout watersheds, results indicate that structural best management practices appear to help in sustaining aquatic biological communities even at high urbanization levels.

Comment: Explain project manager experience managing similar projects.

Response: The proposal demonstrates that the Houston Parks Board and partners have conducted projects like this one for several years. The Houston Parks Board is the driving force behind the Bayou Greenways project and has established the process for its completion, maintenance and repair.

Comment: Describe monitoring, maintenance and risk mitigation plan.

Response: As noted in the Implementation Technology section and Monitoring and Adaptive Management section of the proposal, the project has the institutional and financial infrastructure to support the project for well over 10 years. The 2020 Economic Development Agreement between the Houston Parks Board and the City of Houston provides a secure maintenance and restoration-funding stream for at least 30 years on the project within the City limits of Houston. The maintenance standards meet national standards and include habitat restoration, control of invasive species and de-littering on a weekly basis. The Houston Parks Board has a dedicated Bayou Greenways Maintenance staff that monitors and manages the greenways daily.

Comment: Provide measures of success.

Response: The measures of success are directly related to the acquisition and long-term management of riparian corridors to enhance habitat, improve water quality and floodwater mitigation. The project's goals will be its measures of success, specifically for this project, 80-100 acres of newly preserved green space to add to the 4,000 acres of newly preserved green space to create 300 miles of connected riparian corridors.

Comment: Evaluate past successes and failures of similar efforts.

Response: The proposal demonstrates past successes of the project partners who have been acquiring riparian corridor and other properties for several years. The proposal also gives documentation of successes in the attached scientific literature. Applicant has no failures to report.

ENVIRONMENTAL COMPLIANCE:

Council approval of funding for this proposed activity would not involve or lead directly to ground-disturbing activities that may have significant effects on the environment individually or cumulatively, nor would it commit the Council to a particular course of action affecting the environment. The Council has considered potential extraordinary circumstances, including potential negative effects to threatened and endangered species, essential fish habitat, Tribal interests and/or historic properties, where applicable, and has determined that no such circumstances apply. Accordingly, the Council has determined that this proposed activity would be covered by the Council's NEPA Categorical Exclusion for planning, research or design activities. (See the Council's NEPA Procedures, Section 4(d)(3): insert link to Procedures.)

MAP:

Activity: Marsh Restoration in the Nelda Stark Unit on the Lower Neches Wildlife Management Area (WMA); Marsh Restoration in the Salt Bayou Watershed on the J.D. Murphree WMA; Marsh Restoration in Pierce Marsh on West (Galveston) Bay (Planning)
Unique Identifier: TX_RESTORE_004_001-003_Cat1
Location: Texas, Orange, Jefferson and Galveston Counties
Type of Activity: Planning
FPL Category: 1 – Funding Eligible
Cost Estimate: $968,000
Responsible Council Member: State of Texas
Partnering Council member(s):
Originally submitted by: The State of Texas as a component within the proposal "State of Texas Beneficial Use of Dredged Material Project Design Fund Phase I".

Executive Summary: The State of Texas Beneficial Use of Dredged Material (BUDM), Project Design Fund Phase I project, located in Orange, Jefferson and Galveston Counties Texas, will facilitate the beneficial use of dredge materials through careful site selection, preparation of engineering and design plans, environmental compliance and permitting. The primary goal is to create shovel-ready placement areas that will transform areas that have subsided into open waters back to tidally influenced coastal wetlands. This method has proven to be a highly effective in restoring and creating habitat for fish and wildlife, improving water quality and enhancing natural storm buffers. Texas proposes the BUDM Project Design Phase I to provide funding for advance planning for three proposed BUDM projects: (1) Marsh Restoration in the Nelda Stark Unit of Texas Parks and Wildlife Department's Lower Neches WMA within the Sabine Lake-Neches River Watershed; (2) Marsh Restoration in the Salt Bayou Unit of the J.D. Murphree WMA in the Salt Bayou Watershed; and (3) Marsh Restoration in Pierce Marsh on West Bay in the Galveston Bay Estuary. Texas has a history of successful BUDM projects and cooperative agreements among Texas natural resource agencies and the United States Army Corps of Engineers (U.S. ACE) in place through the Texas Coastal Management Program. In addition, the project proponent will coordinate with USACE and private dredging operations to identify potential source materials and timelines for placement of dredge materials.

PROJECT DESCRIPTION:

Specific Actions/Activities: Concepts for the three individual projects have been completed by resource managers. The project proponent will hire experienced coastal engineering firms to design and engineer the placement areas that should take 6-8 months to complete. During the development of project design features, individual project managers and coastal engineers will coordinate with the state and federal natural resource agencies to ensure that all design features comply with statutory obligations. When engineering and design is complete, project managers will pursue required permitting, which can take an additional 3-12 months, depending on the type of permit required. It is anticipated that engineering, design and permitting for the three individual projects should be completed by 12-24 months from the date that project design funding becomes available.

Deliverables: Preliminary deliverables include surveys of potential placement sites, engineering designs, permit documents, and monitoring plans to measure sedimentation rates and planting success. Specific measures of success for this project will include completion of an approved project design, submission of all required permit applications to the respective agencies, and identification of at least one source of dredge material for construction of the project. Pending receipt of all necessary permits, the project should be made shovel ready by the end of the project period.

Ecological Benefits/Outcomes and Metrics: Each of the three BUDM projects addresses the serious issues of wetland loss, loss of critical habitat for fish and wildlife, and water quality. The successful completion of the design projects will facilitate many additional acres of BUDM marsh from dredge projects that may have been too small in scope to afford the engineering and design costs. This project will take advantage of the economies of scale and enable building more marsh where it is needed.

This project lays the foundation for the restoration of thousands of acres of estuarine emergent marsh through BUDM. The habitats restored through this project are important to the life cycles, and therefore the sustainability, of many ecologically and economically significant marine species. The contributions of such natural resources on the ecology and economy of Texas are, in a major way, dependent upon the Sabine-Neches Watershed, the Salt Bayou Watershed, and Galveston Bay having habitats suitable to their development. Restoration of estuarine habitats is especially important not only to maintain essential habitat for commercially and recreationally important marine species, but also for their prey species, as so many of the prey species are also estuarine dependent. The marsh edge, in particular, serves as a critical transition between the emergent marsh vegetation and open water by providing a gateway for the movement of organisms and nutrients between intertidal and subtidal estuarine environments.

Leveraging and Co-Funding:

- **Adjoining:** No additional funding is anticipated for these projects for engineering and design beyond that requested with this proposal. However, the process of engineering and design will rely upon participation by a host of project partners. These may include natural resource agency personnel (including representatives from the United States Fish and Wildlife Service, Texas Commission on Environmental Quality, Texas Parks and Wildlife Department, etc.), non-governmental organizations, and other potential future construction phase funding partners.
- **Building on prior or other investments:** Multiple project partners have historically committed to restoring marsh within the proposed project areas using the technique of BUDM. Marsh construction projects using the beneficial use of dredged materials have been successfully implemented or are underway at each of the proposed project locations. The proposed planning and design effort will build upon these previously implemented projects and the successful construction of additional marsh in these areas using BUDM will substantially increase the amount of viable wildlife and fisheries habitat in these locations.

The U.S. ACE and regulatory permit review agencies are strongly encouraging applicants for dredging permits to beneficially use the material to create or enhance coastal marshes. Facilitation of additional BUDM is currently hindered by the lack of funding available for the planning, design and permitting for placement areas. By conducting needed design and engineering work, this project will facilitate continued benefits to the coastal environment, fish and wildlife communities, local industries and communities, and recreational users of these resources by providing areas to facilitate BUDM.

The goal of regional sediment management is shared by all five Gulf coast states, numerous federal agencies and nongovernmental organizations. Each additional designed project creates valuable data that can be shared with the public to increase knowledge about sediment transport rates and magnitudes. Texas is working towards a regional sediment management approach with the U.S. ACE and other stakeholders. The project designs funded by this project will move these efforts closer to fruition.

Duration of Activity: Once funded, the design and permitting Activity will be completed within 12-24 months.

Life of Activity: Not applicable for planning Activity.

RESPONSE TO SCIENCE REVIEWS:

Comment: Expand on the on the science and engineering behind beneficial use of dredged materials for wetland creation.

Response: The proposal is based on science and lessons learned on similar projects. Experience and monitoring of projects such as the Houston-Galveston Navigation Channel (HGNC) Beneficial Uses Plan in the mid-1990s used available science and case studies to implement multiple BUDM marsh restoration projects that restored over 4,500 acres of marsh in Galveston Bay. Through that effort, the HGNC Beneficial Uses Group (BUG) has monitored the constructed marshes and implemented an adaptive management program. The BUG was composed of state and federal resource agency staff, Port of Houston personnel, and environmental/engineering consultants. In 2003-2004 the BUG oversaw the development of the Marsh Monitoring Management and Maintenance Plan (M3 Plan) that reviewed lessons learned; identified goals, objectives, and standards; established monitoring and maintenance considerations; outlined program management; and provided guidance on a public information program.

The Texas General Land Office (GLO), through the Coastal Erosion Planning and Response Act (CEPRA) Program, and the Texas Parks and Wildlife Department (TPWD) have conducted numerous BUDM restoration projects since the late 1990s with the assistance of well-qualified environmental/engineering consultants. Lessons learned from previous projects were

incorporated into subsequent project designs and will be further refined in the design of the proposed projects.

Comment: Describe monitoring, maintenance and risk mitigation plan.

Response: The proposal is based on science and lessons learned on similar projects that communicates the risks and uncertainties in the scientific basis for such projects. Experience and monitoring of projects such as the HGNC Beneficial Uses Plan in the mid-1990s used available science and case studies to implement multiple BUDM marsh restoration projects that restored over 4,500 acres of marsh in Galveston Bay. Through that effort, the HGNC BUG has monitored the constructed marshes and implemented an adaptive management program.

Standard procedures for wetland restoration construction projects typically include pre-construction topo-bathy surveys to provide a baseline to monitor contractor performance. If there are significant differences in the elevations between the design/planning survey information and the pre-construction surveys, the construction oversight engineer will make any necessary adjustments to the design and issue revised construction documents to the contractor to reflect existing conditions at the initiation of construction. The pre-construction surveys and design/construction documents modifications (if needed) will be conducted and funded as part of the construction phase services and not included as part of the project design phase.

As part of the project design process, a project monitoring plan and adaptive management strategy will be developed for each individual project based upon the HGNC BUG M3 Plan. Each monitoring plan will identify key components of the constructed projects to monitor such as: sediment characteristics; elevation of placed dredged material; sediment settlement and compaction rates; development of hydrologic features; and vegetation coverage. An adaptive management approach will be taken to respond to any project deficiencies identified through the monitoring program.

Comment: Explain project manager experience managing similar projects.

Response: The GLO and the project partners are parties heavily associated with the proposed project and have extensive experience in successfully implementing BUDM restoration projects. The GLO CEPRA program has been in existence since 1999 and has overseen the construction of dozens of similar restoration projects. Staff with TPWD's Coastal Fisheries Program and with Wildlife Management Areas have also overseen successful BUDM projects. In 2001, the GLO established a BUDM Memorandum of Agreement with the U.S. ACE Galveston District that streamlined the contracting process and outlined the project partner responsibilities for BUDM projects.

ENVIRONMENTAL COMPLIANCE:

Council approval of funding for this proposed activity would not involve or lead directly to ground-disturbing activities that may have significant effects on the environment individually or cumulatively, nor would it commit the Council to a particular course of action affecting the environment. The Council has considered potential extraordinary circumstances, including potential negative effects to threatened and endangered species, essential fish habitat, Tribal interests and/or historic properties, where applicable, and has determined that no such circumstances apply. Accordingly, the Council has determined that this proposed activity would be covered by the Council's National Environmental NEPA Categorical Exclusion for planning, research or design activities. (See the Council's NEPA Procedures, Section 4(d)(3): insert link to Procedures.)

MAP:

1206 ***Category 2:***
1207
1208 **Activity:** Bayou Greenways Trails Future Trails (Implementation)
1209 **Unique Identifier:** TX_RESTORE_003_000_Cat2
1210 **Location:** Texas, Harris County
1211 **Type of Activity:** Implementation
1212 **FPL Category:** 2 – Prioritized for Further Review
1213 **Cost Estimate:** $6,753,550
1214 **Responsible Council Member:** State of Texas
1215 **Partnering Council member(s):**
1216 **Originally submitted by:** The State of Texas as a component within the proposal "Bayou
1217 Greenways 2020 - Clear Creek Riparian Corridor Acquisition".
1218
1219 **Executive Summary:** The Clear Creek Riparian Corridor Acquisition project, located in Harris
1220 County Texas, is part of an overarching initiative called the Bayou Greenways project which
1221 aims to acquire, preserve and restore nearly 4,000 acres of riparian buffer corridors along the
1222 major waterways (bayous and creeks) running predominately through Harris County and the
1223 City of Houston. The implementation activity includes the acquisition of 80 to 100 acres of land
1224 in the Clear Creek Greenway project area. This includes $6,620,000 budgeted for acquisition,
1225 plus $133,550 for administration and management.
1226
1227 **PROJECT DESCRIPTION:**
1228
1229 **Specific Actions/Activities:** Upon completion of all due diligence and receiving clear title, the
1230 Houston Parks Board's land agent will finalize purchase of properties.
1231
1232 **Deliverables:** Property deeds.
1233
1234 **Ecological Benefits/Outcomes and Metrics:** The primary objective of this proposal is to restore
1235 and conserve habitat, with secondary goals to restore water quality, replenish and protect living
1236 coastal and marine resources, enhance community resilience, and restore and revitalize the gulf
1237 economy. The project achieves the goals of habitat protection by purchasing and preserving
1238 land in perpetuity as parkland and habitat restoration through a robust (and already funded)
1239 maintenance program.
1240
1241 The measures of success are directly related to the acquisition and long-term management of
1242 riparian corridors to enhance habitat, improve water quality and floodwater mitigation. The
1243 project's goals will be its measures of success - specifically for this project, acquisition of 80-100
1244 acres of newly preserved green space to add to the 4,000 acres of green space to create 300
1245 miles of connected riparian corridors.
1246 Further, analysts estimate that the full Bayou Greenways project will conservatively generate
1247 more than $117 million in health, environmental, and economic benefits to Harris County every
1248 year on an overall investment for the region of $490 million.
1249

Leveraging and Co-Funding:

- **Adjoining:** The Houston Parks Board and the City of Houston are committed to completing the Bayou Greenways project within the city limits by the year 2020. The Houston Parks Board has raised over $90 million to-date in a capital campaign to raise $120 million to match the City of Houston's $100 million bond commitment for the Bayou Greenways 2020 project. The countywide Bayou Greenways initiative is being implemented simultaneously by the Houston Parks Board and is anticipated to continue through 2025.
- **Building on prior or other investments:** The Bayou Greenways project has received several local, state and federal grants, some of which include: 2006 Coastal and Estuarine Land Conservation Program (CELCP) grant in the amount of $374,338 for land acquisition for lower Brays Bayou Greenway; 2006 Coastal Impact Assistance Program (CIAP) grant in the amount of $738,000 for land acquisition for Sims Bayou Greenway; 2009/2010 CIAP grant in the amount of $200,000 for land acquisition for Brays Bayou Greenway; 2009 Statewide Transportation Enhancement Program (TE) grant in the amount of $1,970,390 for construction of shared-use path along Brays Bayou Greenway; Cypress Creek Greenway received a Houston-Galveston Area Council (HGAC) Regional Plan for Sustainable Development Case Study grant in 2012; 2014 H-GAC Transportation Improvement Program (TIP) grant in the amount of $3,978,230 (CMAQ funding) for shared use path construction along Halls Bayou Greenway; 2014 TE grant in the amount of $607,430 for construction of shared-use path along Hunting Bayou Greenway; and 2014 TE grant in the amount of $1,844,655 for construction of a bike/pedestrian bridge and trail segment along Brays Bayou Greenway.

Duration of Activity: Once funded, implementation Activity (land acquisition) will be completed within six to twelve months.

Life of Activity: Land acquired will be protected as parkland in perpetuity. The 2020 Economic Development Agreement between the Houston Parks Board and the City of Houston provides a secure maintenance and restoration-funding stream for at least 30 years.

RESPONSE TO SCIENCE REVIEWS:

Comment: Clarify the science or new science regarding land purchase for creating riparian corridors.

Response: There is considerable scientific literature documenting the numerous benefits - improved habitat, improved water quality, flood mitigation - provided by streamside riparian buffers. The proposal references national and regional studies, scientific literature, peer reviewed reports and publicly available information documenting the benefits provided by riparian buffers. The referenced literature strongly supports establishment, preservation and restoration of riparian buffers. Furthermore, preserving and restoring the bayou corridors has long been emphasized as a significant conservation priority within the region and specifically within the Galveston Bay Estuary Program's strategic plan.

Comment: Expand on or fully explain the uncertainties.

Response: Not being able to acquire all the land needed was cited as an uncertainty, which would impede the ability to create a complete, connected greenway/riparian system that would impede or negatively affect the intended results. Another risk or uncertainty is having an insignificant buffer to provide the desired result. While the minimum width for this program is 200 feet, this proposal seeks to acquire entire parcels along the bayou corridors to achieve the highest maximum benefit for flood mitigation and water quality improvements. The proposal also maintains that the riparian corridors must be properly managed or the intended results will not be met. Additionally, although studies note that the best biological health is impossible unless human presence is very low and the natural vegetation and soil systems are well preserved near streams and throughout watersheds, results indicate that structural best management practices appear to help in sustaining aquatic biological communities even at high urbanization levels.

Comment: Explain project manager experience managing similar projects.

Response: The proposal demonstrates the Houston Parks Board and partners have conducted projects like this one for several years. The Houston Parks Board is the driving force behind the Bayou Greenways project and has established the process for its completion, maintenance and repair.

Comment: Describe monitoring, maintenance and risk mitigation plan.

Response: As noted in the Implementation Technology section and Monitoring and Adaptive Management section of the proposal, the project has the institutional and financial infrastructure to support the project for well over 10 years. The 2020 Economic Development Agreement between the Houston Parks Board and the City of Houston provides a secure maintenance and restoration-funding stream for at least 30 years on the project within the City limits of Houston. The maintenance standards meet national standards and include habitat restoration, control of invasive species and de-littering on a weekly basis. The Houston Parks Board has a dedicated Bayou Greenways Maintenance staff that monitors and manages the greenways daily.

Comment: Provide measures of success.

Response: The measures of success are directly related to the acquisition and long-term management of riparian corridors to enhance habitat, improve water quality and floodwater mitigation. The project's goals will be its measures of success, specifically for this project, 80-100 acres of newly preserved green space to add to the 4,000 acres of newly preserved green space to create 300 miles of connected riparian corridors.

Comment: Evaluate past successes and failures of similar efforts.

Response: The proposal demonstrates past successes of the project partners who have been acquiring riparian corridor and other properties for several years. The proposal also gives documentation of successes in the attached scientific literature. Applicant has no failures to report.

ENVIRONMENTAL COMPLIANCE:

The Council proposes to list this activity as a priority for potential future funding. Notwithstanding anything to the contrary set forth herein, at this time the Council is not approving or committing any funds for the implementation of this activity. Additional environmental compliance information is needed before the Council considers whether to approve funding for implementation of this activity. If sufficient additional environmental compliance information becomes available between the issuance of this draft FPL and completion of the final FPL, the Council may consider such information and thereafter approve this activity for funding, and move it to FPL Category 1. In such case the final FPL would include information necessary to demonstrate compliance with NEPA and other applicable laws. Where applicable, the final FPL would also inform the public of any comment opportunities pertaining to environmental compliance. In some cases, Council approval of funding for an activity in Category 1 would not be final until after the public has had an opportunity to provide comments, and the Council has considered such comments as it prepares required decision documentation (such as a Finding of No Significant Impact for use of an Environmental Assessment).

MAP:

Appendix D. Mississippi River Delta

Category 1:

Activity: NPS-Jean Lafitte-2 Canal Backfilling Candidates (Implementation)
Unique Identifier: DOI_RESTORE_003_048_Cat1
Location: Louisiana, Jefferson Parish
Type of Activity: Implementation
FPL Category: 1 – Funding Eligible
Cost Estimate: $8,731,000
Responsible Council Member: Department of the Interior (DOI)
Partnering Council Member(s): N/A
Originally submitted by: The DOI as a component within the proposal "Abandoned Oil and Gas Well Plugging and Site Reclamation".

Executive Summary: Canals constructed to access well sites and construct pipelines within Jean Lafitte National Historical Park and Preserve result in wetland loss, ground and surface water alteration, saltwater intrusion, soil compaction, and contribute to the introduction and spread of invasive species. The National Park Service (NPS) will work on these remnant canals (16.5 miles) to restore to freshwater wetland and shallow water habitat by leveling spoil banks into canalways.

PROJECT DESCRIPTION:

Specific Action/Activities: This proposal involves reclamation of 16.5 miles of canals and their associated spoil deposits in the Barataria Unit of Jean Lafitte National Historical Park and Preserve in Louisiana. These canals were constructed prior to establishment of this NPS unit, and before the imposition of stricter regulatory requirements under the wetland provisions of the Clean Water Act. Reclamation of these canals and their associated spoil banks will restore wetland functions and values including hydrology (water, sediment, and nutrient movement), improve resiliency of ecosystems in the face of subsidence and climate change impacts (sea level rise and intensified tropical storms), and improve visitor experience.

Canals will be reclaimed by degrading spoil banks to meet the level of the surrounding wetlands and partially filling the open water of the canals with the degraded soil and vegetative material. The canals will revert to marsh, swamp, and shallow water habitat through natural processes, thereby recreating freshwater wetlands. Leveling of spoil banks and dikes will be accomplished from the canals and/or the spoil banks using a marsh buggy, barge-mounted excavator, or similar earthmoving equipment. Access to the sites will be via canals and/or spoil banks. In consideration of habitat restoration/preservation and potential impacts to navigation and recreation, mitigation techniques will include: 1) installing plugs or check meanders to prevent the dispersal of woody vegetation and sediment from partially filled canals into navigable waterways and impeding navigation or affecting aquatic habitats, 2) placing cut woody

vegetation parallel to the banks of canals or chipping in place to prevent large woody debris from drifting into navigable waterways, 3) gapping so spoil banks are intermittently breached to restore hydrological connections between canals and surrounding wetlands, and 4) revegetating with native woody species those areas located adjacent to forested wetlands.

Deliverables: Reclamation of 16.5 miles of canals and their associated spoil deposits in the Barataria Unit of Jean Lafitte National Historical Park and Preserve in Louisiana. The canals will be reverted to marsh, swamp, and shallow water habitat, thereby recreating freshwater wetlands.

Ecological Benefits/Outcomes and Metrics: Reclamation of 16.5 miles of canals and their associated spoil banks will restore wetland functions and values including hydrology (water, sediment, and nutrient movement), improve resiliency of ecosystems in the face of subsidence and climate change impacts (sea level rise and intensified tropical storms), and improve visitor experience. Canal backfilling and spoil bank restoration at Jean Lafitte National Historical Park will enhance the resiliency of a significant wetland complex that buffers more than 20 miles of the federal levee system protecting Greater New Orleans in an estuary that continues to experience one of the highest rates of land loss in the U.S.

Leveraging and Co-Funding:

- **Building on prior or other investments**: NPS has invested $1.64 million in restoring canal-impacted wetlands at Jean Lafitte National Historical Park and Preserve in recent years. This project will greatly enhance those efforts.

Duration of Activity: Six month duration for canal restoration.

Life of Activity: Restoration of wetlands and hydrology will be permanent once established.

RESPONSE TO SCIENCE REVIEWS:

There were no specific science review comments on the proposed project in Jean Lafitte.

ENVIRONMENTAL COMPLIANCE:

The Council intends to adopt the 2009 Canal Reclamation at Barataria Preserve Environmental Assessment (EA) prepared by the DOI in order to comply with the National Environmental Policy Act (NEPA) for the proposed funding of this activity. This EA can be found here: (*insert link to EA on Council's website*). Prior to adopting an EA, the Council must determine whether the actions covered by the EA and the Council's proposed activity are substantially the same, and whether the EA adequately addresses potential direct and cumulative effects of the activity proposed for funding. The Council must also determine whether there are new circumstances, new information or changes in the action or its impacts not previously analyzed that may result in significantly different environmental effects from those assessed in the EA.

The Council has coordinated with the DOI and has determined that the activity the Council proposes to fund has independent utility from all other Gulf restoration activities; is substantially the same as the action covered by the EA; and that there are no new circumstances, cumulative effects, new information or changes in the proposed activity or its impacts not previously analyzed that may result in significantly different environmental effects from those assessed in the EA. The EA addresses the Endangered Species Act (ESA), environmental justice, archeological and historical resources, and other relevant regulatory matters. In April 2015, the DOI has informed the Council that no addition action is required pursuant to ESA.

The Council invites public comment on the adoption of this EA. The Council will consider any public comments as it determines whether to develop a Finding of No Significant Impact (FONSI) and approve funding for this activity, or alternatively to develop an Environmental Impact Statement, to complete the NEPA compliance process. Such a FONSI would be made available to the public on the Council's web site.

MAP:

Activity: West Grand Terre Beach Nourishment and Stabilization (Planning)
Unique Identifier: LA_RESTORE_001_000_Cat1
Location: Jefferson Parish, Southeastern Louisiana
Type of Activity: Planning
FPL Category: 1 – Funding Eligible
Cost Estimate: $7,259,216
Responsible Council Member: State of Louisiana
Partnering Council member(s): N/A
Originally submitted by: The State of Louisiana as a component within the proposal "West Grand Terre Beach Nourishment and Stabilization".

Executive Summary: Louisiana's Barataria/Plaquemines barrier island system, which extends approximately twenty-five miles along the shoreline from West Grand Terre to Sandy Point, is experiencing island narrowing and land loss due to a complex interaction of environmental factors, hurricane impacts, and human activity. These barrier islands were also heavily impacted by the April 2010 BP Deepwater Horizon Oil Spill. The proposed West Grand Terre Beach Nourishment and Stabilization project will restore and enhance dune and back-barrier marsh habitat on the key barrier island of West Grand Terre to provide storm surge and wave attenuation, thereby addressing gulf shoreline erosion, diminished storm surge protection, and the subsidence of back barrier marshes.

PROJECT DESCRIPTION: This project is a planning project. If the planned-for contemplated activities are eventually implemented, they will consist of the following activities.

Specific Actions/Activities: This project will be constructed by hydraulically dredging and pumping sediment from offshore deposits near the Quatre Bayou borrow site (approximately nine miles from the designated fill sites), which consists mostly of sands, silts, and other fill material suitable for beach/dune and marsh creation. The project consists of three fill activities: the Gulf of Mexico Beach/Dune, the Barataria Pass Beach/Dune, and the Marsh. The slurry fill will be constructed to elevations ranging from +9.0-ft NAVD88 at the Gulf of Mexico Beach/Dune, to +2.4-ft NAVD88 at the Barataria Pass Beach/Dune and the Marsh. Earthen containment dikes will be constructed to facilitate the construction of the Marsh, and a rock dike structure will provide additional protection to West Grand Terre Island and Fort Livingston.

Deliverables: This project will build an estimated 12,700 feet of beach and dune with an area of 235 acres, 66 acres of back-barrier marsh, and a rock revetment to protect the restored marsh. These activities will conserve and replenish existing and created marsh and beach/dune habitat while maintaining shoreline integrity and increasing the island's width and longevity.

Ecological Benefits/Outcomes and Metrics: The West Grand Terre Beach Nourishment and Stabilization project will restore and enhance interior wetlands, which will benefit Gulf estuarine dependent marine species. This project will also protect, restore, and maintain ecologically important breeding and nesting habitat for Gulf species such as colonial nesting waterbirds, including Louisiana's state bird, the brown pelican (*Pelecanus occidentalis*), and

migratory shorebirds, including the endangered piping plover (*Charadrius melodus*). In addition, the project will promote community resilience and reduce risk to infrastructure by providing storm surge and wave attenuation.

Measures of success include restoration of beach, dune, and back-barrier marsh habitat for storm surge and wave attenuation. Project-scale performance measures will track progress towards meeting management goals and objectives. The Coastal Protection and Restoration Authority (CPRA) has several applicable coast-wide and programmatic data collection systems for program evaluation and facilitation. These systems include the Coastwide Reference Monitoring System-Wetlands (CRMS), the Barrier Island Comprehensive Monitoring Program (BICM), and the Louisiana Sand/Sediment Resource Database (LASARD). In addition, 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 to avoid duplication and improve efficiency. SWAMP will 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.

Leveraging and Co-Funding:

- **Building on prior or other investments**: This project, if the planned-for contemplated activities are eventually implemented, will be part of a suite of projects designed to restore, enhance, and protect the Barataria/Plaquemines barrier shoreline. Much of the success of the planning, design, and construction of these projects has been due to leveraging partnerships with multiple federal, state, and parish agencies. A project of the Coastal Wetlands Planning, Protection and Restoration Act (CWPPRA) Program, Vegetative Plantings of a Dredged Material Disposal Site on Grand Terre Island, was completed on West Grand Terre in 2001. A Coastal Impact Assistance Program (CIAP) project, East Grand Terre Island Restoration, was completed in 2011. The project was designed under the CWPPRA program in partnership with National Marine Fisheries Service (NMFS) and construction was funded through CIAP, Plaquemines Parish CIAP, and State surplus. Other nearby projects include two CWPPRA projects developed from the comprehensive Barataria Shoreline Complex project, which were designed and constructed in partnership with NMFS: (1) Pass Chaland to Grand Bayou Pass Barrier Shoreline Restoration (also known as Bay Joe Wise) and (2) Barataria Barrier Island Complex Project: Pelican Island and Pass La Mer to Chaland Pass Restoration.[1] Construction of the Bay Joe Wise project was completed in 2009. Scofield Island was designed under the CWPPRA program in partnership with NMFS and was completed using Berm to Barrier Funds in 2013. Chenier Ronquille Barrier Island Restoration was a CWPPRA project designed in partnership with NMFS and will be constructed through

[1] The latter project is composed of two sections: the Chaland Headland segment, which was completed in 2007; and the Pelican Island segment, which was completed in 2013.

Natural Resource Damage Assessment (NRDA) Early Restoration Funds. Additional projects located in the Barataria/Plaquemines barrier shoreline include the Shell Island East and Shell Island West projects, which are components of the Louisiana Coastal Area (LCA) Barataria Basin Barrier Shoreline (BBBS) Restoration project, designed in partnership with the U.S. Army Corps of Engineers. Shell Island East was constructed in 2013 with Berm to Barrier funds while Shell Island West will be constructed using NRDA Early Restoration Funds. In sum, leveraging amounts in the form of building on prior or other investments is as follows:

CIAP: $25,426,247
CWPPRA: $102,046,278
BERM TO BARRIERS: $88,530,852
NRDA: $149,407,455
West Grand Terre Total Leveraging: $365,410,832

Duration of Activity: The timeline for this project is sixteen months for engineering and design, followed by twelve months of construction. The project's projected start date is September 2015.

Life of Activity: Twenty years.

RESPONSE TO SCIENCE REVIEWS:

Comment: CPRA is requesting funding for detailed engineering and design and adaptive management plan development. The Science Evaluations requested additional information regarding prior project development and future storm vulnerability.

Response: Regarding the basis of the design details outlined in the project proposal, the project has a long history of consideration and planning. The need and influence of the project on the overall landscape was established following the project effects modeling associated with the State of Louisiana's 2012 Coastal Master Plan, wherein it was included as a component of the Barataria Pass to Sand Point Barrier Island Restoration Project. CPRA relied on a history of engineering and design of other projects on the Barataria Estuary Gulf shoreline, namely past work planning restoration of Chenier Ronquille and East Grand Terre, to underlie the preliminary design of the West Grand Terre Project proposed to the RESTORE Council.

It is also important to remember that prior efforts only established a preliminary design necessary to estimate costs and establish the need and feasibility of the project. This proposal seeks only those funds needed to carry the project into detailed engineering and design and specific pre-construction monitoring, modeling, and detailed adaptive management plan development. At the end of that process, the State will be ready to pursue funding for the actual construction of the project, and only after construction will the State be in a position to begin implementing post-construction Operations, Maintenance, Monitoring and Adaptive Management. All of that material will be publically available for review as it is developed and finalized.

Storm vulnerability will likewise be addressed in connection with the engineering and design activities which are the focus of the proposed work. Specifically, CPRA and contract engineers typically subject barrier island project designs to hydrodynamic modeling replicating storms to ensure that project designs are resilient to such natural forces.

In short, while past efforts developed much of the technical justification for this project, there are still additional steps needed before this project can be submitted for construction funding. These steps include pre-construction monitoring, modeling, and the development of an Adaptive Management Plan. The decisions and documentation associated with these steps are the focus of this proposal.

ENVIRONMENTAL COMPLIANCE:

Council approval of funding for this proposed activity would not involve or lead directly to ground-disturbing activities that may have significant effects on the environment individually or cumulatively, nor would it commit the Council to a particular course of action affecting the environment. The Council has considered potential extraordinary circumstances, including potential negative effects to threatened and endangered species, essential fish habitat, Tribal interests and/or historic properties, where applicable, and has determined that no such circumstances apply. Accordingly, the Council has determined that this proposed activity would be covered by the Council's NEPA Categorical Exclusion for planning, research or design activities. (See the Council's NEPA Procedures, Section 4(d)(3): insert link to Procedures.)

MAP:

Activity: Golden Triangle Marsh Creation (Planning)
Unique Identifier: LA_RESTORE_002_000_Cat1
Location: Orleans and St. Bernard Parishes, Southeastern Louisiana
Type of Activity: Planning
FPL Category: 1 – Funding Eligible
Cost Estimate: $4,347,733
Responsible Council Member: State of Louisiana
Partnering Council member(s): N/A
Originally submitted by: The State of Louisiana as a component within the proposal "Golden Triangle Marsh Creation".

Executive Summary: The proposed Golden Triangle Marsh Creation project will restore and protect approximately 600 acres of valuable wetland, fish, and wildlife habitat within the Golden Triangle, a narrow band of brackish marsh directly east of New Orleans between Lake Borgne and the confluence of the Mississippi River Gulf Outlet and the Gulf Intracoastal Waterway. Because the Inner Harbor Navigation Canal/Lake Borgne Surge Barrier stretches across the Golden Triangle Marsh, these wetlands provide an important natural buffer in the multiple lines of defense protecting geographically and socially vulnerable communities in New Orleans from storm surge. In addition, the Golden Triangle Marsh falls within – and will enhance – the Bayou Sauvage National Wildlife Refuge, which includes fresh and brackish marshes, coastal hardwood forest, and serves as valuable wildlife, fish, and shellfish habitat.

PROJECT DESCRIPTION: This project is a planning project. If the planned-for contemplated activities are eventually implemented, they will consist of the following activities.

Specific Actions/Activities: This project will be constructed by hydraulically dredging and pumping sediment from Lake Borgne to a 600-acre fill site located approximately sixteen miles from the borrow site.[2] The slurry fill will be constructed to a final elevation of +2-ft.[3] The borrow area, which consists mostly of clays and silts, currently has a depth of -10-ft and will be dredged to a depth of -30-ft. Earthen containment dikes will be constructed to facilitate the construction of the marsh.

Deliverables: This proposed project will directly create approximately 600 acres of marsh near the western side of Lake Borgne, where there is currently little marsh acreage between the lake and the Greater New Orleans Metropolitan Area. Because wetlands can help reduce the effects of storm surge and wave action, restoring and maintaining this marsh area will protect nearby levee systems and local communities. In particular, the Golden Triangle Marsh Creation project is immediately adjacent to the Inner Harbor Navigation Canal/Lake Borgne Surge Barrier and will help buffer and protect this critically-important protection feature.

[2] While Lake Borgne is currently the most cost effective borrow site for the project, other borrow sources (i.e. Mississippi River, offshore deposits, etc.) may be identified through a comprehensive planning and feasibility effort.
[3] The fill will be constructed at a slightly higher elevation and settle to the target elevation of +2-ft.

Ecological Benefits/Outcomes and Metrics: This project will create critical habitat for a wide variety of fish and wildlife species. Many of these species support recreationally- and commercially-important fishing and hunting industries, which are of major economic importance to the region. Because the project resides partially within the Bayou Sauvage National Wildlife Refuge boundary (the largest urban wildlife refuge in the United States), it will greatly benefit the fish and wildlife populations that utilize the refuge and enhance recreational opportunities in the area.

Like the nearby Central Wetlands Assimilation projects, this project will also improve water quality by using wetlands to remove excess nutrients and pollutants from secondarily-treated disinfected municipal effluent prior to discharge.[4] The project's proximity to New Orleans also provides a unique opportunity to promote natural resource stewardship and environmental education and outreach. The public can discover the economic, ecological, and aesthetic importance of Louisiana's wetlands and the ecosystem services they provide.

Measures of success for the project include wetlands and wildlife habitat restoration as well as increased environmental education and public outreach. At the project-scale, performance measures will track the progress towards meeting management goals and objectives. The Coastal Protection and Restoration Authority (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 to avoid duplication and improve efficiency. SWAMP will 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.

Leveraging and Co-Funding:

- **Building on prior or other investments:** This project, if the planned-for contemplated activities are eventually implemented, will play an integral role in a comprehensive, system-wide approach to effectively restore, enhance, and protect the Lake Borgne area. Much of the success of the planning, design, and construction of these projects has been due to leveraging partnerships with multiple federal agencies. Complimentary projects sponsored by the U.S. Fish and Wildlife Service under the Coastal Impact Assistance Program (CIAP) include the Orleans Land Bridge Shoreline Protection and Marsh Creation and Central Wetlands Assimilation Project, currently under construction. Projects constructed under the Coastal Wetlands Planning, Protection and Restoration Act (CWPPRA) program include Bayou Sauvage National Wildlife Refuge

[4] Although wastewater will not be pumped into the Golden Triangle Marsh Creation project, the project should still improve water quality of effluent from the Greater New Orleans Metropolitan Area and other local non-point sources.

Hydrologic Restoration (also designed and constructed in partnership with U.S. Fish and Wildlife Service); Hopedale Hydrologic Restoration, constructed in partnership with the National Marine Fisheries Service; and Lake Borgne Shoreline Protection, constructed in partnership with the Environmental Protection Agency.[5] In sum, leveraging amounts in the form of building on prior or other investments is as follows:

CIAP: $24,360,000
CWPPRA: $34,562,807
Golden Triangle Marsh Creation Total Leveraging: $58,922,807

Duration of Activity: The timeline for this project is three years for engineering and design and permitting, followed by four years of construction.

Life of Activity: Twenty years.

RESPONSE TO SCIENCE REVIEWS:

Comment: CPRA is requesting funding for detailed engineering & design and adaptive management plan development. The Science Evaluations requested additional information regarding several issues, including sea level rise and storm surge vulnerability.

Response: While these specific concerns are addressed more fully below, the majority of the concerns raised in the evaluations will be addressed in the detailed engineering and design phase, which is the focus of this funding proposal.

Regarding sea level rise, is should be noted that the need and influence of the project on the overall landscape was established following the project effects modeling associated with the State of Louisiana's 2012 Coastal Master Plan. During that modeling, an initial design of the project was subject to scenarios wherein a number of environmental drivers were varied, including eustatic sea level rise, subsidence and marsh vertical accretion. Those environmental uncertainties are detailed in Appendix C of the Louisiana's 2012 Coastal Master Plan (http://coastal.la.gov/a-common-vision/2012-coastal-master-plan/cmp-appendices/). All of these phenomena govern the future viability of the project in the face of environmental changes.

Comment: The Science Evaluations posed additional questions regarding specifically-planned dredging techniques, risk mitigation and adaptive management planning.

[5] Other nearby planned restoration projects include Violet Diversion, Central Wetlands Diversion, Hopedale Marsh Creation, New Orleans East Landbridge Restoration, Lake Borgne Marsh Creation, Central Wetlands Marsh Creation, Biloxi Marsh Oyster Reef, Living Shoreline Protection, Bayou LaLoutre Ridge Restoration, Eastern Lake Borgne Shoreline Protection, MRGO Shoreline Protection, East New Orleans Landbridge Shoreline Protection, and Biloxi Marsh Creation.

Response: It is important to remember, however, that prior efforts only established a preliminary design necessary to estimate costs and the need and feasibility of the project. This proposal seeks only those funds needed to carry the project into detailed engineering and design and specific pre-construction monitoring, modeling, and detailed adaptive management plan development. Factors such as sea level rise, subsidence and settlement will be considered in the design of the project. At the end of that process, the State will be ready to pursue funding for the actual construction of the project, and only after construction will the State be in a position to begin implementing post-construction Operations, Maintenance, Monitoring and Adaptive Management. All of that material will be publically available for review as it is developed and finalized, and will be added to the State's inventory of marsh creation project information. CPRA has been involved in the engineering and design of many marsh creation projects. Through our experiences, we have amassed a collection of past costs typically associated with certain activities. These costs were used to determine the Golden Triangle cost estimate.

Additional technical details for this project will be developed during the proposed engineering and design activities.

ENVIRONMENTAL COMPLIANCE:

Council approval of funding for this proposed activity would not involve or lead directly to ground-disturbing activities that may have significant effects on the environment individually or cumulatively, nor would it commit the Council to a particular course of action affecting the environment. The Council has considered potential extraordinary circumstances, including potential negative effects to threatened and endangered species, essential fish habitat, Tribal interests and/or historic properties, where applicable, and has determined that no such circumstances apply. Accordingly, the Council has determined that this proposed activity would be covered by the Council's NEPA Categorical Exclusion for planning, research or design activities. (See the Council's NEPA Procedures, Section 4(d)(3): *insert link to Procedures*.)

MAP:

Activity: Biloxi Marsh Living Shoreline (Planning)
Unique Identifier: LA_RESTORE_003_000_Cat1
Location: St. Bernard Parish, Southeastern Louisiana
Type of Activity: Planning
FPL Category: 1 – Funding Eligible
Cost Estimate: $3,220,460
Responsible Council Member: State of Louisiana
Partnering Council member(s): N/A
Originally submitted by: The State of Louisiana as a component within the proposal "Biloxi Marsh Living Shoreline"

Executive Summary: The Biloxi Marshes consist of approximately 49,000 hectares of brackish and salt marshes, which provide important storm buffer for New Orleans (a world-famous cultural and economic center for the Gulf region) as well as key habitat and ecosystem services. The marshes have been greatly impacted by shoreline erosion from wind-driven waves. The proposed Biloxi Marsh Living Shoreline project will create approximately 47,000 feet of bioengineered oyster barrier reef fringing the marshes, which will reduce shoreline erosion and recession, prevent further marsh degradation, promote community resilience, and enhance local fisheries and oyster production.

PROJECT DESCRIPTION: This project is a planning project. If the planned-for contemplated activities are eventually implemented, they will consist of the following activities.

Specific Actions/Activities: The Biloxi Marsh Living Shoreline project will create a living breakwater structure by mechanically placing a manufactured product, or suite of products, off the shoreline of Eloi Bay and Eloi Point, near the mouth of Bayou la Loutre. The products may consist of concrete, plastic mesh, steel rebar, limestone, oyster shells, and/or concrete admixtures. These living breakwaters will be placed at the -2.0-ft contour and will extend offshore. The width of these living breakwaters will vary depending on manufactured product and wave conditions. The target height for the living breakwaters is mean water level (MWL). A mechanical dredge will be used to provide access and flotation to the project area.

Deliverables: Bioengineered oyster reefs, man-made structures designed to promote the formation of marsh-fringing oyster reefs, have been implemented in many locations in Louisiana. Such reefs significantly reduce shoreline erosion and recession while supporting aquatic ecosystems, local fisheries, and good oyster recruitment and survival, such that the reefs created may be self-sustaining. This project is expected to deliver similar outcomes.

Ecological Benefits/Outcomes and Metrics: The shell reefs created by oysters provide unique, structurally-complex habitat that support distinct and diverse aquatic communities, function as nursery habitat for many fish and shellfish species, and enhance local productivity. Because these reefs provide abundant and concentrated prey resources, they are valuable foraging sites for transient, predatory fishes such as flounder, drum, and speckled trout; therefore, oyster reefs likely enhance recreational fisheries. Oysters also enhance water quality by filtering large

volumes of water daily to feed. By removing large amounts of carbon, phosphorus, and nitrogen incorporated into phytoplankton biomass, oysters can mitigate nutrient loading and help prevent eutrophication and hypoxia.

In addition to the aforementioned ecosystem benefits, oyster reefs help protect marsh habitats by reducing shoreline recession. Oyster reefs frequently occur just offshore of the marsh edge, and their vertical structure serves to attenuate wave energies and reduce water velocities resulting in reduced erosion as well as increased sediment deposition behind the reef, both of which act to stabilize the shoreline. However, many marsh-fringing, vertical oyster reefs have been lost due to saltwater intrusion, disease, and overharvest, and there has been a concomitant loss in shoreline erosion control.

The Biloxi Marsh Living Shoreline project will be deemed successful if monitoring shows that it reduces shoreline recession and supports good oyster recruitment and survival, such that the reefs are self-sustaining. Project-scale performance measures will track the progress towards meeting management goals and objectives. The Coastal Protection and Restoration Authority (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 to avoid duplication and improve efficiency. SWAMP will 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.

Leveraging and Co-Funding:

- **Building on prior or other investments:** As this project originally began as a Coastal Impact Assistance Program (CIAP) project designed to evaluate the ability of reef-base technologies to withstand the surge associated with a Category 1 hurricane, CPRA is able to leverage the CIAP project's initial engineering and design. The Biloxi Marsh Living Shoreline project, if the planned-for contemplated activities are eventually implemented, will build on this knowledge, as well as the Coastal Wetlands Planning, Protection and Restoration Act (CWPPRA) Program's Terrebonne Bay Shore Protection Demonstration project, which evaluated various engineering structures' effectiveness in reducing shoreline recession and enhancing local oyster production. Further, this project has the benefit of being located adjacent to the complementary CIAP Living Shoreline Demonstration project as well as the Nature Conservancy's Lake Fortuna and Eloi Bay reef projects. In sum, leveraging amounts in the form of building on prior or other investments is as follows:

  CIAP: $23,500,000
  CWPPRA: $2,718,768
  Biloxi Marsh Total Leveraging: $26,218,768

Duration of Activity: The timeline for this project is twenty-five months for engineering, design and permitting, followed by twenty-five months of construction. The project's projected start date is September 2015.

Life of Activity: Twenty years.

RESPONSE TO SCIENCE REVIEWS:

CPRA is requesting funding for detailed engineering and design and adaptive management plan development. All three of the External Science Reviews were positive and did not express any significant concerns regarding the information presented in the proposal.

ENVIRONMENTAL COMPLIANCE:

Council approval of funding for this proposed activity would not involve or lead directly to ground-disturbing activities that may have significant effects on the environment individually or cumulatively, nor would it commit the Council to a particular course of action affecting the environment. The Council has considered potential extraordinary circumstances, including potential negative effects to threatened and endangered species, essential fish habitat, Tribal interests and/or historic properties, where applicable, and has determined that no such circumstances apply. Accordingly, the Council has determined that this proposed activity would be covered by the Council's NEPA Categorical Exclusion for planning, research or design activities. (See the Council's NEPA Procedures, Section 4(d)(3): insert link to Procedures.)

MAP:

Activity: Mississippi River Reintroduction into Maurepas Swamp (Planning)
Unique Identifier: LA_RESTORE_005_000_Cat1
Location: St. John the Baptist, St. James, Ascension, and Livingston Parishes, Southeastern Louisiana
Type of Activity: Planning
FPL Category: 1 – Funding Eligible
Cost Estimate: $14,190,000
Responsible Council Member: State of Louisiana
Partnering Council member(s): N/A
Originally submitted by: The State of Louisiana as a component within the proposal "Mississippi River Reintroduction into Maurepas Swamp"

Executive Summary: The Maurepas Swamp is one of the largest areas of forested wetlands along the Gulf Coast, encompassing approximately 57,000 hectares of bald cypress-tupelo swamp west of Lake Pontchartrain. Historically, the swamp received sediment and nutrient inputs from the Mississippi River during seasonal overbank flooding; however, reduced freshwater inflow and sediment input has caused land loss within the sub-basin and resulted in the periodic introduction of brackish water from Lake Pontchartrain into Lake Maurepas and the swamp. The proposed Mississippi River Reintroduction into Maurepas Swamp Project will restore and enhance the health and sustainability of the Maurepas Swamp through the reintroduction of seasonal Mississippi River inflow.

PROJECT DESCRIPTION: This project is a planning project. If the planned-for contemplated activities are eventually implemented, they will consist of the following activities.

Specific Actions/Activities: The Mississippi River Reintroduction into Maurepas Swamp Project consists of the following major components designed to divert fresh water from the river into the Maurepas Swamp: (1) a gated river intake structure, (2) box culverts through the levee, (3) a sedimentation basin, (4) a conveyance channel, and (5) a drainage pump station. The maximum design flow is 2,000 cubic feet per second. The project will be located near Garyville, LA in St. John the Baptist Parish. The intake structure will be comprised of three 10-ft x 10-ft sluice gates connected to three 10-ft x 10-ft box culverts that travel through the levee and underneath LA 44. The proposed conveyance channel extends just under 5½ miles from the river to a discharge point in the Maurepas Swamp approximately 1,000-ft north of I-10.

Deliverables: This project will restore and enhance a total of 18,300 hectares of forested wetland and provide increased habitat productivity, water quality, and community resilience since the Maurepas Swamp is a significant storm buffer for nearby communities. Thus, the project is an important component of a comprehensive, basin-wide strategy for restoring the Maurepas Swamp ecosystem. As a large-scale project, it will contribute substantially to the restoration of the Gulf Coast's marine and wildlife habitats, natural resources, ecosystems, fisheries, beaches, and coastal wetlands.

Ecological Benefits/Outcomes and Metrics: In addition to restoring and enhancing a total of 18,300 hectares of forested wetland, this project will provide a host of other benefits to fauna that are dependent on cypress-tupelo swamps. Increased primary productivity and water quality will increase food resources and subsequently increase secondary productivity of freshwater fishes, wading birds, migratory birds, alligators, bald eagles, and other wildlife species. The project also will maintain stands of mature bald cypress and other woody vegetation, which will ensure that suitable nesting areas are available for numerous bird species. Bald eagles, for example, predominantly use bald cypress when nesting in Louisiana, and the Maurepas Swamp supports a large number of nests. Thus, the project should greatly benefit populations of this important and protected species, among others.

Increased fish and wildlife productivity will, in turn, provide greater opportunities for fishing, hunting, and wildlife watching. These are economically important industries in Louisiana and the region. The Maurepas Swamp, and more specifically the Maurepas Swamp Wildlife Management Area and Blind River, a scenic river that flows through the swamp, are popular areas for these activities.

The project also will improve coastal water quality since more than 90% of the nitrate introduced into the project area would be assimilated by the swamp. This will reduce the amount of nitrogen and other nutrients entering the Gulf of Mexico, which, in turn, will reduce hypoxia on the continental shelf.

Measures of success for this project include restoration and enhancement of forested wetland health by diverting Mississippi River water into the project area. Project-scale performance measures will track progress towards meeting management goals and objectives. The Coastal Protection and Restoration Authority (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 to avoid duplication and improve efficiency. SWAMP will 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.

Leveraging and Co-Funding:

- **Building on prior or other investments:** This project, if the planned-for contemplated activities are eventually implemented, will be an important component in a comprehensive, basin-wide strategy to restore the Maurepas Swamp ecosystem. A similar project, the Louisiana Coastal Area-funded Small Diversion at Convent/Blind River, proposes to introduce riverine freshwater, nutrients, and sediments into the southwest portion of the Maurepas Swamp through the Blind River. Another project, the Hydrologic Restoration of the Amite River Diversion Canal, proposes to re-establish hydrologic connectivity between natural water bodies and impounded swamps along the Amite River Diversion Canal. Further, following recent acquisitions by Louisiana's

Coastal Forest Conservation Initiative, much of the Maurepas Swamp has been incorporated into a wildlife management area now encompassing almost 42,000 hectares. This area, which is managed by the Louisiana Department of Wildlife and Fisheries, will protect and conserve habitat for a wide variety of wildlife species. In sum, leveraging amounts in the form of building on prior or other investments is as follows:

State: $10,000,000
Maurepas Total Leveraging: $10,000,000

Duration of Activity: The timeline for this project is three years for permitting and land rights, followed by four years of construction. The project's projected start date is September 2015.

Life of Activity: Fifty years.

RESPONSE TO SCIENCE REVIEWS:

Comment: CPRA is requesting funding for detailed engineering and design and adaptive management plan development. The three External Science Reviews requested additional information regarding uncertainties/risk, project goals, socioeconomics, adaptive management, and cost effectiveness.

Response: As explained more fully below, however, these concerns will be addressed in the detailed engineering & design phase, which is the focus of this funding proposal.

The initial concept of the Maurepas Project was identified and developed in the 1993 Louisiana Coastal Restoration Plan, and has since been in most of the State and federal plans and programs. Project development has primarily occurred within the Coastal Wetlands Planning, Protection and Restoration Act (CWPPRA) Program, comprised of the State (CPRA) and five federal agencies (Environmental Protection Agency (EPA), Department of Commerce/National Oceanic and Atmospheric Administration, Department of Agriculture/Natural Resources Conservation Service, U.S. Army Corps of Engineers (USACE) and Department of the Interior/U.S. Fish and Wildlife Service). The Maurepas Project was approved for feasibility-level engineering and design funding in 2001, and alternatives analyses were conducted on four separate diversion locations, preliminary project features, project benefits, and drainage and water quality issues. Key deliverables over the past decade have included a Hydrologic Modeling Report, Cultural Resources Report, Ecosystem Health Report, Flow Nutrient Salinity and Temperature Analysis Report, Water Quality and Ecological Risk Reports, Impact to Fisheries Report, and a draft Environmental Information Document prepared by the EPA. The project was also included in the State/USACE *Louisiana Coastal Area (LCA), Louisiana Ecosystem Restoration Study* as the Small Diversion at Hope Canal Project, which Congress recognized as one of five "Near-Term Critical Restoration Features for Conditional Authorization." Relevant documentation on both programs' efforts toward project planning and design can be found at http://lacoast.gov/new/Projects/Info.aspx?num=PO-29 and http://lca.gov.

Additional steps needed before this project can be submitted for construction funding include pre-construction monitoring, modeling, and development of an Adaptive Management Plan. CPRA recently assembled a Technical Advisory Group of leading swamp ecologists from the U.S. Geologic Survey and Louisiana universities to define realistic and quantifiable parameters to measure swamp health throughout the life of the project. Model review will guide further necessary modeling and data collection as the Operations, Maintenance, Monitoring, and Adaptive Management plans are developed. The decisions and documentation associated with these steps are the focus of this proposal.

In addition, landowners have been identified, and the project has been well-supported by ongoing public meetings and stakeholder engagement efforts (including railroads, and industry in the area), with the primary expressed concern being the question of how much longer the swamp can survive without a river reintroduction project. The majority of the project area has been acquired by the Louisiana Department of Wildlife and Fisheries to serve public recreation needs, prevent conversion to non-forested use, conserve important, rare habitat in the area and preserve the storm buffering capacity of the swamp. A portion of the funding request is to appraise and acquire land for the diversion channel.

Additional technical details for this project will be developed during the proposed engineering and design activities.

ENVIRONMENTAL COMPLIANCE:

Council approval of funding for this proposed activity would not involve or lead directly to ground-disturbing activities that may have significant effects on the environment individually or cumulatively, nor would it commit the Council to a particular course of action affecting the environment. The Council has considered potential extraordinary circumstances, including potential negative effects to threatened and endangered species, essential fish habitat, Tribal interests and/or historic properties, where applicable, and has determined that no such circumstances apply. Accordingly, the Council has determined that this proposed activity would be covered by the Council's NEPA Categorical Exclusion for planning, research or design activities. (See the Council's NEPA Procedures, Section 4(d)(3): insert link to Procedures.)

MAP:

Activity: Lowermost Mississippi River Management (Planning)
Unique Identifier: LA_RESTORE_004_000_Cat1
Location: Louisiana
Type of Activity: Planning
FPL Category: 1 – Funding Eligible
Cost Estimate: $9,300,000
Responsible Council Member: State of Louisiana
Partnering Council member: U.S. Army Corps of Engineers (USACE)
Originally submitted by: The State of Louisiana as a component within the proposal "Lowermost Mississippi River Management"

Executive Summary: This large-scale planning effort will develop a plan that moves the nation toward a more holistic management scheme for the Lower Mississippi River, one which seeks to both enhance the great economic value of the River while also elevating the importance of ecological maintenance and restoration of the landscape through which it flows. This planning effort will enhance the science developed under the Louisiana Coastal Area (LCA) Mississippi River Hydrodynamic and Delta Management Study (MRHDMS) to form the foundation for any future river management analysis by creating an integrated science-based management strategy for the Lower Mississippi River to improve navigation, reduce flood risk, and provide for a more sustainable deltaic ecosystem.

PROJECT DESCRIPTION:

Specific Actions/Activities: This effort will establish a plan to improve navigation, reduce flood risk, and provide for a more sustainable deltaic ecosystem. The premise of this effort is that a sustainable navigation system requires a sustainable coast.

The project includes a full and objective assessment of the benefits and costs of the current management scheme for the Lower Mississippi River, including both the significant economic benefits, as well as future unintended adverse impacts to the coastal environments. The plan will evaluate alternatives to the current management scheme which would meet the aforementioned goal. It will also evaluate the benefits and costs of maintaining the current management scheme within a range of predicted futures, based on climate change, sea level rise and subsidence.

The project will build upon and complement the ongoing MRHDMS. The Mississippi River Hydrodynamic portion of MRHDMS includes the development of single and multi-dimensional hydrodynamic and sediment transport models of the river channel and adjacent basins. The geomorphic assessment, field data collection and suite of models that have been developed will allow the impacts of certain actions, specifically marsh creation and diversion alternatives along the Lower Mississippi River (LMR) to be evaluated within the Delta Management study. The MRHDMS was funded as a large-scale, long-term study to inform ecosystem restoration, and as such, navigation and flood control studies have not been fully incorporated. The MRHDMS models have been developed to analyze large-scale ecosystem restoration projects associated

with the current alignment of the Mississippi River. These models need to be adapted to adequately inform decisions for future river management analysis that includes other channel alignments and management strategies.

The State of Louisiana (State), USACE, and the RESTORE Council (Council) will develop a mutually-acceptable scope of work that specifies tasks to be completed for this study of the Lower Mississippi River. The State and USACE would be full and equal partners in this planning effort, with funding being split evenly (50/50) between the two parties. The specific roles and responsibilities of both parties will be defined prior to publication of the final FPL, subject to approval by the Council, USACE and the State. This project will further develop the science needed to adequately inform decision makers on future LMR management and will include establishing existing and future without project conditions, and developing alternate river management schemes based on numerical modeling tools and other analyses developed under MRHDMS. These management schemes could include alternatives and/or key elements developed during the conduct of the Changing Course competition, as well as any other alternatives that optimize a balance between navigation, flood risk management, and ecosystem restoration. The scope of work will not include updating existing or developing new environmental compliance documentation associated with the Mississippi River.

Deliverables: This effort will result in the adaptation and application of the MRHDMS models that have been developed to analyze large scale ecosystem restoration projects associated with the current alignment of the Mississippi River to adequately inform decisions for future river management analysis that includes other channel alignments or management strategies. This will underpin the development of an implementable science-based management scheme for the Lower Mississippi River, geared toward improving navigation, reducing flood risk, and providing for a sustained deltaic ecosystem. In Progress Review (IPR) meetings will be held to inform senior USACE and State leadership at key decision points in the analysis to allow leadership to inform the study path forward.

Ecological Benefits/Outcomes and Metrics: The project will result in a plan to enhance ecosystem sustainability in Mississippi River Deltaic Plain without negatively impacting navigation and flood risk management on the Mississippi River.

Leveraging or Co-Funding:

- **Building on prior or other investments:** This project would build upon investments made for the MRHDMS, as well as information developed for the Louisiana Comprehensive Master Plan for a Sustainable Coast and the Small Scale Physical Model (SSPM). The State and USACE executed a 50/50 cost share agreement for $25.4 million for the conduct of the MRHDMS. The MRHDMS includes the refinement of single and multi-dimensional hydrodynamic and sediment transport models of the river channel and adjacent basins that will allow the impacts of certain actions on the Lower Mississippi River (LMR) to be evaluated. The suite of models developed under MRHDMS will be adapted to inform decisions for future river management analysis that include other channel alignments or management strategies. Another related effort is the Small

Scale Physical Model project which was funded under the Coastal Impact Assistance Program (CIAP) for $11,071,695. Therefore in sum, leveraging amounts in the form of building on prior or other investments totals approximately $36.47 million.

Duration of Activity: The study effort is estimated to take 3 years.

Life of Activity: Not applicable. This is a planning project.

RESPONSE TO SCIENCE REVIEWS:

Comment: The original RESTORE proposal for Lowermost Mississippi River Management included a National Environmental Policy Act (NEPA) component. As initially submitted and reviewed, the program endeavored to investigate the adequacy of existing NEPA documentation for navigation and flood risk reduction projects involving the Lowermost Mississippi River, and potentially initiate the formulation of updated Environmental Impact Statements using the new information developed in the planning and analysis component of the program. The critical Science Evaluation comments for this proposal were focused entirely on the NEPA component of the project.

Response: At the suggestion of the Council, the original proposal was subsequently modified to remove the NEPA component of the project. The critical comments from the Science Evaluation, while valid for the original proposal, no longer apply to the modified proposal.

ENVIRONMENTAL COMPLIANCE:

Council approval of funding for this proposed activity would not involve or lead directly to ground-disturbing activities that may have significant effects on the environment individually or cumulatively, nor would it commit the Council to a particular course of action affecting the environment. The Council has considered potential extraordinary circumstances, including potential negative effects to threatened and endangered species, essential fish habitat, Tribal interests and/or historic properties, where applicable, and has determined that no such circumstances apply. Accordingly, the Council has determined that this proposed activity would be covered by the Council's NEPA Categorical Exclusion for planning, research or design activities. (See the Council's NEPA Procedures, Section 4(d)(3): *insert link to Procedures*.)

The results of this investigation will not result in the necessity to supplement the current environmental documentation for USACE actions on the lower Mississippi River.

MAP:

Activity: Bayou Dularge Ridge Restoration, Marsh Creation & Hydrologic Restoration Phase I
Unique Identifier: USDA_RESTORE_006_000_Cat 1
Location: The Bayou Dularge Ridge, which extends from northeast to southwest, historically restricted the Gulf marine influence into Louisiana's Central Terrebonne marshes where the Atchafalaya influence is prominent. The project footprint or engineering design area includes the Grand Pass, a cut through Bayou Dularge Ridge south of Lake Mechant.
Type of Activity: Planning
FPL Category: 1 – Funding Eligible
Cost Estimate: $5,162,084
Responsible Council Member: United States Department of Agriculture (USDA)/Natural Resources Conservation Service (NRCS).
Partnering Council member(s): This project was sponsored by the Chitimacha Tribe of Louisiana (Tribe).
Originally submitted by: The USDA/NRCS for the Tribe as a component within the proposal "Bayou Dularge Ridge Restoration, Marsh Creation & Hydrologic Restoration; Phase I"

Executive Summary: This is a planning project that includes engineering and design of the Bayou Dularge Ridge (Ridge). It takes a regional approach that when constructed will re-establish hydrologic and salinity conditions, restore the Ridge and create/restore marsh to ensure the integrity of the Ridge, its salinity gradient function and the health of the marsh.

PROJECT DESCRIPTION:

Specific Actions/Activities: This project is a planning project. If the planned-for contemplated activities are eventually implemented, they will consist of the following activities.

Data Collection: USDA will complete surveying, geotechnical investigation, and magnetometer and side scan sonar surveys of the proposed project area. Geotechnical investigations will be used to obtain information about the soil conditions below the surface. Magnetometer and side scan surveys will be done to determine the location of any possible pipelines and other metal objects within the project boundary.

Oyster Seed: The Louisiana Department of Wildlife and Fisheries (LDWF) requires a water bottom assessment for all projects occurring on Public Oyster Seed Grounds, and Public Oyster Seed Reservations. This assessment will be done to comply with these requirements to submit and seek approval of the LDWF prior to Coastal Use Permit issuance for project implementation at a later date.

Cultural Resources: Section 106 of the National Historic Preservation Act of 1966 (NHPA) and the National Environmental Policy Act (NEPA) require that the effects of this project be evaluated (see "Environmental Compliance" below). Section 106 also requires consultation with the Louisiana State Historic Preservation Office and appropriate Indian tribes to inform them, and consider their concerns or objections, if any. Finally, Section 106 requires that this investigation also include sub-bottom profiling, and side-scan sonar and

magnetometer surveys, and resulting data assessment by an archaeologist for the presence of submerged cultural resources. All necessary actions to achieve compliance will be completed.

Easements and Land Rights: Property potentially impacted by the project have to be identified. Temporary easements, servitudes, rights-of-way agreements will also be required prior to start of a construction phase. In addition, title research must be conducted to determine who owns or claims the land. Therefore, planning activities will include title search, pipeline identification, flow-lines identification, etc.

Deliverables: Phase I includes all activities necessary to get the project ready for construction. The deliverables will be a completed environmental assessment pursuant to NEPA (see "Environmental Compliance" below), full sets of plans and specifications, and a completed design report.

Ecological Benefits/Outcomes and Metrics: This is an engineering and design project. Ecological benefits/outcomes and metrics are contingent on the building/implementation of the project design. Upon receipt of additional funds, the project will be implemented and will result in the following benefits: 233 acres of hydrologic restoration, 282 acres of marsh creation and 25 acres of ridge restoration for a total 540 acres of total direct net acres of benefit.

Leveraging and Co-Funding:

- **Building on prior or other investments:** This project is a component of a much broader effort to restore coastal Louisiana. The project has been identified in the Louisiana State Master Plan (CPRA 2012) as a "priority location" and these components have been developed in collaboration with Louisiana Coastal Protection and Restoration Authority, Terrebonne Parish, and private landowners that are within the footprint of the project. In addition, the project has been vetted through a process of engineering and environmental scrutiny that includes the participation of several state and federal agencies including U.S. Fish and Wildlife Service, Environmental Protection Agency, National Oceanic and Atmospheric Administration/National Marine Fisheries Service, U.S. Army Corps of Engineers, and the LDWF.

  NRCS has been working in this area for several decades and this particular project is one of several in long term plans to restore the western Terrebonne Basin. This project is synergistic with the Penchant Basin Plan which reestablished freshwater introduction from the Atchafalaya River through Bayou Penchant to this area.

  Finally, there are several documents addressing the synergy of the proposed action with other Coastal Wetlands Planning, Protection and Restoration Act (CWPPRA) projects. USDA has multiple Reports to Congress and other public affairs documents that have a great detail of information of the success of CWPPRA and how every project has contributed benefits.

Duration of Activity: This is an engineering and design project (E&D). USDA's forecast for E&D completion is 2 – 3 years depending on what work is completed in-house and what is contracted. "Duration of Activity" only becomes applicable when this project is implemented under other funding at a later date.

Life of Activity: This is an engineering and design project (E&D) project. USDA estimates that the E&D completion will be 2 – 3. Since the project design is not implemented until a later time, benefits will not be achieved until that date. Therefore, the "Life of Activity" is not applicable for this project.

RESPONSE TO SCIENCE REVIEWS:

Comment: The three external science reviews contain positive feedback for a number of proposal elements. For some elements receiving a "no" response, the questions may be more pertinent to an implementation project (e.g., monitoring plans), rather than a planning project that consists of engineering and design. Two of the three reviewers rarely responded with "need more information".

Response: However, for the cases where more information was needed, it should be noted that page limitations challenged us as to what information to include and what information to exclude. The discussion below responds to some of the strengths and perceived weaknesses noted in the science reviews.

One example where all three reviewers responded "yes" related to the use of publically available information to justify proposal objectives. The use of the CWPPRA Wetland Value Assessment and the use of computer codes to estimate proposal effects upon implementation of this planning project were noted. In addition, the U.S. Geological Survey (USGS) National Wetland Research analysis of land loss was also noted. Finally, other elements that received positive feedback included, but were not limited to:

- Use of supporting information that is directly pertinent to the Gulf Coast Region;
- Fair and unbiased representation of literature sources; and
- Clearly stated goals.

Comment: Some elements of the proposal received mixed reviews, where not all three responses were consistent. For example, two out of three reviewers responded "yes" to the question as to whether the project/program considered recent and relevant information. One reviewer stated "Yes – USGS's land loss analysis is recent and relevant because it is for Terrebonne Parish from 1983 – 2013. The hydrodynamic modeling is recent and relevant as it was conducted in 2011 on the specific project area. The salinity productivity algorithms were published by USGS in 2012 and used data from CRMS sites located in the specific project area." The third reviewer who answered in the negative to the question wrote "....they base their results on models that use historical data rather than a smaller more recent data set." He also

implies that data points outside the confidence intervals invalidate the regression line as a true measure of central tendency.

Response: It is USDA's position that the regression line is correctly determined in part by inclusion of those data points and it is more scientifically sound to include a full data set rather than use a smaller data set.

Comment: Reviewers did raise concerns for some elements of the proposal. For example, all three responded "no" to the question as to whether the proposal considered "other methods" for reaching the desired goal.

Response: However, it was noted that we justified the methodology used in the proposal by the inclusion of a variety of analyses and predictive models. It was also noted that the proposal did not include a risk mitigation plan. In response to this omission, one reviewer noted that we clearly indicated a recognition of "certain inherent risks associated with the project and will take these into account as part of the design and engineering phase of the project." Another concern related to the discussion of success measures and lack of monitoring plan. While success measure are not specifically defined, one reviewer notes that "the proposed project identifies clear salinity and acreage values they expect to achieve" while another reviewer notes that this proposal is "just the planning phase of the project."

Environmental Compliance:

Council approval of funding for this proposed planning activity would not involve or lead directly to ground-disturbing activities that may have significant effects on the environment individually or cumulatively, nor would it commit the Council to a particular course of action affecting the environment. The Council has considered potential extraordinary circumstances, including potential negative effects to threatened and endangered species, essential fish habitat, Tribal interests, and/or historic properties, where applicable, and has determined that no such circumstances apply. Accordingly, the Council has determined that this proposed planning activity would be covered by the Council's NEPA Categorical Exclusion for planning, research or design activities. (See the Council's NEPA Procedures, Section 4(d)(3): *insert link to Procedures*.)

MAP:

Category 2:

NONE

E. Mississippi Sound

Category 1:

Activity: Deer Island Beneficial Use Site (Implementation)
Unique Identifier: USACE_RESTORE_004_000_Cat1
Location: Mississippi
Type of Activity: Implementation
FPL Category: 1 – Funding Eligible
Cost Estimate: $3,000,000
Responsible Council Member: Department of the Army (USACE)
Partnering Council member: State of Mississippi
Originally submitted by: The Army (USACE) as a component within the proposal "Restoration of Deer Island with Beneficial Use of Dredged Material".

Executive Summary: Material dredged during maintenance of the Black Warrior – Tombigbee (BWT) Federal navigation project in Alabama would be used beneficially to construct a 5 acre Chenier (ridge) and rehabilitate/complete a 40 acre beneficial use site on the northern side of Deer Island just offshore of Biloxi, MS. Subsequent filling of the site with dredged material leveraged from the Biloxi Harbor Federal navigation project and local dredging projects will result in the creation of 40 acres of emergent tidal wetlands.

PROJECT DESCRIPTION:

Specific Actions/Activities: Between approximately 75,000 and 100,000 cubic yards (cys) of the coarse grain sandy material from the BWT would be excavated and placed upon barges for transit to the restoration site. The barges would transport the material down river 80 miles and then across Mobile Bay and Mississippi Sound 80 miles to Deer Island. The barges would then be offloaded hydraulically to avoid excessive access channel construction and reduce delays associated with common low water events. Additional equipment, such as marsh buggies and bulldozers would be used to achieve the required grades and tolerances.

The containment features include the construction of a 5-acre Chenier (ridge) along the southern boundary of the site adjacent to the existing shoreline and the rehabilitation/completion of the northern containment berm. The southern Chenier will be constructed to an elevation of approximately +10 ft along the entire southern footprint using the hydraulically placed sand. This feature will resemble naturally occurring sandy ridges that offer protection to the site from larger storm events as well as a natural wind driven source of sand over the life of the project. The southern Chenier will also act as a containment feature during the filling process preventing dredged material from spilling onto the existing island habitat. The northern berm at elevation + 7 ft will initially act as containment for future fine grain dredge material placed over the next couple of years, but will eventually be degraded to allow for full tidal exchange and access for marine organisms once the new marsh is

established. As the design dictates, an open area will remain at the west end of the site to allow some tidal influence and draining until the site becomes a fully functional marsh. Once all work is completed under this proposal, the 40-acre site will be able to contain approximately 400,000 cys of local beneficial use dredge material.

Deliverables: Final plans and specifications, contract award and supervision/administration. Construction of a 5 acre Chenier (ridge) along the southern boundary of the site adjacent to the existing shoreline and rehabilitation/completion of the northern containment berm.

Ecological Benefits/Outcomes and Metrics: Constructing this beneficial use containment site at Deer Island would allow for restoration, improvement, and protection of aquatic habitat on the Mississippi Coastal Preserves state lands and the adjacent Gulf sturgeon critical habitat within Mississippi Sound. Establishing the sandy earthen containment feature adjacent to Deer Island would encompass approximately 40 acres of open-water in Mississippi Sound and would allow for beneficial placement of dredged material at an elevation to establish emergent tidal marsh habitat. These marsh lands would protect the island from further erosive forces caused by routine wave energy. The marsh would provide areas for planting, if no natural colonization occurs, and spread of wetland vegetation, such as *Spartina alterniflora* and *Juncus Roemerianus*, which serves to filter sediment from the water and increase dissolved oxygen levels. The created marshes would provide new feeding grounds supporting natural resources, ecosystems, fisheries, marine and wildlife habitats, and coastal wetlands of the Gulf Coast region. The site would be closely monitored to track the development of the marshes and make recommendations for modifying the sites, if needed, to increase viability and to ensure functional equivalency to surrounding marsh.

Leveraging and Co-Funding:

- **Co-funding:** Cost savings from the placement of dredged material into the constructed containment site over the life of the project should reach $6M based on typical costs of $5/cys for Federal and $20/cys for local dredging projects.
- **Building on prior or other investments:** This project builds upon the Deer Island restoration efforts which began in 2000 with the creation of 45 acres of emergent wetlands under the USACE Section 204 Continuing Authority, additional creation of wetlands on the northern shore of the island by the Mississippi Department of Marine Resources and local interests, filling of the western breach and augmentation of the southern shoreline by the USACE following Katrina and the upcoming Mississippi Coastal Improvement Program element to restore 400 acres on the eastern end of the island.

Duration of Activity: Construction would be implemented within 3 months of receiving funds and be completed within 6 to 9 months of initiation.

Life of Activity: Life span is expected to be a minimum of 50 years.

RESPONSE TO SCIENCE REVIEWS:

Comment: One of the science reviews of the original proposal focused on the lack of peer-reviewed studies associated with beneficial use.

Response: In response the USACE countered that the proposed project builds on the extensive experience and successes of similar projects that have been implemented by the USACE throughout the nation. Other reviews were supportive of the proposal.

ENVIRONMENTAL COMPLIANCE:

The Council intends to adopt the 2011 Deer Island Environmental Assessment (EA) prepared by the USACE in order to comply with the National Environmental Policy Act (NEPA) for the proposed funding of this activity. This EA can be found here: (insert link to EA on Council's website). This EA builds upon a 2002 EA also prepared by USACE. This 2002 EA can be found here: (insert link).

Prior to adopting an EA, the Council must determine whether the actions covered by the EA and the Council's proposed activity are substantially the same, and whether the EA adequately addresses potential direct and cumulative effects of the activity proposed for funding. The Council must also determine whether there are new circumstances, new information or changes in the action or its impacts not previously analyzed that may result in significantly different environmental effects from those assessed in the EA.

The Council has coordinated with the USACE and has determined that the activity the Council proposes to fund has independent utility from all other Gulf restoration activities; is substantially the same as the action covered by the EA; and that there are no new circumstances, cumulative effects, new information or changes in the proposed activity or its impacts not previously analyzed that may result in significantly different environmental effects from those assessed in the EA. The EA addresses the Endangered Species Act (ESA), Magnuson-Stevens Fishery Conservation and Management Act, National Historic Preservation Act, Tribal consultation, environmental justice, and other relevant regulatory matters. The U.S. Fish and Wildlife Service updated the ESA consultation for this EA on January 27, 2015.

The Council invites public comment on the adoption of this EA. In order to complete the NEPA compliance process the Council will consider any public comments as it determines whether to develop a Finding of No Significant Impact (FONSI) and approve funding for this activity, or alternatively to develop an Environmental Impact Statement. Such a FONSI would be made available to the public on the Council's web site.

MAP:

Activity: Strategic Land Protection, Conservation, and Enhancement of Priority Gulf Coast Landscapes in MS (Planning)
Unique Identifier: MS_RESTORE_001_002_Cat1
Location: Mississippi; Jackson, Harrison and Hancock counties
Type of Activity: Planning and Technical Assistance
FPL Category: 1 – Funding Eligible
Cost Estimate: $2,437,500
Responsible Council Member: State of Mississippi
Partnering Council member(s): Department of the Interior
Originally submitted by: The State of Mississippi as a component within the proposal "Strategic Land Protection, Conservation, and Enhancement of Priority Lands within the Gulf of Mexico".

Executive Summary: The planning component of Strategic Land Protection, Conservation, and Enhancement of Priority Lands within Mississippi would be dedicated to planning, strategy development, and permitting amongst eligible properties according to Mississippi state agencies and leveraged against the existing programs such as the Coastal Preserves Program, existing Secretary of the State properties, federal lands, as well as areas held in conservation easements by private non-governmental organization (NGO) partners. Priority areas for acquiring lands initially are: Graveline Bay, Grand Bay, and Pascagoula / Escatawpa River systems (Jackson County); Turkey Creek, Wolf River (Harrison County); and Hancock County Marsh (Hancock County). These priority areas were identified through state agencies and NGO organizations within Mississippi.

PROJECT DESCRIPTION:

Specific Actions/Activities: Under the Strategic Land Protection, Conservation, and Enhancement of Priority Lands proposal, lands being proposed will be acquired from willing sellers using two methods: fee simple acquisition and conservation easements. The lands to be purchased will be carefully selected and acquired at fair market value unless landowners specifically prefer to do a bargain sale or donation. Values will be determined using the Uniform Appraisal Standards for Federal Land Acquisition (otherwise known as Yellowbook). Acquisitions and programs within this proposal will not be rushed to spend the dollars available, but rather will wait on appropriate land holdings to become available. This planning effort will lead to a prioritized list of lands to be acquired, and also cover, from a programmatic perspective, the National Environmental Policy Act (NEPA) considerations of such a land acquisition program.

Deliverables: Prioritized list of acquisitions within the Mississippi Gulf Coast landscape that are covered under a programmatic NEPA document that would make land acquisitions eligible for future funding under RESTORE.

Ecological Benefits/Outcomes and Metrics: Significant acreage of land will be conserved in perpetuity to provide direct and indirect ecosystem services to adjacent ecosystems, as well as downstream receiving waters of the Gulf of Mexico.

Duration of Activity: 5 years.

Life of Activity: Over 30 years.

RESPONSE TO SCIENCE REVIEWS:

Comment: Since this is a planning and technical assistance request for funding there were no specific science review issues. In general scientific evaluation comments included concerns regarding the effects of sea level rise, land subsidence, and proposed large-scale Mississippi River diversions on acquired lands or easements, rendering them functionally obsolete. One suggestion was that modeling and GIS-based spatial analyses could help address the issues of these and other science-based risks, in the planning stages.

Response: These risks will be fully evaluated under this planning component and will be used in the overall selection process for parcel acquisition.

Comment: Other comments included the need for more discussion of scientific lessons learned from previous efforts at land protection in the Gulf Region, additional science-based statistics on value of land conservation to habitat protection, and the inclusion of scientific case studies on the habitat benefits of land protection in the Gulf region.

Response: These will be more fully developed during the planning component.

Comment: Another issue raised was that although the case was made for the need for land protection on private lands, the proposal also recognized that outright land acquisition is often infeasible and easements are a better option.

Response: Both options will be explored during the planning component; it is likely that landowners will find value in both options.

ENVIRONMENTAL COMPLIANCE:

Council approval of funding for this proposed activity would not involve or lead directly to ground-disturbing activities that may have significant effects on the environment individually or cumulatively, nor would it commit the Council to a particular course of action affecting the environment. The Council has considered potential extraordinary circumstances, including potential negative effects to threatened and endangered species, essential fish habitat, Tribal interests and/or historic properties, where applicable, and has determined that no such circumstances apply. Accordingly, the Council has determined that this proposed activity would be covered by the Council's NEPA Categorical Exclusion for planning, research or design activities. (See the Council's NEPA Procedures, Section 4(d)(3): insert link to Procedures.)

MAP:

Activity: SeaGrant –Undertake education and outreach activities to describe the values of land protection for habitat, water quality improvement and for securing the future of the Gulf of Mexico in MS (Planning)
Unique Identifier: MS_RESTORE_001_011_Cat1
Location: Mississippi; Jackson, Harrison and Hancock counties
Type of Activity: Planning and Technical Assistance
FPL Category: 1 – Funding Eligible
Cost Estimate: $750,000
Responsible Council Member: Mississippi
Partnering Council member(s): United States Department of Agriculture; Environmental Protection Agency; Department of the Interior
Originally submitted by: The State of Mississippi as a component within the proposal "Strategic Land Protection, Conservation, and Enhancement of Priority Gulf Coast Landscapes"

Executive Summary: Extension, Outreach and Education (EOE) for land protection and conservation education is important to ensure conservation and restoration of coastal systems. This project will provide an EOE program in Mississippi that will ensure that the objectives and purposes of land conservation towards habitat stewardship and water quality improvement are being met by funding EOE activities with interested groups that have critical roles in land conservation and restoration.

PROJECT DESCRIPTION:

Specific Actions/Activities: Develop an effective EOE program that will ensure that the objectives and purposes of land conservation towards habitat stewardship and water quality improvement are being met. The EOE will look to leverage existing education programs delivered by respective state, federal, and private organizations, as well as strongly encourage public/private partnerships to enhance effectiveness of EOE deliverables listed below. This EOE program will be coordinated with the Mississippi-Alabama Sea Grant Consortium (MASGC) as well as the Partnership for Gulf Coast Land Conservation (PGCLC). Both organizations could facilitate a small grants program, but it is envisioned based on timing that this portion of EOE activities could also be administered by the Mississippi Sound Estuarine Program.

Deliverables: Build a state specific EOE group that includes members for Extension (Land Grant and Sea Grant programs), Outreach (communicators from land acquisition programs), educators (K-12 and higher education), and state representatives to establish EOE priorities in Mississippi.

Coordinate the development of and execution of a competitive process to fund EOE programs under the advisement of the established EOE group.

Coordinate and collaborate in a Gulf-wide EOE conference on land protection and conservation in year 3, in which grant recipients can meet to review EOE deliverables and products, and to create EOE partnerships for future collaborations in land protection and conservation

Ecological Benefits/Outcomes and Metrics: Through this proposal the State of Mississippi is looking to invest in outreach and education that will further stewardship of our natural resources. Multiple community groups, public and private schools, individuals, and members of the public will be touched by these EOE deliverables.

Leveraging and Co-Funding:

- **Building on prior or other investments:** This proposal could leverage the Land Trust Alliance's (LTA) National Excellence Program. Unknown dollar amount to be leveraged.

Duration of Activity: 3 years.

Life of Activity: Substantial return on investment with EOE investment with K-12 for 25+ years.

RESPONSE TO SCIENCE REVIEWS:

No comments were provided on the EOE portion of the Mississippi Land Proposal. Science components, as applicable, of respectively funded grants will be evaluated by the established EOE group.

ENVIRONMENTAL COMPLIANCE:

Council approval of funding for this proposed activity would not involve or lead directly to ground-disturbing activities that may have significant effects on the environment individually or cumulatively, nor would it commit the Council to a particular course of action affecting the environment. The Council has considered potential extraordinary circumstances, including potential negative effects to threatened and endangered species, essential fish habitat, Tribal interests and/or historic properties, where applicable, and has determined that no such circumstances apply. Accordingly, the Council has determined that this proposed activity would be covered by the Council's NEPA Categorical Exclusion for planning, research or design activities. (See the Council's NEPA Procedures, Section 4(d)(3): *insert link to Procedures*.)

MAP:

Activity: The Mississippi Sound Estuarine Program: A programmatic vision for bridging coastal restoration (Planning)
Unique Identifier: MS_RESTORE_003_000_Cat1
Location: Mississippi; Jackson, Harrison and Hancock counties
Type of Activity: Planning and Technical Assistance
FPL Category: 1 – Funding Eligible
Cost Estimate: $1,270,000
Responsible Council Member: State of Mississippi
Partnering Council member(s):
Originally submitted by: The State of Mississippi as a component within the proposal "The Mississippi Sound Estuarine Program: A programmatic vision for bridging coastal restoration across the Gulf Region".

Executive Summary:
Create the Mississippi Sound Estuarine Program (MSEP) that bridges critical upland/terrestrial habitats to open blue water, to connect research priorities with restoration goals, and be able to engage the community of the Mississippi Sound that tailors Mississippi's conservation needs with community benefits.

PROJECT DESCRIPTION:

Specific Actions/Activities: This proposal aims to establish a comprehensive MSEP. The proposed program would geographically encompass the Pearl River on the west to the Escatawpa River in the east. It could include the Hydrologic Unit Code (HUC) 8 watersheds of the Pearl and Escatawpa river systems as an area of interest, but would also investigate level 3 eco-regions as potential boundaries as established by the Environmental Protection Agency (EPA). The proposal would initially fund the strategic development of a vision, mission, and coordinated restoration action plan, as well as initial coordination efforts that would look across all current funding (National Fish and Wildlife Foundation, Natural Resource Damage Assessment, RESTORE, and other non-Deepwater Horizon related funding), leverage existing efforts (Mississippi Comprehensive Ecosystem Restoration Tool) and provide an avenue of strategic coordination of coastal restoration investment. The establishment of the MSEP will create a single program whereby networks of government (both state and federal), scientists and academia, concerned citizens, and community organizations can be integrated into policy discussions, nurture stronger interpersonal ties between individuals, and act as a bridge to address terrestrial, estuarine, and open water concerns. There is a significant need for a coordinating structure to connect restoration and investment efforts of the large Mississippi state agencies, federal agencies, as well as the restoration and ecosystem based research of academic institutions (both community colleges and universities) towards a greater collaborative, cohesive, science-based restoration effort. The MSEP would be a bridging program between the Office of Restoration at Mississippi Department of Environmental Quality and the Office of Coastal Resiliency and Restoration at the Mississippi Department of Marine Resources.

Deliverables: 1) Develop a strategic comprehensive restoration action plan for sustainable coastal restoration with input from all the respective state, federal, non-governmental, and community-based organizations within the Mississippi Gulf Coast, as well as adjacent states. 2) Convene advisory teams that will be charged with respective engagement roles towards sustainable restoration and the finalization and adoption of the MSEP structural framework. 3) Initiate a coordinated and collaborative effort to create a coupled river – to Mississippi Sound hydrodynamic model as a foundation for sustainable coastal restoration. 4) Host or engage with annual restoration planning discussions that would highlight coastal restoration specific work in the MSEP area of interest and the Mississippi Sound. 5) Create and project a 10-year funding strategy for MSEP.

Ecological Benefits/Outcomes and Metrics: The MSEP would result in a coordinated leveraging of restoration efforts beyond the realm of Deepwater Horizon Oil Spill funding.

Leveraging and Co-Funding:

- **Building on prior or other investments:** $3,600,000, National Fish and Wildlife Foundation-Gulf Environmental Benefit Fund for Mississippi Comprehensive Ecosystem Restoration Tool (MCERT) planning; and $11,000,000, USM-Gulf of Mexico Research Institute (GOMRI) – CONCORDE.

Duration of Activity: 3 years.

Life of Activity: Over 20 years.

RESPONSE TO SCIENCE REVIEWS:

Comment: The majority of the reviewer comments around the MSEP relate to the lack of clarity to the structure of the program, as well as program administration of the MSEP. There were references to why it wasn't structured similar to a National Estuary Program (NEP) or a National Estuarine Research Reserve (NERR).

Response: The MSEP will look at other successful estuarine-like programs across the Gulf as well as the U.S., look at the advantages and disadvantages of these programs, learn lessons that worked, and adopt the best to forge a new program. It will be focused in its mission (coordination of restoration), rather than disparate by trying to do everything. As indicated, statutory authority will need to be determined. Similar programs around the Gulf are supported federally (unlikely because it would require congressional action), through state agency funding, or setup as a non-profit organization. The options will be vetted to provide the greatest flexibility to future funding opportunities for the program. Further investigation as to geographical extent (i.e., HUC 8 watersheds vs. EPA level 3 ecoregions) will be undertaken to determine the best geographic scope for the MSEP. Discussions with adjacent states as well as the Mobile Bay NEP, Grand Bay NERR, as well as Lake Pontchartrain Basin Foundation (LPBF), will occur once the proposal is assured of being funded. This coordination is critical for success.

Through the grants development phase the organization structure, administration, and overall objectives will also be clarified.

ENVIRONMENTAL COMPLIANCE:

Council approval of funding for this proposed activity would not involve or lead directly to ground-disturbing activities that may have significant effects on the environment individually or cumulatively, nor would it commit the Council to a particular course of action affecting the environment. The Council has considered potential extraordinary circumstances, including potential negative effects to threatened and endangered species, essential fish habitat, Tribal interests and/or historic properties, where applicable, and has determined that no such circumstances apply. Accordingly, the Council has determined that this proposed activity would be covered by the Council's NEPA Categorical Exclusion for planning, research or design activities. (See the Council's NEPA Procedures, Section 4(d)(3): *insert link to Procedures*.)

MAP:

Activity: Lower Escatawpa; Back Bay Biloxi; Bayou Caddy; Tennessee Pipeline; Round Island; Hancock County Borrow Pitt (KGI) (Planning)
Unique Identifier: MS_RESTORE_002_001-006_Cat1
Location: Mississippi; Jackson, Harrison and Hancock counties
Type of Activity: Planning and Technical Assistance
FPL Category: 1 – Funding Eligible
Cost Estimate: $2,180,000
Responsible Council Member: Mississippi
Partnering Council member(s): The State of Alabama and the U.S. Army Corps of Engineers (USACE)
Originally submitted by: The State of Mississippi as a component within the proposal "Enhancing Opportunities for Beneficial Use of Dredge Sediments"

Executive Summary:
Coastal retreat (caused by land subsidence, lack of sediment accretion, sea-level rise and storm-related erosion) is resulting in a loss of coastal habitat. Sediments from dredging activities are readily available and if properly managed, can be beneficially used as a sediment source for coastal wetland restoration, specifically for marsh creation. This project will provide funding for beneficial use (BU) planning, design, engineering, feasibility, and permitting to get sites construction ready so that a significant amount of habitat can be created when additional funds become available.

PROJECT DESCRIPTION:

Specific Actions/Activities: The objective of this project is to enhance Mississippi's abilities to beneficially use dredge sediments by providing funding for planning, engineering and design, and permitting.

Planning and site prioritization: There are several entities that are currently engaged with marsh restoration and creation using beneficial use of dredge sediments in coastal Mississippi, utilizing multiple funding sources. Engagement and coordination will result in leveraging these efforts to determine the best-coordinated use of this planning effort to create BU receipt sites that have been planned, designed, and permitted.

Determination of site characteristics through engineering and design: For the site locations that are chosen, preliminary engineering and design will be conducted to determine construction specifics of the containment, the marsh, and living shoreline/breakwater structure (if applicable). Key questions will include:
What environmental variables would determine selection of hard versus soft containment?
Are there opportunities to "double-up" containment with breakwaters (depending on height of the structure) if going the hard containment route?
In what scenarios would a living shoreline/breakwater be appropriate for protection of new marsh?

Environmental compliance and permitting: For each marsh creation site the appropriate environmental permit and regulatory approvals will be secured. Appropriate state and federal agencies will be engaged from the initial stage of the project. From initial conversations with the Mississippi Department of Marine Resources, as well as the USACE, the following areas encompass potential BU sites as agreed upon by state and federal agency partners:

Lower Escatawpa: There have been extensive losses of the predominantly *Juncus* marsh complexes of the lower Escatawpa River near its confluence with the East Pascagoula River. At least 500 acres of marsh have converted to non-vegetated shallow water bottoms since the 1950's. Marsh losses vary and will require different approaches to ensure efficient and sustainable restoration.

Back Bay Biloxi: Biloxi's Back Bay has experienced extensive losses of *Spartina / Juncus* marsh. There are some interior subsided marsh areas but the majority of the restoration needs in this area are channel or lake edge.

Bayou Caddy: The USACE Mobile District has been engaged in extensive efforts to reign in erosion of chenier and marsh habitats in this area, where erosion rates exceed 40 ft. per year in some cases. There is an excellent opportunity to augment the USACE efforts and add additional marsh habitat in this area.

Tennessee Pipeline: The goal of this project is to restore approximately 45 acres of estuarine tidal marsh through the filling of a large floatation channel; reclaimed dredge material could then be pumped into the areas between the plugs to establish marsh.

New Round Island: New Round Island involves the restoration of marsh, chenier, maritime forest and beach/shorebird habitats on the relict north shoal of the remaining natural island. The currently permitted footprint for BU restoration of New Round Island is 220 acres of which only about 30 have been utilized.

East Bayou Casotte: This project, which would be located in relatively deep (6 to 10 ft.) waters on a relict shoal of the Grand Batture Islands, would restore approximately 1,500 acres of coastal island habitats including roughly 1,000 acres of tidal marsh with the balance composed of chenier, beach/dune and maritime forest.

Depending on coordination and leverage, focus on any one of these areas could vary based on completed work.

Deliverables: List of prioritized marsh creation sites, list of schedule and location of available dredge materials, preliminary engineering and design plans and permits for a subset list of construction-ready marsh creation sites.

Ecological Benefits/Outcomes and Metrics: The outcome of this planning, prioritization and technical assistance project is to establish beneficial-use specific receipt sites in Mississippi, for

projects that will be foundational in maintaining long-term coastal resiliency of habitats and coastal wetlands.

Leveraging and Co-Funding:

- **Adjoining:** USACE, Bayou Caddy Ecosystem Restoration (Shoreline Stabilization), unknown funding amount
- **Building on prior or other investments:**
- Gulf Environment Benefit Fund Round 2 Mississippi - Marsh Restoration, National Fish and Wildlife Foundation –$21,980,000.

  Builds on existing efforts by Gulf of Mexico Alliance Habitat Conservation and Restoration Team (GOMA HCRT) 2009, 2010, the Gulf Regional Sediment Management Master Plan as well as the Final Master Plan for the BU of Dredge Material for Coastal Mississippi and Project Management Plan for Selected BU Projects along Coastal Mississippi – unknown funding amount.

Duration of Activity: 3 years.

Life of Activity: Lifetime of sites will be based on permit duration.

RESPONSE TO SCIENCE REVIEWS:

Comment*:* Site selection methods not clearly defined/scientific details of BU determination/decision not described.

Response: BU sites listed in the RESTORE proposal were broad areas of interest to build back marsh, and increase the capacity to receive BU. The refined scientific details of specific location prioritization will occur during the planning and technical assistance phase.

Comment: Composition of the material/quality of dredged materials/effects from potential release of nutrients, carbon, sulfate from the emplaced material.

Response: Testing of all BU is mandatory and required by the Environmental Protection Agency and Mississippi Department of Environmental Quality. The Mississippi Department of Marine Resources has developed protocol for sampling, testing or evaluation of dredge materials for potential use in Mississippi's BU Program.

Comment: Dredged material source location/ negative effects due to increased dredging.

Response: One of the project deliverables is a list and schedule of available dredge materials. Dredging will not be increased due to this project, but rather wasted dredge materials will be captured in the future with new receipt sites.

Comment: What can go wrong with Beneficial Placement? Is there a compilation of case histories that we can use?
Response: Intentional restoration of coastal marshes using BU has been occurring since at least 1969 (Seneca et al., 1976; Broome et al., 1989).

Comment: Determination of BU/modeling.

Response: Depending on the BU site location, varying degrees of engineering and design will be needed, and may include modeling if necessary. Engineering, design, and key planning steps will be undertaken to ensure the sustainability of any future construction project.

Comment: Dewatering of the materials- is it a problem?

Response: Design and engineering plans will take into account dewatering during placement of the dredged materials.

Comment: There were general comments associated with a lack of science behind the procedures and methods for creating BU sites, as well as the risks and uncertainties associated with the materials, dredging placement, etc.

Response: The planning, technical assistance, and permitting portion of this proposal will carefully weigh and consider all risks, uncertainties, and methodologies of BU placement to determine the most environmentally sensitive option moving forward.

ENVIRONMENTAL COMPLIANCE:

Council approval of funding for this proposed activity would not involve or lead directly to ground-disturbing activities that may have significant effects on the environment individually or cumulatively, nor would it commit the Council to a particular course of action affecting the environment. The Council has considered potential extraordinary circumstances, including potential negative effects to threatened and endangered species, essential fish habitat, Tribal interests and/or historic properties, where applicable, and has determined that no such circumstances apply. Accordingly, the Council has determined that this proposed activity would be covered by the Council's NEPA Categorical Exclusion for planning, research or design activities. (See the Council's NEPA Procedures, Section 4(d)(3): *insert link to Procedures*.)

MAP:

2921 ***Category 2:***
2922
2923 **Activity:** Strategic Land Protection, Conservation, and Enhancement of Priority Gulf Coast
2924 Landscapes in MS (Implementation)
2925 **Unique Identifier:** MS_RESTORE_001_002_Cat2
2926 **Location:** Mississippi; Jackson, Harrison and Hancock counties
2927 **Type of Activity:** Implementation
2928 **FPL Category:** 2 – Prioritized for Further Review
2929 **Cost Estimate:** $13,812,500
2930 **Responsible Council Member:** State of Mississippi
2931 **Partnering Council member(s):** Department of the Interior
2932 **Originally submitted by:** The State of Mississippi as a component within the proposal "Strategic
2933 Land Protection, Conservation, and Enhancement of Priority Lands within the Gulf of Mexico".
2934
2935 **Executive Summary:** The implementation of Strategic Land Protection, Conservation, and
2936 Enhancement of Priority Lands within Mississippi would be allocated amongst eligible
2937 properties identified on the prioritized list of lands to be acquired. Priority areas for acquiring
2938 lands could include: Graveline Bay, Grand Bay, and Pascagoula/Escatawpa River systems
2939 (Jackson County); Turkey Creek, Wolf River (Harrison County); and Hancock County Marsh
2940 (Hancock County). These priority areas will have been identified through the planning process
2941 of this proposal (see above Category 1 project) as well as coordinated with state and federal
2942 agency partners. Land conservation will occur using fee-simple as well conservation easements.
2943
2944 **PROJECT DESCRIPTION:**
2945
2946 **Specific Actions/Activities:** Within the implementation phase of the Strategic Land Protection,
2947 Conservation, and Enhancement of Priority Lands proposal, lands will be acquired from willing
2948 sellers using two methods: fee simple acquisition and conservation easements. The lands to be
2949 purchased will be carefully selected and acquired at fair market value unless landowners
2950 specifically prefer to do a bargain sale or donation. Values will be determined using the
2951 Uniform Appraisal Standards for Federal Land Acquisition (otherwise known as Yellowbook).
2952 Acquisitions and programs within this proposal will not be rushed to spend the dollars available,
2953 but rather will wait on appropriate land holdings to become available. Conservation easements
2954 will be held by a qualified private or public agency based on location and habitat acquired.
2955
2956 Additionally, efforts of other state and federal partners in the State of Mississippi will provide
2957 leverage opportunities. Specific land acquisitions will be measured against six factors: a
2958 scale/size that supports ecosystem process, adjacent to existing publicly and/or privately
2959 owned/managed lands, support priority birds and wildlife for the region, promote habitat
2960 quality and ecological services, create/expand ecological corridors and lands identified in state
2961 and/or federal land acquisition plans and in regional management plan.
2962

Deliverables: Acquisition of priority parcels within the State of Mississippi that will provide direct and indirect ecological benefits to Mississippi's Gulf coastal landscape, expand conservation areas, and increase connectivity of protected areas.

Ecological Benefits/Outcomes and Metrics: Areas will be placed in conservation for perpetuity. Ecological benefits will change as the system is restored but could include water quality and quantity improvements, biodiversity enhancements, increased habitat connectivity and reduced edge effects. Several hundred acres are anticipated to be acquired whether by acquisition or easement.

Duration of Activity: 5 years.

Life of Activity: Over 30 years.

RESPONSE TO SCIENCE REVIEWS:

Comment: A question was raised concerning the criteria of prioritizing lands on existing state, federal and non-governmental organization lists and a concern that the description of the criteria should be more explicitly tied to the primary goal of conserving and restoring habitat.

Response: The listing of a site on a current regional or federal land acquisition plan is only one of six factors to be considered; all six factors are important elements of an overall selection process.

Comment: Scientific evaluation comments included concerns regarding the effects of sea level rise, land subsidence, and proposed large-scale Mississippi River diversions on acquired lands or easements, rendering them functionally obsolete. One suggestion was that modeling and GIS-based spatial analyses could help address the issues of these and other science-based risks, in the planning stages.

Response: These risks will be fully evaluated under the related planning component (see above Category 1 planning project) and will be used in the overall selection process for parcel acquisition or easements.

Comment: Another issue raised was that although the case was made for the need for land protection on private lands, the proposal also recognized that outright land acquisition is often infeasible and easements are a better option.

Response: Both options will be explored during the related planning component; it is likely that landowners will find value in both options during the implementation phase of the project.

3007 **ENVIRONMENTAL COMPLIANCE:**
3008
3009 The Council proposes to list this activity as a priority for potential future funding.
3010 Notwithstanding anything to the contrary set forth herein, at this time the Council is not
3011 approving or committing any funds for the implementation of this activity. Additional
3012 environmental compliance information is needed before the Council considers whether to
3013 approve funding for implementation of this activity. If sufficient additional environmental
3014 compliance information becomes available between the issuance of this draft FPL and
3015 completion of the final FPL, the Council may consider such information and thereafter approve
3016 this activity for funding, and move it to FPL Category 1. In such case the final FPL would include
3017 information necessary to demonstrate compliance with NEPA and other applicable laws.
3018 Where applicable, the final FPL would also inform the public of any comment opportunities
3019 pertaining to environmental compliance. In some cases, Council approval of funding for an
3020 activity in Category 1 would not be final until after the public has had an opportunity to provide
3021 comments, and the Council has considered such comments as it prepares required decision
3022 documentation (such as a Finding of No Significant Impact for use of an Environmental
3023 Assessment).
3024
3025 **MAP:**
3026

Activity: The Mississippi Sound Estuarine Program: A programmatic vision for bridging coastal restoration (Implementation)
Unique Identifier: MS_RESTORE_003_000_Cat2
Location: Mississippi; Jackson, Harrison and Hancock counties
Type of Activity: Implementation/Research
FPL Category: 2 – Prioritized for Further Review
Cost Estimate: $1,000,000
Responsible Council Member: State of Mississippi
Partnering Council member(s):
Originally submitted by: The State of Mississippi as a component within the proposal "The Mississippi Sound Estuarine Program: A programmatic vision for bridging coastal restoration across the Gulf Region"

Executive Summary: Create the Mississippi Sound Estuarine Program (MSEP) that bridges critical upland/terrestrial habitats to open blue water, to connect research priorities with restoration goals, and be able to engage the community of the Mississippi Sound that tailors Mississippi's conservation needs with community benefits. This specific proposal will cover the initiation of a coordinated and collaborative effort to create a coupled river – to Mississippi Sound hydrodynamic model as a foundation for sustainable coastal restoration.

PROJECT DESCRIPTION:

Specific Actions/Activities: This implementation portion of the MSEP undertakes foundational research into how the Mississippi Sound and its upland systems interact. This proposal will cover the initiation of a coordinated and collaborative effort to create a coupled river – to Mississippi Sound hydrodynamic model as a foundation for sustainable coastal restoration. This objective's effort will be a foundational step in identifying critical observational data gaps needed to support and implement an interdisciplinary modeling framework designed to address Mississippi's directive towards sustainable coastal restoration. The modeling framework will be designed to directly benefit several restoration efforts such as marsh creation and preservation, artificial reef placement, support of beach re-nourishment, and supporting oyster reef restoration and production. The modeling framework will be developed in phases to provide a coupled hydrologic and hydrodynamic framework within which distributions of suspended sediment, nutrients, dissolved oxygen and other key water quality parameters can be added. Ground-truthing with new and existing data will validate the user- and public-friendly model, and the product will be applied to the adaptive measures for site restoration and management. Moreover, this foundational program will gain added value and potential leverage from other funded and proposed oil-spill research and modeling studies to provide the most effective use of restoration dollars.

Deliverables: Jointly funded project between the University of Southern Mississippi (USM), Mississippi State University, with collaboration with private industry partners for additional leveraging and coordination opportunities.

Tasks will identify:

- Identify modeling framework to couple rivers to Mississippi Sound hydrodynamics.
- Identify priorities and data gaps for model development.
- Adaptive field data to fill gaps.
- Stand up a public- and user-friendly (e.g., for managers and decision-makers) River-to-Sound model with data assimilation.

Ecological Benefits/Outcomes and Metrics: The MSEP would result in a coordinated leveraging of restoration efforts beyond the realm of Deepwater Horizon Oil Spill funding.

Leveraging and Co-Funding:

- **Building on prior or other investments:** $3,600,000, National Fish and Wildlife Foundation-Gulf Environmental Benefit Fund for Mississippi Comprehensive Ecosystem Restoration Tool (MCERT) planning; and USM-Gulf of Mexico Research Institute (GOMRI) – CONCORDE; $11,000,000.

Duration of Activity: 3 years.

Life of Activity: Over 20 years.

RESPONSE TO SCIENCE REVIEWS:

Comment: The majority of the reviewer comments around the modeling component of the MSEP were around the lack of clarity around which models may be used, how they will used, their strengths, weaknesses etc.

Response: The reason for this lack of clarity is that the framework for this coupling is dependent on the gathering of existing body of knowledge around which models have been created, for what environment, and their use in articulating our specific goals (i.e., hydrodynamics to discern changes in salinity, sediment, water quality dynamics). The joint collaborative effort will investigate and identify critical observational and modeling gaps to achieve the objective by investigating the modeling landscape in Mississippi and then chart the most user-friendly approach to implementation.

ENVIRONMENTAL COMPLIANCE:

The Council proposes to list this activity as a priority for potential future funding. Notwithstanding anything to the contrary set forth herein, at this time the Council is not approving or committing any funds for the implementation of this activity. Additional environmental compliance information is needed before the Council considers whether to approve funding for implementation of this activity. If sufficient additional environmental compliance information becomes available between the issuance of this draft FPL and completion of the final FPL, the Council may consider such information and thereafter approve this activity for funding, and move it to FPL Category 1. In such case the final FPL would include

information necessary to demonstrate compliance with NEPA and other applicable laws. Where applicable, the final FPL would also inform the public of any comment opportunities pertaining to environmental compliance. In some cases, Council approval of funding for an activity in Category 1 would not be final until after the public has had an opportunity to provide comments, and the Council has considered such comments as it prepares required decision documentation (such as a Finding of No Significant Impact for use of an Environmental Assessment).

MAP:

F. Mobile Bay

Category 1:

Activity: Coastal Alabama Comprehensive Watershed Restoration Planning Project (Planning)
Unique Identifier: AL_RESTORE_003_000_Cat1
Location: Mobile and Baldwin Counties, Alabama
Type of Activity: Planning
FPL Category: 1 – Funding Eligible
Cost Estimate: $4,342,500
Responsible Council Member: State of Alabama
Partnering Council member(s): The Mobile Bay National Estuary Program (MBNEP) management conference is comprised of representatives from several RESTORE Council federal agency members including the Environmental Protection Agency (EPA), Army, U.S. Department of Agriculture, Department of Commerce/National Oceanic and Atmospheric Administration (NOAA), and Department of the Interior/U.S. Fish and Wildlife Service). The State of Alabama, Department of Conservation and Natural Resources is the local sponsor of the MBNEP.
Originally submitted by: The State of Alabama as a component within the proposal "Coastal Alabama Comprehensive Watershed Restoration Planning Project"

Executive Summary: The State of Alabama proposes distribution of RESTORE funds to the Mobile Bay National Estuary Program (MBNEP) for purposes of completing Comprehensive Watershed Management Plans for the remaining 19 priority watersheds in coastal Alabama. The MBNEP adopted the Watershed Management Planning Protocol and prioritized 31 coastal and intertidal watersheds for the development of standardized comprehensive management plans designed to guide future conservation and restoration efforts. To date, four watersheds are complete with implementation projects underway, eight others have been awarded funds through the National Fish and Wildlife Foundation's (NFWF) Gulf Environmental Benefit Fund (GEBF), and RESTORE funds are sought for the remaining 19 priority watersheds.

PROJECT DESCRIPTION:

With the publication of its updated Comprehensive Conservation and Management Plan (CCMP) in 2013, the MBNEP adopted a protocol of developing individual watershed management plans at the 12-digit Hydrologic Unit Code (HUC) scale to guide science-based development of restoration goals within the estuary. Watershed planning is foundational and sustainable and represents a prudent way to fully evaluate and assess each watershed, determine a suite of projects and programs targeted to improve ecosystem services within those watersheds, and - most importantly - target limited implementation funds to areas where they will result in the greatest benefit.

Specific Actions/Activities: MBNEP will secure and oversee contractors who will develop components of each watershed management plan. Where efficiencies can be realized, multiple

watersheds may be treated under single contracts. Each plan will be produced in a standard format and will include: a detailed watershed description including hydrology, soils, demographics, land uses and cover, and political institutions; existing watershed conditions including flow, sediment transport, stream assessment, biological data and condition, and stakeholder input; identification of critical areas impacted by erosion and flooding and including degraded streams and wetlands; management measures; cost estimates; implementation strategies; financing alternatives; community outreach; and monitoring.

Deliverables: Watershed Management Plans will be produced for the following nineteen coastal Alabama watersheds: Deer River; Grand Bay/Bayou Heron; Oyster Bay; Dauphin Island; Little Lagoon; Upper Blackwater; Rains Creek; Halls Creek; Skunk Bayou; Negro Creek; Cedar Creek; Bayou Sara; Lower Chasaw Creek; Garrows Bend; Bay Minette Creek; Fly Creek; Magnolia River; Bridge Creek/Perdido Bay; and Palmetto Creek. The planning process is designed to build community partnerships; characterize current conditions in each watershed; identify goals and solutions for reducing pollutants entering the bay, sound, and Gulf waters; and establish implementation programs that include a schedule, interim milestones, criteria to measure progress, a monitoring component, information/education programs, and identification of technical and financial assistance needed to implement the plans.

Ecological Benefits/Outcomes and Metrics: The development of Watershed Management Plans is a foundational step in determining the critical ecological restoration needs for the watershed while incorporating best available science and community stakeholder input. Each plan will identify and describe future restoration projects, quantify the expected ecological benefits, and provide metrics by which to gage success.

Leveraging and Co-Funding:

- **Building on prior or other investments:** Since 2008, MBNEP has used local funds to complete and publish 4 watershed management plans. NFWF's GEBF has made three investments in watershed management planning and implementation in coastal Alabama. In 2013, NFWF awarded $6.7 million in funds to implement portions of the completed D'Olive Bay Watershed Management Plan, including stream restoration and stormwater runoff projects, which also support submerged aquatic vegetation restoration. NFWF also awarded $2.05 million in funds to complete the Fowl River Watershed Management Plan while concurrently restoring 4 acres of wetland in the watershed. In 2014, NFWF awarded an additional $2.8 million in GEBF funds to conduct high-resolution habitat mapping for Alabama's two coastal counties and to complete watershed management plans in seven priority watersheds.

Duration of Activity: 5 years.

Life of Activity: It is anticipated that the completed Watershed Management Plans will guide implementation activities for the next 10-15 years.

RESPONSE TO SCIENCE REVIEWS:

Comment: Reviewers expressed concern that the proposal does not adequately address certain risks and uncertainties associated with Watershed Management Planning, particularly risks associated with climate change and local political will to implement plans.

Response: The MBNEP has developed a guidance document describing the Expected Watershed Plan Activities, which serves as the basis of the scope of services that will be provided to contractors in development of these plans. This framework was developed by the Mobile Bay Science and Program Implementation Committees and modeled after vetted EPA guidance to ensure consistency among the various watershed management plans. As part of this scope of services, contractors must incorporate information related to climate change impacts, including hydrodynamic modeling, climate change scenarios, and sea level rise. With respect to political will to implement plans, the framework also includes a requirement for an extensive, stakeholder-driven community participation component. This has been a fundamental component for ensuring local will and political engagement to implement restoration measures that have been identified through this collaborative planning effort. As an example, the planning efforts for the D'Olive Bay Watershed successfully leveraged relationships between two municipalities, county government, and several agencies to implement stream restoration in that watershed. It is further worth noting that two municipalities within this watershed have taken efforts since the plan's development to make land use permitting procedures uniform within the watershed.

Comment: Reviewers suggested that additional information on the types of data to be used in developing these plans would strengthen the proposal and suggested that additional literature review be conducted. One reviewer requested more detail describing the planning process.

Response: Part of each watershed planning effort is to conduct extensive, foundational collection and analysis of existing literature and data for a specific watershed in order for gap analyses to be conducted. The scope of services document referenced above lists the specific types of information to be gathered and analyzed for each watershed and more thoroughly outlines the planning process. The data dredging effort of each plan aims to collect and synthesize all existing data, including peer reviewed published data as well as publicly available state and federal agency data.

Comment: Reviewers noted that, although this is a planning process, more information should have been provided to describe how each watershed plan would be monitored. Reviewers also inquired about future updates of the plan.

Response: Contractors selected to complete these plans will be required to develop a monitoring and evaluation component for each watershed to track the effectiveness of recommended actions in achieving estimated load reductions and objectives. The work of overseeing contractors, implementing restoration activities described in the plans, as well as future updates to the plan will be the responsibility of the MBNEP staff, the governing bodies

within each watershed, and key stakeholders. Plans are anticipated to have a 10-15 year lifespan.

ENVIRONMENTAL COMPLIANCE:

Council approval of funding for this proposed activity would not involve or lead directly to ground-disturbing activities that may have significant effects on the environment individually or cumulatively, nor would it commit the Council to a particular course of action affecting the environment. The Council has considered potential extraordinary circumstances, including potential negative effects to threatened and endangered species, essential fish habitat, Tribal interests and/or historic properties, where applicable, and has determined that no such circumstances apply. Accordingly, the Council has determined that this proposed activity would be covered by the Council's National Environmental Policy Act (NEPA) Categorical Exclusion for planning, research or design activities. (See the Council's NEPA Procedures, Section 4(d)(3): insert link to Procedures.)

MAP:

Activity: Boggy Point Living Shorelines; Point aus Pins Living Shorelines; Coffee Island Living Shorelines (Planning)
Unique Identifier: AL_RESTORE_004_001-003_Cat1
Location: Alabama, Mobile and Baldwin Counties
Type of Activity: Planning
FPL Category: 1 – Funding Eligible
Cost Estimate: $908,500
Responsible Council Member: State of Alabama
Partnering Council member(s): U.S. Army Corps of Engineers (USACE)
Originally submitted by: The State of Alabama as a component within the proposal "Alabama Living Shorelines Restoration and Monitoring Project"

Executive Summary: Alabama will conduct all preliminary planning associated with the potential future construction of three (3) proposed Living Shorelines Projects (Coffee Island, Boggy Point, and Point Aux Pins). Activities for this planning component will include field investigations, surveys, construction planning, engineering design, and regulatory compliance/permitting. Construction implementation for two of these sites is described below in the Category 2 projects under activity with unique identifier AL_RESTORE_004_003_Cat2.

PROJECT DESCRIPTION:

Specific Actions/Activities: This activity will conduct all planning, engineering, design, and regulatory/permitting review associated with living shoreline projects at three locations:

1. Coffee Island Living Shorelines Project: The goals for this project site would involve the augmentation and modification of the existing living shorelines breakwaters on the southeastern side of Coffee Island, in the Portersville Bay portion of Mississippi Sound. This project was originally constructed by The Nature Conservancy, which holds USACE permits for shoreline restoration at this site. While many of the breakwater segments are performing as expected, some areas need design modifications to achieve desired results. Therefore, the Alabama Department of Conservation and Natural Resources (ADCNR) and its partners are proposing a redesign evaluation that might include additional breakwater units, adding width or height to existing units, adding sediments landward of the breakwaters, planting vegetation and/or other techniques.

2. Boggy Point Living Shorelines Project: Goals for this project site involve the installation of living shorelines techniques adjacent to the ADCNR Boggy Point Boat Ramp Site in Orange Beach (Baldwin County) Alabama. This heavily used site has experienced significant shoreline erosion and salt marsh loss from Hurricanes Ivan and Katrina and from boat wakes. This project would involve placement of a living shorelines breakwater and the planting of native salt marsh vegetation. Given the presence of the previously existing marsh platform along the shoreline, no sediment placement is currently proposed.

3. Point aux Pins Living Shorelines Project: Goals for this project site include construction of

living shorelines along the southeastern and southern tip of Point aux Pins to address severe chronic erosion and shoreline loss at the site. The current proposal is to utilize 2-3 different living shorelines breakwater techniques at the site. However, this may change as engineering and design considerations dictate. Given that there is existing fringe marsh along the shoreline, no planting is currently proposed nor is the placement of sediments anticipated.

Deliverables:
The construction planning activity will deliver the following:

- Site plans, survey documents, construction drawings and bid documents, packages and requests for construction bids.
- Project permits and/or other regulatory clearances.

Ecological Benefits/Outcomes and Metrics: As shoreline armoring increases in our coastal estuaries, intertidal habitats continue to be lost. To address this issue, resource agencies, regulatory agencies, non-governmental organizations (NGOs) and other concerned partners have been actively promoting living shorelines as an alternative to traditional bulkheads and similar shoreline armoring. The proposed projects would address shoreline and salt marsh loss at each of the selected sites. As the projects are constructed and mature, wave energies will be reduced, shoreline and salt marsh loss will be reversed and/or slowed, salt marsh will be restored and estuarine productivity will be increased.

Boggy Point: Planning effort targets installation of approximately 400 ft. of living shoreline breakwaters planting of approximately 0.32 acres of salt marsh. Project monitoring plan to be developed during planning phase.

Point aux Pins: Planning effort based upon installation of approximately 2,500 linear feet of living shorelines breakwaters and adjacent salt marsh protected. Project monitoring plan to be developed during planning phase.

Coffee Island: Project design and metrics to be determined during this planning phase.

Leveraging and Co-Funding:

- **Building on prior or other investments:** Numerous entities in coastal Alabama have been constructing living shorelines projects over at least the past decade. This has included efforts by a wide range of state, federal, academic and NGO partners. The funding sources for these efforts have also widely varied. This project will complement those past efforts.

Duration of Activity: 1-2 years for construction planning phase.

Life of Activity: It is recommended that implementation begin within 5 years of completing the planning activity.

RESPONSE TO SCIENCE REVIEWS:

Comment: One comment stated that there is a lack of supporting documentation, a lack of evidence supporting Living Shoreline techniques and that project success "appears to be taken for granted based on statements that others have implemented similar projects."

Response: The use of the proposed Living Shorelines techniques has been well documented across the Gulf Coast and in other regions of the country. Coastal zone management policy makers and natural resources managers across the Gulf have recognized this and are actively pursuing the implementation of said techniques in place of shoreline armoring and to help restore shoreline habitats. Given this widespread advocacy for the implementation of Living Shorelines techniques, proposal citations focused on documents that characterize the current understanding of the extent of shoreline armoring along the Alabama Coast, the detrimental effects of shoreline armoring, regulatory policy manuals, and local and regional planning/policy documents. Each contains extensive documentation and additional scientific references on the subject of living shorelines. In addition, Alabama's RESTORE proposal includes a monitoring activity (see the below Category 2 project with unique identifier AL_RESTORE_004_004_Cat2) to monitor the effectiveness of the variety of existing techniques at several locations in Coastal Alabama in order to contribute new scientific data to the discussion.

Comment: One comment also stated that "Water resource issues within these basins is not summarized per [water quality] or quantity per historic or predicted future values."

Response: The proposed projects do not address water resources or water quality on a basin-wide scale. The primary RESTORE objective for this proposal is to restore, protect, and enhance habitats. The level of wetland loss and shoreline armoring trends in coastal Alabama and/or around the Gulf region as a whole is well documented in the proposal and is the direct target of restoration activities.

Comment: One comment focused on movement of the proposed structures due to tropical storm events, structure replacement, hazards to navigation, etc.

Response: While such risks and uncertainties associated with coastal hazards are not unique to coastal Alabama or restoration projects generally, it is worth noting the following:

1. The Boggy Point project would be located in relatively sheltered waters with limited fetch. The project will not be subject to severe wave action but could become submerged by storm surge. This is not expected to move the proposed materials.
2. The Point aux Pins project would most likely be constructed using wave attenuation units. Such units are of sufficient weight that their movement is also not likely during tropical storm events.
3. All sites will be marked with signage, in order to address any potential hazard to navigation issues.

ENVIRONMENTAL COMPLIANCE:

Council approval of funding for this proposed activity would not involve or lead directly to ground-disturbing activities that may have significant effects on the environment individually or cumulatively, nor would it commit the Council to a particular course of action affecting the environment. The Council has considered potential extraordinary circumstances, including potential negative effects to threatened and endangered species, essential fish habitat, Tribal interests, and/or historic properties, where applicable, and has determined that no such circumstances apply. Accordingly, the Council has determined that this proposed activity would be covered by the Council's NEPA Categorical Exclusion for planning, research or design activities. (See the Council's NEPA Procedures, Section 4(d)(3): *insert link to Procedures*.)

MAP:

ED_005856B_00002024-00087

Activity: Comprehensive Living Shoreline Monitoring - All Locations (Planning)
Unique Identifier: AL_RESTORE_004_004_Cat1
Location: Alabama, Mobile and Baldwin Counties
Type of Activity: Planning
FPL Category: 1 – Funding Eligible
Cost Estimate: $25,000
Responsible Council Member: State of Alabama
Partnering Council member(s): N/A
Originally submitted by: The State of Alabama as a component within the proposal "Alabama Living Shorelines Restoration and Monitoring Project"

Executive Summary: The State of Alabama will develop a plan for monitoring and assessing the performance and efficacy of at least ten (10) proposed and existing living shoreline projects in coastal Alabama. This comprehensive monitoring effort will develop a standard set of monitoring parameters and implement a five (5) year living shorelines monitoring program that will allow for a robust comparison across all monitored projects, as well as an accurate evaluation of their success relative to specific site conditions, providing valuable information to resource managers, project proponents, homeowners and others interested in utilizing and promoting living shorelines techniques.

PROJECT DESCRIPTION:

Specific Actions/Activities:

- Develop standard set of monitoring parameters. This may include such parameters as shoreline position, breakwater aerial extent and height, cross-shore topographic and bathymetric profiles, vegetation density and species composition, encrusting organism counts and/or measurements of secondary productivity or other similar parameters.
- Develop a standard monitoring protocol based on above noted parameters.
- Finalize monitoring site list.

The purpose of this comprehensive monitoring activity is to evaluate the effectiveness of specific living shorelines techniques relative to specific site conditions. This will include an assessment of biological benefits as well as physical parameters (such as wave energy, sediment composition, erosion rates etc.). Ultimately, the goal of this effort is to determine best practices given site-specific physical conditions.

Deliverables: Standard Monitoring Protocol, including Standard Parameters and list of sites to be monitored.

Ecological Benefits/Outcomes and Metrics: As shoreline armoring increases in our coastal estuaries, intertidal habitats continue to be lost. To address this issue, resource agencies, regulatory agencies, non-governmental organizations (NGOs) and other concerned partners have been actively promoting living shorelines as an alternative to traditional bulkheads and similar shoreline armoring. However, while it is generally known that living shorelines can

provide erosion control and increased ecosystem services, it is also acknowledged that more data is needed on living shorelines efficacy.

This project will provide valuable data on the benefits of a wide range of proposed and existing living shorelines projects. This will include data on shoreline stabilization, biological productivity and similar parameters. This data can then be used to inform resource managers, consultants, homeowners and others decision makers interested in promoting and utilizing living shorelines in place of traditional shoreline armoring.

Leveraging and Co-Funding:

- **Building on prior or other investments:** Numerous entities in coastal Alabama have been constructing living shorelines projects over at least the past decade. This has included efforts by a wide range of state, federal, academic and NGO partners. The funding sources for these efforts have also widely varied. This project will complement those past efforts.

Duration of Activity: 1 year for plan development.

Life of Activity: Monitoring to be implemented for a five-year period.

RESPONSE TO SCIENCE REVIEWS:

Comment: One comment stated that there is a lack of supporting documentation, a lack of evidence supporting Living Shoreline techniques and that project success "appears to be taken for granted based on statements that others have implemented similar projects."

Response: The use of the proposed Living Shorelines techniques has been well documented across the Gulf Coast and in other regions of the country. Coastal zone management policy makers and natural resources managers across the Gulf have recognized this and are actively pursuing the implementation of said techniques in place of shoreline armoring and to help restore shoreline habitats. Given this widespread advocacy for the implementation of Living Shorelines techniques, proposal citations focused on documents that characterize the current understanding of the extent of shoreline armoring along the Alabama Coast, the detrimental effects of shoreline armoring, regulatory policy manuals, and local and regional planning/policy documents. Each contains extensive documentation and additional scientific references on the subject of living shorelines. In addition, Alabama's RESTORE proposal includes a monitoring activity (see the below Category 2 project with unique identifier AL_RESTORE_004_004_Cat2) to monitor the effectiveness of the variety of existing techniques at several locations in Coastal Alabama in order to contribute new scientific data to the discussion.

Comment: One comment also stated that "Water resource issues within these basins is not summarized per [water quality] or quantity per historic or predicted future values."

Response: The proposed projects do not address water resources or water quality on a basin-wide scale. The primary RESTORE objective for this proposal is to restore, protect, and enhance habitats. The level of wetland loss and shoreline armoring trends in coastal Alabama and/or around the Gulf region as a whole is well documented in the proposal and is the direct target of restoration activities.

Comment: One comment focused on movement of the proposed structures due to tropical storm events, structure replacement, hazards to navigation, etc.

Response: While such risks and uncertainties associated with coastal hazards are not unique to coastal Alabama or restoration projects generally, it is worth noting the following:

1. The Boggy Point project would be located in relatively sheltered waters with limited fetch. The project will not be subject to severe wave action but could become submerged by storm surge. This is not expected to move the proposed materials.
2. The Point aux Pins project would most likely be constructed using wave attenuation units. Such units are of sufficient weight that their movement is also not likely during tropical storm events.
3. All sites will be marked with signage, in order to address any potential hazard to navigation issues.

ENVIRONMENTAL COMPLIANCE:

Council approval of funding for this proposed activity would not involve or lead directly to ground-disturbing activities that may have significant effects on the environment individually or cumulatively, nor would it commit the Council to a particular course of action affecting the environment. The Council has considered potential extraordinary circumstances, including potential negative effects to threatened and endangered species, essential fish habitat, Tribal interests, and/or historic properties, where applicable, and has determined that no such circumstances apply. Accordingly, the Council has determined that this proposed activity would be covered by the Council's NEPA Categorical Exclusion for planning, research or design activities. (See the Council's NEPA Procedures, Section 4(d)(3): *insert link to Procedures*.)

MAP:

Activity: Lower Perdido Bay Seagrass Protection & Restoration; Upper Mobile Bay and Lower Mobile/Tensaw River Delta SAV Restoration (Planning)
Unique Identifier: AL_RESTORE_005_001-002_Cat1
Location: Alabama, Mobile and Baldwin Counties
Type of Activity: Planning
FPL Category: 1 – Funding Eligible
Cost Estimate: $5,000
Responsible Council Member: State of Alabama
Partnering Council member(s): N/A
Originally submitted by: The State of Alabama as a component within the proposal "Alabama Submerged Aquatic Vegetation Restoration and Monitoring Project"

Executive Summary: Alabama will complete all planning and regulatory compliance/permitting associated with two (2) proposed submerged aquatic vegetation (SAV) restoration and protection projects: The Lower Perdido Bay Sea Grass Protection and Restoration Project and the Upper Mobile Bay and Lower Mobile-Tensaw River Delta SAV Restoration Project. This first phase covers planning and regulatory compliance only, with implementation to potentially occur in a subsequent phase.

PROJECT DESCRIPTION:

Specific Actions/Activities: In this activity, Alabama will complete all planning, and regulatory compliance/permitting necessary to implement projects to restore and enhance submerged aquatic vegetation in two discrete areas. Those projects are described as follows:

1. Lower Perdido Bay Sea Grass Protection and Restoration Project: Alabama and its local partners will conduct a five (5) year seagrass protection and restoration program in lower Perdido Bay, including the areas around Terry Cove, Cotton Bayou, Robinson Island, Walker Island and Old River. This will include annual maintenance and replacement of seagrass protection zone signage as well as the installation of new bird stakes in prop scars as they are identified. Further, educational signage describing the importance of SAV will be placed and/or maintained at strategic locations around the adjacent waterways, including boat launches and marinas in the area. A seagrass protection educational brochure previously developed by The Nature Conservancy, Dauphin Island Sea Lab (DISL) and the City of Orange Beach will also be updated and re-printed annually for distribution to tourist and residents at varying venues around the City.

2. Upper Mobile Bay and the Lower Mobile/Tensaw River Delta SAV Restoration Project: In order to speed the recovery of SAV in areas like Grand Bay in the lower Mobile/Tensaw River Delta and the shallow flats around Goat Island on the Upper Mobile Bay, the Alabama Department of Conservation and Natural Resources (ADCNR) and its partners will conduct a five (5) year project to restore SAV in these and similar areas. These areas historically had extensive Vallisneria sp. beds that were lost during the 2004-05 Hurricane season and subsequent drought. This project will include the gathering of SAV seeds (Vallisneria sp.) during the late

summer. These seeds will then be stored and over-wintered in a controlled environment. In the early spring, the seed will then be sown in marked plots in areas known to historically have Vallisneria present (based on 1981 and 2002 mapping). Seeding plots will be marked in a non-permanent manner using small PVC poles or similar materials. These plots will then be monitored to determine project success. Seeds may also be utilized to grow SAV plugs in a nursery setting for planting in the project areas.

This activity focuses specifically on restoration project planning, development of a monitoring program to gage success of implemented projects, and application for all necessary permits and regulatory clearances.

Deliverables:

- Project Implementation Plan.
- Plan to monitor each project for implementation success.
- Permits and/or other regulatory clearances.

Ecological Benefits/Outcomes and Metrics: Once planned and implemented, this project would restore and/or protect vital SAV resources, increasing primary and secondary estuarine productivity in these areas. Additionally, education and outreach efforts would assist in reducing impacts to these resources, reducing the need for future restoration efforts.

Lower Perdido Bay: Existing seagrass beds will be protected through signage and educational activities. Prop scar will be restored through placement of bird stakes. The linear feet of prop scars restored will be reported.

Lower Mobile/Tensaw Delta & Upper Mobile Bay: Vallisneria beds will be restored through the sowing of seeds and/or the planting of nursery plugs. Acreage of Vallisneria restored will be reported.

Leveraging and Co-Funding:

- **Building on prior or other investments:** The Nature Conservancy, DISL and the City of Orange Beach have been actively involved in seagrass restoration and protection in lower Perdido Bay. This project activity will build off those past and ongoing efforts. The ADCNR and the Mobile Bay National Estuary Program have conducted SAV mapping in Coastal Alabama in 2001, 2008 and 2009, with additional mapping planned for summer 2015. This project activity will utilize the data from these efforts to identify specific restoration and protection areas and to assist in tracking project success.

Duration of Activity: 1 year to complete planning phase.

Life of Activity: It is recommended that implementation begin within 5 years of completing the planning activity. Implementation to take 5 years.

RESPONSE TO SCIENCE REVIEWS:

Comment: One comment stated, "The objectives, to implement restoration efforts in Lower Perdido Bay, has been justified using peer reviewed and/or publicly available information. However, the methods have not been adequately justified. In fact, the Lower Perdido Bay is mostly covered with Halodule wrightii, but they plan on using Vallisneria americana. … There was an Appendix that indicated that Halodule would not be a good candidate for restoration from seeds after scientific research was done. An apparent after thought of that work, without rigorous scientific testing, was Vallisneria."

Response: The Alabama proposal contained 3 distinct projects: Seagrass Restoration and Protection in Lower Perdido Bay; Vallisneria Restoration in Upper Mobile Bay/Lower Mobile/Tensaw Delta; and the Mapping of SAV in coastal Alabama (the latter is discussed in the next project description under unique identifier AL_RESTORE_005_003_Cat1). Alabama does not propose to sow Vallisneria seed in the Lower Perdido Bay ecosystem, nor does it propose to propagate Halodule from seed as repeatedly stated by the reviewer. This misunderstanding regarding species selection appears to be the basis of an unfavorable review. The seeding of Vallisneria in the Lower Mobile Delta is based on a proponent funded research project conducted by DISL and habitat mapping data which has documented the presence of target species in the appropriate project locations.

Comment: Two reviewers requested more information about the inherent level of uncertainty with respect to climate change, sea level rise, and episodic (hazard) events.

Response: The techniques proposed for Lower Perdido Bay are proven low-risk techniques which have been successfully utilized in that system and many other areas around the Gulf. Risks of failure due to extreme weather or climate change are understood by experienced restoration practitioners, and are not unique to coastal Alabama. Sea level rise is not considered a significant risk for this project. Barring an unforeseen and catastrophic rise in sea level, it is unclear why the current predicted rise in sea level (3-6 mm/year) would be considered a risk in the 5-10 year timeline indicated, especially given that SAVs grow submerged. The risk of tropical storms is recognized, and cited as a primary cause of SAV loss, especially in the Upper Mobile Bay/Lower Mobile/Tensaw Delta. Further, it is recognized that tropical storm events may occur during the project life span. However, such risk is universal to all estuarine restoration projects across the Gulf of Mexico Region. In regards to cold weather episodes, this risk is in similar nature to tropical storm events and cannot be predicted. Overall, while there are inherent risks with any estuarine restoration project, the project proponents do not believe the risks for this proposal exceed those of any other similar proposal.

Comment: A comment expressed concerns that the 2-3 year aerial mapping frequency is not adequate to discern project success.

Response: The reviewer may be confusing the effectiveness monitoring of the two SAV restoration projects with the overall habitat mapping goals contained in the 3rd project activity.

While it would be desirable to conduct yearly comprehensive SAV mapping in the entire Alabama coastal area, this is a rather expensive proposition to undertake and it does not appear justified. Additionally, given that Alabama would be mapping seagrass as well as brackish/freshwater systems, meteorological, tide and water clarity requirements are harder to meet during any given growing season, making it difficult to map each year. This is based on Alabama's experience with previous mapping efforts conducted in 2000-2001, and 2007-2009. Successful mapping every 2-3 years will greatly improve Alabama's current understanding of SAV dynamics.

ENVIRONMENTAL COMPLIANCE:

Council approval of funding for this proposed activity would not involve or lead directly to ground-disturbing activities that may have significant effects on the environment individually or cumulatively, nor would it commit the Council to a particular course of action affecting the environment. The Council has considered potential extraordinary circumstances, including potential negative effects to threatened and endangered species, essential fish habitat, Tribal interests, and/or historic properties, where applicable, and has determined that no such circumstances apply. Accordingly, the Council has determined that this proposed activity would be covered by the Council's NEPA Categorical Exclusion for planning, research or design activities. (See the Council's NEPA Procedures, Section 4(d)(3): *insert link to Procedures*.)

MAP:

Activity: Submerged Aquatic Vegetation Monitoring Program (Planning)
Unique Identifier: AL_RESTORE_005_003_Cat1
Location: Alabama, Mobile and Baldwin Counties
Type of Activity: Planning
FPL Category: 1 – Funding Eligible
Cost Estimate: $5,000
Responsible Council Member: State of Alabama
Partnering Council member(s): N/A
Originally submitted by: The State of Alabama as a component within the proposal "Alabama Submerged Aquatic Vegetation Restoration and Monitoring Project"

Executive Summary: Alabama will revise existing plans and specifications for monitoring the coverage and species composition of submerged aquatic vegetation (SAV) in Coastal Alabama waterways and secure regulatory approval and permitting for the acquisition of monitoring data. This planning activity will produce a scope of services and technical specifications for completing at least two SAV monitoring episodes to potentially be implemented over the course of 6-8 years.

PROJECT DESCRIPTION:

Specific Actions/Activities: Alabama will revise existing plans and specifications for monitoring coverage and species composition of SAV in Coastal Alabama waterways. Because the State and partner agencies have conducted several SAV monitoring events over the last 15 years, the technical specifications are generally in place. The State will update these monitoring protocols, prepare a scope of services for procurement of data, and obtain all necessary environmental compliance reviews and permits. While ultimate implementation actions will be determined by this planning effort, it is anticipated that the general approach to monitoring may be similar to the following: Aerial digital ortho-imagery of coastal waters will be obtained on a regular interval, approximately every 2-3 years, depending on suitability of water conditions, weather, and tides during the SAV growing season (July-September). Aerial imagery will be analyzed to determine SAV coverage and a GIS shapefile of coverage will be developed, with species composition noted for each polygon. Imagery acquisition, imagery analysis and field work to ground-truth SAV species and coverage will be conducted in accordance with National Oceanic and Atmospheric Administration protocols. A report on SAV coverage, species composition and status and trends will be developed from each monitoring event. Two (2) sampling events are proposed, which will be conducted at an interval of 2-3 years depending on water clarity, tides and meteorological conditions during aerial imagery acquisitions window.

Deliverables: The planning phase of the monitoring activity will deliver the following:

- Scope of services for future SAV monitoring events, including technical specifications for data collection and analysis.
- Regulatory compliance review and acquisition of any necessary permits.
- Request for proposals for professional services and a related contract agreement OR a contract agreement with a local, state or federal agency partner.

Ecological Benefits/Outcomes and Metrics: If the monitoring program resulting from this plan is implemented, the data gathered would provide critical status and trends information to help determine the aerial extent and species composition of SAV in coastal Alabama, as well as changes over time. It would also help inform decisions on SAV restoration, protection and regulatory and policy changes. This data would also help inform regional resources managers on the status and trends in SAV coverage of the Gulf of Mexico as a whole and guide future restoration, protection and mapping efforts.

Leveraging and Co-Funding:

- **Building on prior or other investments:** The Alabama Department of Conservation and Natural Resources and the Mobile Bay National Estuary Program have conducted SAV mapping in Coastal Alabama in 2001, 2008 and 2009, with additional mapping planned for summer 2015. This project activity will utilize the data from these efforts to identify specific restoration and protection areas and to assist in tracking project success.

Duration of Activity: 1-3 months to complete planning phase.

Life of Activity: It is recommended that implementation of the first data collection occur within 2-3 years of completion of planning activity.

RESPONSE TO SCIENCE REVIEWS:

Comment: One comment stated, "The objectives, to implement restoration efforts in Lower Perdido Bay, has been justified using peer reviewed and/or publicly available information. However, the methods have not been adequately justified. In fact, the Lower Perdido Bay is mostly covered with Halodule wrightii, but they plan on using Vallisneria americana. ... There was an Appendix that indicated that Halodule would not be a good candidate for restoration from seeds after scientific research was done. An apparent after thought of that work, without rigorous scientific testing, was Vallisneria."

Response: The Alabama proposal contains 3 distinct projects: Seagrass Restoration and Protection in Lower Perdido Bay; Vallisneria Restoration in Upper Mobile Bay/Lower Mobile/Tensaw Delta; and the Mapping of SAV in coastal AL (the former two are discussed in the previous project description under unique identifier AL_RESTORE_005_001-002_Cat1). Alabama does not propose to sow Vallisneria seed in the Lower Perdido Bay ecosystem, nor does it propose to propagate Halodule from seed as repeatedly stated by the reviewer. This misunderstanding regarding species selection appears to be the basis of an unfavorable review. The seeding of Vallisneria in the Lower Mobile Delta is based on a proponent funded research project conducted by Dauphin Island Sea Lab and habitat mapping data which has documented the presence of target species in the appropriate project locations.

Comment: Two reviewers requested more information about the inherent level of uncertainty with respect to climate change, sea level rise, and episodic (hazard) events.

Response: The techniques proposed for Lower Perdido Bay are proven low-risk techniques which have been successfully utilized in that system and many other areas around the Gulf. Risks of failure due to extreme weather or climate change are understood by experienced restoration practitioners, and are not unique to coastal Alabama. Sea level rise is not considered a significant risk for this project. Barring an unforeseen and catastrophic rise in sea level, it is unclear why the current predicted rise in sea level (3-6 mm/year) would be considered a risk in the 5-10 year timeline indicated, especially given that SAVs grow submerged. The risk of tropical storms is recognized, and cited as a primary cause of SAV loss, especially in the Upper Mobile Bay/Lower Mobile/Tensaw Delta. Further, it is recognized that tropical storm events may occur during the project life span. However, such risk is universal to all estuarine restoration projects across the Gulf of Mexico Region. In regards to cold weather episodes, this risk is in similar nature to tropical storm events and cannot be predicted. Overall, while there are inherent risks with any estuarine restoration project, the project proponents do not believe the risks for this proposal exceed those of any other similar proposal.

Comment: Reviewer expressed concerns that the 2-3 year aerial mapping frequency is not adequate to discern project success.

Response: The reviewer may be confusing the effectiveness monitoring of the two SAV restoration projects discussed previously under unique identifier AL_RESTORE_005_001-002_Cat1with the overall habitat mapping goals contained in the project discussed here. While it would be desirable to conduct yearly comprehensive SAV mapping in the entire Alabama coastal area, this is a rather expensive proposition to undertake and it does not appear justified. Additionally, given that Alabama would be mapping seagrass as well as brackish/freshwater systems, meteorological, tide and water clarity requirements are harder to meet during any given growing season, making it difficult to map each year. This is based on Alabama's experience with previous mapping efforts conducted in 2000-2001, and 2007-2009. Successful mapping every 2-3 years will greatly improve Alabama's current understanding of SAV dynamics.

ENVIRONMENTAL COMPLIANCE:

Council approval of funding for this proposed activity would not involve or lead directly to ground-disturbing activities that may have significant effects on the environment individually or cumulatively, nor would it commit the Council to a particular course of action affecting the environment. The Council has considered potential extraordinary circumstances, including potential negative effects to threatened and endangered species, essential fish habitat, Tribal interests, and/or historic properties, where applicable, and has determined that no such circumstances apply. Accordingly, the Council has determined that this proposed activity would be covered by the Council's NEPA Categorical Exclusion for planning, research or design activities. (See the Council's NEPA Procedures, Section 4(d)(3): *insert link to Procedures*.)

MAP:

Activity: Fish River and Weeks Bay Marsh Restoration; Oyster Bay Marsh Restoration; Meadows Tract Marsh Restoration (Planning)
Unique Identifier: DOC_RESTORE_001_006-008_Cat1
Location: Alabama, Baldwin County
Type of Activity: Planning
FPL Category: 1 – Funding Eligible
Cost Estimate: $ 907,954
Responsible Council Member: Department of Commerce (DOC)/National Oceanic and Atmospheric Administration (NOAA)
Partnering Council member(s): Alabama Department of Conservation and Natural Resources
Originally submitted by: The DOC as a component within the proposal "Connecting Coastal Waters: Restoring Coastal Wetland Hydrology"

Executive Summary: This project is part of the Connecting Coastal Waters (CCW) initiative NOAA will lead with partners to implement projects that restore the extent, functionality, and resiliency of Gulf Coast wetlands and provide a science-based inventory of wetland hydrology restoration projects that make the greatest contribution to that goal. This project will complete planning and design with local partners to restore a natural hydrology to a total of 470 acres of wetlands at three sites within the Mobile Bay ecosystem in Alabama. A restoration plan, engineering design, regulatory compliance, monitoring and evaluation plan, and outreach and education plan will be completed to implement three project activities to restore coastal wetlands across Mobile Bay.

PROJECT DESCRIPTION:

Specific Actions/Activities: The CCW initiative will restore and enhance ecosystem resilience, sustainability, and natural defenses by reestablishing natural hydrology and connectivity between freshwater and marine habitats in priority areas across the Gulf Coast. This project will complete the planning, modeling/flow regime analysis, engineering, and design required to restore wetlands at three sites across Mobile Bay: 1) Fish River and Weeks Bay Marsh Restoration will restore 70 acres of estuarine marsh by restoring dead-end canals that are degrading water quality and attracting invasive plants; 2) Oyster Bay Marsh Restoration will restore 150 acres of estuarine marsh by replacing undersized culverts, removing nuisance vegetation, and planting native species; and 3) Meadows Tract Marsh Restoration will restore tidal exchange to 250 acres of marsh and forested wetlands by replacing undersized culverts. This project will develop plans for a robust monitoring and evaluation approach using objective measures of success for each project activity. An outreach and education plan will be developed to engage the public and transfer best practices to restoration practitioners.

Task 1: Planning and Local Involvement: A project team will be assembled to provide technical input and expertise. This task will also evaluate restoration strategies to address site-specific requirements and coordinate with state and federal regulatory agencies to incorporate their input at the earliest stages of project implementation.

Deliverable 1: Project team member's list, roles, and team description.

Task 2: Engineering and Design: This task will evaluate restoration techniques capable of achieving the desired project outcomes. Engineering studies, modeling, if necessary, and a final design will be completed and approved by a professional engineer.

Deliverable 2.1: Plan of Work for Completion of Design.

Deliverable 2.2: Final Design Report, including summary of environmental studies and models, a design drawings and specifications package approved by a professional engineer, and a project construction cost estimate.

Task 3: Regulatory Compliance: NOAA will conduct early coordination with regulatory agencies and ensure that all local, state, and federal permits are obtained prior to initiating construction. NOAA will also ensure compliance with the National Environmental Policy Act (NEPA).

Deliverable 3.1: Documentation of approval of all regulatory requirements, including NEPA evaluation, NOAA and Department of the Interior consultation letters, and final approved permits.

Task 4: Monitoring and Evaluation Plan: A monitoring and evaluation plan that builds on identified goals and objectives will be developed. The monitoring plan will detail specific parameters, collection methods, and quality assurance and quality control procedures. The data collected before and after project construction will identify problems, document progress toward goals and objectives, and inform adaptive management decision-making. The evaluation plan will identify project specific measures of success in meeting restoration goals and objectives.

Deliverable 4.1: Monitoring and Evaluation Plan.

Task 5: Outreach and Education Plan: The project team will develop a strategy for public engagement in cooperation with partners and existing community groups. Strategies may include site tours, presentations, outreach materials, videos, and other efforts to share project success.

Deliverable 5.1: Outreach and Education Plan.

Task 6: Inventory of Coastal Wetland Hydrology Restoration Opportunities: NOAA will lead a collaborative, science-based inventory of coastal wetland hydrology restoration projects to meet the Council's goals for ecosystem restoration. This task will expand the 2012 hydrology restoration inventory conducted by NOAA and Sea Grant to be compatible with the goals of the Council and to focus on coastal wetland hydrology, a regionally significant need for ecosystem restoration.

Deliverable 6.1: Inventory plan of work including focal areas, data standards, and project screening criteria to ensure that the best available science is applied to the inventory.

Deliverable 6.2: Inventory report and online map of coastal wetland hydrology restoration opportunities.

Ecological Benefits/Outcomes and Metrics:

1) Fish River and Weeks Bay Marsh Restoration: This project is located within Weeks Bay National Estuarine Research Reserve (NERR) and supports approximately 70 acres of estuarine tidal marsh that were impacted during excavation of approximately 6 acres of canals. Restoration of these canals will help restore water quality and provide suitable habitat for juvenile finfish, birds, and benthic invertebrates.

2) Oyster Bay Marsh Restoration: This project site includes approximately 150 acres of estuarine tidal and brackish marsh. Restoration of this site by placing larger culverts at up to two locations will allow tidal flow across County Road 4 (CR4) and will allow finfish movement and provide more suitable habitat for birds and benthic invertebrates.

3) Meadows Tract Marsh Restoration: This project is located on 600 acres of publicly owned lands that, together with adjacent private parcels, support nearly 250 acres of wetlands that historically drained into Mobile Bay. This project will restore flow and fin fish movement and provide more suitable habitat for birds, invertebrates, and the endangered Alabama red-bellied turtle.

Leveraging and Co-Funding:

- **Adjoining:**
  - **Fish River and Weeks Bay Marsh Restoration:** The project is consistent with the NERR's long-term plan and research goals including marsh habitat restoration with prescribed fire, sea level rise vegetative community analysis ($370,000), and Harmful Algal Bloom monitoring ($6,000).
  - **Oyster Bay Marsh Restoration:** Bon Secour Watershed Management Planning process currently being spearheaded by the Mobile Bay National Estuary Program and the City of Foley under a National Fish and Wildlife Foundation Gulf Environmental Benefit Fund grant.
  - **Meadows Tract Marsh Restoration:** The project is consistent with the NERR's long-term plan and is compatible with research goals including invasive species removal ($5,000) and in-kind work including avian and herpetological surveys conducted by local grad students and an AmeriCorps National Civilian Community Corps (NCCC) team that assisted with invasive species. The NERR will incorporate hydrological analyses into their management plan for the Meadows Tract, which will include prescribed fire, invasive treatment, and research.
- **Building on prior or other investments:**
  - **Fish River and Weeks Bay Marsh Restoration:** Bathymetry surveys, soil borings, and water quality ($25,000), preliminary design as part of the Facility Master Plan ($65,000), and AmeriCorps NCCC dock and pier removal.
  - **Meadows Tract Marsh Restoration:** Land acquisition in 2010 ($2.25 million), a Habitat Management Plan & Conservation / Forest Management Plan ($20,000), and a herpetological survey ($4,000).

Duration of Activity: 2 Years.

Life of Activity: N/A (Planning)

RESPONSE TO SCIENCE REVIEWS:

Comment: External science review of the CCW proposal, which included a total of eleven projects, resulted in one all or mostly positive response and two generally positive responses, but with a need for more information. Reviewers requested information related to outcomes that will come from planning, engineering, design, and permitting including, site-specific conditions, evaluation of uncertainties, risks, mitigation, and measures of success.

Response: This project will implement the planning, engineering, design, and permitting necessary to provide detailed, site-specific information requested by external science reviewers. This project also builds on the approach to planning and monitoring described in the CCW proposal to develop site-specific, science-based objectives and a detailed monitoring and evaluation plan with measures of success. Additional evaluation of project uncertainties, risks, and mitigation will be completed through the environmental compliance process.

Comment: On the Oyster Bay Marsh Restoration project, one comment was that there appears to be signs of stress on west end of property and need more budget details.

Response: The project budget and implementation methodology were developed with the City of Gulf Shores who has completed similar work on City roads. NOAA will develop a design plan and work close with City staff to determine the most feasible and cost effective design and implementation approach.

Comment: On the Oyster Bay Marsh Restoration project, one comment stated that Highway 4 needs to be part of the project.

Response: The purpose of this project entails replacement of the CR 4 culvert.

Comment: On the Meadows Tract Marsh Restoration project, one comment stated that wetlands "on the east side of Highway 98" do not match the GoogeEarth, how were culvert locations identified, and how will the design plan for flow restrictions west of Hwy 98?

Response: The wetlands depicted on the proposal map are an aerial interpretation of the emergent wetlands on the east side of Highway 98. The National Wetlands Inventory (NWI) depicts a much larger wetland extent that includes emergent, scrub shrub, and forested wetlands. NOAA identified and field verified culvert locations. The project includes a design phase to evaluate the most feasible implementation approach including size, drainage, and elevation of any installed culvert.

ENVIRONMENTAL COMPLIANCE:

Council approval of funding for this proposed activity would not involve or lead directly to ground-disturbing activities that may have significant effects on the environment individually or cumulatively, nor would it commit the Council to a particular course of action affecting the environment. The Council has considered potential extraordinary circumstances, including potential negative effects to threatened and endangered species, essential fish habitat, Tribal interests, and/or historic properties, where applicable, and has determined that no such circumstances apply. Accordingly, the Council has determined that this proposed activity would be covered by the Council's NEPA Categorical Exclusion for planning, research or design activities. (See the Council's NEPA Procedures, Section 4(d)(3): *insert link to Procedures*.)

MAP:

ED_005856B_00002024-00102

Activity: Mobile Bay National Estuary Program (Planning)
Unique Identifier: EPA_RESTORE_002_004_Cat1
Location: Alabama, Mobile & Baldwin Counties
Type of Activity: Planning
FPL Category: 1 – Funding Eligible
Cost Estimate: $100,000
Responsible Council Member: Environmental Protection Agency (EPA)
Partnering Council member(s): Alabama
Originally submitted by: The EPA as a component within the proposal "Gulf National Estuary Program (NEP) and Lake Pontchartrain Basin Restoration Program (LPBRP) Comprehensive Plan Implementation Program"

Executive Summary: The Mobile Bay Estuary Program (MBNEP) – RESTORE Project Planning activity includes engineering and design of a stream restoration plan for restoring Twelve Mile Creek, one of six main tributaries within the Three Mile Creek Watershed; development of an invasive species control program focused on aquatic vegetation in Three Mile Creek; preparation of necessary environmental compliance and regulatory clearances documentation; quality assurance; and pre-restoration monitoring. The Planning activity of the MBNEP RESTORE project will ensure that the implementation phase can proceed in a timely and fully-compliant manner, and will include adequate baseline monitoring data to measure results following implementation. MBNEP will be responsible for ensuring timely initiation and completion of the project elements, including compliance, monitoring and reporting requirements.

Three Mile Creek and its surrounding watershed present an extraordinary opportunity for the cities of Mobile and Prichard, AL to transform a community liability into a waterway destination. Crossing and draining suburban and urban landscapes of greater Mobile, Alabama, it suffers from the negative effects of stormwater runoff and decaying infrastructure including trash/litter, bacteria from sewage (pathogens), excessive nutrients, invasive species, and erosion and sedimentation. Following implementation of the stream restoration design and invasive species control and eradication, the project will lay the foundation for improving dissolved oxygen concentrations within the creek, thus restoring a healthy aquatic ecosystem and fishery.

PROJECT DESCRIPTION:

This MBNEP RESTORE Project Planning activity includes three key elements: 1) engineer and design a stream restoration design plan to address unstable banks and buffers along Twelve Mile Creek, a major tributary within the Three Mile Creek Watershed; 2) development of an invasive species control and eradication plan with a particular focus on aquatic vegetation; and 3) preparation of necessary environmental compliance and regulatory clearances documentation.

Twelve Mile Creek, one of six main tributaries within the Three Mile Creek Watershed, originates in the extreme western portion of the watershed and flows a little over three miles

north and east to its confluence with Three Mile Creek. A major issue within this tributary is stream-bank erosion which has progressed to the point of exposing a sanitary sewer line that extends along the south stream-bank. This pipe is particularly vulnerable to leaks and failure, which will significantly impact ambient water quality. In addition, sediment from channel and bank erosion has accumulated downstream, reducing creek water depth and the cross-sectional flow area, resulting in higher water flow velocities during storm events. This has led to further channel erosion and sediment transport to a downstream lake, carrying pollutants including oxygen-demanding substances and nutrients.

Restoration of approximately 1,300 linear feet of stream will include re-establishment of vegetated banks and flood plain and installation of energy dissipation to reduce velocity of flowing water and significantly reduce a major source of sediment being transported downstream to ponds at Langan Park. Reducing sediment contributions to these ponds will pave the way for the City of Mobile to dredge them, increasing the ponds to their normal water depth/volume.

Dredging of the Lake will, in turn, be a catalyst for initiating a comprehensive invasive species management and eradication program for the Three Mile Creek. This program will target island apple snails (Pomacea insularum), first discovered in Langan Park ponds in 2008. Since these snails have traveled into Three Mile Creek, the State of Alabama's prime directive has been to keep the apple snails out of the Mobile-Tensaw Delta as these snails will compete with native species for limited resources. The non-native snails' preferred food items include some of Alabama's most common and important aquatic plants: coontail (Ceratophyllum demersum), spiderlillies (Hymenocallis spp.), pickerelweed (Pontederia cordata) and bulltongue arrowhead (Sagittaria lancifolia). The apple snail prefers to lay its eggs on heavy-stemmed, emergent aquatic plants that grow over surface water including giant cutgrass (Zizaniopsis miliacea), cattails (Typha spp.) and arrow arum (Peltandra virginica), all native plants to the Three Mile Creek watershed. Many of the aquatic vegetation species in Three Mile Creek are non-native species, including Wild taro, or elephant's ear.

The invasive species control program will consist of a baseline survey to determine the scale and boundaries of treatment areas. A protocol of chemical, biological and mechanical treatments will be implemented followed by subsequent periodic surveys to determine the effectiveness of control treatments. Subsequent treatments/measures that require less effort with increased control and over time will be undertaken over a period of three years.

Specific Actions/Activities: The following activities will ensure that the MBNEP RESTORE project planning activity is properly and effectively conducted:

Task 1: Stream Restoration Engineering and Design.

Task 2: Development of Invasive Species Control and Eradication Plan, including baseline survey to determine the scale and boundaries of treatment areas to be addressed, protocol of chemical, biological, and mechanical treatments that will be implemented.

Task 3: Preparation of necessary environmental compliance and regulatory clearances documentation.

Deliverables:

- Stream Restoration Plan.
- Invasive Species Control and Eradication Plan.
- Environmental and Regulatory Documentation Package.

Ecological Benefits/Outcomes and Metrics:

The primary benefit of restoring an eroded segment of Twelve Mile Creek and controlling/eradicating invasive/nuisance species in Three Mile Creek and its associated tributaries is improvement of water quality by controlling water flow and reducing sediment transport downstream to improve concentrations of dissolved oxygen. A secondary outcome is improvement of Three Mile Creek watershed habitats for sustaining wildlife and freshwater fisheries.

The metrics to be used to measure success include: up to 1,000 linear feet of stream and stream-bank restored; up to 7.5 acres of wet bank restored/protected from invasive/nuisance species; up to 100 acres of water surface area restored/protected from invasive/nuisance species; number of pounds of sediment removed from downstream transport (75% reduction in total suspended solids); percent increase in dissolved oxygen over a three year period (50%); and acres of wet bank with at least a 70% reduction in presence of apple snail within target area over a three year period.

Leveraging and Co-Funding:

- **Building on prior or other investments:** The City of Mobile has included the dredging of Langan Park ponds in its capital improvement budget for 2016-2017. This activity will compliment and support implementation of the Invasive/Nuisance Species management plan.

Duration of Activity: Estimated 9-12 months from date MBNEP receives RESTORE funds for the Planning activity. Implementation of the stream restoration plan and the invasive species control and eradication program, including pre and post monitoring, is estimated to be 5 years.

Life of Activity: N/A – the ecological benefits will be provided with the implementation of the stream restoration plan and the invasive species control and eradication program.

RESPONSE TO SCIENCE REVIEWS:

The comments were generally positive and supportive.

Comment: One comment requested more reference information be provided on current major water quality and habitat issues for the NEPs, monitoring and adaptive management methods available for NEPs, and types of projects.

Response: Much more detailed information and references are readily available by visiting the respective NEP website(s). Here are those links: http://www.cbbep.org/; http://gbep.tamug.tamu.edu/; http://www.btnep.org/BTNEP/home.aspx; http://www.mobilebaynep.com/; http://www.tbep.org/; http://www.sarasotabay.org/; and http://www.charlotteharbornep.com/.

Comment: One comment recommended adding climate change and SLR [Sea-Level Rise]-induced uncertainties and risks to the project selection criteria.

Response: The NEPs have incorporated and do address climate change impacts and adaptation measures into their Annual Plans. The NEPs have been conducting Vulnerability Assessments of their estuaries and have begun Adaptation Planning where warranted.

ENVIRONMENTAL COMPLIANCE:

Council approval of funding for this proposed activity would not involve or lead directly to ground-disturbing activities that may have significant effects on the environment individually or cumulatively, nor would it commit the Council to a particular course of action affecting the environment. The Council has considered potential extraordinary circumstances, including potential negative effects to threatened and endangered species, essential fish habitat, Tribal interests, and/or historic properties, where applicable, and has determined that no such circumstances apply. Accordingly, the Council has determined that this proposed activity would be covered by the Council's NEPA Categorical Exclusion for planning, research or design activities. (See the Council's NEPA Procedures, Section 4(d)(3): *insert link to Procedures*.)

MAP:

Activity: Upper Mobile Bay Disposal Site (Planning)
Unique Identifier: USACE_RESTORE_005_000_Cat1
Location: Alabama
Type of Activity: Planning
FPL Category: 1 – Funding Eligible
Cost Estimate: $2,500,000
Responsible Council Member: Department of the Army/U.S. Army Corps of Engineers (USACE)
Partnering Council member: State of Alabama and Interagency Working Group members from the Department of the Interior and the Department of Commerce
Originally submitted by: The USACE as a component of the proposal "Beneficial Use of Dredged Material to Create Emergent Tidal Marsh in Upper Mobile Bay"

Executive Summary: This planning effort will develop the final design and permitting of a 1,000 acre wetland creation site in the Upper Mobile Bay south of the US Highway 90/98 causeway. The site has been developed in coordination with an Interagency Working Group (IWG) established to evaluate sediment management practices in Mobile Bay.

PROJECT DESCRIPTION:

Specific Actions/Activities: The project is being conducted in partnership with the Alabama Department of Conservation and Natural Resources in coordination with the Mobile Bay IWG established to evaluate sediment management practices in Mobile Bay. Consisting of representatives from federal, state, and local agencies including academia and other stakeholders, the IWG recognizes this as an opportunity to extend beneficial use (BU) activities to habitat restoration that provides valuable ecosystem services to the Bay. Geotechnical investigations will be initiated to characterize the sediments of the defined area and provide the load bearing capacities of the existing bay bottom and to identify the potential for on-site borrow sources for the containment berms. These two pieces of information drive the overall engineering and design and the final construction cost of the project. Once the geotechnical results are obtained and processed, the design team and IWG will determine the final shape of the site as well as what portions will need armament and which areas will remain open for tidal influence. Following planning and engineering, final plans and specifications will be delivered along with the environmental compliance coordination and National Environmental Policy Act (NEPA) documentation. A Department of the Army permit will be submitted for in the name of the Alabama State Port Authority (ASPA), the local sponsor for the navigation project.

The intent of the final design will be to enable the entire site to have full tidal influence and allow marine life conveyance within the site until it is ultimately filled with dredged material and the wetlands are established. The proposed design will provide for tidal channels throughout the wetlands to increase the edge effect of the vegetation and provide for appropriate spawning grounds for native estuarine species.

Deliverables: Geotechnical investigation for selection of the final project footprint, preliminary design, environmental evaluations, NEPA compliance documentation, Water quality and coastal

zone consistency certifications, Department of Army permit application, Final plans and specifications.

Ecological Benefits/Outcomes and Metrics: The Mobile Bay and Mobile Harbor navigation channels are terminal repositories of sediments transported downstream from several riverine systems and consists of mostly fine grain sediments. Establishing BU and other environmentally acceptable alternatives within the Bay will contribute to much-needed conservation of various ecological resources that exist in the Bay system and for estuarine habitat restoration through the beneficial use of dredged sediments. Creating emergent tidal marsh in the upper Mobile Bay will produce productive habitat that provides valuable ecosystem services to the Mobile Bay. It is anticipated that submerged aquatic vegetation (SAV) will become established along the protected shorelines of the containment berms and open areas of the marsh cells. Creating the tidal marsh will accomplish restoration and protection of the natural resources, ecosystems, fisheries, marine and wildlife habitats, and coastal wetlands of the Gulf Coast region. Additionally, this project will directly benefit state or federally listed threatened and/or endangered species such as the Gulf Sturgeon, Alabama Red-Bellied Turtle, and West Indies Manatee. By conducting this project, sediments which have traditionally been removed from the Mobile Bay littoral transport system will be placed back into the natural sediment system and used for habitat restoration. Additionally, construction of the project will reduce the need for additional upland disposal areas, the construction of which has traditionally impacted large acreages of wetlands and uplands. Secondary ecological benefits would cumulatively accrue through the improvement of water quality in the upper bay area and the provision of nursery habitat for coastal and marine species.

Leveraging and Co-Funding:

- **Co-funding:** Cost savings from the placement of dredged material into the constructed containment site over the life of the project should reach $200M based on typical costs of $3.50 per cubic yard for federal and $20 per cubic yard for local dredging projects.
- **Building on prior or other investments:** This project builds upon prior investments by the ASPA, USACE, and others as members of the IWG including extensive modeling and sediment transport studies of Mobile Bay, and cultural and SAV investigations of the specific area proposed for the 1,000 acre site. In addition, this proposal builds upon other ongoing sediment management efforts within the Mobile Bay system including filling of anoxic dredged holes in the bay and thin-layer placement of dredged material.

Duration of Activity: Geotechnical investigations would begin immediately following receipt of funds and the entire study would be complete within 18 – 24 months.

Life of Activity: Life span is expected to be a minimum of 50 years.

RESPONSE TO SCIENCE REVIEWS:

Comment: One of the science reviews of the original proposal focused on the lack of peer-reviewed studies associated with beneficial use.

Response: The proposed project builds on the extensive experience and successes of similar projects that have been implemented by the USACE throughout the nation. Other reviews were supportive of the proposal.

ENVIRONMENTAL COMPLIANCE:

Council approval of funding for this proposed activity would not involve or lead directly to ground-disturbing activities that may have significant effects on the environment individually or cumulatively, nor would it commit the Council to a particular course of action affecting the environment. The Council has considered potential extraordinary circumstances, including potential negative effects to threatened and endangered species, essential fish habitat, Tribal interests, and/or historic properties, where applicable, and has determined that no such circumstances apply. Accordingly, the Council has determined that this proposed activity would be covered by the Council's NEPA Categorical Exclusion for planning, research or design activities. (See the Council's NEPA Procedures, Section 4(d)(3): *insert link to Procedures*.)

MAP:

Activity: Denton Oyster Reef Restoration Through Beneficial Use of Upriver Sediment; Grand Bay Mississippi Sound Back-Barrier Island Restoration Project Feasibility Study; Lower Perdido Bay/Perdido Pass Navigation Project Hydrological Modeling and Sediment Budget Study (Planning)
Unique Identifier: MS_RESTORE_002_007-009_Cat1
Type of Activity: Planning
FPL Category: 1 – Funding Eligible
Cost Estimate: $3,000,000
Responsible Council Member: State of Alabama
Partnering Council member(s): The State of Mississippi and the U.S. Army Corps of Engineers (USACE)
Originally submitted by: The State of Mississippi as a component within the proposal "Enhancing Opportunities for Beneficial use of Dredge Sediments"

Executive Summary: Alabama will complete planning, design, engineering, and feasibility assessments for three project areas where future placement of dredged sediments will achieve habitat restoration. A continuous supply of materials exists from the maintenance of the Mobile Harbor Navigation Project as well as sandy sediments currently stored in upland dredged material disposal sites (UDMDS) along the Black Warrior-Tombigbee River system. Designing habitat restoration projects that are ready to utilize such materials saves money, creates habitat, and is a gulf-wide objective of the Gulf Regional Sediment Management Master Plan developed by the Gulf of Mexico Alliance Habitat Conservation and Restoration Team.

PROJECT DESCRIPTION:

Specific Actions/Activities: Specific project planning areas include:
1. Denton Oyster Reef Restoration Through Beneficial Use of Upriver Sediment: This project would complete Phase I planning, engineering, design, and permitting necessary for using available dredged sediments to restore and expand the 75-acre Denton Oyster Reef in Mobile Bay. The Denton Reef is currently comprised of oyster cultch inside a perimeter ring of concrete piles laid end-to-end. Historically, the reef has had limited production due to low dissolved oxygen (DO) levels at that water depth. Research indicates that if the reef can be elevated at least 2 ft. above surrounding waterbottoms, the low DO conditions can be avoided. The project concept is to utilize sand from the Black Warrior-Tombigbee River UDMDS sites, to elevate the reef above the hypoxic layer on the water bottoms. Oyster cultch material would then be placed on top of the sand fill. This phase of the project would include conducting engineering, design, hydrological and sediment transport modeling, field surveys and investigations, regulatory compliance and order of magnitude implementation cost estimates.

2. Grand Bay Mississippi Sound Back-Barrier Island Restoration Project Feasibility Study: Since the early 1900's, the interior headland islands of Grand Bay in Mississippi Sound have experienced significant erosion. This includes the Grand Batture Islands, Marsh Island (Grand Bay) and the Isle Aux Dames at the south end of Point aux Pins. Most of these islands, with the exception of Marsh Island, are no longer visible above water and now consist mainly of large

sea grass shoals. This project activity will explore the feasibility of utilizing dredge sediments to restore/recreate these islands south of the existing shoals. Project activities will include field investigations, bathymetric and topographic surveys, geotechnical investigations, hydrological and sediment transport modeling, initial designs, regulatory compliance and order of magnitude construction estimates.

3. Lower Perdido Bay/Perdido Pass Navigation Project Hydrological Modeling and Sediment Budget Study: Aerial imagery and anecdotal observations indicate that the northern shoreline of Robinson Island in lower Perdido Bay has experienced increased erosion during the last decade. Additionally, shoaling patterns in lower Perdido Bay appear to have changed. Further, a hydrological model and sediment budget study linking lower Perdido Bay to the tidal inlet (and its associated ebb-tidal shoal) has never been conducted. This project will conduct such a study, the results of which will guide the dredging and sediment placement practices such that shoaling and erosion hot-spots can be addressed through beneficial use placement and/or directed dredging of the navigation project.

Deliverables:

- Field Survey, Investigations, Studies and/or Reports.
- Draft Construction Plans and Order of Magnitude Construction Estimate Project.
- Activity Permits and/or Regulatory Compliance Documents.
- Final Project Activity Reports.

Ecological Benefits/Outcomes and Metrics: These planning activities lay the groundwork for significant restoration activities in coastal Alabama. Once this planning phase is completed, the State will have a full understanding of the feasibility of conducting restoration projects in these areas, complete with restoration metrics (e.g., marsh acres to be restored, cubic yards of sediment to be used beneficially, etc.).

Leveraging and Co-Funding:

- **Building on prior or other investments:** This project is part of a larger effort being undertaken around the Gulf to promote BU of dredged materials for habitat restoration. Similar BU projects are in development and/or implementation Mississippi, Louisiana and Texas. Further, these efforts are consistent with the goals and objectives of the Gulf Regional Sediment Management Master Plan developed by the Gulf of Mexico Alliance Habitat Conservation and Restoration Team. This project will also aim to leverage ongoing maintenance dredging in order to avoid direct borrow dredging, reduce duplication of dredging effort and to reduce project costs. Additionally, the project will leverage USACE maintenance and operations costs by utilizing suitable dredged sediments which are currently taking up capacity in upland disposal sites. Ultimately, if implemented, the projects would restore salt marsh, back-barrier island and oyster reef habitat.

Duration of Activity: 3 years.

Life of Activity: 10-15 years.

RESPONSE TO SCIENCE REVIEWS:

Comment: Reviewers raised a number of issues concerning which models will be utilized, what water quality parameters will be considered, circulation patterns and potential circulation changes in the project areas, sediment transport in the project area, composition of dredged sediments, project specific risks, and other similar issues.

Response: All of these issues are valid. However, the purpose of these project activities is to address such concerns during the engineering and design phase and to insure that projects are properly designed, engineered and constructed.

ENVIRONMENTAL COMPLIANCE:

Council approval of funding for this proposed activity would not involve or lead directly to ground-disturbing activities that may have significant effects on the environment individually or cumulatively, nor would it commit the Council to a particular course of action affecting the environment. The Council has considered potential extraordinary circumstances, including potential negative effects to threatened and endangered species, essential fish habitat, Tribal interests, and/or historic properties, where applicable, and has determined that no such circumstances apply. Accordingly, the Council has determined that this proposed activity would be covered by the Council's NEPA Categorical Exclusion for planning, research or design activities. (See the Council's NEPA Procedures, Section 4(d)(3): *insert link to Procedures*.)

MAP:

4404 ***Category 2:***
4405
4406 **Activity:** Boggy Point Living Shorelines; Point aus Pins Living Shorelines; Coffee Island Living
4407 Shorelines (Implementation)
4408 **Unique Identifier:** AL_RESTORE_004_001-003_Cat2
4409 **Location:** Alabama, Mobile and Baldwin Counties
4410 **Type of Activity:** Planning
4411 **FPL Category:** 2 – Prioritized for Further Review
4412 **Cost Estimate:** $5,341,500
4413 **Responsible Council Member:** State of Alabama
4414 **Partnering Council member(s):** N/A
4415 **Originally submitted by:** The State of Alabama as a component within the proposal "Alabama
4416 Living Shorelines Restoration and Monitoring Project"
4417
4418 **Executive Summary:** Following completion of the Alabama Living Shorelines Program
4419 Construction Planning Activity (See the above Category 1 project with unique identifier
4420 AL_RESTORE_004_003_Cat1), Alabama would secure contractors to construct living shorelines
4421 projects in Boggy Point (Baldwin County, AL) and Point Aux Pins (Mobile County, AL). Project-
4422 specific post-construction monitoring would also be conducted for a period of 5 years.
4423
4424 **PROJECT DESCRIPTION:**
4425
4426 **Specific Actions/Activities:** This activity would result in the installation and project-specific
4427 post-construction monitoring of Living Shorelines at two locations:
4428
4429 1. Boggy Point Living Shorelines Project: Goals for this project site involve the installation of
4430 living shorelines techniques adjacent to the Alabama Department of Conservation and Natural
4431 Resources (ADCNR) Boggy Point Boat Ramp Site in Orange Beach (Baldwin County) Alabama.
4432 This site has experienced significant shoreline erosion and salt marsh loss from Hurricanes Ivan
4433 and Katrina and from boat wakes. This project would involve placement of a living shorelines
4434 breakwater and the planting of native salt marsh vegetation. Given the presence of the
4435 previously existing marsh platform along the shoreline, no sediment placement is currently
4436 proposed.
4437
4438 2. Point aux Pins Living Shorelines Project: Goals for this project site include construction of
4439 living shorelines along the southeastern and southern tip of Point aux Pins to address severe
4440 chronic erosion and shoreline loss at the site. The current proposal is to utilize 2-3 different
4441 living shorelines breakwater techniques at the site. However, this may change as engineering
4442 and design considerations dictate. Given that there is existing fringe marsh along the shoreline,
4443 no planting is currently proposed nor is the placement of sediments anticipated.
4444
4445 This portion of the project will include the construction of the projects and the implementation
4446 of a five (5) year project-specific post-construction monitoring at each location. Project
4447 construction will be based on the work products generated during the Planning Phase of this

project (see the above Category 1 project with unique identifier AL_RESTORE_004_003_Cat1), which includes the planning, design, engineering, field investigations, surveys and regulatory compliance portions of the project components. Monitoring will be conducted in accordance with the Standard Monitoring Protocols developed as part of the Comprehensive Living Shoreline Monitoring - All Locations (Planning) (see the above Category 1 project with unique identifier AL_RESTORE_004_004_Cat1).

Deliverables:

- Constructed projects.
- Project-specific post-construction monitoring program annual reports and 5-year comprehensive report.

Ecological Benefits/Outcomes and Metrics: As shoreline armoring increases in coastal estuaries, intertidal habitats continue to be lost. To address this issue, resource agencies, regulatory agencies, non-governmental organizations (NGOs) and other concerned partners have been actively promoting living shorelines as an alternative to traditional bulkheads and similar shoreline armoring. The proposed projects would address shoreline and salt marsh loss at each of the selected sites. As the projects are constructed and mature, wave energies will be reduced, shoreline and salt marsh loss will be reversed and/or slowed, salt marsh will be restored and estuarine productivity will be increased.

Boggy Point: Planning effort targets installation of approximately 400 ft. of living shoreline breakwaters planting of approximately 0.32 acres of salt marsh. Post-construction project monitoring plan to be developed during planning phase.

Point aux Pins: Planning effort based upon installation of approximately 2,500 linear feet of living shorelines breakwaters and adjacent salt marsh protected. Post-Construction project monitoring plan to be developed during planning phase.

Leveraging and Co-Funding:

- **Building on prior or other investments:** Numerous entities in coastal Alabama have been constructing living shorelines projects over at least the past decade. This has included efforts by a wide range of state, federal, academic and NGO partners. The funding sources for these efforts have also widely varied. This project will complement those past efforts.

Duration of Activity: 1-2 years for construction phase.

Life of Activity: 20 years-indefinite.

RESPONSE TO SCIENCE REVIEWS:

Comment: One comment stated that there is a lack of supporting documentation, a lack of evidence supporting Living Shoreline techniques and that project success "appears to be taken for granted based on statements that others have implemented similar projects."

Response: The use of the proposed Living Shorelines techniques has been well documented across the Gulf Coast and in other regions of the country. Coastal zone management policy makers and natural resources managers across the Gulf have recognized this and are actively pursuing the implementation of said techniques in place of shoreline armoring and to help restore shoreline habitats. Given this widespread advocacy for the implementation of Living Shorelines techniques, proposal citations focused on documents that characterize the current understanding of the extent of shoreline armoring along the Alabama Coast, the detrimental effects of shoreline armoring, regulatory policy manuals, and local and regional planning/policy documents. Each contains extensive documentation and additional scientific references on the subject of living shorelines. In addition, Alabama's RESTORE proposal includes a monitoring activity (see the below Category 2 project with unique identifier AL_RESTORE_004_004_Cat2) to monitor the effectiveness of the variety of existing techniques at several locations in Coastal Alabama in order to contribute new scientific data to the discussion.

Comment: One comment also stated that "Water resource issues within these basins is not summarized per [water quality] or quantity per historic or predicted future values."

Response: The proposed projects do not address water resources or water quality on a basin-wide scale. The primary RESTORE objective for this proposal is to restore, protect, and enhance habitats. The level of wetland loss and shoreline armoring trends in coastal Alabama and/or around the Gulf region as a whole is well documented in the proposal and is the direct target of restoration activities.

Comment: One comment focused on movement of the proposed structures due to tropical storm events, structure replacement, hazards to navigation, etc.

Response: While such risks and uncertainties associated with coastal hazards are not unique to coastal Alabama or restoration projects generally, it is worth noting the following:

1. The Boggy Point project would be located in relatively sheltered waters with limited fetch. The project will not be subject to severe wave action but could become submerged by storm surge. This is not expected to move the proposed materials.
2. The Point aux Pins project would most likely be constructed using wave attenuation units. Such units are of sufficient weight that their movement is also not likely during tropical storm events.
3. All sites will be marked with signage, in order to address any potential hazard to navigation issues.

ENVIRONMENTAL COMPLIANCE:

The Council proposes to list this activity as a priority for potential future funding. Notwithstanding anything to the contrary set forth herein, at this time the Council is not approving or committing any funds for the implementation of this activity. Additional environmental compliance information is needed before the Council considers whether to approve funding for implementation of this activity. If sufficient additional environmental compliance information becomes available between the issuance of this draft FPL and completion of the final FPL, the Council may consider such information and thereafter approve this activity for funding, and move it to FPL Category 1. In such case the final FPL would include information necessary to demonstrate compliance with NEPA and other applicable laws. Where applicable, the final FPL would also inform the public of any comment opportunities pertaining to environmental compliance. In some cases, Council approval of funding for an activity in Category 1 would not be final until after the public has had an opportunity to provide comments, and the Council has considered such comments as it prepares required decision documentation (such as a Finding of No Significant Impact for use of an Environmental Assessment).

MAP:

Activity: Comprehensive Living Shoreline Monitoring - All Locations (Implementation)
Unique Identifier: AL_RESTORE_004_004_Cat2
Location: Alabama, Mobile and Baldwin Counties
Type of Activity: Planning
FPL Category: 2 – Prioritized for Further Review
Cost Estimate: $3,975,000
Responsible Council Member: State of Alabama
Partnering Council member(s): N/A
Originally submitted by: The State of Alabama as a component within the proposal "Alabama Living Shorelines Restoration and Monitoring Project"

Executive Summary: Utilizing the Comprehensive Monitoring Plan developed in the Alabama Living Shorelines Program (see the above Category 1 project Comprehensive Monitoring Activity, Planning Phase, with unique identifier AL_RESTORE_004_004_Cat1), the State of Alabama would monitor and assess the performance of at least ten (10) proposed and existing living shoreline projects in coastal Alabama for a period of 5 years. This will allow for a robust comparison across all monitored projects, as well as an accurate evaluation of their success relative to specific site conditions, providing valuable information to resource managers, project proponents, homeowners and others interested in utilizing and promoting living shorelines techniques.

PROJECT DESCRIPTION:

Specific Actions/Activities:
Utilize standard monitoring parameters and protocol developed during the Planning Phase to implement a five (5) year monitoring program for at least 10 proposed and existing living shorelines project sites in coastal Alabama. Monitor sites for shoreline position, breakwater aerial extent and height, cross-shore topographic and bathymetric profiles, vegetation density and species composition, encrusting organism counts and/or measurements of secondary productivity or other similar parameters.

Generate annual monitoring reports and a final comprehensive project report.

The purpose of this comprehensive monitoring activity is to evaluate the effectiveness of specific living shorelines techniques relative to specific site conditions. This will include an assessment of biological benefits as well as physical parameters (such as wave energy, sediment composition, erosion rates, etc.). Ultimately, the goal of this effort is to determine best practices given site-specific physical conditions.

Deliverables:
- Yearly Interim Monitoring Reports.
- Final 5-Year Comprehensive Monitoring Report.

Ecological Benefits/Outcomes and Metrics: As shoreline armoring increases in coastal estuaries, intertidal habitats continue to be lost. To address this issue, resource agencies, regulatory agencies, non-governmental organizations (NGOs) and other concerned partners have been actively promoting living shorelines as an alternative to traditional bulkheads and similar shoreline armoring. However, while it is generally known that living shorelines can provide erosion control and increased ecosystem services, it is also acknowledged that more data is needed on living shorelines efficacy.

This project will provide valuable data on the benefits of a wide range of proposed and existing living shorelines projects. This will include data on shoreline stabilization, biological productivity and similar parameters. This data can then be used to inform resource managers, consultants, homeowners and others decision makers interested in promoting and utilizing living shorelines in place of traditional shoreline armoring.

Leveraging and Co-Funding:

- **Building on prior or other investments:** Numerous entities in coastal Alabama have been constructing living shorelines projects over at least the past decade. This has included efforts by a wide range of state, federal, academic and NGO partners. The funding sources for these efforts have also widely varied. This project will complement those past efforts.

Duration of Activity: 5 Years.

Life of Activity: 5 Years.

RESPONSE TO SCIENCE REVIEWS:

Comment: One comment stated that there is a lack of supporting documentation, a lack of evidence supporting Living Shoreline techniques and that project success "appears to be taken for granted based on statements that others have implemented similar projects."

Response: The use of the proposed Living Shorelines techniques has been well documented across the Gulf Coast and in other regions of the country. Coastal zone management policy makers and natural resources managers across the Gulf have recognized this and are actively pursuing the implementation of said techniques in place of shoreline armoring and to help restore shoreline habitats. Given this widespread advocacy for the implementation of Living Shorelines techniques, proposal citations focused on documents that characterize the current understanding of the extent of shoreline armoring along the Alabama Coast, the detrimental effects of shoreline armoring, regulatory policy manuals, and local and regional planning/policy documents. Each contains extensive documentation and additional scientific references on the subject of living shorelines. In addition, a fundamental component of the proposal is to monitor the effectiveness of the variety of existing techniques in order to contribute new scientific data to the discussion.

Comment: One comment also stated that "Water resource issues within these basins is not summarized per [water quality] or quantity per historic or predicted future values."

Response: The proposed projects do not address water resources or water quality on a basin-wide scale. The primary RESTORE objective for this proposal is to restore, protect, and enhance habitats. The level of wetland loss and shoreline armoring trends in coastal Alabama and/or around the Gulf region as a whole is well documented in the proposal and is the direct target of restoration activities.

Comment: One comment focused on movement of the proposed structures due to tropical storm events, structure replacement, hazards to navigation, etc.

Response: While such risks and uncertainties associated with coastal hazards are not unique to coastal Alabama or restoration projects generally, it is worth noting the following:

1. The Boggy Point project would be located in relatively sheltered waters with limited fetch. The project will not be subject to severe wave action but could become submerged by storm surge. This is not expected to move the proposed materials.
2. The Point aux Pins project would most likely be constructed using wave attenuation units. Such units are of sufficient weight that their movement is also not likely during tropical storm events.
3. All sites will be marked with signage, in order to address any hazard to navigation issues.

ENVIRONMENTAL COMPLIANCE:

The Council proposes to list this activity as a priority for potential future funding. Notwithstanding anything to the contrary set forth herein, at this time the Council is not approving or committing any funds for the implementation of this activity. Additional environmental compliance information is needed before the Council considers whether to approve funding for implementation of this activity. If sufficient additional environmental compliance information becomes available between the issuance of this draft FPL and completion of the final FPL, the Council may consider such information and thereafter approve this activity for funding, and move it to FPL Category 1. In such case the final FPL would include information necessary to demonstrate compliance with NEPA and other applicable laws. Where applicable, the final FPL would also inform the public of any comment opportunities pertaining to environmental compliance. In some cases, Council approval of funding for an activity in Category 1 would not be final until after the public has had an opportunity to provide comments, and the Council has considered such comments as it prepares required decision documentation (such as a Finding of No Significant Impact for use of an Environmental Assessment).

MAP:

Activity: Lower Perdido Bay Seagrass Protection & Restoration; Upper Mobile Bay and Lower Mobile/Tensaw River Delta SAV Restoration (Implementation)
Unique Identifier: AL_RESTORE_005_001-002_Cat2
Location: Alabama, Mobile and Baldwin Counties
Type of Activity: Planning
FPL Category: 2 – Prioritized for Further Review
Cost Estimate: $370,000
Responsible Council Member: State of Alabama
Partnering Council member(s): N/A
Originally submitted by: The State of Alabama as a component within the proposal "Alabama Submerged Aquatic Vegetation Restoration and Monitoring Project"

Executive Summary: Following a successful planning and permitting effort (see the above Category 1 project entitled Alabama Submerged Aquatic Vegetation Restoration Program (Restoration Planning Activity) with unique identifier AL_RESTORE_005_001-002_Cat1), Alabama would implement two (2) submerged aquatic vegetation (SAV) restoration and protection projects: The Lower Perdido Bay Sea Grass Protection and Restoration Project and the Upper Mobile Bay and Lower Mobile-Tensaw River Delta SAV Restoration Project.

PROJECT DESCRIPTION:

Specific Actions/Activities: Upon completion of the Alabama Submerged Aquatic Vegetation Restoration Program (Restoration Planning Activity) (see above Category 1 project with unique identifier AL_RESTORE_005_001-002_Cat1), Alabama would implement SAV restoration projects in two discrete areas, as follows:

1. Lower Perdido Bay Sea Grass Protection and Restoration Project: Alabama and its local partners will conduct a five (5) year seagrass protection and restoration program in lower Perdido Bay, including the areas around Terry Cove, Cotton Bayou, Robinson Island, Walker Island and Old River. This will include annual maintenance and replacement of seagrass protection zone signage as well as the installation of new bird stakes in prop scars as they are identified. Further, educational signage describing the importance of SAV will be placed and/or maintained at strategic locations around the adjacent waterways, including boat launches and marinas in the area. A seagrass protection educational brochure previously developed by The Nature Conservancy, Dauphin Island Sea Lab (DISL) and the City of Orange Beach will also be updated and re-printed annually for distribution to tourist and residents at varying venues around the City.

2. Upper Mobile Bay and the lower Mobile/Tensaw River Delta SAV Restoration Project: In order to speed the recovery of SAV in areas like Grand Bay in the lower Mobile/Tensaw River Delta and the shallow flats around Goat Island on the Upper Mobile Bay, the Alabama Department of Conservation and Natural Resources (ADCNR) and its partners will conduct a five (5) year project to restore SAV in these and similar areas. These areas historically had extensive Vallisneria sp. beds that were lost during the 2004-05 Hurricane season and subsequent

drought. This project will include the gathering of SAV seeds (Vallisneria sp.) during the late summer. These seeds will then be stored and over-wintered in a controlled environment. In the early spring, the seed will then be sown in marked plots in areas known to historically have Vallisneria present (based on 1981 and 2002 mapping). Seeding plots will be marked in a non-permanent manner using small PVC poles or similar materials. These plots will then be monitored to determine project success. Seeds may also be utilized to grow SAV plugs in a nursery setting for planting in the project areas.

Specific actions in this implementation activity would include: placement of sea grass protection zone signage on Lower Perdido Bay; placement of bird stakes in prop scar in sea grass beds on Lower Perdido Bay; updating, printing and/or placement of seagrass protection education and outreach signage and brochures; gathering, storing and sowing of Vallisneria seeds on the Upper Mobile Bay and Lower Mobile/Tensaw River Delta; growing of Vallisneria plugs in a nursery setting and planting in restoration area; monitoring of Vallisneria Plots over the 5 year project lifetime; and monitoring of prop scars over the 5 year project lifetime.

Deliverables:

- Improved Sea Grass Restoration and Protection on Lower Perdido Bay.
- Increased Coverage of Vallisneria on the Upper Mobile Bay and Lower Mobile/Tensaw River Delta.
- Annual Project Reports.
- Annual Monitoring Reports.
- 5-Year Comprehensive Project Report.

Ecological Benefits/Outcomes and Metrics: This project will restore and/or protect vital SAV resources, increasing primary and secondary estuarine productivity in these areas. Additionally, education and outreach efforts will assist in reducing impacts to these resources, reducing the need for future restoration efforts.

Lower Perdido Bay: Existing seagrass beds will be protected through signage and educational activities. Prop scar will be restored through placement of bird stakes. The linear feet of prop scars restored will be reported.

Lower Mobile/Tensaw Delta & Upper Mobile Bay: Vallisneria beds will be restored through the sowing of seeds and/or the planting of nursery plugs. Acreage of Vallisneria restored will be reported.

Leveraging and Co-Funding:

- **Building on prior or other investments:**
  The Nature Conservancy, the DISL and the City of Orange Beach have been actively involved in seagrass restoration and protection in lower Perdido Bay. This project activity will build off those past and ongoing efforts.

The ADCNR and the Mobile Bay National Estuary Program have conducted SAV mapping in Coastal Alabama in 2001, 2008 and 2009, with additional mapping planned for summer 2015. This project activity will utilize the data from these efforts to identify specific restoration and protection areas and to assist in tracking project success.

Duration of Activity: 5 Years.

Life of Activity: 5-7 Years.

RESPONSE TO SCIENCE REVIEWS:

Comment: One comment stated, "The objectives, to implement restoration efforts in Lower Perdido Bay, has been justified using peer reviewed and/or publicly available information. However, the methods have not been adequately justified. In fact, the Lower Perdido Bay is mostly covered with Halodule wrightii, but they plan on using Vallisneria americana. ... There was an Appendix that indicated that Halodule would not be a good candidate for restoration from seeds after scientific research was done. An apparent after thought of that work, without rigorous scientific testing, was Vallisneria."

Response: The Alabama proposal contained 3 distinct projects: Seagrass Restoration and Protection in Lower Perdido Bay; Vallisneria Restoration in Upper Mobile Bay/Lower Mobile/Tensaw Delta; and the Mapping of SAV in coastal Alabama. Alabama does not propose to sow Vallisneria seed in the Lower Perdido Bay ecosystem, nor does it propose to propagate Halodule from seed as repeatedly stated by the reviewer. This misunderstanding regarding species selection appears to be the basis of an unfavorable review. The seeding of Vallisneria in the Lower Mobile Delta is based on a proponent funded research project conducted by DISL and habitat mapping data which has documented the presence of target species in the appropriate project locations.

Comment: Two reviewers requested more information about the inherent level of uncertainty with respect to climate change, sea level rise, and episodic (hazard) events.

Response: The techniques proposed for Lower Perdido Bay are proven low-risk techniques which have been successfully utilized in that system and many other areas around the Gulf. Risks of failure due to extreme weather or climate change are understood by experienced restoration practitioners, and are not unique to coastal Alabama. Sea level rise is not considered a significant risk for this project. Barring an unforeseen and catastrophic rise in sea level, it is unclear why the current predicted rise in sea level (3-6 mm/year) would be considered a risk in the 5-10 year timeline indicated, especially given that SAVs grow submerged. The risk of tropical storms is recognized, and cited as a primary cause of SAV loss, especially in the Upper Mobile Bay/Lower Mobile/Tensaw Delta. Further, it is recognized that tropical storm events may occur during the project life span. However, such risk is universal to all estuarine restoration projects across the Gulf of Mexico Region. In regards to cold weather episodes, this risk is in similar nature to tropical storm events and cannot be predicted. Overall,

while there are inherent risks with any estuarine restoration project, the project proponents do not believe the risks for this proposal exceed those of any other similar proposal.

Comment: A comment expressed concerns that the 2-3 year aerial mapping frequency is not adequate to discern project success.

Response: The reviewer may be confusing the effectiveness monitoring of the two SAV restoration projects with the overall habitat mapping goals contained in the 3rd project activity. While it would be desirable to conduct yearly comprehensive SAV mapping in the entire Alabama coastal area, this is a rather expensive proposition to undertake and it does not appear justified. Additionally, given that Alabama would be mapping seagrass as well as brackish/freshwater systems, meteorological, tide and water clarity requirements are harder to meet during any given growing season, making it difficult to map each year. This is based on Alabama's experience with previous mapping efforts conducted in 2000-2001, and 2007-2009. Successful mapping every 2-3 years will greatly improve Alabama's current understanding of SAV dynamics.

ENVIRONMENTAL COMPLIANCE:

The Council proposes to list this activity as a priority for potential future funding. Notwithstanding anything to the contrary set forth herein, at this time the Council is not approving or committing any funds for the implementation of this activity. Additional environmental compliance information is needed before the Council considers whether to approve funding for implementation of this activity. If sufficient additional environmental compliance information becomes available between the issuance of this draft FPL and completion of the final FPL, the Council may consider such information and thereafter approve this activity for funding, and move it to FPL Category 1. In such case the final FPL would include information necessary to demonstrate compliance with NEPA and other applicable laws. Where applicable, the final FPL would also inform the public of any comment opportunities pertaining to environmental compliance. In some cases, Council approval of funding for an activity in Category 1 would not be final until after the public has had an opportunity to provide comments, and the Council has considered such comments as it prepares required decision documentation (such as a Finding of No Significant Impact for use of an Environmental Assessment

MAP:

Activity: Submerged Aquatic Vegetation Monitoring Program (Implementation)
Unique Identifier: AL_RESTORE_005_003_Cat2
Location: Alabama, Mobile and Baldwin Counties
Type of Activity: Planning
FPL Category: 2 – Prioritized for Further Review
Cost Estimate: $495,000
Responsible Council Member: State of Alabama
Partnering Council member(s): N/A
Originally submitted by: The Sate of Alabama as a component within the proposal "Alabama Submerged Aquatic Vegetation Restoration and Monitoring Project"

Executive Summary: Upon completion of the Alabama Submerged Aquatic Vegetation Monitoring Program Planning Activity (See the above Category 1 project with unique identifier AL_RESTORE_005_003_Cat1), Alabama would map the extent and species composition of submerged aquatic vegetation (SAV) in coastal waters at least twice over a period of 6-8 years. Work would include acquisition of aerial imagery, analysis of said imagery to determine locations of SAV grassbeds, and field verification of extent and species composition of those beds.

PROJECT DESCRIPTION:

Specific Actions/Activities: Aerial digital ortho-imagery of coastal waters will be obtained on a regular interval, approximately every 2-3 years, depending on suitability of water conditions, weather, and tides during the SAV growing season (July-September). Aerial imagery will be analyzed to determine SAV coverage and a GIS shapefile of coverage will be developed, with species composition noted for each polygon. Imagery acquisition, imagery analysis and field work to ground-truth SAV species and coverage will be conducted in accordance with National Oceanic and Atmospheric Administration protocols. A report on SAV coverage, species composition and status & trends will be developed from each monitoring event. Two (2) sampling events are proposed, which will be conducted at an interval of 2-3 years depending on water clarity, tides and meteorological conditions during aerial imagery acquisitions window. Depending on cost and leveraging of partner funds, additional monitoring events may take place.

The Alabama Department of Conservation and Natural Resources (ADCNR) may issue a request for proposals for professional services to conduct this portion of the project. Alternatively, the ADCNR may partner with another local, state or federal agency to conduct the proposed work. A scope of service and a contractual agreement will be drafted and executed between the ADCNR and the selected qualified contractor or local, state or federal agency partner. The ADCNR will monitor the contractor/partner to insure project deliverables are completed in accordance with contractual requirements.

Deliverables:

- Aerial Digital ortho-imagery of Alabama coastal waters (2-3 sampling episodes over 6-8 years).
- Monitoring reports for each sampling event, to include SAV mapping data, GIS data, metadata, and other relevant information (such as status and trends assessment).

Ecological Benefits/Outcomes and Metrics: The data gathered as part of this project will provide critical status and trends information to help determine the aerial extent and species composition of SAV in coastal Alabama, as well as changes over time. It will also help inform decisions on SAV restoration, protection and regulatory and policy changes. This data will also help inform regional resources managers on the status and trends in SAV coverage of the Gulf of Mexico as a whole and guide future restoration, protection and mapping efforts.

Leveraging and Co-Funding:

- **Building on prior or other investments:** The ADCNR and the Mobile Bay National Estuary Program have conducted SAV mapping in Coastal Alabama in 2001, 2008 and 2009, with additional mapping planned for summer 2015. This project activity will utilize the data from these efforts to identify specific restoration and protection areas and to assist in tracking project success.

Duration of Activity: 6-8 years.

Life of Activity: Indefinite, as data will be usable in status and trends studies for decades to come.

RESPONSE TO SCIENCE REVIEWS:

Comment: One comment stated, "The objectives, to implement restoration efforts in Lower Perdido Bay, has been justified using peer reviewed and/or publicly available information. However, the methods have not been adequately justified. In fact, the Lower Perdido Bay is mostly covered with Halodule wrightii, but they plan on using Vallisneria americana. … There was an Appendix that indicated that Halodule would not be a good candidate for restoration from seeds after scientific research was done. An apparent after thought of that work, without rigorous scientific testing, was Vallisneria."

Response: The Alabama proposal contained 3 distinct projects: Seagrass Restoration and Protection in Lower Perdido Bay; Vallisneria Restoration in Upper Mobile Bay/Lower Mobile/Tensaw Delta; and the Mapping of SAV in coastal Alabama. Alabama does not propose to sow Vallisneria seed in the Lower Perdido Bay ecosystem, nor does it propose to propagate Halodule from seed as repeatedly stated by the reviewer. This misunderstanding regarding species selection appears to be the basis of an unfavorable review. The seeding of Vallisneria in the Lower Mobile Delta is based on a proponent funded research project conducted by DISL and habitat mapping data which has documented the presence of target species in the appropriate project locations.

Comment: Two reviewers requested more information about the inherent level of uncertainty with respect to climate change, sea level rise, and episodic (hazard) events.

Response: The techniques proposed for Lower Perdido Bay are proven low-risk techniques which have been successfully utilized in that system and many other areas around the Gulf. Risks of failure due to extreme weather or climate change are understood by experienced restoration practitioners, and are not unique to coastal Alabama. Sea level rise is not considered a significant risk for this project. Barring an unforeseen and catastrophic rise in sea level, it is unclear why the current predicted rise in sea level (3-6 mm/year) would be considered a risk in the 5-10 year timeline indicated, especially given that SAVs grow submerged. The risk of tropical storms is recognized, and cited as a primary cause of SAV loss, especially in the Upper Mobile Bay/Lower Mobile/Tensaw Delta. Further, it is recognized that tropical storm events may occur during the project life span. However, such risk is universal to all estuarine restoration projects across the Gulf of Mexico Region. In regards to cold weather episodes, this risk is in similar nature to tropical storm events and cannot be predicted. Overall, while there are inherent risks with any estuarine restoration project, the project proponents do not believe the risks for this proposal exceed those of any other similar proposal.

Comment: A comment expressed concerns that the 2-3 year aerial mapping frequency is not adequate to discern project success.

Response: The reviewer may be confusing the effectiveness monitoring of the two SAV restoration projects with the overall habitat mapping goals contained in the 3rd project activity. While it would be desirable to conduct yearly comprehensive SAV mapping in the entire Alabama coastal area, this is a rather expensive proposition to undertake and it does not appear justified. Additionally, given that Alabama would be mapping seagrass as well as brackish/freshwater systems, meteorological, tide and water clarity requirements are harder to meet during any given growing season, making it difficult to map each year. This is based on Alabama's experience with previous mapping efforts conducted in 2000-2001, and 2007-2009. Successful mapping every 2-3 years will greatly improve Alabama's current understanding of SAV dynamics.

ENVIRONMENTAL COMPLIANCE:

The Council proposes to list this activity as a priority for potential future funding. Notwithstanding anything to the contrary set forth herein, at this time the Council is not approving or committing any funds for the implementation of this activity. Additional environmental compliance information is needed before the Council considers whether to approve funding for implementation of this activity. If sufficient additional environmental compliance information becomes available between the issuance of this draft FPL and completion of the final FPL, the Council may consider such information and thereafter approve this activity for funding, and move it to FPL Category 1. In such case the final FPL would include information necessary to demonstrate compliance with NEPA and other applicable laws.

Where applicable, the final FPL would also inform the public of any comment opportunities pertaining to environmental compliance. In some cases, Council approval of funding for an activity in Category 1 would not be final until after the public has had an opportunity to provide comments, and the Council has considered such comments as it prepares required decision documentation (such as a Finding of No Significant Impact for use of an Environmental Assessment).

MAP:

Activity: Fish River and Weeks Bay Marsh Restoration; Oyster Bay Marsh Restoration; Meadows Tract Marsh Restoration (Implementation)
Unique Identifier: DOC_RESTORE_001_006-008_Cat2
Location: Alabama, Baldwin County
Type of Activity: Implementation
FPL Category: 2 – Prioritized for Further Review
Cost Estimate: $2,250,089
Responsible Council Member: Department of Commerce(DOC/National Oceanic and Atmospheric Administration (NOAA)
Partnering Council member(s): Alabama Department of Conservation and Natural Resources (ADCNR)
Originally submitted by: The DOC as a component within the proposal "Connecting Coastal Waters: Restoring Coastal Wetland Hydrology"

Executive Summary: This project is part of the Connecting Coastal Waters initiative NOAA will lead with partners to implement projects that restore the extent, functionality, and resiliency of Gulf Coast wetlands and provide a science-based inventory of wetland hydrology restoration projects that make the greatest contribution to that goal. This project will restore a natural hydrology to a total of 470 acres of wetlands at three sites within the Mobile Bay ecosystem in Alabama. At each site, this project will implement restoration activities, conduct monitoring to assess restoration outcomes, and engage in outreach and educational activities with restoration practitioners and stakeholders.

PROJECT DESCRIPTION:

Specific Actions/Activities: The Connecting Coastal Waters initiative will restore and enhance ecosystem resilience, sustainability, and natural defenses by reestablishing natural hydrology and connectivity between freshwater and marine habitats in priority areas across the Gulf Coast. This project will implement restoration activities, conduct monitoring to assess restoration outcomes, and engage in outreach and educational activities with restoration practitioners and stakeholders required to restore wetlands at three sites across Mobile Bay, which are discussed in greater detail below.

1) Fish River and Weeks Bay Marsh Restoration will restore 70 acres of wetlands by back-filling dead-end canals with approximately 40,000 cubic yards of upland-sourced sediment to create both more natural tidal creeks and salt marsh habitat. In areas where berms/levees are present, berms will be graded to the elevation of the adjacent marsh. Existing drainage ways will be maintained and connected to the restored tidal creeks. Plant material from donor sites will be used to plant the filled areas at appropriate densities. Invasive species will be treated to reduce or remove them.

2) Oyster Bay Marsh Restoration will restore 150 acres of estuarine marsh by replacing undersized culverts, removing nuisance vegetation, and planting native species. Specific actions will be based on the design plan, including a hydrological assessment, developed under the

planning phase for this project to determine suitable locations, sizes, and elevations of replacement culverts. NOAA will remove sediments from existing and historic channels to restore natural flow patterns and to remove nuisance vegetation before replacing culverts. NOAA will coordinate with the City of Gulf Shores prior to and during construction duration. After culverts and headwalls are in place and the road surface is repaired, any remaining unvegetated areas will be replanted using plants from a suitable donor site.

3) Meadows Tract Marsh Restoration will restore tidal exchange to 250 acres of marsh and forested wetlands by replacing undersized culverts at three locations where wetlands drain from the Meadows Tract to Mobile Bay. Specific actions will be based on the design plan, including hydrological assessment, developed under the planning phase for this project to determine suitable locations, sizes, and elevations of replacement culverts or bridges. NOAA will remove sediments and vegetation to restore tidal channels, and replace existing culverts. NOAA will coordinate with Baldwin County and the Alabama Department of Transportation to develop a traffic maintenance and utility relocation plan for the construction duration. During construction, erosion control Best Management Practices will be employed. After the new structures are in place and the road surface is repaired, any remaining unvegetated areas will be replanted using plants from a suitable donor site.

Task 1: Planning and Local Involvement: A project team will be assembled to provide technical input and expertise during the construction and monitoring of this project. Team members will provide a multi-disciplinary approach to evaluate monitoring data and recommend any corrective actions necessary to meet restoration goals.

Deliverable 1: Project team member's list, roles, and team description.

Task 2: Construction: NOAA will develop a contract statement of work, select a construction contractor, determine a schedule, and finalize construction plans. The construction task includes both the action of restoring the site and post-construction management including monitoring of the constructed elements. Monitoring will occur before, during, and after construction to ensure work is progressing and completed as designed.

Deliverable 2.1: Construction Plan of Work and Bid Documents.

Deliverable 2.2: Final construction as-built drawings and construction completion report.

Task 3: Monitoring and Evaluation: This task will implement a monitoring and evaluation plan developed through the project planning phase. The data collected before and after project construction will document progress toward achieving restoration project goals and objectives and inform adaptive management decision-making. Three types of monitoring will be conducted: 1) pre-implementation monitoring—provides baseline information to compare with post implementation data to determine whether the restoration is having the desired effect; 2) implementation monitoring—ensures the project is being implemented as planned and identifies needed modifications; and 3) effectiveness monitoring—enables evaluation of whether the project has met its objectives.

Deliverable 3.1: Semi-annual Monitoring Reports and Data Sheets.

Deliverable 3.2: Final Monitoring and Evaluation Report.

Task 4: Outreach and Education: The project team will implement the Outreach and Education Plan developed through the project planning phase in cooperation with partners and existing community groups. Strategies may include site tours, presentations, interpretive outreach materials, videos, and other efforts to share project success. Activities conducted will be documented, including copies of materials produced, and compiled into a final report.

Deliverable 4.1: Outreach and Education Report.

Ecological Benefits/Outcomes and Metrics:

- **Fish River and Weeks Bay Marsh Restoration:** This project is located within Weeks Bay National Estuarine Research Reserve (NERR). The project site supports about 70 acres of estuarine tidal marsh that were impacted during the excavation of more than 6 acres of canals. Restoration of these canals will help restore water quality and provide suitable habitat for juvenile finfish, birds, and benthic invertebrates such as blue crab.

- **Oyster Bay Marsh Restoration:** This project site includes about 150 acres of estuarine tidal and brackish marsh. Restoration of this site will allow finfish movement and provide more suitable habitat for birds and benthic invertebrates.

- **Meadows Tract Marsh Restoration:** This project is located on 600 acres of publicly owned lands that, together with adjacent private parcels, support about 250 acres of wetlands that historically drained into Mobile Bay. This project will restore culvert flow and fin fish movement and provide more suitable habitat for birds, invertebrates, and the endangered Alabama red-bellied turtle.

Metrics to evaluate ecological benefits and outcomes will be established in planning phase of this project. Potential monitoring parameters to measure success include:

Project	Constructed as Designed	Acres Restored	Flow Rate	Plant Coverage	Invasive Cover	Water Quality *
Fish River	✓	✓	✓	✓	✓	✓
Oyster Bay	✓	✓	✓	✓	✓	✓
Meadows Tract	✓	✓	✓		✓	✓

*Water quality could include dissolved oxygen, salinity, and turbidity

Leveraging:

- **Adjoining:** Both Fish River/Weeks Bay and Meadows Tract projects will benefit from other restoration and research projects planned for these properties including prescribed fire, invasive species eradication, and flora and fauna surveys.
- **Building on prior or other investments:** Technical input by Weeks Bay NERR and Gulf Shores staff during construction, operation, and maintenance phases. Local partners can assist with construction observation and identification of maintenance needs and Gulf Shores will take responsibility for Oyster Bay post-construction inspection and maintenance.

Duration of Activity: 2 Years.

Life of Activity: Life span of culverts is conservatively estimated to be 25 years. The Fish River/Weeks Bay Restoration site is protected in perpetuity.

RESPONSE TO SCIENCE REVIEWS:

Comment: External science review of the Connecting Coastal Waters proposal, which included a total of eleven projects, resulted in one all or mostly positive response and two generally positive responses, but with a need for more information. Reviewers requested information related to outcomes of planning, engineering, design, and permitting including, site-specific conditions, evaluation of uncertainties, risk, and mitigation, measures of success, and data quality standards.

Response: This project will implement restoration activities with detailed restoration plans, certified engineering and design, and approved permits completed by the project planning phase. The project's construction design, as well as the monitoring and evaluation plan, will incorporate necessary steps to mitigate for project uncertainties and risks that will be identified in greater detail through the permitting and environmental compliance process conducted under the planning phase (see additional information below). This project will also implement a detailed monitoring and evaluation plan developed under the planning phase that will collect data to evaluate project specific measures of success. Data collected under this proposal will undergo verification to ensure the quality, utility, and integrity of information collected.

Comment: On the Fish River and Weeks Bay Marsh Restoration portion, the review stated that filling channels must be accompanied by removal of levee.

Response: The project implementation includes both filling the canals and removing berms / levees. Additional detail has been provided above.

ENVIRONMENTAL COMPLIANCE:

The Council proposes to list this activity as a priority for potential future funding. Notwithstanding anything to the contrary set forth herein, at this time the Council is not approving or committing any funds for the implementation of this activity. Additional environmental compliance information is needed before the Council considers whether to approve funding for implementation of this activity. If sufficient additional environmental compliance information becomes available between the issuance of this draft FPL and completion of the final FPL, the Council may consider such information and thereafter approve this activity for funding, and move it to FPL Category 1. In such case the final FPL would include information necessary to demonstrate compliance with NEPA and other applicable laws. Where applicable, the final FPL would also inform the public of any comment opportunities pertaining to environmental compliance. In some cases, Council approval of funding for an activity in Category 1 would not be final until after the public has had an opportunity to provide

5161 comments, and the Council has considered such comments as it prepares required decision
5162 documentation (such as a Finding of No Significant Impact for use of an Environmental
5163 Assessment).
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5165 **MAP:**
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Activity: Mobile Bay National Estuary Program (Implementation)
Unique Identifier: EPA_RESTORE_002_004_Cat2
Location: Alabama, Mobile & Baldwin Counties
Type of Activity: Implementation
FPL Category: 2 – Prioritized for Further Review
Cost Estimate: $2,000,000
Responsible Council Member: Environmental Protection Agency (EPA)
Partnering Council member(s): Alabama
Originally submitted by: The EPA as a component within the proposal "Gulf National Estuary Program (NEP) and Lake Pontchartrain Basin Restoration Program (LPBRP) Comprehensive Plan Implementation Program"

Executive Summary: The Mobile Bay Estuary Program (MBNEP) – RESTORE Project Implementation activity includes restoring Twelve Mile Creek in accordance with the Stream Restoration Design Plan developed in the Planning activity; eradicating and controlling invasive species in Three Mile Creek in accordance with the Invasive Species Control and Eradication Plan developed in the Planning activity; adherence to environmental and other regulatory compliance requirements; quality assurance and post-restoration monitoring. The Implementation activity will ensure the stream restoration project and invasive species control and eradication are completed in a timely and fully-compliant manner. MBNEP will be responsible for ensuring timely initiation and completion of the project elements, including compliance, monitoring and reporting requirements.

Three Mile Creek and its surrounding watershed present an extraordinary opportunity to the cities of Mobile and Prichard, AL to transform a community liability into a waterway destination. Crossing and draining suburban and urban landscapes of greater Mobile, Alabama, it suffers from the negative effects of stormwater runoff and decaying infrastructure including trash/litter, bacteria from sewage (pathogens), excessive nutrients, invasive species, and erosion and sedimentation. Restoration of a degraded segment of Twelve Mile Creek will lay the foundation for improving dissolved oxygen concentrations within the creek, thus restoring a healthy aquatic ecosystem and fishery to the Three Mile Creek Watershed.

PROJECT DESCRIPTION:

This MBNEP RESTORE Project Implementation activity includes: 1) restoration of Twelve Mile Creek in accordance with the Stream Restoration Plan; and 2) invasive species control and eradication in accordance with the Invasive Species Control Plan; 3) monitoring during and after construction and application of invasive species control and eradication measures ; and 4) periodic surveys of project areas to ensure proper restoration of construction-disturbed areas in compliance with permits and to determine the effectiveness of invasive species control treatments.

Twelve Mile Creek, one of six main tributaries within the Three Mile Creek Watershed, originates in the extreme western portion of the watershed and flows a little over three miles

north and east to its confluence with Three Mile Creek. A major issue within this tributary is stream-bank erosion which has progressed to the point of exposing a sanitary sewer line that extends along the south stream-bank. This pipe is particularly vulnerable to leaks and failure, which will significantly impact ambient water quality. In addition, sediment from channel and bank erosion has accumulated downstream, reducing creek water depth and the cross-sectional flow area, resulting in higher water flow velocities during storm events. This has led to further channel erosion and sediment transport to a downstream lake, carrying pollutants including oxygen-demanding substances and nutrients.

Restoration of approximately 1,300 linear feet of stream including re-establishment of vegetated banks and flood plain and installation of energy dissipation to reduce velocity of flowing water will significantly reduce a major source of sediment being transported downstream to ponds at Langan Park. Reducing sediment contributions to these ponds will pave the way for the City of Mobile to dredge them, increasing the ponds to their normal water depth/volume.

Dredging of the Lake will, in turn, be a catalyst for initiating a comprehensive invasive species management and eradication program for the Three Mile Creek. This program will target island apple snails (Pomacea insularum), first discovered in Langan Park ponds in 2008. Since these snails have traveled into Three Mile Creek, the State of Alabama's prime directive has been to keep the apple snails out of the Mobile-Tensaw Delta as these snails will compete with native species for limited resources. The non-native snails preferred food items include some of Alabama's most common and important aquatic plants: coontail (Ceratophyllum demersum), spiderlillies (Hymenocallis spp.), pickerelweed (Pontederia cordata) and bulltongue arrowhead (Sagittaria lancifolia). The apple snail prefers to lay its eggs on heavy-stemmed, emergent aquatic plants that grow over surface water including giant cutgrass (Zizaniopsis miliacea), cattails (Typha spp.) and arrow arum (Peltandra virginica), all native plants to the Twelve Mile Creek watershed. Many of the aquatic vegetation species in Three Mile Creek are non-native species, including Wild taro, or elephant's ear.

The Invasive Species Control program will consist of a baseline survey to determine the scale and boundaries of treatment areas. A protocol of chemical, biological and mechanical treatments will be implemented followed by subsequent periodic surveys to determine the effectiveness of control treatments. Subsequent treatments/measures that require less effort with increased control and over time will be undertaken over a period of three years.

Specific Actions/Activities: The following activities will ensure that the MBNEP RESTORE project implementation activity is properly and effectively conducted.

Task 1: Restoration of Twelve Mile Creek in accordance with the Stream Restoration Plan.

Task 2: Control and eradication of invasive species in Three Mile Creek in accordance with the Invasive Species Control Plan.

Task 3: Monitoring during and after stream restoration and during and after application of invasive species control and eradication measures to ensure compliance with environmental permits, conditions and other regulatory clearances and conditions.

Task 4: Periodic surveys of project areas to ensure proper restoration of construction-disturbed areas in compliance with permits and to determine the effectiveness of invasive species control treatments.

Deliverables:

- Progress reports (quarterly).
- Environmental permit and regulatory clearance closeout reports (as required).
- Project final report.
- Up to 1000 linear feet of stream and stream-bank restoration

Ecological Benefits/Outcomes and Metrics: The primary benefit of restoring an eroded segment of Twelve Mile Creek and controlling/eradicating invasive/nuisance species in Three Mile Creek and its associated tributaries is improvement of water quality by controlling water flow and reducing sediment transport downstream to improve concentrations of dissolved oxygen. A secondary outcome is improvement of Three Mile Creek watershed habitats for sustaining wildlife and freshwater fisheries.

The metrics to be used to measure success include: Up to 1,000 linear feet of stream and stream-bank restored; up to 7.5 acres of wet bank restored/protected from invasive/nuisance species; up to 100 acres of water surface area restored/protected from invasive/nuisance species; number of pounds of sediment removed from downstream transport (75% reduction in total suspended solids); percent increase in dissolved oxygen over a three year period (50%); and acres of wet bank with at least a 70% reduction in presence of apple snail within target area over a three year period.

Leveraging and Co-Funding: The City of Mobile has included the dredging of Langan Park ponds in its capital improvement budget for 2016-2017. This activity has been identified as a priority within the City but has been put on hold in anticipation of addressing the source of the impairment to the ponds.

Duration of Activity: Estimated 5 years for implementation of the stream restoration plan and the invasive species control and eradication program, including pre and post monitoring.
5 years including pre and post monitoring.

Life of Activity: Over 20 years estimated.

RESPONSE TO SCIENCE REVIEWS:

N/A – Summary of Science Review Comments and Responses are included in the related Planning activity for this project in Category 1, Unique Identifier EPA_RESTORE_002_004_Cat2

ENVIRONMENTAL COMPLIANCE:

The Council proposes to list this activity as a priority for potential future funding. Notwithstanding anything to the contrary set forth herein, at this time the Council is not approving or committing any funds for the implementation of this activity. Additional environmental compliance information is needed before the Council considers whether to approve funding for implementation of this activity. If sufficient additional environmental compliance information becomes available between the issuance of this draft FPL and completion of the final FPL, the Council may consider such information and thereafter approve this activity for funding, and move it to FPL Category 1. In such case the final FPL would include information necessary to demonstrate compliance with NEPA and other applicable laws. Where applicable, the final FPL would also inform the public of any comment opportunities pertaining to environmental compliance. In some cases, Council approval of funding for an activity in Category 1 would not be final until after the public has had an opportunity to provide comments, and the Council has considered such comments as it prepares required decision documentation (such as a Finding of No Significant Impact for use of an Environmental Assessment).

MAP:

Appendix G. Pensacola Bay

Category 1:

Activity: Pensacola Bay Living Shoreline - Phase I (Planning)
Unique Identifier: FL_RESTORE_001_002_Cat1
Location: Escambia County, Florida
Type of Activity: Planning
FPL Category: 1 –Funding Eligible
Cost Estimate: $231,314
Responsible Council Member: State of Florida
Partnering Council Member(s): N/A
Originally submitted by: The State of Florida as a component within the proposal "Pensacola Bay Watershed Restoration"

Executive Summary: The Pensacola Living Shoreline Phase I is a multi-phase living shoreline project that totals 24,800 linear feet of rock and oyster reef breakwater and 205 acres of emergent marsh and submerged aquatic vegetation (SAV) habitat. This activity of the project will provide funding for planning, engineering, design, environmental compliance, and permitting for three sites.

PROJECT DESCRIPTION:

Specific Actions/Activities: Activities associated with this component include surveying, data gathering and analysis, field assessments, planning, engineering, creation of final design, development of monitoring plan, and working with federal, state, and local agencies to obtain all applicable permits and complete environmental compliance.

Deliverables: Deliverables will include 100% design plans and monitoring plan; all required permits from federal, state, and local agencies; and environmental compliance documentation.

Ecological Benefits/Outcomes and Metrics: Outcomes and metrics of the planning activity include: planning documents composed of site analyses of wind and wave energy, bank erosion rate and elevation, sediment type, flooding from rain and sea level rise, water quality impacts from anthropogenic sources, and watershed conditions; engineered drawings depicting the location of the living shorelines; monitoring plan; all required local, state, and federal permits; and completion of environmental compliance analysis.

Expected ecological benefits and metrics of the construction of the Pensacola Bay Living Shoreline – Phase I are available in the below Category 2 implementation project with unique identifier *Pensacola Bay Living Shoreline – Phase I FL_RESTORE_001_002_Cat2.*

Leveraging: See the below Category 2 implementation project with unique identifier *Pensacola Bay Living Shoreline – Phase I FL_RESTORE_001_002_Cat2.*

Duration of Activity: It is anticipated to take twelve months to complete the planning, design, environmental compliance and permitting.

Life of Activity: See the below Category 2 implementation project with unique identifier *Pensacola Bay Living Shoreline – Phase I FL_RESTORE_001_002_Cat2.*

RESPONSE TO SCIENCE REVIEWS:

Comment: Three science reviews were conducted as part of the Gulf Coast Ecosystem Council submission evaluation. Most of the remarks received relating to the Pensacola Bay Watershed proposal were favorable. Specific comments to the Pensacola Bay Living Shoreline – Phase I concerned post-monitoring details, quality of material, and the lack of a cost-benefit analysis.

Response: A monitoring plan will be developed following the completion of the planning and design. The monitoring plan will detail the collection methods, parameters to be measured, and quality assurance/quality control procedures. Sampling sites, as well as frequency and duration of sampling events, will be included. A verification process for all of the collected data will ensure quality and integrity of data.

Monitoring events will be conducted before construction occurs (baseline), during construction, and after construction is completed. The pre- and post-construction monitoring will enable comparisons to determine if the project has been successful in meeting its goals. Monitoring during construction will ensure that the project is being constructed according to plans and regulatory permit conditions, or if there are needed adaptive changes, adjustments, or modifications.

Water quality parameters to be monitored include depth, temperature, salinity, conductivity, dissolved oxygen, turbidity, total suspended solids, total nitrogen, total phosphorus, and fecal coliform bacteria. Vegetation parameters to be monitored include species present, percent coverage, percent survival, and height. Fishery habitat utilization parameters to be monitored include relative abundance and species diversity.

This living shoreline project will apply the expertise and lessons learned by Florida Department of Environmental Protection (FDEP) scientists and Escambia County scientists who designed, constructed, and monitored the very successful Project Greenshores in Pensacola Bay (www.epa.gov/gmpo/projects/greenshores_intro.html). It will provide a comprehensive science-based approach to restoration based on data and historical aerial photography that shows a loss of oyster reefs, emergent marsh, and SAV habitat in Pensacola Bay. The offshore breakwater reef base will be constructed with clean recycled concrete and limestone rock, as was utilized in the Greenshores in Pensacola Bay.

Even though a full cost-benefit analysis of the project was not completed, living shoreline projects provide new oyster reef habitat, new emergent marsh habitat, and new SAV habitat for fish, shrimp, crabs, birds, sea turtles and other estuarine species, and they provide forage and nesting areas for birds, attenuate wave energy, reduce shoreline erosion, stabilize sediments, increase water clarity, and decrease turbidity (Bilkovic and Mitchell, 2013). For these reasons, as well as the cost-effectiveness and sustainability of living shoreline projects when compared to hardened shorelines of seawalls and rock riprap, this approach and solution has been chosen for the western shore of Pensacola Bay.

ENVIRONMENTAL COMPLIANCE:

Council approval of funding for this proposed activity would not involve or lead directly to ground-disturbing activities that may have significant effects on the environment individually or cumulatively, nor would it commit the Council to a particular course of action affecting the environment. The Council has considered potential extraordinary circumstances, including potential negative effects to threatened and endangered species, essential fish habitat, Tribal interests and/or historic properties, where applicable, and has determined that no such circumstances apply. Accordingly, the Council has determined that this proposed activity would be covered by the Council's National Environmental Policy Act (NEPA) Categorical Exclusion for planning, research or design activities. (See the Council's NEPA Procedures, Section 4(d)(3): *insert link to Procedures*.)

MAP:

Activity: Beach Haven - Joint Stormwater & Wastewater Improvement Project - Phase II (Planning)
Unique Identifier: FL_RESTORE_001_004_Cat1
Location: Escambia County, Florida
Type of Activity: Planning
FPL Category: 1 – Funding Eligible
Cost Estimate: $895,050
Responsible Council Member: State of Florida
Partnering Council Member(s): N/A
Originally submitted by: The State of Florida as a component within the proposal "Pensacola Bay Watershed Restoration"

Executive Summary: Septic tanks and untreated stormwater runoff are still significant sources of pollutants to impaired Bayou Chico, an important habitat area within the Pensacola Bay watershed. This project activity includes the design, environmental compliance and permitting of stormwater treatment facilities and connection of septic tanks to new central sewer infrastructure. The implemented project will reduce sediment and nutrient loadings to Bayou Chico, reduce Biochemical Oxygen Demand (BOD), reduce total suspended solids, reduce turbidity, increase water clarity, and improve light penetration for photosynthesis to enable expansion of submerged aquatic vegetation (SAV) and emergent marsh habitat.

PROJECT DESCRIPTION:

Specific Actions/Activities: Activities associated with this component include data gathering and analysis, planning, engineering, final design, permitting, and environmental compliance.

Deliverables: Deliverables associated with this activity include 100% design plans; all required permits from federal, state, and local agencies; and environmental compliance documentation.

Ecological Benefits/Outcomes and Metrics: Outcomes of the planning activity include: 100% design plans; all required local, state, and federal permits; and completion of environmental compliance analysis.

Expected ecological benefits and metrics of the are available in the below Category 2 implementation project with unique identifier *Beach Haven – Joint Stormwater & Wastewater Improvement Project – Phase II FL_RESTORE_001_004_Cat2*

Leveraging and Co-Funding:

- **Co-funding:** The Escambia County and the Emerald Coast Utilities Authority previously entered into a $1 million contract for the project-related engineering design services.
- **Adjoining:** See the below Category 2 implementation project with unique identifier *Pensacola Bay Living Shoreline – Phase I FL_RESTORE_001_002_Cat2.*

- **Building on prior or other investments**: See implementation appendix *Pensacola Bay Living Shoreline – Phase I FL_RESTORE_001_002_Cat2.*

Duration of Activity: Approximately six months from the time funds are received.

Life of Activity: See the below Category 2 implementation project with unique identifier *Pensacola Bay Living Shoreline – Phase I FL_RESTORE_001_002_Cat2.*

RESPONSE TO SCIENCE REVIEWS:

Comment: Three science reviews were conducted as part of the Gulf Coast Ecosystem Council submission evaluation. Most of the remarks received relating to the Pensacola Bay Watershed proposal were favorable. Comments specific to the Beach Haven – Joint Stormwater & Wastewater Improvement Project pertained to the past sources of contaminated sediment and whether or not they have been eliminated, the duration of the postmonitoring, commitment of partners, and type of anticipated outreach activities.

Response: Most of the sediment degradation is due to historic impacts, including industrial and domestic wastewater discharges, shipyard-related pollution, and long-term untreated stormwater runoff. Many of the discharges to the bayou have been eliminated and water quality has improved over the last decade, although some waterbody segments in Bayou Chico do not meet Florida's bacteria and nutrient water quality criteria. The Florida Department of Environmental Protection (FDEP) has adopted Total Maximum Daily Loads (TMDLs) restoration targets for these "impaired" waterbody segments. The bacteria TMDL for Bayou Chico calls for a 61% reduction in bacteria sources; the nutrient TMDL for a portion of Bayou Chico calls for a 30% reduction in both total nitrogen and total phosphorus. This project will assist in achieving the pollution reduction goals established for the Bayou Chico watershed.

There is currently an active water quality monitoring program in Bayou Chico for the Basin Management Action Plan (BMAP); this water quality monitoring data will also be included in the Monitoring Report. All monitoring will be in accordance with adopted Environmental Protection Agency and FDEP protocols and Standard Operating Procedures. To ensure that the Joint Stormwater/Wastewater Improvement projects perform as anticipated, and to improve the effectiveness and efficiency of implementation of future projects, an Adaptive Management strategy will be implemented. Additionally, the County or City will be required to test the stormwater treatment facilities every three years and provide documentation to the Water Management District that the systems are operating as designed. The maintenance requirements and three year testing requirements of the Northwest Florida Water Management District will also serve to ensure that the project will meet or exceed its service life.

In October 2011, the FDEP adopted the Bayou Chico Watershed BMAP which represents a collaborative effort by Escambia County, City of Pensacola, Emerald Coast Utility Authority, Escambia County Health Department, Florida Department of Transportation, Bayou Chico

Association, U.S. Naval Air Station, the University of West Florida, the Bay Area Resources Council, and the Northwest Florida Water Management District. The plan identifies over 50 actions to address the water quality impairments in the six waterbody segments within the Bayou Chico watershed. The types of projects that stakeholders have been implementing that help to address these impairments include sanitary sewer expansion projects, stormwater improvements, pet waste ordinance adoption, septic tank inspections and testing (prior to property sales), neighborhood clean-sweep programs, barge and derelict vessel removals, Clean Marina and Boatyard Program implementation, and Bayou Chico channel dredging (improved flushing). The commitment of all these entities is well established.

Escambia County and the Emerald Coast Utilities Authority (ECUA) are the cooperating partners for the Beach Haven Joint Stormwater/Wastewater Improvement Project. Escambia County will be the lead agency and an Escambia County Senior Scientist will be the Project Manager. Escambia County will coordinate and manage all aspects of this project and ensure a successful completion.

Outreach associated with the Bayou Chico Watershed Basin Management Action has been ongoing since 2009 with the development of the plan. A total of nine technical meetings with local governments and community stakeholders were held. The purpose of the public meetings was to consult with key stakeholders to gather information on the impaired waterbody and its tributaries; identify potential sources; conduct field reconnaissance; define programs, projects, and actions currently under way; and develop the restoration plan contents and actions that would result in improved water quality, with the goal of achieving the TMDL target reductions. Escambia County and ECUA will continue to keep stakeholders and the public informed through meetings, as well as on their website.

ENVIRONMENTAL COMPLIANCE:

Council approval of funding for this proposed activity would not involve or lead directly to ground-disturbing activities that may have significant effects on the environment individually or cumulatively, nor would it commit the Council to a particular course of action affecting the environment. The Council has considered potential extraordinary circumstances, including potential negative effects to threatened and endangered species, essential fish habitat, Tribal interests and/or historic properties, where applicable, and has determined that no such circumstances apply. Accordingly, the Council has determined that this proposed activity would be covered by the Council's National Environmental Policy Act (NEPA) Categorical Exclusion for planning, research or design activities. (See the Council's NEPA Procedures, Section 4(d)(3): *insert link to Procedures*.)

MAP:

Activity: Bayou Chico Contaminated Sediment Removal- Planning, Design, and Permitting (Planning)
Unique Identifier: FL_RESTORE_001_005_Cat1
Location: Escambia County, Florida
Type of Activity: Planning
FPL Category: 1 – Funding Eligible
Cost Estimate: $356,850
Responsible Council Member: State of Florida
Partnering Council Member(s): N/A
Originally submitted by: The State of Florida as a component within the proposal "Pensacola Bay Watershed Restoration"

Executive Summary: Bayou Chico has experienced severe environmental degradation due to historic impacts, including industrial and domestic wastewater discharges, shipyard-related pollution and long-term untreated stormwater runoff. Legacy pollutants remain in the Bayou. This project will provide funds to Escambia County for planning, design, and acquisition of all federal and state environmental compliance and permits for the dredging and removal of sediments enriched with nutrients and hydrocarbons from the northern area of Bayou Chico.

PROJECT DESCRIPTION:

Specific Actions/Activities: The activities associated with this component include bathymetric surveying, sample collection and field assessments, data analysis, engineering and design, development of 100% design plans, acquiring all applicable federal, state, and local permits, and environmental compliance.

Deliverables: Deliverables associated with this activity include 100% design plans; all required permits from federal, state, and local agencies; and environmental compliance documentation.

Ecological Benefits/Outcomes and Metrics: Outcomes and metrics of the planning phase of the project include: planning the Bayou Chico Contaminated Sediment Removal Project to include sediment characterization, sediment quality analysis, and sediment quantity to be removed; including engineered drawings depicting the areas to be dredged and the quantities of dredged material to be removed; sediment disposal plans; permitting the Bayou Chico Contaminated Sediment Removal project to include environmental regulatory permits from the U.S. Army Corps of Engineers and the Florida Department of Environmental Protection (FDEP); and completion of environmental compliance analysis.

Expected ecological outcomes of the anticipated future implementation of the Bayou Chico Contaminated Sediment Removal Project include restored and greatly improved benthic habitat quality, increased biological diversity and productivity, improved water quality, and restored navigational and recreational access by small boats.

Ecological benefits:

- Restoration of benthic habitat for benthic invertebrates (base of food web) and fisheries
- Improved water quality by removing contaminated sediment that is often re-suspended in the water column;
- Improved water quality by improving assimilation of nitrogen and phosphorus; and
- Improved water quality by reducing turbidity, improving water clarity, and increasing light penetration.

Socio-economic benefits:

- Increased recreation and commercial fisheries production;
- Increased property values because of improved water quality;
- Increased ecotourism opportunities because of improved water quality; and
- Utilization of local engineering and construction work forces.

Leveraging and Co-Funding:

- **Adjoining:** In 2014 the National Fish and Wildlife Foundation awarded over $11 million to implement a suite of projects that will reduce sediment and nutrient loading to Bayou Chico. The County Water Quality and Land Management Division received an Environmental Protection Agency 319 Grant to contribute $750,000 toward new stormwater treatment in the Bayou Chico Watershed.
- **Building on prior or other investments**: To date the Bayou Chico stakeholders have completed 52 projects at an estimate of $25 million under the adopted Bayou Chico Basin Management Action Plan.

Duration of Activity: Two years from the time funds are received.

Life of Activity: N/A (Planning)

RESPONSE TO SCIENCE REVIEWS:

Comment: Three science reviews were conducted as part of the Gulf Coast Ecosystem Council submission evaluation. Most of the remarks received relating to the Pensacola Bay Watershed proposal were favorable. Comments specific to the Bayou Chico Contaminated Sediment Removal project pertained to the future implementation of the project such as the depth and frequency of dredging, the evaluation and disposal of sediment, and the type of environmental assessments.

Response: These items will be addressed as part of the planning and permitting, prior to future implementation.

Comment: Other comments received related to the current condition of the Bayou Chico watershed and the sources of pollutants to the bayou.

Response: Almost all of the sediment degradation is due to historic impacts, including industrial and domestic wastewater discharges, shipyard-related pollution, and long-term untreated

stormwater runoff. Many of the discharges to the bayou have been eliminated and water quality has improved over the last decade, although some waterbody segments in Bayou Chico do not meet Florida's bacteria and nutrient water quality criteria. The FDEP has adopted Total Maximum Daily Loads (TMDLs) restoration targets for these "impaired" waterbody segments. The bacteria TMDL for Bayou Chico calls for a 61% reduction in bacteria sources; the nutrient TMDL for a portion of Bayou Chico calls for a 30% reduction in both total nitrogen and total phosphorus. Existing water quality issues are be addressed by the FDEP Bayou Chico Basin Management Action Plan as well as by projects such as the National Fish and Wildlife Foundation's Bayou Chico Restoration project. The implementation of this project will build on those efforts by addressing the removal of historic contaminated sediments.

ENVIRONMENTAL COMPLIANCE:

Council approval of funding for this proposed activity would not involve or lead directly to ground-disturbing activities that may have significant effects on the environment individually or cumulatively, nor would it commit the Council to a particular course of action affecting the environment. The Council has considered potential extraordinary circumstances, including potential negative effects to threatened and endangered species, essential fish habitat, Tribal interests and/or historic properties, where applicable, and has determined that no such circumstances apply. Accordingly, the Council has determined that this proposed activity would be covered by the Council's National Environmental Policy Act (NEPA) Categorical Exclusion for planning, research or design activities. (See the Council's NEPA Procedures, Section 4(d)(3): *insert link to Procedures*.)

MAP:

Activity: Gulf of Mexico Estuary Program (GMEP): Pensacola (FL) (Planning)
Unique Identifier: EPA_RESTORE_003_008_Cat1
Location: FL, Northwest Panhandle region
Type of Activity: Planning
FPL Category: 1 – Funding Eligible
Cost Estimate: $2,200,000
Responsible Council Member: Environmental Protection Agency (EPA)
Partnering Council member(s): Florida
Originally submitted by: The EPA as a component within the proposal "Gulf of Mexico Estuary Program "

Executive Summary: This project proposes to develop and stand-up a place-based estuary program encompassing the bays in Florida's northwest panhandle region and includes, but not limited to: Perdido Bay, Pensacola Bay, Escambia Bay, Choctawhatchee Bay, and St. Andrews Bay. The key components of the project include establishing the host organization, host organization hiring key staff, developing Management and Technical committees, determining stressors and then developing and approving a Comprehensive Plan (e.g., CCMP). Although this Estuary Program will be modeled after the structure and operation of National Estuary Programs (NEP) (e.g., Mobile Bay NEP and Tampa Bay Estuary Program), it will not be a designated NEP.

PROJECT DESCRIPTION:

If successfully funded by the RESTORE Council, EPA would engage key stakeholders in the northwest Florida panhandle region and develop the best approach(s) to utilize in identifying and establishing the northwest Florida panhandle estuary program. EPA will form a Technical Support Team (TST) that will include and actively engage the leadership and representatives of EPA, Florida, other state and federal Agencies, and several Gulf NEPs. This TST will work with the new Management Conferences to ensure the estuary program will be stood up and have full access to our Estuary Program's expertise and knowledge in forming and having capacity to subsequently operate Management Conferences, public outreach programs, integrated science and developing Comprehensive Conservation and Management Plans (CCMPs). The TST will continue to operate following establishment of the Management Conference and Program Office at the pleasure of the Management Conference and Program Director and TST member availability.

EPA proposes to utilize many elements of the successful management model established and used by the NEPs that were created by Section 320 of the 1987 Clean Water Act amendments and operate under EPA guidance. EPA, in collaboration with the TST and key stakeholders will request proposals for, identify or establish an organization to serve as the host organization for the estuary program. This host will provide administrative and financial management support for the program along with initial program organizational support.

Once the host is identified, a Management Conference will be established which will direct the operation of the estuary program. A top level organizational unit (TLOU) within the Management Conference will be established as the decision making body for the estuary program. This TLOU, often called the Policy Committee for NEPs, will be made up of top officials from key local, federal, and state resource or decision making organizations for the estuary program study area. One of the first action items for the Policy Committee will be to direct the host organization to advertise for and hire a Program Director based on an approved position description and salary rate. The Program Director will be selected by and serve at the pleasure of the Policy Committee. This Program Director will receive direction from the TLOU of the Management Conference.

The estuary program director, working with the Policy Committee members, and with support from the TST, will develop the foundational components of the Management Conference and program office. The foundational components include the Director developed options for staffing the program office, options for a program budget, options for the organization and membership of the Management Conference committee structure, draft bylaws for the program office, and draft bylaws for all Management Conference organizational units. These option papers and draft documents will be submitted to the TST for review and comment and subsequently to the Policy Committee for review and approval.

Following approval of the foundational components of the Management Conference and program staffing by the Policy Committee, the Director will hire staff and establish the sub units of the Management Conference. The Director will draft a program workplan, with assistance from the TST, and will utilize the Management Conference to develop consensus, draft and submit the workplan to the TLOU for approval. This workplan will define the process to complete the development of a draft and final CCMP and any initial restoration actions.

The Management Conference is an inter-jurisdictional body of local elected officials, scientists, citizens, business leaders, commercial fishing, universities, federal and state agency directors, and representatives from agricultural, timber, ports, and industry. The Management Conference will act on recommendations from citizens, scientists, businesses, industries and other resource users, and implement local solutions to address complex water quality and habitat restoration and protection needs.

Once established, the Policy Committee for the estuary program will establish, following recommendations from the Program Director and the TST, appropriate subcommittees to facilitate the successful functioning of the Management Conference. Often but not always, the Management Conference includes a Management Committee, a Technical/Science Advisory Committee (TAC) and a Citizens Advisory Committee (CAC). A mid-level committee, often called a Management Committee, typically includes local, federal and state agencies as well as other key management stakeholders. The Management Committee receives, reviews and makes recommendations for actions to the Policy Committee. A TAC is typically comprised of scientists, engineers, and environmental professionals from a variety of sources including as appropriate: academia, non-governmental organizations, the local communities, business, state

resource agencies and federal resource agencies including EPA, U.S. Geologic Survey, Department of the Interior, National Park Service, U.S. Fish and Wildlife Service, National Oceanic and Atmospheric Administration, Natural Resources Conservation Service, and U.S. Department of Agriculture. A CAC is typically composed of local community organizations and key citizens that have an interest in the estuary and links essential for outreach and public input for the program. The TAC and CAC often report to the Management Committee.

Following the standup of the Management Conference and Program Office, the Management Conference will begin the process of determining the estuary-specific water quality and habitat significant resources, stressors, impacts, and action items that can be undertaken to address these stressors and impacts. This process will lead to the development of the CCMP that is unique to that estuary. The CCMP is approved by the Management Conference and EPA. Each CCMP will provide goals and objectives as well as specific actions to restore and protect the estuary based on a stakeholder driven process rooted in strong science.

The Goals, Objectives and Actions comprising the CCMPs would primarily focus on restoring water quality, while also addressing restoration and conservation of habitat, replenishing and protecting living coastal and marine resources, enhancing community resilience, and revitalizing the coastal economy. Specific actions identified may include: implementing best management practices for nonpoint source water quality improvement; protecting shoreline and upland habitat through easement or purchase; implementing green infrastructure measures; designing and constructing storm water parks; completing and implementing watershed management plans; protecting, restoring and managing critical aquatic, shoreline and upland habitat through a variety of hydrologic, landscape, vegetation and wildlife management actions; establishing living shoreline habitat; and implementing other water quality and habitat restoration techniques.

Specific Actions/Activities:

- Establish TST.
- Identify host organization.
- Establish Management Committee.
- Hire Program Director and Key Staff.
- Develop Program Workplan.
- Establish Committee(s).
- Determine significant resources, stressors, impacts, action items.
- Develop and approve CCMP.

Deliverables:

- Management Committee Structure.
- HOST Organization agreement between stakeholders.
- Interim Program Workplan.
- Approved CCMP.

Ecological Benefits/Outcomes and Metrics: The approved Comprehensive Plan will provide the framework for the Estuary Program's Goals and Objectives. Projects undertaken by the Estuary Program in the future will directly support those goals and objectives and outcomes will focus on restoring water quality, while also addressing restoration and conservation of habitat, replenishing and protecting living coastal and marine resources, enhancing community resilience, and revitalizing the coastal economy. Specific actions will likely include, but not be limited to: implementing best management practices for nonpoint source water quality improvement; protecting shoreline and upland habitat through easement or purchase; implementing green infrastructure measures; designing and constructing storm water parks; completing and implementing watershed management plans; protecting, restoring and managing critical aquatic, shoreline and upland habitat through a variety of hydrologic, landscape, vegetation and wildlife management actions; establishing living shoreline habitat; and implementing other water quality and habitat restoration techniques. Metrics will likely include, but not be limited to: number of acres of sea grass beds restored/protected; linear feet of shoreline restored/protected; number of acres of upland habitat restored/protected; and number of acres restored/protected from invasive species.

Duration of Activity: Estimate 5 years.

Life of Activity: Over 20 Years. Following establishment of the Estuary Program and development of the Comprehensive Plan, projects will continuously be identified, incorporated into the Estuary Program's Work Plan, funded and implemented in support of the Comprehensive Plan framework.

ENVIRONMENTAL COMPLIANCE:

Council approval of funding for this proposed activity would not involve or lead directly to ground-disturbing activities that may have significant effects on the environment individually or cumulatively, nor would it commit the Council to a particular course of action affecting the environment. The Council has considered potential extraordinary circumstances, including potential negative effects to threatened and endangered species, essential fish habitat, Tribal interests and/or historic properties, where applicable, and has determined that no such circumstances apply. Accordingly, the Council has determined that this proposed activity would be covered by the Council's National Environmental Policy Act (NEPA) Categorical Exclusion for planning, research or design activities. (See the Council's NEPA Procedures, Section 4(d)(3): *insert link to Procedures*.)

MAP:

5839 ***Category 2:***
5840
5841 **Activity:** Pensacola Bay Living Shoreline - Phase I (Implementation)
5842 **Unique Identifier:** FL_RESTORE_001_002_Cat2
5843 **Location:** Escambia County, Florida
5844 **Type of Activity:** Implementation
5845 **FPL Category:** 2 – Prioritized for Further Review
5846 **Cost Estimate:** $1,564,636
5847 **Responsible Council Member:** State of Florida
5848 **Partnering Council Member(s):** N/A
5849 **Originally submitted by**: The State of Florida as a component within the proposal "Pensacola
5850 Bay Watershed Restoration"
5851
5852 **Executive Summary**: The Pensacola Living Shoreline Phase I is a multi-phase living shoreline
5853 project that totals 24,800 linear feet of rock and oyster reef breakwater and 205 acres of
5854 emergent marsh and submerged aquatic vegetation (SAV) habitat. This component of the
5855 project is for the implementation of approximately 2,000 linear feet of an offshore rock and
5856 oyster reef breakwater and approximately 25 acres of protected emergent marsh and SAV
5857 behind the breakwater adjacent to White Island in Escambia County, Florida.
5858
5859 **PROJECT DESCRIPTION:**
5860
5861 **Specific Actions/Activities:** Activities associated with this component include the creation of
5862 approximately 2,000 linear feet of offshore rock and oyster reef breakwater and approximately
5863 25 acres of protected emergent marsh and SAV behind the breakwater adjacent to White Island
5864 in Escambia County, Florida; and project monitoring, data analysis and reporting.
5865
5866 **Deliverables:** Deliverables will include approximately 2,000 linear feet of an offshore rock and
5867 oyster reef breakwater and approximately 25 acres of protected emergent marsh and SAV
5868 behind the breakwater adjacent to White Island in Escambia County, Florida; monitoring report;
5869 monitoring data; and estuarine habitats and water quality educational signage.
5870
5871 **Ecological Benefits/Outcomes and Metrics:** Environmental benefits of this living shoreline
5872 project will include improved water quality, new oyster reef habitat, new emergent marsh
5873 habitat, and new SAV habitat for fish, shrimp, crabs, birds, sea turtles and other estuarine
5874 species. The shorelines will be stabilized with vegetation, wave energy will be attenuated by
5875 the offshore oyster reef breakwater, and shoreline erosion will be reduced and provide
5876 shoreline protection. Water quality benefits will include reduced turbidity and increased water
5877 clarity resulting in increased light penetration for photosynthesis. Increased fishery production
5878 and increased fishery economic opportunities will be provided by the new fishery habitat
5879 created. The improvements to water quality will be important for ecotourism and recreational
5880 opportunities for visitors and local citizens. Additionally, socio-economic benefits will include
5881 increased recreation and commercial fisheries production, increased shoreline and

infrastructure protection, increased property values for protected properties, and utilization of local engineering and construction work forces.

Measurable goals, objectives and metrics will include constructing Phase 1 (Site A) of a viable living shoreline restoration project in Pensacola Bay that will include approximately 2,000 linear feet of rock and oyster reef breakwater and approximately 25 acres of emergent marsh and SAV habitat. Development of a monitoring plan as part of the planning activity will identify collection methods, parameters to be measured, and quality assurance/quality control procedure. Sampling sites, as well as frequency and duration of sampling events, will also be included.

Leveraging and Co-Funding:

- **Adjoining:** $10.8 million of Natural Resource Damage Assessment Early Restoration funds have been received for living shoreline restoration in Pensacola Bay.

Duration of Activity: Approximately 12 months.

Life of Activity: Once the project is constructed it is anticipated that the project's ecological benefits will be sustainable over the long-term, at least 25 years, without any additional maintenance. Living shorelines address further shoreline erosion by providing long-term protection, by attenuating wave energy, decreasing shoreline erosion, and restoring of vegetated shoreline habitats through strategic placement of plants, and rock and oyster reef. For this reason, it is anticipated that this project will have a long lifespan and provide a greater resiliency to sea level rise.

RESPONSE TO SCIENCE REVIEWS:

Comment: Three science reviews were conducted as part of the Gulf Coast Ecosystem Council submission evaluation. Most of the remarks received relating to the Pensacola Bay Watershed proposal were favorable. Specific comments to the Pensacola Bay Living Shoreline – Phase I concerned post-monitoring details, quality of material, and the lack of a cost-benefit analysis.

Response: A monitoring plan will be developed following the completion of the planning and design. The monitoring plan will detail the collection methods, parameters to be measured, and quality assurance/quality control procedures. Sampling sites, as well as frequency and duration of sampling events, will be included. A verification process for all of the collected data will ensure quality and integrity of data.

Monitoring events will be conducted before construction occurs (baseline), during construction, and after construction is completed. The pre- and post-construction monitoring will enable comparisons to determine if the project has been successful in meeting its goals. Monitoring during construction will ensure that the project is being constructed according to plans and regulatory permit conditions, or if there are needed adaptive changes, adjustments, or modifications.

Water quality parameters to be monitored include depth, temperature, salinity, conductivity, dissolved oxygen, turbidity, total suspended solids, total nitrogen, total phosphorus, and fecal coliform bacteria. Vegetation parameters to be monitored include species present, percent coverage, percent survival, and height. Fishery habitat utilization parameters to be monitored include relative abundance and species diversity.

This living shoreline project will apply the expertise and lessons learned by Florida Department of Environmental Protection (FDEP) scientists and Escambia County scientists who designed, constructed, and monitored the very successful Project Greenshores in Pensacola Bay (www.epa.gov/gmpo/projects/greenshores_intro.html). It will provide a comprehensive science-based approach to restoration based on data and historical aerial photography that shows a loss of oyster reefs, emergent marsh, and SAV habitat in Pensacola Bay. The offshore breakwater reef base will be constructed with clean recycled concrete and limestone rock, as was utilized in the Project Greenshores in Pensacola Bay.

Even though a full cost-benefit analysis of the project was not completed, living shoreline projects provide new oyster reef habitat, new emergent marsh habitat, and new SAV habitat for fish, shrimp, crabs, birds, sea turtles and other estuarine species, and they provide forage and nesting areas for birds, attenuate wave energy, reduce shoreline erosion, stabilize sediments, increase water clarity, and decrease turbidity (Bilkovic and Mitchell, 2013). For these reasons, as well as the cost-effectiveness and sustainability of living shoreline projects when compared to hardened shorelines of seawalls and rock riprap, this approach and solution has been chosen for the western shore of Pensacola Bay.

ENVIRONMENTAL COMPLIANCE:

The Council proposes to list this activity as a priority for potential future funding. Notwithstanding anything to the contrary set forth herein, at this time the Council is not approving or committing any funds for the implementation of this activity. Additional environmental compliance information is needed before the Council considers whether to approve funding for implementation of this activity. If sufficient additional environmental compliance information becomes available between the issuance of this draft FPL and completion of the final FPL, the Council may consider such information and thereafter approve this activity for funding, and move it to FPL Category 1. In such case the final FPL would include information necessary to demonstrate compliance with NEPA and other applicable laws. Where applicable, the final FPL would also inform the public of any comment opportunities pertaining to environmental compliance. In some cases, Council approval of funding for an activity in Category 1 would not be final until after the public has had an opportunity to provide comments, and the Council has considered such comments as it prepares required decision documentation (such as a Finding of No Significant Impact for use of an Environmental Assessment).

MAP:

Activity: Beach Haven - Joint Stormwater & Wastewater Improvement Project - Phase II (Implementation)
Unique Identifier: FL_RESTORE_001_004_Cat2
Location: Escambia County, Florida
Type of Activity: Implementation
FPL Category: 2 – Prioritized for Further Review
Cost Estimate: $5,071,950
Responsible Council Member: State of Florida
Partnering Council Member(s): N/A
Originally submitted by: The State of Florida as a component within the proposal "Pensacola Bay Watershed Restoration"

Executive Summary: Septic tanks and untreated stormwater runoff are still significant sources of pollutants to impaired Bayou Chico, an important habitat area within the Pensacola Bay watershed. This project activity includes the construction of stormwater treatment facilities and connection of septic tanks to new central sewer infrastructure. The completed project will reduce sediment and nutrient loadings to Bayou Chico, reduce Biochemical Oxygen Demand (BOD), reduce total suspended solids (TSS), reduce turbidity, increase water clarity, and improve light penetration for photosynthesis to enable expansion of submerged aquatic vegetation (SAV) and emergent marsh habitat.

PROJECT DESCRIPTION:

Specific Actions/Activities: Specific activities include construction of stormwater treatment facilities, septic tank removal and connection to central sewer.

Deliverables: Deliverables associated with this activity include construction completion and monitoring data.

Ecological Benefits/Outcomes and Metrics: Expected ecological benefits include reduced sediment and nutrient loadings to Bayou Chico, reduced BOD, reduced TSS, reduced turbidity, increased water clarity, and improved light penetration for photosynthesis to enable expansion of SAV and emergent marsh habitat. Expected pollutant load reductions include 1,816 pounds of nitrogen, 804 pounds of phosphorus, 16,711 pounds of BOD, 289,927 pounds of total suspended solids, and 127,063 pounds of sediment. Specifically, this project addresses the following metrics: amount of nitrogen prevented from entering the system annually, amount of phosphorus prevented from entering the system annually, and amount of sediment prevented from entering the system annually.

Project	TN lbs/yr	TP lbs/yr	BOD lbs/yr	TSS lbs/yr	Sediment lbs/yr
Beach Haven Septic Abatement	241.3	94.5	985.3	0	0
Beach Haven Stormwater Retrofit	965.0	220.6	6,096.9	21,813	28,683
Totals	1,206.3	315.1	7,082.2	21,813	28,683

Leveraging and Co-Funding:

- **Co-funding:** Escambia County and the Emerald Coast Utilities Authority (ECUA) have committed to a 50% cost share, or $4,987,250. The Escambia County Community Redevelopment Agency has committed $215,000 to the Beach Haven Joint Stormwater & Wastewater Improvement Project.
- **Adjoining:** The County Water Quality and Land Management Division has recently received an Environmental Protection Agency (EPA) 319 Grant to contribute $750,000 toward new stormwater treatment in Beach Haven. Escambia County Neighborhood Enterprise has committed $318,000 from Community Development Block Grant funds in addition to already funding $300,000 for the preliminary project design. National Fish and Wildlife Foundation has granted over $11 million in funding for stormwater treatment and stream restoration in the Bayou Chico watershed. Additionally, to date the Bayou Chico stakeholders have completed 52 projects at an estimate of $25 million.

Duration of Activity: Three years from the time funds are awarded (this includes monitoring).

Life of Activity: At least a 25-year effective service life.

RESPONSE TO SCIENCE REVIEWS:

Comment: Three science reviews were conducted as part of the Gulf Coast Ecosystem Council submission evaluation. Most of the remarks received relating to the Pensacola Bay Watershed proposal were favorable. Comments specific to the Beach Haven – Joint Stormwater & Wastewater Improvement Project pertained to the past sources of contaminated sediment and whether or not they have been eliminated, the duration of the postmonitoring, commitment of partners, and type of anticipated outreach activities.

Response: Most of the sediment degradation is due to historic impacts, including industrial and domestic wastewater discharges, shipyard-related pollution, and long-term untreated stormwater runoff. Many of the discharges to the bayou have been eliminated and water quality has improved over the last decade, although some waterbody segments in Bayou Chico do not meet Florida's bacteria and nutrient water quality criteria. The Florida Department of Environmental Protection (FDEP) has adopted Total Maximum Daily Loads (TMDLs) restoration targets for these "impaired" waterbody segments. The bacteria TMDL for Bayou Chico calls for a 61% reduction in bacteria sources; the nutrient TMDL for a portion of Bayou Chico calls for a 30% reduction in both total nitrogen and total phosphorus. This project will assist in achieving the pollution reduction goals established for the Bayou Chico watershed.

There is currently an active water quality monitoring program in Bayou Chico for the Basin Management Action Plan (BMAP); this water quality monitoring data will also be included in the Monitoring Report. All monitoring will be in accordance with adopted EPA and FDEP protocols and Standard Operating Procedures. To ensure that the Joint

Stormwater/Wastewater Improvement projects perform as anticipated, and to improve the effectiveness and efficiency of implementation of future projects, an Adaptive Management strategy will be implemented. Additionally, the County or City will be required to test the stormwater treatment facilities every three years and provide documentation to the Water Management District that the systems are operating as designed. The maintenance requirements and three year testing requirements of the Northwest Florida Water Management District will also serve to ensure that the project will meet or exceed its service life.

In October 2011, the FDEP adopted the Bayou Chico Watershed BMAP which represents a collaborative effort by Escambia County, City of Pensacola, Emerald Coast Utility Authority, Escambia County Health Department, Florida Department of Transportation, Bayou Chico Association, U.S. Naval Air Station, the University of West Florida, the Bay Area Resources Council, and the Northwest Florida Water Management District. The plan identifies over 50 actions to address the water quality impairments in the six waterbody segments within the Bayou Chico watershed. The types of projects that stakeholders have been implementing that help to address these impairments include sanitary sewer expansion projects, stormwater improvements, pet waste ordinance adoption, septic tank inspections and testing (prior to property sales), neighborhood clean-sweep programs, barge and derelict vessel removals, Clean Marina and Boatyard Program implementation, and Bayou Chico channel dredging (improved flushing). The commitment of all these entities is well established.

Escambia County and ECUA are the cooperating partners for the Beach Haven Joint Stormwater/Wastewater Improvement Project. Escambia County will be the lead agency and an Escambia County Senior Scientist will be the Project Manager. Escambia County will coordinate and manage all aspects of this project and ensure a successful completion.

Outreach associated with the Bayou Chico Watershed Basin Management Action has been ongoing since 2009 with the development of the plan. A total of nine technical meetings with local governments and community stakeholders were held. The purpose of the public meetings was to consult with key stakeholders to gather information on the impaired waterbody and its tributaries; identify potential sources; conduct field reconnaissance; define programs, projects, and actions currently under way; and develop the restoration plan contents and actions that would result in improved water quality, with the goal of achieving the TMDL target reductions. Escambia County and ECUA will continue to keep stakeholders and the public informed through meetings, as well as on their website.

ENVIRONMENTAL COMPLIANCE:

The Council proposes to list this activity as a priority for potential future funding. Notwithstanding anything to the contrary set forth herein, at this time the Council is not approving or committing any funds for the implementation of this activity. Additional environmental compliance information is needed before the Council considers whether to approve funding for implementation of this activity. If sufficient additional environmental

compliance information becomes available between the issuance of this draft FPL and completion of the final FPL, the Council may consider such information and thereafter approve this activity for funding, and move it to FPL Category 1. In such case the final FPL would include information necessary to demonstrate compliance with NEPA and other applicable laws. Where applicable, the final FPL would also inform the public of any comment opportunities pertaining to environmental compliance. In some cases, Council approval of funding for an activity in Category 1 would not be final until after the public has had an opportunity to provide comments, and the Council has considered such comments as it prepares required decision documentation (such as a Finding of No Significant Impact for use of an Environmental Assessment).

MAP:

ED_005856B_00002024-00156

Appendix H. Apalachicola Bay

Category 1:

Activity: Apalachicola Watershed Agriculture Water Quality Improvement (Planning)
Unique Identifier: FL_RESTORE_002_005_Cat1
Location: Multiple Counties, Florida
Type of Activity: Planning
FPL Category: 1 – Funding Eligible
Cost Estimate: $332,978
Responsible Council Member: State of Florida
Partnering Council Member(s): United States Department of Agriculture (USDA)
Originally submitted by: The State of Florida as a component within the proposal "Apalachicola Bay Watershed Restoration"

Executive Summary: The Florida Department of Agriculture and Consumer Services (FDACS) will provide oversight to administer cost share to landowners to implement FDACS and USDA Natural Resources Conservation Service (NRCS) water quality-focused Best Management Practices (BMPs) which will reduce pollutant loadings by 20-30% per application. The objective of this activity is to complete all planning, participating farm enrollment, along with applicable environmental compliance and permitting.

PROJECT DESCRIPTION:

Specific Actions/Activities: Enroll participating farms; work with all applicable state and federal agencies to verify environmental compliance and acquire permits.

Deliverables: Deliverables associated with the planning include a list of enrollees, environmental compliance verification and permits.

Ecological Benefits/Outcomes and Metrics: Outcomes of the planning activity include all required local, state, and federal permits and completion of environmental compliance analysis. Expected ecological benefits and metrics of the program implementation are available in the below Category 2 implementation project with unique identifier *Apalachicola Watershed Agriculture Water Quality Improvement FL_RESTORE_002_005_Cat2*

Leveraging: See the below Category 2 implementation project with unique identifier *Apalachicola Watershed Agriculture Water Quality Improvement FL_RESTORE_002_005_Cat2.*

Duration of Activity: It is anticipated to take between six to twelve months to complete the environmental compliance and permitting.

Life of Activity: See the below Category 2 implementation project with unique identifier *Apalachicola Watershed Agriculture Water Quality Improvement FL_RESTORE_002_005_Cat2.*

RESPONSE TO SCIENCE REVIEWS:

Comment: Three science reviews were conducted as part of the Gulf Coast Ecosystem Council submission evaluation. The disparate reviews of the Apalachicola Bay Watershed proposal provided no specific comments related to the Apalachicola Watershed Agriculture Water Quality Improvement program.

Response: However, it should be noted that this program is built on years of knowledge developing and implementing agricultural BMPs and programs by the FDACS, USDA-Natural Resources Conservation Service, and Northwest Florida Water Management District.

ENVIRONMENTAL COMPLIANCE:

Council approval of funding for this proposed activity would not involve or lead directly to ground-disturbing activities that may have significant effects on the environment individually or cumulatively, nor would it commit the Council to a particular course of action affecting the environment. The Council has considered potential extraordinary circumstances, including potential negative effects to threatened and endangered species, essential fish habitat, Tribal interests and/or historic properties, where applicable, and has determined that no such circumstances apply. Accordingly, the Council has determined that this proposed activity would be covered by the Council's National Environmental Policy Act (NEPA) Categorical Exclusion for planning, research or design activities. (See the Council's NEPA Procedures, Section 4(d)(3): insert link to Procedures.)

MAP:

Activity: Tate's Hell Strategy 1 (Planning)
Unique Identifier: USDA_RESTORE_002_001_Cat1
Location: Florida, Franklin County
Type of Activity: Planning
Category: 1 – Funding Eligible
Cost Estimate: $2,500,000
Responsible Council Member: U.S. Department of Agriculture (USDA)
Partnering Council member(s): USDA and the State of Florida
Originally submitted by: The USDA as a component within the proposal "The Apalachicola Project Phase 1: Restoring Apalachicola Bay and Region"

Executive Summary: This foundational project is for the development of a landscape scale hydrologic assessment, a Regional Restoration Decision Support System and a Comprehensive Hydrologic Assessment and Restoration Plan (CHAR Plan) for planning restoration activities in the Lower Apalachicola River basin. This plan identifies and prioritizes future restoration opportunities throughout the Lower Apalachicola River Basin and Apalachicola Region based on best available science to strategically target and prioritize restoration activities. Once this decision tool is implemented in Florida, it can be utilized throughout the Gulf by adding in the unique data that pertains to each specific region.

PROJECT DESCRIPTION:

Specific Actions/Activities: A landscape scale hydrologic assessment will be developed for watersheds adjacent to those being restored on Tate's Hell State Forest (THSF) and adjacent watersheds on the Apalachicola National Forest (ANF) to improve water quality within the lower Apalachicola River Basin in future phases of this project. This comprehensive hydrologic plan will be developed through a contract and will utilize existing hydrologic assessments, existing GIS data, freely available LiDAR data and field visits. The assessment will include water level and vegetation monitoring and analysis, determination of the completeness and effectiveness of previous hydrologic restoration activities, and comparison of current and historic hydrologic and vegetation conditions. This will involve coordination across all partner agencies: U.S. Forest Service (USFS), U.S. Fish and Wildlife Service (USFWS), Florida Forest Service (FFS), The Nature Conservancy (TNC) and Northwest Florida Water Management District (NWFWMD).

To promote science-based decision-making and guide hydrologic and habitat restoration efforts, a Regional Restoration Decision Support System (RRDSS) will be developed. Data that is currently under the management of separate agencies (FFS, FWC, NWFWMD and USFS) can be incorporated into the system to create a functional large-scale RRDSS. Once applied initially to the Lower Apalachicola River Basin, the RRDSS will then be used to build an effective framework of regional hydrologic priorities versus focusing on specific agency needs bounded by real property lines. Once this decision tool is implemented in Florida, it can be utilized throughout the Gulf by adding in the unique data that pertains to each specific region.

The landscape scale hydrologic assessment results will be used in conjunction with the RRDSS to develop a CHAR Plan that identifies and prioritizes future restoration opportunities throughout the Lower Apalachicola River Basin and Apalachicola Regional Stewardship Alliance (ARSA) Region based on best available science. The primary emphasis will be where habitat and hydrologic restoration opportunities closely overlap. In addition, the USFS will develop an agreement with TNC to sell merchantable forest products resulting from these future restoration planned activities.

Deliverables: A landscape scale hydrologic assessment, a Regional Restoration Decision Support System tool and a CHAR Plan.

Ecological Benefits/Outcomes and Metrics: The immediate outcome of this project will be the actual development of the assessment, decision support tool and the CHAR Plan. These three planning tools will lead to the implementation of coordinated restoration activities covering 2 million acres of land including 700,000 acres of public land. Future outcomes will include direct hydrologic improvements (e.g., installation of low water crossings), wetland restoration, timber thinning, prescribed fire, longleaf restoration and invasives treatments. The USFS prototype RRDSS has already been utilized on the ANF, demonstrating there are over 60,000 acres of overstocked pine plantations needing thinning on the Forest alone. Based on additional data, the USFS has determined that thinning would nearly double the water yield from these overstocked areas. In addition to prioritizing future projects, these plans support four proposed ANF projects including over 70,000 acres of restoration. It will also be available to provide critical information for future landscape-scale restoration projects in Florida and across the Gulf Region.

Leveraging and Co-Funding:

- **Co-funding:** Planning support for the hydrologic monitoring will be provided by TNC and a portion of the FTE for this position will be covered through this project.
- **Adjoining:** Restoration plans exist for many public and non-profit entities in the Region. These plans will be utilized and updated where appropriate with partner involvement. Partners with existing plans include the FFS, TNC, Florida Fish and Wildlife Conservation Commission, Department of Defense, Florida Department of Environmental Protection, FWS, Wakulla County, the NWFWMD and the ANF.
- **Building on prior or other investments:** Existing hydrologic plans for THSF, Apalachicola River Wildlife and Environmental Area (ARWEA) and Apalachicola River Water Management Area will also be utilized to develop the CHAR Plan for the Lower Apalachicola River Basin. This restoration plan will build on work already done on THSF and ARWEA and will leverage existing data sources (LIDAR, GIS infrastructure databases) to the fullest extent possible. Similarly, the RRDSS will leverage free 4 band National Agricultural Imagery Program imagery, Landsat imagery and GIS tools developed by the USFS Rocky Mountain Research Station. The RRDSS will also be coordinated with the new Longleaf Pine Ecosystem Geodatabase developed by the Florida Natural Areas Inventory and FFS. The RRDSS will initially leverage the existing geodatabase and provide invaluable updates to this database in the Apalachicola region.

Duration of Activity: 5 years.

Life of Activity: Over 15 years depending on best available science and technology.

RESPONSE TO SCIENCE REVIEWS:

Comment: The three external science reviews contain mainly positive feedback about the proposal. They state the proposal appears to be "competently planned and well-documented" with the "strategic plans clearly presented... and the budget narrative is very detailed and reasonable". As one reviewer states, "This is a good proposal implementing a truly ecosystem approach which integrates restoration of both upper watersheds and bay systems simultaneously and explicitly involves stakeholders... and shows an effective restoration effort model which is transferable to other Gulf regions". Though one evaluator has limited expertise in the proposed subject area, they do "support the proposal in its application of modeling software to monitor regional conditions and foresee the impacts of changes".

All three reviewers point out similar concerns in their reviews. These focus around the lack of a risk mitigation plan and planning for uncertainties.

Response: For the planning portion of our proposal, which this project is focused on, the actual tools themselves (hydrological assessment, decision support system and restoration plan) are being proposed in order to increase the effectiveness of implementation and lower risk and uncertainties associated with landscape-scale restoration efforts. As stated in the proposal, these tools are being developed to reduce wildfire risk, increase climate change resilience and reduce the risk to endangered threatened and candidate species such as the gopher tortoise and indigo snake.

One risk associated with science-based restoration plans is data gaps. This risk is addressed in the proposal by the pre-plan elements being proposed—the hydrologic assessment and the Regional Restoration Decision Support System. These two tools will pull together peer reviewed scientific data, mapping data from all of the partners including data which is currently under the management of separate agencies as well as on-the-ground inventory data from Florida Natural Areas Inventory. All of this data will be combined to write a science-based Comprehensive Hydrologic Assessment and Restoration Plan.

Another risk/ uncertainty with new technology development (RRDSS) is that it will not work. This is why the RRDSS in the proposal is based on a prototype that has been utilized by both the USFS Rocky Mountain Research Station and the ANF. The prototype is already demonstrating positive results for restoration on the ANF and expanding the use of it to surrounding properties is not expected to be a problem.

The last concern would be the use of the plans after they are written. Implementing these management plans can be a roadblock for many restoration efforts. Fortunately, through the

12 collaborative partnerships in the Apalachicola Region, the Apalachicola Regional Stewardship Alliance is able to address these concerns and quickly and efficiently implement plans. These tools and restoration plans will not only be utilized by the partners in the proposal but also can be replicated across the Gulf region for other landscape-scale restoration efforts.

ENVIRONMENTAL COMPLIANCE:

Council approval of funding for this proposed activity would not involve or lead directly to ground-disturbing activities that may have significant effects on the environment individually or cumulatively, nor would it commit the Council to a particular course of action affecting the environment. The Council has considered potential extraordinary circumstances, including potential negative effects to threatened and endangered species, essential fish habitat, Tribal interests, and/or historic properties, where applicable, and has determined that no such circumstances apply. Accordingly, the Council has determined that this proposed activity would be covered by the Council's National Environmental Policy Act (NEPA) Categorical Exclusion for planning, research or design activities. (See the Council's NEPA Procedures, Section 4(d)(3): *insert link to Procedures*.)

MAP:

Activity: Money Bayou Wetlands Restoration (Planning)
Unique Identifier: DOC_RESTORE_001_009_Cat1
Location: Florida, Gulf County
Type of Activity: Planning
FPL Category: 1 – Funding Eligible
Cost Estimate: $352,726
Responsible Council Member: Department of Commerce (DOC)/National Oceanic and Atmospheric Administration (NOAA)
Partnering Council member(s): Florida Department of Environmental Protection
Originally submitted by: The DOC as a component within the proposal "Connecting Coastal Waters: Restoring Coastal Wetland Hydrology"

Executive Summary: This project is part of the *Connecting Coastal Waters* initiative NOAA will lead with partners to implement projects that restore the extent, functionality, and resiliency of Gulf Coast wetlands and provide a science-based inventory of wetland hydrology restoration projects that make the greatest contribution to that goal. This project will complete planning and design with local partners to restore a natural hydrology to approximately 1,000 acres of wetlands on the St. Joseph Bay State Buffer Preserve in Florida. A restoration plan, engineering design, regulatory compliance, monitoring and evaluation plan, and outreach and education plan will be completed to implement this project activity to restore Gulf Coast wetlands in Florida.

PROJECT DESCRIPTION:

Specific Actions/Activities: The *Connecting Coastal Waters* initiative will restore and enhance ecosystem resilience, sustainability, and natural defenses by reestablishing natural hydrology and connectivity between freshwater and marine habitats in priority areas across the Gulf Coast. The Money Bayou basin includes over 1,800 acres of estuarine and freshwater marsh interspersed with forested wetlands. Money Bayou drains directly to the Gulf of Mexico between Cape San Blas and St. Vincent Island. Money Bayou basin is now protected within the St. Joseph Bay State Buffer Preserve; however, extensive ditching, road construction, and fire plow lines were constructed across the basin. These alterations disrupt the area's natural hydrology, resulting in degraded wetlands, the loss of aquatic communities, and invasive plant species. This project will complete the planning, engineering, and design required to restore natural hydrology to approximate 1,000 acres of wetlands in the St. Joseph Bay State Buffer Preserve in Florida. Restoration activities required include filling ditches, installing or repairing culverts, installing low-water crossings, removing invasive plant species, planting native species, and prescribed burning in restored areas. This project will also develop plans for a robust monitoring and evaluation approach using objective measures of success. An outreach and education plan will be developed to engage the public and transfer best practices to restoration practitioners.

Task 1: Planning and Local Involvement: A project team will be assembled to provide technical input and expertise. This task will also evaluate restoration strategies to address site specific

requirements and coordinate with state and federal regulatory agencies to incorporate their input at the earliest stages of project implementation.

Deliverable 1: Project team member's list, roles, and team description.

Task 2: Engineering and Design: This task will evaluate restoration techniques capable of achieving the desired project outcomes. Engineering studies, modeling, if necessary, and a final design will be completed and approved by a professional engineer.

Deliverable 2.1: Plan of Work for Completion of Design.

Deliverable 2.2: Final Design Report, including summary of environmental studies and models, a design drawings and specifications package approved by a professional engineer; and a project construction cost estimate.

Task 3: Regulatory Compliance: NOAA will conduct early coordination with regulatory agencies and ensure that all local, state, and federal permits are obtained prior to initiating construction. NOAA will also ensure compliance with the National Environmental Policy Act (NEPA).

Deliverable 3.1: Documentation of approval of all regulatory requirements, including NEPA evaluation, NOAA and Department of the Interior consultation letters, and final approved permits.

Task 4: Monitoring and Evaluation Plan: A monitoring and evaluation plan that builds on identified goals and objectives will be developed. The monitoring plan will detail specific parameters, collection methods, and quality assurance and quality control procedures. The data collected before and after project construction will identify problems, document progress toward goals and objectives, and inform adaptive management decision-making. The evaluation plan will identify project specific measures of success in meeting restoration goals and objectives.

Deliverable 4.1: Monitoring and Evaluation Plan.

Task 5: Outreach and Education Plan: The project team will develop a strategy for public engagement in cooperation with partners and existing community groups. Strategies may include site tours, presentations, outreach materials, videos, and other efforts to share project success.

Deliverable 5.1: Outreach and Education Plan.

Task 6: Inventory of Coastal Wetland Hydrology Restoration Opportunities: NOAA will lead a collaborative, science-based inventory of coastal wetland hydrology restoration projects to meet the Council's goals for ecosystem restoration. This task will expand the 2012 hydrology restoration inventory conducted by NOAA and Sea Grant to be compatible with the goals of the Council and to focus on coastal wetland hydrology, a regionally significant need for ecosystem restoration.

Deliverable 6.1: Inventory plan of work including focal areas, data standards, and project screening criteria to ensure that the best available science is applied to the inventory.

Deliverable 6.2: Inventory report and online map of coastal wetland hydrology restoration opportunities.

Ecological Benefits/Outcomes and Metrics: The St. Joseph Bay State Buffer Preserve protects 5,019 acres in Gulf County. The St. Andrew Bay watershed, the Apalachicola River Basin, and the Money Bayou watershed all converge within the Preserve. The Money Bayou basin occupies over 1,800 acres within the Preserve including hundreds of acres of emergent estuarine and freshwater marsh that grade into wet prairie interspersed with cypress strands and islands of pine flatwoods. Preserve lands are of special biological significance and were acquired to protect a full range of threatened coastal habitats and species. Three globally imperiled plant species and 18 other confirmed rare, endangered, or threatened plants species occur within the Preserve. Extensive hydrological disruption has occurred on the Preserve since the early 1900s. Removing prior disturbances that have altered wetland community structure will promote natural water flow and restore historic wetland function by reconnecting natural drainage pathways within the watershed. This will improve the water quality of surface water flows and runoff discharge to surrounding waters. Restoring historic drainage patterns and hydrologic connectivity, along with restoring ground cover, will conserve soil and decrease turbidity in these water bodies during significant rainfall. Enhancing wetland hydrology and function will restore a mix of natural ecological communities that have been impacted across the Preserve including wet prairie, seepage slope, floodplain marsh, strand swamp, basin swamp, and dome swamp. The measures of success for this planning project are the completion, with partners, of detailed planning, engineering and design that meet environmental compliance standards and is permitted for implementation, and detailed monitoring and evaluation and outreach and education plans. Together, these outcomes will inform the implementation phase of this project, including detailed restoration objectives, measures of success, and community engagement activities.

Leveraging and Co-Funding: This project leverages extensive baseline data and maps developed by the St. Joseph Bay Buffer Preserve as well as a collaborative management plan update that focused on hydrological restoration needs on the Preserve. In addition, the Friends of the St. Joseph Bay Preserve, a non-profit organization, conducts educational programs and volunteer activities that will be leveraged for this project to enhance outreach and education planning and community engagement.

Duration of Activity: 2 years.

Life of Activity: N/A (Planning)

RESPONSE TO SCIENCE REVIEWS:

Comment: External science review of the *Connecting Coastal Waters* (CCW) proposal, which included a total of eleven projects, resulted in one all or mostly positive response and two generally positive responses, but with a need for more information. Reviewers requested information related to outcomes that will come from planning, engineering, design, and permitting including, site-specific conditions, evaluation of uncertainties, risks, mitigation, and measures of success.

Response: This project will implement the planning, engineering, design, and permitting necessary to provide the detailed, site-specific information requested by external science reviewers. This project will also build on the approach to planning and monitoring described in the CCW proposal to develop site-specific, science-based objectives and a detailed monitoring and evaluation plan with measures of success. Additional evaluation of project uncertainties, risk, and mitigation will be completed through the environmental compliance process.

ENVIRONMENTAL COMPLIANCE:

Council approval of funding for this proposed activity would not involve or lead directly to ground-disturbing activities that may have significant effects on the environment individually or cumulatively, nor would it commit the Council to a particular course of action affecting the environment. The Council has considered potential extraordinary circumstances, including potential negative effects to threatened and endangered species, essential fish habitat, Tribal interests and/or historic properties, where applicable, and has determined that no such circumstances apply. Accordingly, the Council has determined that this proposed activity would be covered by the Council's National Environmental Policy Act (NEPA) Categorical Exclusion for planning, research or design activities. (See the Council's NEPA Procedures, Section 4(d)(3): insert link to Procedures.)

MAP:

Activity: Apalachicola Bay Oyster Restoration (Planning)
Unique Identifier: FL_RESTORE_002_006_Cat1
Location: Franklin County, Florida
Type of Activity: Planning
FPL Category: 1 – Funding Eligible
Cost Estimate: $702,000
Responsible Council Member: State of Florida
Partnering Council Member(s): N/A
Originally submitted by: The State of Florida as a component within the proposal "Apalachicola Bay Watershed Restoration"

Executive Summary: Oyster reefs are important to Apalachicola Bay's future; Beck et al. (2011) estimated that 85% of oyster reefs have been lost globally, with Apalachicola Bay being one area with significant remaining reefs (Beck et al. 2011). Therefore, placing substrate or "cultch" in bays where natural reproduction occurs, is among the most effective technique used to: 1) create reef infrastructure, 2) stimulate spat setting, 3) sustain oyster fisheries, 4) enhance community functions, 5) increase natural productivity, and 6) accelerate the recovery process. The objective of this activity is to extend the Deepwater Horizon Natural Resource Damage Assessment Early Restoration Phase III oyster cultch project by completing all applicable environmental compliance and permitting to restore approximately 219 additional acres of natural oyster reefs through the addition of approximately 43,858 cubic yards of cultch material.

PROJECT DESCRIPTION:

Specific Actions/Activities: Work with all applicable state and federal agencies to complete environmental compliance and acquire permits.

Deliverables: Deliverables associated with the planning include environmental compliance verification and permits.

Ecological Benefits/Outcomes and Metrics: Outcomes of the planning activity include all required local, state, and federal permits and completion of environmental compliance analysis. Expected ecological benefits and metrics of the actual program are available below in the Category 2 implementation project with unique identifier *Apalachicola Bay Oyster Restoration FL_RESTORE_002_006_Cat2.*

Leveraging: See the below Category 2 implementation project with unique identifier *Apalachicola Bay Oyster Restoration FL_RESTORE_002_006_Cat2.*

Duration of Activity: It is anticipated to take between six to twelve months to complete the environmental compliance and permitting.

Life of Activity: See the below Category 2 implementation project with unique identifier *Apalachicola Bay Oyster Restoration FL_RESTORE_002_006_Cat2.*

RESPONSE TO SCIENCE REVIEWS:

Comment: Three science reviews were conducted as part of the Gulf Coast Ecosystem Council submission evaluation. The three reviews of the Apalachicola Bay Watershed proposal were disparate. Some specific comments to the Apalachicola Bay Oyster Restoration project related to the number of literature reviews, the level of risk mitigation assessment, and monitoring strategies.

Response: Ten literature reviews and citations were provided as part of the Apalachicola Bay Oyster Restoration project. The array of topics covered by the cited literature include oyster reef restoration risk and management; biological and ecological assessment; economic valuation of ecosystem services; and oyster recovery. One citation was inadvertently not included on the reference list:

Havens, K., Allen, M., Camp, E., Irani, T., Lindsey, A., Morris, J., Kane, A., Kimbro, D., Otwell, S., Pine, B., Walters, C., 2013. Apalachicola Bay Oyster Situation Report. University of Florida Institute of Food and Agricultural Science.

The Florida Department of Agriculture and Consumer Services (FDACS) has been involved in rehabilitating oyster reefs for more than sixty years and provides a multi-dimensional approach built on decades of experience. FDACS has a history of completing restoration projects following devastating natural disasters, such as hurricanes, floods and droughts (Berrigan 1988). Based on the type of project and the experience of the implementing entity, the referenced literature is sufficient for the purpose of this on the ground restoration project.

The proposal included a brief discussion on the risks and uncertainties of conducting oyster reef restoration. Review comments related to the lack of detail and brevity of the risk assessment are understandable if it were not for the extensive experience FDACS has conducting similar oyster cultch restoration in the Florida Panhandle. As stated above, they have conducted oyster restoration projects for decades and are well equipped to predict and address risks and uncertainties. The proposal did discuss the two largest risks: hurricanes and continued low freshwater flows. These have both been the cause of historic oyster population declines in the Apalachicola Bay.

The post construction monitoring and success criteria identified for this project are built on years of experience collecting, monitoring, and analyzing natural and restored reefs in the Apalachicola Bay area. The activities, expected outputs, and desired outcomes have all been identified. The post construction survey methodology is fully developed as stated in the Ecological Benefits/Outcomes and Metrics section, above.

ENVIRONMENTAL COMPLIANCE:

Council approval of funding for this proposed activity would not involve or lead directly to ground-disturbing activities that may have significant effects on the environment individually or cumulatively, nor would it commit the Council to a particular course of action affecting the environment. The Council has considered potential extraordinary circumstances, including potential negative effects to threatened and endangered species, essential fish habitat, Tribal interests and/or historic properties, where applicable, and has determined that no such circumstances apply. Accordingly, the Council has determined that this proposed activity would be covered by the Council's National Environmental Policy Act (NEPA) Categorical Exclusion for planning, research or design activities. (See the Council's NEPA Procedures, Section 4(d)(3): insert link to Procedures.)

MAP:

6595 ***Category 2:***
6596
6597 **Activity:** Apalachicola Watershed Agriculture Water Quality Improvement (Implementation)
6598 **Unique Identifier:** FL_RESTORE_002_005_Cat2
6599 **Location:** Multiple Counties, Florida
6600 **Type of Activity:** Implementation
6601 **FPL Category:** 2 – Prioritized for Further Review
6602 **Cost Estimate:** $1,886,878
6603 **Responsible Council Member:** State of Florida
6604 **Partnering Council Member(s):** United States Department of Agriculture (USDA)
6605 **Originally submitted by:** The State of Florida as a component within the proposal "Apalachicola
6606 Bay Watershed Restoration"
6607
6608 **Executive Summary:** The Florida Department of Agriculture and Consumer Services (FDACS) will
6609 provide oversight to administer cost share to landowners to implement FDACS and USDA
6610 Natural Resources Conservation Service (NRCS) water quality-focused Best Management
6611 Practices (BMPs) which will reduce pollutant loadings by 20-30% per application. The objective
6612 of this initiative is to reduce sediments and pollutants generated from agricultural operations in
6613 the focus area, which would also reduce their deposition into tributary streams of the
6614 Apalachicola River and improve agricultural irrigation efficiency in the Apalachicola River Basin
6615 including increased water conservation.
6616
6617 **PROJECT DESCRIPTION:**
6618
6619 **Specific Actions/Activities:** FDACS will contract with local soil and water conservation district
6620 boards to administer cost-share funding to assist participating farmers implement state-
6621 adopted BMPs. FDACS Field staff and others will work with landowners to select the applicable
6622 BMPs and provide other technical assistance. The cost share-program will primarily be located
6623 in Jackson and Calhoun Counties and will include items such as guidance systems, precision soil
6624 sampling, remote-sensing techniques, variable-rate and section-control technology, and
6625 irrigation system retrofits.
6626
6627 **Deliverables:** Deliverables associated with this program include cost-share agreements with
6628 farmers; monitoring data, implementation of the BMP, outreach and education workshops,
6629 written materials, and field-based BMP demonstrations.
6630
6631 **Ecological Benefits/Outcomes and Metrics:** The program's ecological benefits will include more
6632 efficient agricultural operations, reduced nutrient loadings to the Apalachicola watershed, and
6633 increased water conservation. It will strengthen the economic viability and environmental
6634 compatibility of agriculture within the focus area. Documentation shows that improving
6635 irrigation system efficiency can conserve more than 56,000 gallons of water per pivot on a daily
6636 basis and result in more than 8,000 pounds less fertilizer being applied annually. Significant
6637 energy savings will also result. Metrics will include number of participating farmers, acres

enrolled, BMP tools adopted, irrigation systems retrofitted, nutrient load reductions, and amount of water saved.

Leveraging and Co-Funding:

- **Co-funding:** Partners that will contribute either cost share or technical assistance include USDA-NRCS, local soil and water conservation districts, the Northwest Florida Water Management District, and the Florida Department of Environmental Protection. Total dollar amount will be contingent on the number of program participants.
- **Building on prior or other investments**: The program will build on existing programs and resources that assist agricultural producers implement nutrient reduction (water quality) and water conservation practices.

Duration of Activity: Up to five years.

Life of Activity: Approximately ten years.

RESPONSE TO SCIENCE REVIEWS:

Comment: Three science reviews were conducted as part of the Gulf Coast Ecosystem Council submission evaluation. The disparate reviews of the Apalachicola Bay Watershed proposal provided no specific comments related to the Apalachicola Watershed Agriculture Water Quality Improvement program.

Response: However, it should be noted that this program is built on years of knowledge developing and implementing agricultural BMPs and programs by the FDACS, USDA-Natural Resources Conservation Service, and Northwest Florida Water Management District.

ENVIRONMENTAL COMPLIANCE:

The Council proposes to list this activity as a priority for potential future funding. Notwithstanding anything to the contrary set forth herein, at this time the Council is not approving or committing any funds for the implementation of this activity. Additional environmental compliance information is needed before the Council considers whether to approve funding for implementation of this activity. If sufficient additional environmental compliance information becomes available between the issuance of this draft FPL and completion of the final FPL, the Council may consider such information and thereafter approve this activity for funding, and move it to FPL Category 1. In such case the final FPL would include information necessary to demonstrate compliance with NEPA and other applicable laws. Where applicable, the final FPL would also inform the public of any comment opportunities pertaining to environmental compliance. In some cases, Council approval of funding for an activity in Category 1 would not be final until after the public has had an opportunity to provide comments, and the Council has considered such comments as it prepares required decision documentation (such as a Finding of No Significant Impact for use of an Environmental Assessment).

MAP:

Activity: Tate's Hell Strategy 1 (Implementation)
Unique Identifier: USDA_RESTORE_002_001_Cat2
Location: Franklin County, Florida
Type of Activity: Implementation
Category: 2 – Prioritized for Further Review
Cost Estimate: $4,500,000
Responsible Council Member: U.S. Department of Agriculture (UDSA)
Partnering Council member(s): USDA and the State of Florida
Originally submitted by: The USDA as a component within proposal "The Apalachicola Project Phase 1: Restoring Apalachicola Bay and Region"

Executive Summary: This funding is for the implementation of hydrologic restoration work identified as high priority in the Tate's Hell State Forest (THSF) Hydrologic Restoration Plan developed by the Northwest Florida Water Management District (NWFWMD) and the Florida Forest Service (FFS). This will include installing low water crossings, ditch blocks, constructing bridges, installing/replacing culverts and surface stabilization of 65 miles of roads. Additionally, approximately 2,100 acres of upland pine habitat (primarily longleaf) will be site prepped and planted on THSF in an effort to restore native habitat.

PROJECT DESCRIPTION:

Specific Actions/Activities: A 2010-2020 Hydrologic Restoration Plan was developed for THSF which described and prioritized all hydrologic restoration needs on the Forest. Initial plan implementation has already begun, and all remaining hydrologic restoration work identified in high priority areas on THSF will be completed through this project. This will include: installing 54 low water crossings, installing 144 ditch blocks, constructing 3 bridges, installing/replacing 72 culverts, removing 20 culverts, installing 2 box culverts, and surface stabilization of 65 miles of roads. Before construction can begin, Clean Water Act 404 General Permits and NWFWMD Forestry Authorization Notices will be applied for once funding has been approved for specific construction projects on Tate's Hell State Forest. This type of work has been quickly permitted in the past by the Army Corps of Engineers, approved by the State of Florida and listed in their Comprehensive Plans. The NWFWMD completes the application for this work and the permitting process typically takes 1-2 months for completion and approval. If and when approved by the Council, the on-the-ground work will commence.

In addition to the construction work occurring on THSF, 2,100 acres of longleaf pine sites will be site prepped and planted to restore the native longleaf pine habitat on THSF. These restoration activities are outlined in the comprehensive 10-year Resource Management Plan for the Tate's Hell State Forest developed by the FFS. Most of the target area is comprised of wetland habitats that drain into the New River and then into the salt marshes and estuary of St. George Sound just offshore from Carrabelle, Florida. Public outreach for the THSF restoration work will be through the THSF Liaison Committee, which meets twice per year.

Deliverables: The construction of 54 low water crossings, 144 ditch blocks, 3 bridges, installed/replacement of 72 culverts, 2 box culverts, and surface stabilization of 65 miles of roads. Also 2,100 acres of longleaf pine planted and growing for the restoration of native habitat. These projects will deliver a healthier habitat and cleaner hydrology to the Region.

Ecological Benefits/Outcomes and Metrics: These projects will improve the area's hydrology, increase water yield and protect endangered and threatened species habitat. During the past century, the hydrology of the Apalachicola River Basin was altered dramatically with significant implications for the health and sustainability of the region's current estuaries and nearshore coastal ecosystems. Restoring the Region with the proposed hydrologic construction projects to control the timing and delivery of freshwater inflows is critical for the long-term resilience of the Gulf of Mexico. Hydrologic restoration monitoring will be performed at a subset of representative projects to quantify the success of restoration efforts. Monitoring will include permitting and construction, water levels (long term averages) and hydroperiod, pre- and post-construction vegetation surveys, and incidental wildlife occurrence observations. One objective measure will be if measured wetland hydroperiods are appropriate for the target community and if the wetland vegetation is indicative of appropriate hydroperiod conditions. Another measure will be evidence of the re-establishment of historical surface water drainage patterns.

There are many ecological benefits to restoring longleaf pine habitats. They provide critical habitat to a number of state and federally listed threatened and endangered species including red-cockaded woodpecker, frosted flatwoods salamander and gopher tortoise. The groundcover diversity per unit area within the longleaf pine ecosystem positions it within the most species rich plant communities outside of the tropics. When properly maintained with a natural fire regime, longleaf forests are more resistant to certain pests and more resilient during droughts and storms alike. Monitoring of this restoration effort will be performed by state forest staff and will include supervision of vendors contracted for both site preparation and tree planting activities. Post-planting monitoring will include survival check sampling after the first growing season, follow up observations, and re-sampling plots after 10 years. For the upland acres that are site prepped and planted on THSF, objective measures will include achieving desired survival rates for trees planted (≥75%), desired species increasing in frequency or abundance, and that the type and total coverage of tree, shrub and herbaceous species is appropriate for the target community.

Leveraging and Co-Funding:

- **Co-funding:** Match from the FFS will include a strong existing infrastructure of experienced staff, equipment, offices, and utilities.
- **Adjoining:** The FFS is currently implementing similar projects on Tate's Hell State Forest and the state of Florida has also proposed similar activities in their RESTORE applications for work on Tate's Hell State Forest.
- **Building on prior or other investments:** This project will leverage the significant investment already made by the NWFWMD and FFS to improve the hydrology on portions of THSF. To date this investment has been over $1.57 million worth of hydrologic improvements including installing 49 low water crossings, modifying 51

culverts, removing 13.4 miles of roads, blocking 106 ditches and installing 3 bridges. This investment does not include FFS and NWFWMD personnel and equipment used to help accomplish this work. The proposed work is building upon these successes to continue the much-needed hydrologic restoration work on THSF.

Duration of Activity: 5 years.

Life of Activity: Over 50 years.

RESPONSE TO SCIENCE REVIEWS:

Comment: The three science reviews for this project are overall positive. As one reviewer states, "The method of ecosystem restoration by integrating upland watersheds and bay systems is scientifically sound and a superior approach than restoring the two systems separately". This statement addresses the combined Tate's Hell State Forest work of constructing to improve the hydrology of the area and the ecosystem restoration of longleaf pine habitat. The reviewers state that the project has a comprehensive plan (including social and ecological data) to measure success and justified objectives and methods through use of peer reviewed data. Though two of the reviewers are admitted non-experts in some of the land-based practices proposed, they state that the projects "appear to be competently planned and well-documented... and a good proposal implementing a truly ecosystem approach".

The caveats contained in the evaluations pertain to the lack of risk planning and uncertainties in the proposal although one reviewer states "it is hard to see why the consequences of implementing this project would be anything but positive".

Response: One reason that risk and uncertainties were not fully addressed within the page-limited proposal was because the construction and restoration work proposed has been evaluated extensively within the THSF Hydrologic Restoration Plan Volume I and II. Risk and uncertainties are addressed for all aspects of restoration including hydrology, topography, wildlife, archeology and land management of the Forest. Extensive detail on hydrologic restoration, benefits, species of concern and the feasibility of restoration are discussed. Environmental monitoring guidelines are listed with monitoring protocols for hydrology, vegetation and wildlife. Habitat management plans including longleaf pine restoration are also presented in detail. In Volume II, the Plan goes into specifics about the approach used to develop hydrologic plans and the use of road removals, low water crossings, ditch blocks, culvert modification and bridges. Details include risks and uncertainties related to project implementation, operation and maintenance, adaptive management and funding.

In conclusion, risks and uncertainties were addressed in the planning of these projects, though not specifically outlined in this proposal. Because the THSF Hydrologic Restoration Plan is referenced in our proposal and the activities proposed for funding are directly from this Plan, a discussion of risks and uncertainties within the proposal would not be able to describe the

extensive work already outlined by the NWFWMD in the THSF Plan. All details can be found within the THSF Hydrologic Restoration Plan at:
http://nwfwmdwetlands.com/index.php?Page=30

ENVIRONMENTAL COMPLIANCE:

The Council proposes to list this activity as a priority for potential future funding. Notwithstanding anything to the contrary set forth herein, at this time the Council is not approving or committing any funds for the implementation of this activity. Additional environmental compliance information is needed before the Council considers whether to approve funding for implementation of this activity. If sufficient additional environmental compliance information becomes available between the issuance of this draft FPL and completion of the final FPL, the Council may consider such information and thereafter approve this activity for funding, and move it to FPL Category 1. In such case the final FPL would include information necessary to demonstrate compliance with NEPA and other applicable laws. Where applicable, the final FPL would also inform the public of any comment opportunities pertaining to environmental compliance. In some cases, Council approval of funding for an activity in Category 1 would not be final until after the public has had an opportunity to provide comments, and the Council has considered such comments as it prepares required decision documentation (such as a Finding of No Significant Impact for use of an Environmental Assessment).

MAP:

Activity: Money Bayou Wetlands Restoration (Implementation)
Unique Identifier: DOC_RESTORE_001_009_Cat2
Location: Florida, Gulf County
Type of Activity: Implementation
FPL Category: 2 – Prioritized for Further Review
Cost Estimate: $ 852,653
Responsible Council Member: Department of Commerce (DOC)/National Oceanic and Atmospheric Administration (NOAA)
Partnering Council member(s): Florida Department of Environmental Protection (FDEP)
Originally submitted by: The DOC as a component within the proposal "Connecting Coastal Waters: Restoring Coastal Wetland Hydrology"

Executive Summary: The Money Bayou Wetlands Restoration project is part of the *Connecting Coastal Waters* initiative NOAA will lead with partners to restore the extent, functionality, and resiliency of Gulf Coast wetlands and to provide a science-based inventory of wetland hydrology restoration projects that make the greatest contribution to that goal. NOAA will work with partners to implement this project to restore a natural hydrology to approximately 1,000 acres of wetlands on the St. Joseph Bay State Buffer Preserve in Florida. NOAA will also work with partners to monitor restoration outcomes and conduct outreach activities to share restoration practices and engage stakeholders.

PROJECT DESCRIPTION:

Specific Actions/Activities: The *Connecting Coastal Waters* initiative will restore and enhance ecosystem resilience, sustainability, and natural defenses by reestablishing natural hydrology and connectivity between freshwater and marine habitats in priority areas across the Gulf Coast. This project will implement restoration activities, conduct monitoring to assess restoration outcomes, and engage in outreach and educational activities with restoration practitioners and stakeholders. Restoration will include activities to restore natural sheet-flow and hydrologic connectivity of wetlands by filling over 2.5 miles of ditches; filling, grading, and replanting over 4 miles of elevated, unpaved roads; restoring and replanting over 1 mile of former fire plow lines; installing or repairing 18 to 20 low-water road crossings; and installing or replacing 4 to 5 culverts. Heavy equipment will be used to excavate segments of elevated road to restore natural grade; the excavated material will be used to fill in adjacent ditches when possible; and sites will be restored with native vegetation. In addition, mechanical restoration of more than 700 acres will be conducted by removing invasive and nuisance plant species, prescribed burning, and planting native species. Ground cover restoration in the form of planting Florida native wiregrass, *Aristida stricta*, will be completed after road removal and ditch filling. Approximately 6 miles of filled areas will require ground cover. A monitoring plan will be implemented before and after construction to support an adaptive management approach. The project-monitoring plan will include pre-construction monitoring to provide baseline information, during construction monitoring to ensure the project is being implemented as designed, and post-construction monitoring to evaluate whether the project

meets success criteria. Outreach and educational activities will be conducted to share restoration practices and project results.

Task 1: Planning and Local Involvement: A project team will be assembled to provide technical input and expertise during the construction and monitoring of this project. Team members will provide a multi-disciplinary approach to evaluate monitoring data and recommend any corrective actions necessary to meet restoration goals.

Deliverable 1: Project team member's list, roles, and team description.

Task 2: Construction: NOAA will develop a contract statement of work, select a construction contractor, determine a schedule, and finalize construction plans. The construction task includes both the action of restoring the site and post-construction management including monitoring of the construction. Monitoring will occur before, during, and after construction to ensure work is progressing and completed as designed.

Deliverable 2.1: Construction Plan of Work and Bid Documents.

Deliverable 2.2: Final construction as-built drawings and construction completion report.

Task 3: Monitoring and Evaluation: This task will implement a monitoring and evaluation plan developed through the project planning phase. The data collected before and after project construction will document progress toward achieving restoration project goals and objectives and inform adaptive management decision-making. Three types of monitoring will be conducted: 1) pre-implementation monitoring—provides baseline information to compare with post implementation data to determine whether the restoration is having the desired effect; 2) implementation monitoring—ensures the project is being implemented as planned and identifies needed modifications; and 3) effectiveness monitoring—enables evaluation of whether a project has met its objectives.

Deliverable 3.1: Semi-annual Monitoring Reports and Data Sheets.

Deliverable 3.2: Final Monitoring and Evaluation Report.

Task 4: Outreach and Education: The project team will implement the Outreach and Education Plan developed through the project planning phase in cooperation with partners and existing community groups. Strategies may include site tours, presentations, interpretive outreach materials, videos, and other efforts to share project success. Activities conducted will be documented, including copies of materials produced, and compiled into a final report.

Deliverable 4.1: Outreach and Education Report.

Ecological Benefits/Outcomes and Metrics: The St. Joseph Bay State Buffer Preserve (Preserve) protects 5,019 acres in Gulf County. The St. Andrew Bay watershed, the Apalachicola River Basin, and the Money Bayou watershed all converge within the Preserve. The Money Bayou basin occupies over 1,800 acres, including hundreds of acres of emergent estuarine and freshwater marsh that grade into wet prairie interspersed with cypress strands and islands of pine flatwoods in a complex mosaic of habitats. Preserve lands are of special biological significance and were acquired to protect a full range of threatened coastal habitats and species. Three globally imperiled plant species and 18 other confirmed rare, endangered, or

threatened plants species occur within the Preserve. Extensive hydrological disruption has occurred on the Preserve since the early 1900s. Removing prior disturbances that have altered wetland community structure will promote natural water flow and restore historic wetland function by reconnecting natural drainage pathways within the watershed. This will improve the water quality of surface water flows and runoff discharge to surrounding waters. Restoring historic drainage patterns and hydrologic connectivity, along with restoring ground cover, will conserve soil and decrease turbidity into these water bodies during significant rainfall. Enhancing wetland hydrology and function will restore a mix of natural ecological communities that have been impacted across the Preserve, including wet prairie, seepage slope, floodplain marsh, strand swamp, basin swamp, and dome swamp.

Measures of Success: Specific metrics to evaluate the ecological benefits and outcomes will be established in the planning phase of this project. Potential measures of success include:

- **Construction Verification:** Construction was completed as designed.
- **Restoration extent:** Acres of wetlands with restored freshwater flows and/or hydroperiod.
- **Hydrology Parameters:** Water flow pattern.
- **Vegetation Parameters:** Plant coverage (of native and invasive plant species) and survival of planted native species.

Leveraging and Co-Funding:

- **Building on prior or other investments**: This project will build upon significant prior investments at the St. Joseph Bay Buffer Preserve made to protect and restore this important coastal area. The Preserve will provide staff expertise and basic equipment needs such as ATV/UTV vehicles during restoration. Preserve staff will also expand surface water level monitoring to include additional Money Bayou sites, and install photopoints at restoration locations. NOAA and FDEP will leverage existing Preserve partnerships with the Apalachicola Regional Stewardship Alliance, The Nature Conservancy, FDEP State Parks, Florida Forest Service, and Tyndall Air Force Base to maximize synergy with existing programs for prescribed burning and ground cover restoration and to involve stakeholders in many ways including providing volunteers to assist with post-restoration monitoring.

Duration of Activity: 3 years.

Life of Activity: By restoring coastal wetlands within the St. Joseph Bay State Buffer Preserve, this project will provide ecological benefits in perpetuity. Preserve staff are in place to continue the monitoring and outreach of these restoration activities and have the following on-going programs underway: prescribed burning, invasive species monitoring/mapping, ground water monitoring, photopoint monitoring, and rare plant monitoring.

RESPONSE TO SCIENCE REVIEWS:

Comment: External science review of the Connecting Coastal Waters proposal, which included a total of eleven projects, resulted in one all or mostly positive response and two generally positive, but with a need for more information. Reviewers requested information related to outcomes of planning, engineering, design, and permitting including, site-specific conditions, evaluation of uncertainties, risk and mitigation, measures of success, and data quality standards.

Response: This project will implement restoration activities based on detailed restoration plans, certified engineering and design, and approved permits completed by the project planning phase. The project's construction design, as well as the monitoring and evaluation plan, will incorporate necessary steps to mitigate for project uncertainties and risks that will be identified in greater detail through the permitting and environmental compliance process conducted under the planning phase (see additional information below). This project will also implement a detailed monitoring and evaluation plan developed under the planning phase that will collect data to evaluate project specific measures of success. Monitoring data collected for this project will undergo verification to ensure the quality, utility, and integrity of information collected.

ENVIRONMENTAL COMPLIANCE:

The Council proposes to list this activity as a priority for potential future funding. Notwithstanding anything to the contrary set forth herein, at this time the Council is not approving or committing any funds for the implementation of this activity. Additional environmental compliance information is needed before the Council considers whether to approve funding for implementation of this activity. If sufficient additional environmental compliance information becomes available between the issuance of this draft FPL and completion of the final FPL, the Council may consider such information and thereafter approve this activity for funding, and move it to FPL Category 1. In such case the final FPL would include information necessary to demonstrate compliance with NEPA and other applicable laws. Where applicable, the final FPL would also inform the public of any comment opportunities pertaining to environmental compliance. In some cases, Council approval of funding for an activity in Category 1 would not be final until after the public has had an opportunity to provide comments, and the Council has considered such comments as it prepares required decision documentation (such as a Finding of No Significant Impact for use of an Environmental Assessment).

MAP:

Activity: Apalachicola Bay Oyster Restoration (Implementation)
Unique Identifier: FL_RESTORE_002_006_Cat2
Location: Franklin County, Florida
Type of Activity: Implementation
FPL Category: 2 – Prioritized for Further Review
Cost Estimate: $3,978,000
Responsible Council Member: State of Florida
Partnering Council Member(s): N/A
Originally submitted by: The State of Florida as a component within the proposal "Apalachicola Bay Watershed Restoration"

Executive Summary: Oyster reefs are important to Apalachicola Bay's future; Beck et al. (2011) estimated that 85% of oyster reefs have been lost globally, with Apalachicola Bay being one area with significant remaining reefs (Beck et al. 2011). Therefore, placing substrate or "cultch" in bays where natural reproduction occurs, is among the most effective technique used to: 1) create reef infrastructure, 2) stimulate spat setting, 3) sustain oyster fisheries, 4) enhance community functions, 5) increase natural productivity, and 6) accelerate the recovery process. This project, which is an expansion of a Deepwater Horizon Natural Resource Damage Assessment (NRDA) Early Restoration Phase III project, will restore approximately 219 acres of natural oyster reefs through the addition of approximately 43,858 cubic yards of cultch material to support successful oyster spat settlement and, ultimately, adult oysters.

PROJECT DESCRIPTION:

Specific Actions/Activities: Specific activities associated with this project will include the placement of approximately 43,858 cubic yards of suitable oyster reef substrate through the use of barges and high-pressure water. Areas to be cultched will be marked with buoys or clearly marked stakes. Following the completion of the planting, oyster density (spat, sub-legal- and legal-sized) sampling will be conducted and analyzed at 6 months, 1 year and 2 years after clutching at each restoration site.

Deliverables: Deliverables associated with this activity include the restoration of approximately 219 acres of natural oyster reefs created in the Apalachicola Bay and monitoring data, which will be used to inform oyster fisheries managers of commercially productive reefs in the Apalachicola Bay.

Ecological Benefits/Outcomes and Metrics: Ecological benefits associated with the Apalachicola Bay Oyster Restoration project are realized through an array of ecological services in the form of increased fishery and wildlife habitat; increased biodiversity and trophic dynamics; increased filtering capacity to improve water quality and recycle nutrients; increased structural stability to reduce coastal erosion and to protect near shore resources; protection of water quality; and the protection of healthy, diverse and sustainable living coastal marine resources. Beyond the fact that oysters and oyster reef communities represent important food sources for many species of commercially important fish and invertebrates, functioning oyster

reefs are also recognized as critical structural and community components which stabilize and sustain a broad array of ecological relationships (Peterson et. al 2003). Additional outcomes include economic benefits through harvesting, processing, and marketing fishery products felt locally and regionally by all who enjoy high-quality, wholesome Florida seafood.

The project's metrics of success include densities of spat (<25 mm), sub-legal-sized (25 mm-75 mm) and legal-sized (75 mm) oysters. These will be determined following the completion of the planting. Oyster density (spat, sub-legal- and legal-sized) sampling will be conducted 6 months, 1 year and 2 years after clutching at each restoration site. Five locations will be sampled at each sample site. Ten replicate ¼ m^2 quadrats will be conducted randomly at each location. All oysters and cultch within each quadrat will be collected for analysis. The analysis will include the determination of the total number of live and dead oysters with articulated shells. The shell height measurements for a maximum of 50 live oysters and cultch volume will be measured. A sub-sample of cultch and live oyster shells will be used to determine spat densities.

Leveraging and Co-Funding:

- **Adjoining:** This project leverages over $12 million in oyster related projects in Apalachicola Bay. Funds include over $4 million from the National Fish and Wildlife Foundation, $2.1 million from the NRDA Early Restoration Phase III project, and over $6 million from Federal Disaster Assistance.

Duration of Activity: Approximately 3 years from the time funding is received.

Life of Activity: Once the project is constructed it is anticipated that the project's ecological benefits will be sustainable over the long-term without any additional maintenance. Individual oysters have a life expectancy of up to 20 years, however prior to harvesting it was not uncommon for oyster reefs to exist for centuries. Additionally, research conducted on undisturbed restored reefs suggests that they may persist for several decades (Grabowski et al. 2012).

RESPONSE TO SCIENCE REVIEWS:

Comment: Three science reviews were conducted as part of the Gulf Coast Ecosystem Council submission evaluation. The three reviews of the Apalachicola Bay Watershed proposal were disparate. Some specific comments to the Apalachicola Bay Oyster Restoration project related to the number of literature reviews, the level of risk mitigation assessment, and monitoring strategies.

Response: Ten literature reviews and citations were provided as part of the Apalachicola Bay Oyster Restoration project. The array of topics covered by the cited literature include oyster reef restoration risk and management; biological and ecological assessment; economic valuation of ecosystem services; and oyster recovery. One citation was inadvertently not included on the reference list:

Havens, K., Allen, M., Camp, E., Irani, T., Lindsey, A., Morris, J., Kane, A., Kimbro, D., Otwell, S., Pine, B., Walters, C., 2013. Apalachicola Bay Oyster Situation Report. University of Florida Institute of Food and Agricultural Science.

The Florida Department of Agriculture and Consumer Services (FDACS) has been involved in rehabilitating oyster reefs for more than sixty years and provides a multi-dimensional approach built on decades of experience. FDACS has a history of completing restoration projects following devastating natural disasters, such as hurricanes, floods and droughts (Berrigan 1988). Based on the type of project and the experience of the implementing entity, the referenced literature is sufficient for the purpose of this on the ground restoration project.

The proposal included a brief discussion on the risks and uncertainties of conducting oyster reef restoration. Review comments related to the lack of detail and brevity of the risk assessment are understandable if it were not for the extensive experience FDACS has conducting similar oyster cultch restoration in the Florida Panhandle. As stated above, they have conducted oyster restoration projects for decades and are well equipped to predict and address risks and uncertainties. The proposal did discuss the two largest risks: hurricanes and continued low freshwater flows. These have both been the cause of historic oyster population declines in the Apalachicola Bay.

The post construction monitoring and success criteria identified for this project are built on years of experience collecting, monitoring, and analyzing natural and restored reefs in the Apalachicola Bay area. The activities, expected outputs, and desired outcomes have all been identified. The post construction survey methodology is fully developed as stated in the Ecological Benefits/Outcomes and Metrics section, above.

ENVIRONMENTAL COMPLIANCE:

The Council proposes to list this activity as a priority for potential future funding. Notwithstanding anything to the contrary set forth herein, at this time the Council is not approving or committing any funds for the implementation of this activity. Additional environmental compliance information is needed before the Council considers whether to approve funding for implementation of this activity. If sufficient additional environmental compliance information becomes available between the issuance of this draft FPL and completion of the final FPL, the Council may consider such information and thereafter approve this activity for funding, and move it to FPL Category 1. In such case the final FPL would include information necessary to demonstrate compliance with NEPA and other applicable laws. Where applicable, the final FPL would also inform the public of any comment opportunities pertaining to environmental compliance. In some cases, Council approval of funding for an activity in Category 1 would not be final until after the public has had an opportunity to provide comments, and the Council has considered such comments as it prepares required decision documentation (such as a Finding of No Significant Impact for use of an Environmental Assessment).

MAP:

Appendix I. Suwannee Watershed

Category 1:

Activity: Suwannee River Partnership Irrigation Water Enhancement Program (Planning)
Unique Identifier: FL_RESTORE_003_003_Cat1
Location: Multiple Counties, Florida
Type of Activity: Planning
FPL Category: 1 – Funding Eligible
Cost Estimate: $432,600
Responsible Council Member: State of Florida
Partnering Council Member(s): N/A
Originally submitted by: The State of Florida as a component within the proposal "Suwannee River Watershed Restoration".

Executive Summary: Nutrient loss from agricultural activities is a considerable environmental stressor to the Suwannee River and Estuary. With this program the Florida Department of Agriculture and Consumer Services (FDACS) will oversee and work with the Suwannee River Partnership to build on a successful pilot program to improve irrigation system efficiency similar to the U.S. Department of Agriculture/Natural Resources Conservation Service's (USDA-NRCS) Agricultural Water Enhancement Program. These irrigation system improvements will conserve water and energy, as well as reduce nutrient loading to water resources. The objective of this activity is to complete all applicable environmental compliance and permitting.

PROJECT DESCRIPTION:

Specific Actions/Activities: Work with all applicable state and federal agencies to verify environmental compliance and acquire permits.

Deliverables: Deliverables associated with the planning include environmental compliance verification and permits.

Ecological Benefits/Outcomes and Metrics: Outcomes of the planning activity include all required local, state, and federal permits and completion of environmental compliance analysis.

Expected ecological benefits and metrics of the program are available in the Category 2 project in this appendix entitled *Suwannee River Partnership Irrigation Water Enhancement Program FL_RESTORE_003_003_Cat2.*

Leveraging and Co-Funding: See the Category 2 project in this appendix entitled *Suwannee River Partnership Irrigation Water Enhancement Program FL_RESTORE_003_003_Cat2.*

ED_005856B_00002024-00184

Duration of Activity: It is anticipated to take less than six months to complete the environmental compliance and permitting.

Life of Activity: See the Category 2 project in this appendix entitled *Suwannee River Partnership Irrigation Water Enhancement Program FL_RESTORE_003_003_Cat2.*

RESPONSE TO SCIENCE REVIEWS:

Comment: Three science reviews were conducted as part of the Gulf Coast Ecosystem Council submission evaluation. Most of the remarks received regarding the Suwannee River Watershed proposal were favorable. Specific comments pertaining to the Suwannee River Partnership Irrigation Water Enhancement program included the type of technological advancements used by the program, prioritization and implementation practices of best management practices (BMPs), monitoring strategies, and duration of program.

Response: This program will build off of a successful pilot program that FDACS and Suwannee River Partnership previously implemented, with USDA-NRCS funding. Only a small fraction of the producers that applied to that program were funded due to overwhelming demand and limited funds. Proven technological advancements to be implemented under this project include converting irrigation systems from high-pressure to low-pressure systems; retrofitting center-pivot irrigation systems with new, more efficient spray nozzles; repairing leaks and end guns; installing end-gun shutoffs; and converting older diesel power units and pumps to newer, more efficient diesel or electric power units for reduced air emissions and fuel savings.

FDACS is responsible for developing and adopting agricultural BMPs and manuals for agricultural operations, any proven advancements in BMP technology will be explored and considered as a viable option in achieving the goals of this program.

Farmers interested in employing the latest irrigation technology in nutrient and irrigation management would receive priority for funding. Additionally, producer applications will be ranked using a scoring system that includes the following considerations: whether producer has retrofitted the overhead irrigation system within the last 5 years with drop nozzles and upgraded nozzle packages to improve irrigation efficiency; whether producer participates in an FDACS BMP program or has a USDA-NRCS Conservation Plan with the irrigated acreage under application; the degree to which producer agrees to improve irrigation system efficiency by reducing overall system pressure; and whether producer upgrades an older diesel power unit to a Tier III or newer unit or to a new electric system to improve fuel efficiency and/or reduce air emissions.

The post construction monitoring and success criteria identified for this program are built on years of knowledge developing and implementing agricultural BMPs and programs by the USDA-NRCS, FDACS, Northwest Florida Water Management District, and the Suwannee River Partnership.

The duration of this program will be based on the number of systems to be improved, which is estimated to be 112, and how quickly each irrigation system can be upgraded.

ENVIRONMENTAL COMPLIANCE:

Council approval of funding for this proposed activity would not involve or lead directly to ground-disturbing activities that may have significant effects on the environment individually or cumulatively, nor would it commit the Council to a particular course of action affecting the environment. The Council has considered potential extraordinary circumstances, including potential negative effects to threatened and endangered species, essential fish habitat, Tribal interests and/or historic properties, where applicable, and has determined that no such circumstances apply. Accordingly, the Council has determined that this proposed activity would be covered by the Council's National Environmental Policy Act (NEPA) Categorical Exclusion for planning, research or design activities. (See the Council's NEPA Procedures, Section 4(d)(3): insert link to Procedures.)

MAP:

7247 ***Category 2:***
7248
7249 **Activity:** Suwannee River Partnership Irrigation Water Enhancement Program(Implementation)
7250 **Unique Identifier:** FL_RESTORE_003_003_Cat2
7251 **Location:** Multiple Counties, Florida
7252 **Type of Activity:** Implementation
7253 **FPL Category:** 2 – Prioritized for Further Review
7254 **Cost Estimate:** $2,451,400
7255 **Responsible Council Member:** State of Florida
7256 **Partnering Council Member(s):** N/A
7257 **Originally submitted by:** The State of Florida as a component within the proposal "Suwannee
7258 River Watershed Restoration"
7259
7260 **Executive Summary:** Nutrient loss from agricultural activities is a considerable environmental
7261 stressor to the Suwannee River and Estuary. With this program the Florida Department of
7262 Agriculture and Consumer Services (FDACS) will oversee and work with the Suwannee River
7263 Partnership to build on a successful pilot program to improve irrigation system efficiency similar
7264 to the U.S. Department of Agriculture/Natural Resources Conservation Service's (USDA-NRCS)
7265 Agricultural Water Enhancement Program. These irrigation system improvements will conserve
7266 water and energy, as well as reduce nutrient loading to water resources.
7267
7268 **PROJECT DESCRIPTION:**
7269
7270 **Specific Actions/Activities:** FDACS will contract with local soil and water conservation district
7271 boards to administer cost-share funding to assist participating farmers implement state-
7272 adopted Best Management Practices (BMPs). FDACS Field staff and others will work with
7273 landowners to select the applicable BMPs and provide other technical assistance. Activities will
7274 include converting irrigation systems from high-pressure to low-pressure systems; retrofitting
7275 center-pivot irrigation systems with new, more efficient spray nozzles; repairing leaks and end
7276 guns; installing end-gun shutoffs; and converting older diesel power units and pumps to newer,
7277 more efficient diesel or electric power units for reduced air emissions and fuel savings.
7278
7279 **Deliverables:** Deliverables associated with this program include cost-share agreements with
7280 farmers; monitoring data; and outreach and education workshops, written materials, and field-
7281 based BMP demonstrations.
7282
7283 **Ecological Benefits/Outcomes and Metrics:** The program ecological benefits and outcomes will
7284 include more efficient agricultural operations, reduced nutrient loadings to the Suwannee River
7285 watershed, and increased water conservation. It will strengthen the economic viability and
7286 environmental compatibility of agriculture within the focus area. Documentation shows that
7287 improving irrigation system efficiency can conserve more than 56,000 gallons of water per pivot
7288 on a daily basis and result in more than 8,000 pounds less fertilizer being applied annually.
7289 Significant energy savings will also result. Metrics will include the number of farmers

participating and acres enrolled in the BMP program, irrigation systems retrofitted, and the amount of nutrient load reductions and water saved.

Leveraging and Co-Funding:

- **Co-funding:** The cost-share will be 75% for eligible practices, with producers contributing 25%, estimated at approximately $850,000. Additionally, the Suwannee River Partnership has 65 signatories representing public and private organizations from federal, state, and local levels, with the express mission to cooperatively address water quality and water quantity issues in the Suwannee Basin. Partners that will contribute either cost-share or technical assistance include USDA-NRCS, local soil and water conservation districts, the Suwannee River Water Management District, and the Florida Department of Environmental Protection.
- **Building on prior or other investments**: The program will build on existing programs and resources that assist agricultural producers implement nutrient reduction (water quality) and water conservation practices.

Duration of Activity: Up to five years.

Life of Activity: Approximately ten years.

RESPONSE TO SCIENCE REVIEWS:

Comment: Three science reviews were conducted as part of the Gulf Coast Ecosystem Council submission evaluation. Most of the remarks received regarding the Suwannee River Watershed proposal were favorable. Specific comments pertaining to the Suwannee River Partnership Irrigation Water Enhancement program included the type of technological advancements used by the program, prioritization and implementation practices of BMPs, monitoring strategies, and duration of program.

Response: This program will build off of a successful pilot program that the FDACS and Suwannee River Partnership previously implemented, with USDA-NRCS funding. Only a small fraction of the producers that applied to that program were funded due to overwhelming demand and limited funds. Proven technological advancements to be implemented under this project include converting irrigation systems from high-pressure to low-pressure systems; retrofitting center-pivot irrigation systems with new, more efficient spray nozzles; repairing leaks and end guns; installing end-gun shutoffs; and converting older diesel power units and pumps to newer, more efficient diesel or electric power units for reduced air emissions and fuel savings.

FDACS is responsible for developing and adopting agricultural BMPs and manuals for agricultural operations, any proven advancements in BMP technology will be explored and considered as a viable option in achieving the goals of this program.

Farmers interested in employing the latest irrigation technology in nutrient and irrigation management would receive priority for funding. Additionally, producer applications will be ranked using a scoring system that includes the following considerations: whether producer has retrofitted the overhead irrigation system within the last 5 years with drop nozzles and upgraded nozzle packages to improve irrigation efficiency; whether producer participates in an FDACS BMP program or has a USDA-NRCS Conservation Plan with the irrigated acreage under application; the degree to which producer agrees to improve irrigation system efficiency by reducing overall system pressure; and whether producer upgrades an older diesel power unit to a Tier III or newer unit or to a new electric system to improve fuel efficiency and/or reduce air emissions.

The post construction monitoring and success criteria identified for this program are built on years of knowledge developing and implementing agricultural BMPs and programs by the USDA-NRCS, FDACS, Northwest Florida Water Management District, and the Suwannee River Partnership.

The duration of this program will be based on the number of systems to be improved, which is estimated to be 112, and how quickly each irrigation system can be upgraded.

ENVIRONMENTAL COMPLIANCE:

The Council proposes to list this activity as a priority for potential future funding. Notwithstanding anything to the contrary set forth herein, at this time the Council is not approving or committing any funds for the implementation of this activity. Additional environmental compliance information is needed before the Council considers whether to approve funding for implementation of this activity. If sufficient additional environmental compliance information becomes available between the issuance of this draft FPL and completion of the final FPL, the Council may consider such information and thereafter approve this activity for funding, and move it to FPL Category 1. In such case the final FPL would include information necessary to demonstrate compliance with NEPA and other applicable laws. Where applicable, the final FPL would also inform the public of any comment opportunities pertaining to environmental compliance. In some cases, Council approval of funding for an activity in Category 1 would not be final until after the public has had an opportunity to provide comments, and the Council has considered such comments as it prepares required decision documentation (such as a Finding of No Significant Impact for use of an Environmental Assessment).

MAP:

Appendix J. Tampa Bay

Category 1:

Activity: Palm River Restoration Project Phase II, East McKay Bay (Planning)
Unique Identifier: FL_RESTORE_004_003_Cat1
Location: Hillsborough County, Florida
Type of Activity: Planning
FPL Category: 1 – Funding Eligible
Cost Estimate: $87,750
Responsible Council Member: State of Florida
Partnering Council Member(s): N/A
Originally submitted by: The State of Florida as a component within the proposal "Tampa Bay Watershed Restoration"

Executive Summary: The project consists of extensive habitat restoration, water quality improvement, and mitigation of erosion along the Palm River at the mouth of McKay Bay. The objective of this activity is to complete all applicable environmental compliance and permitting for the restoration and stormwater ponds construction.

PROJECT DESCRIPTION:

Specific Actions/Activities: Work with all applicable state and federal agencies to complete environmental compliance and acquire permits.

Deliverables: Deliverables associated with the planning include environmental compliance verification and permits.

Ecological Benefits/Outcomes and Metrics: Outcomes of the planning activity include all required local, state, and federal permits and completion of environmental compliance analysis. Expected ecological benefits and metrics of the actual project are available in the below Category 2 implementation project with unique identifier *Palm River Restoration Project Phase II, East McKay Bay FL_RESTORE_004_003_Cat2.*

Leveraging and Co-Funding: See the below Category 2 implementation project with unique identifier *Palm River Restoration Project Phase II, East McKay Bay FL_RESTORE_004_003_Cat2.*

Duration of Activity: It is anticipated to take approximately six months to complete the environmental compliance and permitting.

Life of Activity: See the below Category 2 implementation project with unique identifier *Palm River Restoration Project Phase II, East McKay Bay FL_RESTORE_004_003_Cat2.*

RESPONSE TO SCIENCE REVIEWS:

Comment: Three science reviews were conducted as part of the Gulf Coast Ecosystem Council submission evaluation. Most of the remarks received in regard to the Tampa Bay Watershed proposal were favorable. Some comments specific to the Palm River Restoration Project Phase II, East McKay Bay pertained to the project's contributions to the big picture of Tampa Bay and watershed restoration, effectiveness of stormwater ponds in water quality treatment, and the methods and measures to evaluate success of the activities.

Response: Tampa Bay has extensive areas of impaired waterbodies (those not meeting water quality standards), which have adversely affected coastal habitats. The State of Florida has established specific water quality restoration targets for Tampa Bay. This project will leverage the extensive restoration work already underway to meet these goals, particularly through the Tampa Bay Estuary Program (//www.tbep.org/) and the Southwest Florida Water Management District's (SWFWMD) Surface Water Improvement and Management (SWIM) Program for Tampa Bay www.swfwmd.state.fl.us/projects/swim/tampa_bay/, which the Palm River Restoration Project is listed as a priority project.

The 1987 Surface Water Improvement and Management (SWIM) Act was created to protect, restore and maintain Florida's highly threatened surface water bodies. As part of the SWIM Program the SWFWMD identifies and implements water quality and habitat restoration projects. SWIM projects focus on reducing the pollution in stormwater runoff by reducing excess nutrients and other pollutants which affect water quality. To date the SWFWMD and its partners have implemented projects which provide water quality treatment of more than 140,000 acres of watershed and have restored over 11,000 acres of freshwater, estuarine, and upland habitat. This extensive knowledge and experience with on the ground restoration provides the assurance that the objectives of the Palm River Restoration project will be met and that the appropriate measures to evaluate the success of the project will be applied.

ENVIRONMENTAL COMPLIANCE:

Council approval of funding for this proposed activity would not involve or lead directly to ground-disturbing activities that may have significant effects on the environment individually or cumulatively, nor would it commit the Council to a particular course of action affecting the environment. The Council has considered potential extraordinary circumstances, including potential negative effects to threatened and endangered species, essential fish habitat, Tribal interests and/or historic properties, where applicable, and has determined that no such circumstances apply. Accordingly, the Council has determined that this proposed activity would be covered by the Council's National Environmental Policy Act (NEPA) Categorical Exclusion for planning, research or design activities. (See the Council's NEPA Procedures, Section 4(d)(3): insert link to Procedures.)

MAP:

Activity: Robinson Preserve Wetlands Restoration (Planning)
Unique Identifier: DOC_RESTORE_001_011_Cat1
Location: Florida, Manatee County
Type of Activity: Planning
FPL Category: 1 – Funding Eligible
Cost Estimate: $505,910
Responsible Council Member: Department of Commerce(DOC)/National Oceanic and Atmospheric Administration (NOAA)
Partnering Council member(s): Florida Department of Environmental Protection (FDEP)
Originally submitted by: The DOC as a component within the proposal "Connecting Coastal Waters: Restoring Coastal Wetland Hydrology"

Executive Summary: This project is part of the *Connecting Coastal Waters* initiative NOAA will lead with partners to implement projects that restore the extent, functionality, and resiliency of Gulf Coast wetlands and provide a science-based inventory of wetland hydrology restoration projects that make the greatest contribution to that goal. This project will complete planning and design with local partners to restore a natural hydrology to approximately 140 acres coastal upland, wetland, and subtidal habitats on Robinson Preserve in cooperation with Manatee County and other project partners. A restoration plan, engineering design, regulatory compliance, monitoring and evaluation plan, and outreach and education plan will be completed to implement this project.

PROJECT DESCRIPTION:

Specific Actions/Activities: The *Connecting Coastal Waters* initiative will restore and enhance ecosystem resilience, sustainability, and natural defenses by reestablishing natural hydrology and connectivity between freshwater and marine habitats in priority areas across the Gulf Coast. This project will complete the planning, engineering, and design required to restore natural hydrology to approximate 140 acres of upland and wetland habitat on Robinson Preserve in the Tampa Bay watershed. Specific goals for the Robinson Preserve Wetland Restoration project include: 1) creation of coastal upland and wetland habitats and tidal creeks that will be designed to incorporate projected near-term sea level rise; 2) creation of high-quality estuarine subtidal habitats; and 3) restoration of a natural hydrology linking the coastal upland, wetland, and estuarine areas within the Preserve. This project will also develop plans for a robust monitoring and evaluation approach using objective measures of success. An outreach and education plan will be developed to engage the public and transfer best practices to restoration practitioners.

Task 1: Planning and Local Involvement: A project team will be assembled to provide technical input and expertise. This task will also evaluate restoration strategies to address site specific requirements and coordinate with state and federal regulatory agencies to incorporate their input early in project implementation.

Deliverable 1: Project team member's list, roles, and team description.

Task 2: Engineering and Design: This task will evaluate restoration techniques capable of achieving the desired project outcomes. Engineering studies, modeling, if necessary, and a final design will be completed and approved by a professional engineer.

Deliverable 2.1: Plan of Work for Completion of Design.

Deliverable 2.2: Final Design Report, including summary of environmental studies and models, a design drawings and specifications package approved by a professional engineer; and a project construction cost estimate.

Task 3: Regulatory Compliance: NOAA will work with project partners to complete early coordination with regulatory agencies that has already been initiated and to ensure that all local, state, and federal permits are obtained prior to initiating construction. NOAA will also ensure compliance with the National Environmental Policy Act (NEPA).

Deliverable 3.1: Documentation of approval of all regulatory requirements, including NEPA evaluation, NOAA and Department of the Interior consultation letters, and final approved permits.

Task 4: Monitoring and Evaluation Plan: A monitoring and evaluation plan that builds on identified goals and objectives will be developed. The monitoring plan will detail specific parameters, collection methods, and quality assurance and quality control procedures. The data collected before and after project construction will identify problems, document progress toward goals and objectives, and inform adaptive management decision-making. The evaluation plan will identify project specific measures of success in meeting restoration goals and objectives.

Deliverable 4.1: Monitoring and Evaluation Plan.

Task 5: Outreach and Education Plan: The project team will develop a strategy for public engagement in cooperation with partners and existing community groups. Strategies may include site tours, presentations, outreach materials, videos, and other efforts to share project success.

Deliverable 5.1: Outreach and Education Plan.

Task 6: Inventory of Coastal Wetland Hydrology Restoration Opportunities: NOAA will lead a collaborative, science-based inventory of coastal wetland hydrology restoration projects to meet the Council's goals for ecosystem restoration. This task will expand a 2012 hydrology restoration inventory conducted by NOAA and Sea Grant to be compatible with the goals of the Council and to focus on coastal wetland hydrology, a regionally significant need for ecosystem restoration.

Deliverable 6.1: Inventory plan of work including focal areas, data standards, and project screening criteria to ensure that the best available science is applied to the inventory.

Deliverable 6.2: Inventory report and online map of coastal wetland hydrology restoration opportunities.

Ecological Benefits/Outcomes and Metrics: Robinson Preserve is a 487-acre property located in adjacent to the Palma Sola Bay at the confluence of Tampa Bay and Sarasota Bay. The

Preserve contains a range of important coastal wetland habitats including mangrove, salt marsh, salt barren, coastal strand hammock and maritime hammock. This project will restore a 150-acre expansion area recently acquired by Manatee County. The 150-acre expansion area currently consists of low ecological quality/former agricultural land, which had been in production for at least five decades and then left fallow for the past ten years. Furthermore, fill dirt had been piled over large portions of the site in preparation for a golf course community that was planned and permitted prior to acquisition of the land for conservation. The historical land uses have allowed nuisance and exotic vegetation to over-run the majority of the site and has severely limited ecological functions. When completed, the project will provide approximately 85 acres of upland habitats and 55 acres of created wetland and sub-tidal habitats, restoring a total of 140 acres of productive habitat from the former low quality agricultural land. Restoration of these important coastal habitat types will provide increased ecosystem services, including water quality improvements, juvenile fish nursery areas, and habitat for birds and other wildlife. The remaining 10 acres will be dedicated to the environmental education center, trails, parking, and other facilities to provide public access for recreation and education.

Leveraging and Co-Funding:

- **Building on prior or other investments:** This project will leverage the past investments by Manatee County to acquire and conserve the project area, which expanded the 482-acre Robinson Preserve by an additional 150 acres of adjacent lands valued at $3.2 million. In addition, this project will build upon planning and conceptual design work completed by Manatee County in partnership with the Southwest Florida Water Management District and other partners. The Preserve also constructed low-impact recreational facilities and a visitor's center to provide recreational and education opportunities for the community that will enhance outreach and education activities to be implemented through this project. In addition, this project will leverage the many partnerships and studies conducted for this high priority project by Manatee County, FDEP, Tampa Bay Estuary Program and Sarasota Bay Estuary Program.

Duration of Activity: 2 years.

Life of Activity: N/A (planning)

RESPONSE TO SCIENCE REVIEWS:

Comment: External science review of the *Connecting Coastal Waters* (CCW) proposal, which included a total of eleven projects, resulted in one all or mostly positive response and two generally positive responses, but with a need for more information. Reviewers requested information related to outcomes that will come from planning, engineering, design, and permitting, including site-specific conditions, evaluation of uncertainties, risks, and mitigation, and measures of success.

Response: This project will implement the planning, engineering, design, and permitting necessary to provide the detailed, site-specific information requested by external science reviewers. This project will also build on the approach to planning and monitoring described in the CCW proposal to develop site-specific, science-based objectives and a detailed monitoring and evaluation plan with measures of success. Additional evaluation of project uncertainties, risks, and mitigation will be completed through the environmental compliance process.

Comment: One review included a project specific comment related to whether preliminary design information was adequate to estimate proposed project costs.

Response: This project builds on long-term efforts by project partners to acquire and restore this expansion property to be part of Robinson Preserve. As part of those efforts, conceptual plans and restoration designs were developed that estimated both the types of habitats that should be restored, the approximate acreage on which restoration could occur and the activities that would be required. In November 2014, a conceptual restoration planting plan was completed for the expansion area, identifying general locations for habitat restoration within the project area. Using this information and the extensive experience of the staff of Robinson Preserve, Manatee County, and other project partners, a conservative budget was developed for this project.

ENVIRONMENTAL COMPLIANCE:

Council approval of funding for this proposed activity would not involve or lead directly to ground-disturbing activities that may have significant effects on the environment individually or cumulatively, nor would it commit the Council to a particular course of action affecting the environment. The Council has considered potential extraordinary circumstances, including potential negative effects to threatened and endangered species, essential fish habitat, Tribal interests and/or historic properties, where applicable, and has determined that no such circumstances apply. Accordingly, the Council has determined that this proposed activity would be covered by the Council's NEPA Categorical Exclusion for planning, research or design activities. (See the Council's NEPA Procedures, Section 4(d)(3): insert link to Procedures.

MAP:

Activity: Tampa Bay National Estuary Program (Planning)
Unique Identifier: EPA_RESTORE_002_005_Cat1
Location: Florida, Hillsborough, Pinellas and Manatee Counties
Type of Activity: Planning
FPL Category: 1 – Funding Eligible
Cost Estimate: $100,000
Responsible Council Member: Environmental Protection Agency
Partnering Council member(s): State of Florida
Originally submitted by: The EPA as a component within the proposal "Gulf National Estuary Program (NEP) and Lake Pontchartrain Basin Restoration Program (LPBRP) Comprehensive Plan Implementation Program"

Executive Summary: The Tampa Bay Estuary Program (TBEP)-RESTORE Project Planning activity includes environmental compliance attainment, quality assurance, and pre-monitoring activities for seven priority water quality and habitat improvement elements located throughout the Tampa Bay watershed which have been vetted by the local government and agency partners participating in TBEP. The Planning activity of the Tampa Bay RESTORE project will ensure that the implementation phase can proceed in a timely and fully-compliant manner, and will include adequate baseline monitoring data to measure results following implementation. TBEP will be responsible for ensuring timely initiation and completion of the project elements, including compliance, monitoring and reporting requirements.

PROJECT DESCRIPTION:

Specific Actions/Activities: The following activities will ensure that the Tampa Bay RESTORE project meets all compliance requirements; has an adequate monitoring program in place to measure environmental results from implementation of the project elements; and conducts pre-project baseline monitoring. All seven elements of the Tampa Bay RESTORE project are currently 'shovel-ready' (i.e., design is complete and permits have been issued or application process is ongoing).

Task 1: Evaluate the need for additional environmental compliance requirements for each program element, and conduct necessary evaluations to complete the compliance requirements.

Task 2: Complete a Quality Assurance Project Plan (QAPP) for federal approval, which will include a monitoring program (pre- and post-implementation) adequate to measure environmental benefits from project implementation. The QAPP will include monitoring objectives, statistical design, metrics, frequency and duration of measurements, methods and reporting requirements.

Task 3: Upon QAPP approval, complete pre-implementation (i.e., baseline) monitoring for the seven Tampa Bay RESTORE project elements.

Deliverables:

- Completed environmental compliance documentation for the seven Tampa Bay RESTORE project elements.
- Approved QAPP.
- Pre-implementation (i.e., baseline) monitoring results for each project element.

Ecological Benefits/Outcomes and Metrics: Seven elements of the Tampa Bay Water Quality and Habitat Restoration Project-Phase 1 will be implemented throughout the Tampa Bay watershed, collectively expected to result in 16.5 tons of nitrogen reduced per year; 268 acres of coastal habitat restored and 200 acres of seagrass created. The Planning activity of this project will define appropriate metrics to measure results, but are expected to include water quality metrics (chlorophyll-a concentration, nutrient loading estimates) and habitat restoration metrics (acres of marsh, mangrove, seagrass enhanced or restored).

Leveraging and Co-Funding:

- **Co-funding:** TBEP will be responsible for ensuring timely initiation and completion of the project elements, including compliance, monitoring and reporting requirements. Anticipated funds needed to complete the Planning element (this proposal) include $30,000 - $50,000 TBEP Work Plan funds (federal and non-federal funds).
- **Adjoining:** In-kind from local government partners for Planning activity from each of the seven elements, estimated to be $10,000 per element ($70,000 in-kind total).

Duration of Activity: 6-9 months from TBEP receipt of RESTORE funds for the Planning activity.

Life of Activity: Ecological benefits will be provided by Implementation.

RESPONSE TO SCIENCE REVIEWS:

Comment: The comments were generally positive and supportive. One comment requested more reference information be provided on current major water quality and habitat issues for the NEPs, monitoring and adaptive management methods available for NEPs, and types of projects.

Response: Much more detailed information and references are readily available by visiting the respective NEP website(s). Here are those links: http://www.cbbep.org/ ; http://gbep.tamug.tamu.edu/ ; http://www.btnep.org/BTNEP/home.aspx ; http://www.mobilebaynep.com/; http://www.tbep.org/; http://www.sarasotabay.org/; and http://www.charlotteharbornep.com/.

Comment: One comment recommended adding climate change and Sea-Level Rise (SLR)-induced uncertainties and risks to the project selection criteria.

Response: The NEPs have incorporated and do address climate change impacts and adaptation measures into their Annual Plans. The NEPs have been conducting Vulnerability Assessments of their estuaries and have begun Adaptation Planning where warranted.

ENVIRONMENTAL COMPLIANCE:

Council approval of funding for this proposed activity would not involve or lead directly to ground-disturbing activities that may have significant effects on the environment individually or cumulatively, nor would it commit the Council to a particular course of action affecting the environment. The Council has considered potential extraordinary circumstances, including potential negative effects to threatened and endangered species, essential fish habitat, Tribal interests and/or historic properties, where applicable, and has determined that no such circumstances apply. Accordingly, the Council has determined that this proposed activity would be covered by the Council's National Environmental Policy Act (NEPA) Categorical Exclusion for planning, research or design activities. (See the Council's NEPA Procedures, Section 4(d)(3): insert link to Procedures.

MAP:

7731 ***Category 2:***
7732
7733 **Activity:** Palm River Restoration Project Phase II, East McKay Bay (Implementation)
7734 **Unique Identifier:** FL_RESTORE_004_003_Cat2
7735 **Location:** Hillsborough County, Florida
7736 **Type of Activity:** Implementation
7737 **FPL Category:** 2 – Prioritized for Further Review
7738 **Cost Estimate:** $497,250
7739 **Responsible Council Member:** State of Florida
7740 **Partnering Council Member(s):** N/A
7741 **Originally submitted by:** The State of Florida as a component within the proposal "Tampa Bay
7742 Watershed Restoration"
7743
7744 **Executive Summary:** The project consists of extensive habitat restoration, water quality
7745 improvement, and mitigation of erosion along the Palm River at the mouth of McKay Bay. It
7746 focuses on improving water quality and enhancing upland and wetland areas on 53 acres of
7747 Southwest Florida Water Management District land. It will remove exotic vegetation, create an
7748 herbaceous wetland, and build three stormwater management areas to provide water quality
7749 treatment for 436 acres of residential, commercial and industrial developed land.
7750
7751 **PROJECT DESCRIPTION:**
7752
7753 **Specific Actions/Activities:** Construction of three stormwater ponds, exotic vegetation removal,
7754 native planting, monitoring, and perpetual maintenance of exotic species and the
7755 culverts/stormwater ponds by the Southwest Florida Water Management District.
7756
7757 **Deliverables:** Deliverables associated with this project include the construction of three
7758 stormwater ponds, creation of juvenile fisheries habitat, restoration of approximately eight
7759 acres of salt marsh and 32 acres of coastal uplands, and monitoring data.
7760
7761 **Ecological Benefits/Outcomes and Metrics:** Ecological benefits of this project will include the
7762 significant reduction of pollutants in stormwater runoff entering McKay Bay and, ultimately,
7763 Tampa Bay. The project is designed to remove an estimated 517 pounds of nitrogen annually. It
7764 will also reduce erosion, remove exotics and replant native vegetation to restore approximately
7765 eight acres of salt marsh and 32 acres of coastal uplands. The project will also benefit wildlife in
7766 the area. McKay Bay has been identified as highly important bird habitat, supporting many
7767 resident species as well as large numbers of migratory waterfowl and shorebirds that use the
7768 embayment as a feeding and resting site for several months each year.
7769
7770 The Palm River Restoration Project Phase II, East McKay Bay restoration project will be
7771 monitored and maintained for a two-year period after restoration by the construction
7772 contractor. Metrics will include exotic species to be maintained at <5% in the restored area and
7773 a plant survival rate of ≥ 90%. The Southwest Florida Water Management District will continue
7774 maintenance of the exotic species and culvers and stormwater ponds in perpetuity.

Leveraging and Co-Funding:

- **Co-funding:** Local match totaling $900,000 provided by the Southwest Florida Water Management District and the Florida Department of Transportation, amounts to 64% of the project total.

Duration of Activity: Approximately one year from the time funds are received.

Life of Activity: Once the project is constructed and the vegetation becomes established it is anticipated that the project's ecological benefits will be sustainable over the long-term, at least twenty five years, with minimal maintenance.

RESPONSE TO SCIENCE REVIEWS:

Comment: Three science reviews were conducted as part of the Gulf Coast Ecosystem Council submission evaluation. Most of the remarks received in regard to the Tampa Bay Watershed proposal were favorable. Some comments specific to the Palm River Restoration Project Phase II, East McKay Bay pertained to the project's contributions to the big picture of Tampa Bay and watershed restoration, effectiveness of stormwater ponds in water quality treatment, and the methods and measures to evaluate success of the activities.

Response: Tampa Bay has extensive areas of impaired waterbodies (those not meeting water quality standards), which have adversely affected coastal habitats. The State of Florida has established specific water quality restoration targets for Tampa Bay. This project will leverage the extensive restoration work already underway to meet these goals, particularly through the Tampa Bay Estuary Program (//www.tbep.org/) and the Southwest Florida Water Management District's (SWFWMD) Surface Water Improvement and Management (SWIM) Program for Tampa Bay www.swfwmd.state.fl.us/projects/swim/tampa_bay/, which the Palm River Restoration Project is listed as a priority project.

The 1987 Surface Water Improvement and Management (SWIM) Act was created to protect, restore and maintain Florida's highly threatened surface water bodies. As part of the SWIM Program the SWFWMD identifies and implements water quality and habitat restoration projects. SWIM projects focus on reducing the pollution in stormwater runoff by reducing excess nutrients and other pollutants which affect water quality. To date the SWFWMD and its partners have implemented projects which provide water quality treatment of more than 140,000 acres of watershed and have restored over 11,000 acres of freshwater, estuarine, and upland habitat. This extensive knowledge and experience with on the ground restoration provides the assurance that the objectives of the Palm River Restoration project will be met and that the appropriate measures to evaluate the success of the project will be applied.

Environmental Compliance: The Council proposes to list this activity as a priority for potential future funding. Notwithstanding anything to the contrary set forth herein, at this time the Council is not approving or committing any funds for the implementation of this activity.

Additional environmental compliance information is needed before the Council considers whether to approve funding for implementation of this activity. If sufficient additional environmental compliance information becomes available between the issuance of this draft FPL and completion of the final FPL, the Council may consider such information and thereafter approve this activity for funding, and move it to FPL Category 1. In such case the final FPL would include information necessary to demonstrate compliance with NEPA and other applicable laws. Where applicable, the final FPL would also inform the public of any comment opportunities pertaining to environmental compliance. In some cases, Council approval of funding for an activity in Category 1 would not be final until after the public has had an opportunity to provide comments, and the Council has considered such comments as it prepares required decision documentation (such as a Finding of No Significant Impact for use of an Environmental Assessment).

MAP:

Activity: Robinson Preserve Wetlands Restoration (Implementation)
Unique Identifier: DOC_RESTORE_001_011_Cat2
Location: Florida, Manatee County
Type of Activity: Implementation
FPL Category: 2 - Prioritized for Further Review
Cost Estimate: $1,319,636
Responsible Council Member: Department of Commerce(DOC)/National Oceanic and Atmospheric Administration (NOAA)
Partnering Council member(s): Florida Department of Environmental Protection (FDEP)
Originally submitted by: The DOC as a component within the proposal "Connecting Coastal Waters: Restoring Coastal Wetland Hydrology"

Executive Summary: The Robinson Preserve Wetlands Restoration project is part of the *Connecting Coastal Waters* initiative NOAA will lead with partners to restore the extent, functionality, and resiliency of Gulf Coast wetlands and provide a science-based inventory of wetland hydrology restoration projects that make the greatest contribution to that goal. NOAA will work with partners to implement this project to restore 140 acres of upland and wetland habitat on a former agricultural parcel recently acquired to expand Robinson Preserve in the Tampa Bay watershed. NOAA will also work with partners to conduct monitoring of restoration outcomes and outreach and educational activities to share restoration practices and engage stakeholders.

PROJECT DESCRIPTION:

Specific Actions/Activities: The *Connecting Coastal Waters* initiative will restore and enhance ecosystem resilience, sustainability, and natural defenses by reestablishing natural hydrology and connectivity between freshwater and marine habitats in priority areas across the Gulf Coast. This project will implement restoration activities, conduct monitoring to assess restoration outcomes, and engage in outreach and educational activities with restoration practitioners and stakeholders. Restoration activities will be conducted to: 1) create coastal upland, wetland habitats, and tidal creeks designed to incorporate projected near-term sea level rise; 2) create high quality estuarine subtidal habitats; and 3) restore natural hydrology linking the coastal upland, wetland, and estuarine areas. When completed, the project will provide about 85 acres of upland habitats and 55 acres of created wetland and sub-tidal habitats, for a total of 140 acres of productive habitat from former low quality agricultural land. The remaining 10 acres will be dedicated to an environmental education center and other recreational facilities that will be constructed and managed by Manatee County. A monitoring plan will be implemented before and after construction to support an adaptive management approach. The monitoring plan will include pre-construction monitoring to provide baseline information, during construction monitoring to ensure the project is being implemented as designed, and post-construction monitoring to evaluate whether the project meets success criteria. Post-monitoring will be completed over 36-months following completion of restoration. Outreach and educational activities will be conducted to share restoration practices and project results.

Task 1: Planning and Local Involvement: A project team will be assembled to provide technical input and expertise during the construction and monitoring of this project. Team members will provide a multi-disciplinary approach to evaluate monitoring data and recommend any corrective actions necessary to meet restoration goals.

Deliverable 1: Project team member's list, roles, and team description.

Task 2: Construction: NOAA will develop a contract statement of work, select a construction contractor, determine a schedule, and finalize construction plans. The construction task includes both the action of restoring the site and post-construction management including monitoring of the construction. Monitoring will occur before, during, and after construction to ensure work is progressing and completed as designed.

Deliverable 2.1: Construction Plan of Work and Bid Documents.

Deliverable 2.2: Final construction as-built drawings and construction completion report.

Task 3: Monitoring and Evaluation: This task will implement a monitoring and evaluation plan developed through the project planning phase. The data collected before and after project construction will document progress toward achieving restoration project goals and objectives and inform adaptive management decision-making. Three types of monitoring will be conducted: 1) pre-implementation monitoring—providing baseline information to compare with post implementation data to determine whether the restoration is having the desired effect; 2) implementation monitoring—ensuring the project is being implemented as planned and identifies needed modifications; and 3) effectiveness monitoring—enabling evaluation of whether a project has met its objectives.

Deliverable 3.1: Semi-annual Monitoring Reports and Data Sheets.

Deliverable 3.2: Final Monitoring and Evaluation Report.

Task 4: Outreach and Education: The project team will implement the Outreach and Education Plan developed through the project planning phase in cooperation with partners and existing community groups. Strategies may include site tours, presentations, interpretive outreach materials, videos, and other efforts to share project success. Activities conducted will be documented, including copies of materials produced, and compiled into a final report.

Deliverable 4.1: Outreach and Education Report.

Ecological Benefits/Outcomes and Metrics: The site contains a range of important coastal wetland habitats including mangrove, salt marsh, salt barren, coastal strand hammock and maritime hammock. In 2012, the Preserve was expanded with the acquisition of a 150-acre parcel of former agricultural lands. Robinson Preserve has undergone extensive restoration from disturbed farmland to coastal and wetland habitats, including the restoration of tidal flow within the property. While significant portions of the overall site are either made up of extant mangrove swamp systems or recently restored areas, 150 acres of the site (Robinson Expansion) remain in need of restoration, providing ample opportunity to enhance regional ecosystem services and bolster wildlife populations. This project will continue these restoration efforts to convert the 150-acre expansion of Robinson Preserve from mostly disturbed land to

native wetland and upland habitats by re-contouring the land, followed by planting with native vegetation. The 150-acre expansion area was in agricultural production for at least five decades and has lay fallow for the past ten years. Fill was piled over large portions of the site for a golf course community before acquisition. Historical uses have allowed nuisance and exotic vegetation to overrun the majority of the site, severely limiting ecological functions. While the overall project planned by local partners involves enhancements for public access, all RESTORE funds received will be used for ecological restoration.

Measures of Success: Specific metrics to evaluate the ecological benefits and outcomes will be established in the planning phase of this project. Potential measures of success include:

Construction Verification: Construction was completed as designed.
Restoration extent: Acres of upland and wetland habitats created/restored.
Hydrology Parameters: Water flow pattern.
Vegetation Parameters: Plant coverage (of native and invasive plant species) and survival of planted native species.

Leveraging and Co-Funding:

- **Building on prior or other investments:** This project will partner with and leverage the Robinson Preserve Expansion project being conducted by Manatee County and several partners to complete habitat restoration and enhancements as part of a larger approximately $13 million dollar project. This project will complement an approximately $27 million dollar investment made for restoration of the already established 482-acre Robinson Preserve. In addition, past investments by Manatee County to acquire and conserve the project area, which expanded the 482-acre Robinson Preserve by an additional 150 acres of adjacent lands are valued at $3.2 million dollars. This project will continue on-going restoration work, which includes removing invasive plant species and restoring tidal flow within the project site to lay the foundation for successful habitat restoration. The Preserve also constructed low-impact recreational facilities and a visitor's center to provide recreational and education opportunities for the community that will enhance outreach and education activities to be implemented through this project. In addition, this project will leverage the many partnerships and studies conducted for this high priority project by Manatee County, FDEP, Tampa Bay Estuary Program and Sarasota Bay Estuary Program.

Duration of Activity: 3 years.

Life of Activity: By restoring habitat within Robinson Preserve, this project will provide ecological benefits in perpetuity. Preserve staff are in place to continue the monitoring of these restoration activities and have on-going habitat management and educational programs underway.

RESPONSE TO SCIENCE REVIEWS:

Comment: External science review of the Connecting Coastal Waters proposal, which included a total of eleven projects, resulted in one all or mostly positive response and two generally positive, but with a need for more information. Reviewers requested information related to outcomes of planning, engineering, design, and permitting including, site-specific conditions, evaluation of uncertainties, risks, mitigation, measures of success, and data quality standards.

Response: This project will implement restoration activities based on detailed restoration plans, certified engineering and design, and approved permits completed by the project planning phase. The project's construction design work as well as the monitoring and evaluation plan will incorporate necessary steps to mitigate for project uncertainties and risks that will be identified in greater detail through the permitting and environmental compliance process conducted under the planning phase (see additional information below). This project will also implement a detailed monitoring and evaluation plan developed under the planning phase that will collect data to evaluate project specific measures of success. Monitoring data collected for this project will undergo verification to ensure the quality, utility, and integrity of information collected.

ENVIRONMENTAL COMPLIANCE:

The Council proposes to list this activity as a priority for potential future funding. Notwithstanding anything to the contrary set forth herein, at this time the Council is not approving or committing any funds for the implementation of this activity. Additional environmental compliance information is needed before the Council considers whether to approve funding for implementation of this activity. If sufficient additional environmental compliance information becomes available between the issuance of this draft FPL and completion of the final FPL, the Council may consider such information and thereafter approve this activity for funding, and move it to FPL Category 1. In such case the final FPL would include information necessary to demonstrate compliance with NEPA and other applicable laws. Where applicable, the final FPL would also inform the public of any comment opportunities pertaining to environmental compliance. In some cases, Council approval of funding for an activity in Category 1 would not be final until after the public has had an opportunity to provide comments, and the Council has considered such comments as it prepares required decision documentation (such as a Finding of No Significant Impact for use of an Environmental Assessment).

MAP:

Activity: Tampa Bay National Estuary Program (Implementation)
Unique Identifier: EPA_RESTORE_002_005_Cat2
Location: Florida, Hillsborough, Pinellas and Manatee Counties
Type of Activity: Implementation
FPL Category: 2 – Prioritized for Further Review
Cost Estimate: $2,000,000
Responsible Council Member: Environmental Protection Agency (EPA)
Partnering Council member(s): State of Florida
Originally submitted by: The EPA as a component within the proposal "Gulf National Estuary Program (NEP) and Lake Pontchartrain Basin Restoration Program (LPBRP) Comprehensive Plan Implementation Program"

Executive Summary: Seven elements of the Tampa Bay Estuary Program (TBEP)- RESTORE Project Implementation will be implemented throughout the Tampa Bay watershed, expected to collectively result in 16.5 tons of nitrogen reduced per year; more than 250 acres of coastal habitat restored and 200 acres of seagrass created. More than $3.4M from local, state and federal agencies is provided as cash match.

PROJECT DESCRIPTION:

Specific Actions/Activities: Tampa Bay RESTORE Implementation project includes the following seven elements. Each element has been identified by TBEP partners as priority, and has been vetted and approved by the TBEP Boards. Once environmental compliance requirements have been defined and assessed under the above Category 1 project with unique identifier EPA_RESTORE_002_005_Cat1, it is expected that all seven of these elements may be eligible for Category 1, since all elements current have received applicable permits or are in the permitting process:

- Coopers Point Water Quality Improvement (City of Clearwater),
- Biosolids to Energy (City of St. Petersburg),
- Copeland Park Stormwater Enhancements (City of Tampa),
- Coastal Invasive Plant Removal (Hillsborough County),
- Robinson Preserve Water Quality and Habitat Restoration (Manatee County),
- Ft Desoto Recirculation and Seagrass Recovery (Pinellas County), and
- Palm River Habitat and Water Quality Restoration Phase II (Southwest Florida Water Management District).

Deliverables: Deliverables will include on-the-ground measurable ecological results as described in the Outcomes and Metrics section below, plus the following reporting elements to ensure accountability:

- Quarterly progress reports from each project element.
- Pre- and post- implementation monitoring results from each project element.
- A draft and final report from each project element.
- A final collated report from all elements of the Tampa Bay RESTORE Implementation project.

Ecological Benefits/Outcomes and Metrics: Collectively, implementation of the project elements are expected to result in 16.5 tons of nitrogen reduced per year; 268 acres of coastal habitat restored and 200 acres of seagrass created. Water quality improvement activities include stormwater treatment in urban basins; tidal exchange restoration; best management practices on municipal athletic fields; and sheet flow restoration. In addition to the 16.5 tons of nitrogen reductions, 28 tons of greenhouse gas (GHG) emissions per year will be reduced, providing added climate change resiliency. GHG emissions reductions result from switching from fuel to biogas for municipal vehicles.

Habitat restored or created include: 200 acres of seagrass, 60 acres of mangroves, 8 acres of saltmarsh, 68 acres of coastal uplands, and 132 acres of shallow estuarine habitat. Habitat restoration includes invasive removal, sediment contouring, and native plantings.

Each element includes public outreach/education benefits, including volunteer involvement.

Leveraging and Co-Funding:

- **Co-funding:** Cash leveraged for the Tampa Bay RESTORE Implementation project totals $3.4M. Partner roles include project construction and long-term maintenance. Funding partners include the following:
  - Local Governments: $500,000 from Pinellas County, $279,412 from Manatee County, $271,000 from Hillsborough County, $328,570 from the City of Tampa, and $303,570 from the City of Clearwater.
  - State partners: $375,000 from Florida Department of Transportation and $1,253,570 from the Southwest Florida Water Management District.
  - Federal partners: $90,000 from U.S. Fish and Wildlife Service. In addition, the Department of Energy is providing $6M for the GHG emissions reduction element.
- **Building on prior or other investments:** Partners for all seven elements have invested in-kind time and funds to plan and permit these elements. Estimated in-kind services are $20,000 per project element ($140,000 in-kind equivalent).

Duration of Activity: All project elements and final deliverables are expected to be completed within 4 years of receipt of RESTORE funds.

Life of Activity: Longevity of ecological benefits of the water quality and habitat improvements included in this proposal is expected to be 30-70 years.

RESPONSE TO SCIENCE REVIEWS: N/A – Summary of Science Review Comments and Responses are included in the related Planning activity for this project (Unique Identifier EPA_RESTORE_002_005_Cat1).

ENVIRONMENTAL COMPLIANCE:

The Council proposes to list this activity as a priority for potential future funding. Notwithstanding anything to the contrary set forth herein, at this time the Council is not approving or committing any funds for the implementation of this activity. Additional environmental compliance information is needed before the Council considers whether to approve funding for implementation of this activity. If sufficient additional environmental compliance information becomes available between the issuance of this draft FPL and completion of the final FPL, the Council may consider such information and thereafter approve this activity for funding, and move it to FPL Category 1. In such case the final FPL would include information necessary to demonstrate compliance with NEPA and other applicable laws. Where applicable, the final FPL would also inform the public of any comment opportunities pertaining to environmental compliance. In some cases, Council approval of funding for an activity in Category 1 would not be final until after the public has had an opportunity to provide comments, and the Council has considered such comments as it prepares required decision documentation (such as a Finding of No Significant Impact for use of an Environmental Assessment).

MAP:

Appendix K. Gulf-wide

Category 1:

Activity: Council Monitoring & Assessment Program Development
Unique Identifier: DOC_RESTORE_002_001_Cat1
Location: Gulf-wide
Type of Activity: Planning
FPL Category: 1 – Funding Eligible
Cost Estimate: $2,500,000
Responsible Council Member(s): U.S. Department of Commerce (DOC)/National Oceanographic and Atmospheric Administration (NOAA) and U.S. Department of the Interior (DOI)/ U.S. Geologic Survey (USGS)
Partnering Council member(s): All, as part of Council Monitoring & Assessment Work Group
Originally submitted by: The NOAA/USGS as a component within the proposal "Gulf of Mexico Habitat Mapping and Water Quality Monitoring Network"

Executive Summary: The monitoring and assessment program, administered jointly by NOAA and USGS, would fund the development of basic foundational components for Gulf region-wide monitoring in order to measure beneficial impacts of investments in restoration. Through collaboration with the Gulf states, federal, and local partners, academia, non-governmental/non-profit organizations, and business and industry, the program would create a Community of Practice (CoP) to leverage existing resources, capacities, and expertise and build on existing monitoring data and programs. The program would: (1) conduct an inventory and gap analysis of existing data and monitoring systems; (2) develop and provide recommendations to the Council for common standards and protocols; (3) establish metrics needed to measure influence of water quality and habitat restoration; (4) establish baseline conditions; and (5) provide recommendations to the Council on how to address gaps and future needs.

The minimum monitoring and assessment standards would be used to: (1) efficiently evaluate and report on the effectiveness of Council-selected restoration projects and programs, and (2) assess progress towards reaching the Council's comprehensive ecosystem restoration goals and objectives. The program would also support the Council in its yearly reporting requirements to Congress.

PROJECT DESCRIPTION:

Specific Actions/Activities: The main objective of this program is to develop basic foundational components for Gulf region-wide monitoring in order to measure beneficial impacts of investments in Gulf restoration and provide the Council with necessary scientific information to inform future decision-making. The program would execute the following activities: (1) create an inventory of the existing habitat and water quality monitoring programs, data, protocols and

standards; (2) determine the minimum monitoring elements needed to measure and evaluate the performance of the habitat and water quality restoration projects; (3) evaluate the suitability of the inventoried programs to monitor RESTORE Council projects and programs; (4) combine appropriate data from the existing programs into searchable databases for Council member use; (5) examine the inventory to determine what data are missing (i.e. identify information gaps) that would be required for the RESTORE Council; (6) document the existing baseline habitat and water quality conditions prior to implementation of the restoration projects; the baseline conditions will serve as a basis for measuring change/progress after restoration; and (7) provide recommendations to supplement and refine the existing monitoring programs to fill-in the information gaps where possible.

Activities 1-7 will be implemented by using a collaborative organizational structure (see Figure 1). A four member program management team (NOAA, USGS, and the Council's Science Coordinator, and one Council member state on a rotational basis) would be established to lead an interagency Council Monitoring and Assessment Working Group (CMAWG) that will include one representative from each Council member. This working group will be responsible for implementing the Council monitoring activities with substantial input from partners in the CoP (i.e., state and federal agencies, academia, non-governmental/non-profit organizations, business and industry). Additionally, we will institute a Monitoring Coordination Committee (MCC) to coordinate routinely with other Gulf restoration funding organizations to exchange monitoring recommendations and program priorities; with the ultimate goal of adopting common monitoring and standards within different funding organizations across the Gulf. This will avoid duplication and provide leveraging and collaboration opportunities. This three part structure provides opportunities to: share lessons-learned, best practices and resources related to the collection, assessment, and management of monitoring data in the Gulf.

Deliverables: Within the first three years, USGS, NOAA and the CMAWG will: (1) provide an inventory of existing habitat and water quality monitoring programs; (2) perform a quality assurance/quality control (QA/QC) review of existing monitoring programs to document the suitability of the data for use in the Council monitoring program; (3) document and catalog the monitoring protocols from existing programs; 4) document in a report the minimum monitoring and data standards needed to measure progress within the RESTORE Program; (5) conduct a data gap assessment and document in a report the required data that is missing and recommendations on how to best obtain the necessary data; (6) provide a habitat baseline assessment report to document the existing baseline habitat conditions prior to restoration; (7) provide a water quality baseline assessment report to document the existing baseline water quality conditions prior to restoration; and (8) provide monitoring deliverables in searchable databases and mapping applications that are publicly available on-line.

Ecological Benefits/Outcomes and Metrics: This proposal will enable the Council to achieve its mission of science-based comprehensive Gulf ecosystem restoration by providing a tool to support the Council's decision making. This tool will provide the Council with information that will assist in prioritizing management needs, selecting and implementing restoration actions, and measuring the results of individual projects to determine progress and adjust course as needed. The monitoring and assessment program will be developed to provide information for

the individual projects and also provide regional information to evaluate progress towards the Council's goal of comprehensive, Gulf-wide restoration. Additionally, the monitoring program will help the Council meet its statutory reporting requirements. We will measure success by establishing a set of consistent minimum monitoring and data standards approved by the CMAWG. These monitoring standards will be developed in collaboration with all of the Council members and will be complementary to other existing monitoring programs in the Gulf region.

Budget:

- *Program Management* - $760K – would build on existing capabilities within NOAA and USGS.
- *Minimum monitoring standards* - $640K –Funds would be used to develop minimum standards and protocols for both project scale and ecosystem scale monitoring as well as QA/QC data; once developed the protocols would be used Gulf wide by the Council.
- *Inventory & gap analysis* - $500K
- *Identify Monitoring Needs and Indicators*- $375K – Funds would be used: (1) to determine what we are going to monitor informed by stakeholder input; (2) to determine exact parameters that need to be measured; and (3) to determine what indicators would be used (ex. particular species). This leverages funds from the Gulf of Mexico Alliance (GOMA) as the CoP would help execute these activities.
- *Establish Baseline Conditions* – $700K-– Funds will be used to create baseline status of the system so that we can do comparisons over time.
- Data visualization, application and management - $400K

Leveraging and Co-Funding: To jumpstart these efforts, NOAA is co-funding by investing $500K to begin the data and gaps analysis and begin to establish a baseline. Additionally, the Council is providing $375K to the Gulf of Mexico Alliance to coordinate the CoP.

- **Co-funding:** There will be partial salary match for the NOAA and USGS monitoring program leads from their respective agencies.
- **Building on prior or other investments:** Considerable cost reductions are present in the budget request of this program due to use of existing NOAA/USGS infrastructure, labor, expertise and capabilities. Additionally, the program will leverage specialized expertise from the broad set of partners.
- **Examples of programs that can be leveraged for this proposal include**: Louisiana's Coast-wide Reference Monitoring System and the Gulf Coastal Ocean Observing Systems. The USGS and NOAA will also tap into existing monitoring expertise and on-the-ground programs, both nationally and within the Gulf of Mexico region including NOAA and USGS Land Cover databases, Marine Ecological Classification Standards, Habitat Mapping Inventories and Advanced Technologies, and National Stream Quality Accounting Networks, among others. Monitoring information gathered will be made available to the public, and leveraged through existing web interfaces.

Duration of Activity: Initial phase three years.

Life of Activity: Greater than 20 years.

RESPONSE TO SCIENCE REVIEWS:

All of the science reviews were positive and identified that monitoring provides critical information for understanding the evolving ecosystem health of the Gulf and the effectiveness of restoration efforts. However, one review provided a generally positive review with a need for more information. It should be noted that the monitoring activity funded under this proposal does not include any new monitoring and data collection efforts, so the comments and responses below only address those pertinent to this activity and not the full, original proposal.

Comment: Specific to monitoring coordination, the review stated "Much of the success of the project hinges on how well the CoP handles its responsibilities, but the implementation of the CoP is not described well enough to ascertain if it will be possible for it to be effective. There are a lot of details left out between stating that the CoP will identify data gaps through stakeholder engagement and the process of actually carrying it through."

Response: The GOMA will serve as the coordinating body for engagement with the monitoring CoP, under direction of a Council monitoring program management team. Current representation on the GOMA Data and Monitoring, Habitat, and Water Resources priority issue teams (PITs) will serve as the starting point for reach back to a larger monitoring CoP. Foundational monitoring program deliverables will be vetted through the CoP, with GOMA directing conference calls, webinars and workshops to gain feedback and recommendations on Council minimum monitoring standards, monitoring inventory/gap analysis, monitoring needs and indicators, and utility/applications of baseline data assessments.

Comment: The gap analysis, and the plan on prioritizing water quality package deployment locations, could be strengthened. On page 9 of the proposal it states that: "Gaps will be analyzed with input gathered from all stakeholders to determine regional spatial priorities." Although the CoP is described in the Executive Summary to hold workshops for data inventory, identification of gaps and determining prioritization of monitoring needs, in the body of the proposal the workshops are only described to be for prioritization, governance and for the data collectors/users. There is a sentence in the risks section (2.5) that states the CoP will engage stakeholders, but neither the CoP nor the outreach section includes workshops for identifying gaps based on stakeholder needs. Although the proposal includes important ties to Gulf Coastal Ocean Observing Systems, SECOORA and GOMA, it fails to capitalize on the work that those organizations have already done to determine what the community of stakeholders needs in terms of monitoring. For example, GCOOS has conducted numerous stakeholder workshops to identify the priorities of various stakeholder groups and has collated that information along with priorities from specific marine management programs (e.g., hypoxia and HABS). These resources could be leveraged, along with the data inventories, in the process of the gap analysis.

Response: The original proposal included a prioritization of monitoring needs (based on stakeholder input) because it included funding to implement on-the-ground monitoring. This proposal does not include any new monitoring. However, recognizing the importance of building off of existing efforts (such as data inventories) and leveraging funding from other organizations, this monitoring proposal includes a broad participation through a three part structure from experts across the Gulf. Stakeholder meetings will be conducted to gather input and facilitated by the Gulf of Mexico Alliance.

Comment: The implementation of the analyses of gaps and priorities is too vague. We are told that "Success will be result from the inclusion of collaborators across state, federal, academic, and NGOs … that a stepwise process for consensus building will be used to determine criteria, and that the CoP (somewhat vague itself) will score the identified needs and gaps to how well they meet the criteria." Further a "participatory geographic prioritization process" will be implemented, but this is not really described.

Response: The CMAWG will be providing monitoring recommendations to the Council. Those recommendations will be developed using the governance structure described above, which will result in input from a broad coalition of monitoring collaborators and experts.

ENVIRONMENTAL COMPLIANCE:

Council approval of funding for this proposed activity would not involve or lead directly to ground-disturbing activities that may have significant effects on the environment individually or cumulatively, nor would it commit the Council to a particular course of action affecting the environment. The Council has considered potential extraordinary circumstances, including potential negative effects to threatened and endangered species, essential fish habitat, Tribal interests, and/or historic properties, where applicable, and has determined that no such circumstances apply. Accordingly, the Council has determined that this proposed activity would be covered by the Council's National Environmental Policy Act (NEPA) Categorical Exclusion for planning, research or design activities. (See the Council's NEPA Procedures, Section 4(d)(3): *insert link to Procedures*.)

MAP:

Activity: GOMA Coordination (Planning)
Unique Identifier: AL_RESTORE_002_001_Cat1
Location: Gulf-wide
Type of Activity: Planning
FPL Category: 1 – Funding Eligible
Cost Estimate: $375,000
Responsible Council Member: State of Alabama
Partnering Council member(s): This project represents a direct partnering between the Gulf of Mexico Alliance (GOMA) (currently chaired by the State of Alabama), the Department of Commerce (DOC) (represented by the National Oceanic and Atmospheric Administration (NOAA), and the Department of Interior (DOI) (represented by the U.S. Geologic Survey (USGS)). Further, GOMA's committee structure has representation and support from all 5 Gulf States, as well as the DOC/NOAA, DOI/USGS, U.S. Army Corps of Engineers, as well as other agency and non-governmental organization partners.
Originally submitted by: The State of Alabama as a component within the proposal "Gulf of Mexico Alliance Gulf-wide Restoration Coordination and Support"

Executive Summary: The Gulf of Mexico Alliance (GOMA) will further develop a Monitoring Community of Practice using expertise from existing GOMA Priority Issue Teams. This Community of Practice is the next logical step to a process established through a series of workshops conducted by GOMA from 2011 through 2014. This Monitoring Community of Practice will focus on providing feedback and input to the establishment of minimum monitoring standards and protocols developed by the RESTORE Council's Monitoring and Assessment Work Group in support of the Habitat and Water Quality and Quantity Monitoring Program proposals by DOI/USGS and DOC/NOAA.

PROJECT DESCRIPTION:

Specific Actions/Activities: GOMA will conduct five Community of Practice workshops in support of the Gulf of Mexico Habitat and Water Quality and Quantity Monitoring Program. During these workshops, GOMA will coordinate and facilitate members of the Community of Practice to:

- Provide feedback on minimum monitoring standards developed by Council Monitoring and Assessment Workgroup (CMAWG) (please also see the below Category 1 project with unique identifier DOC_RESTORE_002_001_Cat1);
- Provide feedback on gap analysis/inventory prepared by USGS and NOAA;
- Help to identify monitoring needs and indicators;
- Review baseline data and assessments; and
- Distribute CMAWG products through various channels for review.

Deliverables: Deliverables for the development of a Monitoring Community of Practice will be workshop reports detailing agenda items and outcomes on the specific focus areas of each workshop.

Ecological Benefits/Outcomes and Metrics: The goal of the Monitoring Community of Practice will be to establish standardized monitoring practices and protocols through consensus from the broad base of expertise in the region. The ecological benefits of having standardized monitoring practices and protocols are: (1) baseline conditions and trends can be identified, allowing resource managers to understand ecosystem functions and responses to disturbances; (2) once ecosystem functions are understood, forecast models and predictive tools for restoration planning are much more accurate; and (3) restoration plans can be developed and implemented using the best available science to successfully manage ecological resources.

Leveraging and Co-Funding:

- **Adjoining:** Approximately $2,500,000 is proposed for USGS and NOAA and an additional $500K in existing NOAA funds are in place to administer a Council Monitoring and Assessment Work Group (CMAWG), establish a Monitoring Coordination Committee, develop minimum monitoring standards and protocols, conduct an inventory and gap analysis, establish baseline conditions, and create a data visualization, application and management system. GOMA's Monitoring Community of Practice is an adjacent project that will provide feedback and input to the above-mentioned products developed by USGS and NOAA.
- **Building on prior or other investments:** Recognizing the need for cooperation and coordination among the various and disparate monitoring programs in the Gulf of Mexico, GOMA hosted a series of workshops from 2011 through 2014; at first only for water quality monitoring, and later broadening to include all types of monitoring. Partners from state and federal agencies, academia, non-governmental/non-profit organizations and businesses formed an "ad hoc" Monitoring Community of Practice, collaborating to develop a master vision and method for a coordinated, integrated monitoring system across the Gulf. In 2014, the effort resulted in the Gulf-wide Water Quality Monitoring Network plan and a recommendation to develop similar plans for other monitoring sectors. In 2015, this effort continues through the formation of a new Data and Monitoring Priority Issue Team that is poised to continue the development of a coordinated approach to monitoring in the Gulf of Mexico. Since 2011, approximately $92,500 has been invested by GOMA to develop the ad hoc Monitoring Community of Practice, hosting and facilitating workshops, including: $67,500 from grants from NOAA Regional Ocean Partnership program for Gulf-wide Monitoring Network plan development; $15,000 from GOMA reserves and participant registration fees for Gulf of Mexico Observations & Monitoring Workshops; and $10,000 value of in-kind services from GOMA staff to coordinate and facilitate Gulf-wide Monitoring Network plan and workshops.

Duration of Activity: 36 Months.

Life of Activity: Once the minimum monitoring standards and protocols are established for habitat and water quality monitoring, they will be accurate and appropriate indefinitely.

RESPONSE TO SCIENCE REVIEWS: All three external science reviews were found to be generally favorable.

ENVIRONMENTAL COMPLIANCE:

Council approval of funding for this proposed activity would not involve or lead directly to ground-disturbing activities that may have significant effects on the environment individually or cumulatively, nor would it commit the Council to a particular course of action affecting the environment. The Council has considered potential extraordinary circumstances, including potential negative effects to threatened and endangered species, essential fish habitat, Tribal interests and/or historic properties, where applicable, and has determined that no such circumstances apply. Accordingly, the Council has determined that this proposed activity would be covered by the Council's National Environmental Policy Act (NEPA) Categorical Exclusion for planning, research or design activities. (See the Council's NEPA Procedures, Section 4(d)(3): insert link to Procedures.)

MAP:

Activity: Create a strategic conservation assessment framework for future land acquisition prioritization through collaborative conservation planning and design (Planning)
Unique Identifier: MS_RESTORE_001_009_Cat1
Location: All Gulf States
Type of Activity: Planning
FPL Category: 1 – Funding Eligible
Cost Estimate: $1,879,380
Responsible Council Member: Department of the Interior (DOI)
Partnering Council member(s): All Council Members to be engaged.
Originally submitted by: The State of Mississippi as a component within the proposal "Strategic Land Protection, Conservation, and Enhancement of Priority Gulf Coast Landscapes". It was also submitted as a separate proposal " Strategic Conservation Assessment of Gulf Coast Landscapes" by the DOI.

Executive Summary: The "Strategic Conservation Assessment of Gulf Coast Landscapes" project is a DOI-led collaborative effort involving the RESTORE Council and the Landscape Conservation Cooperative (LCC) partnerships in the Gulf Coast Region (GCR). This project will develop a suite of tools to help Council Members evaluate the benefits of individual land conservation projects, collaboratively prioritize parcels across the GCR, and develop a portfolio of land conservation projects.

PROJECT DESCRIPTION:

Specific Actions/Activities: This project will take the large number of land conservation plans already in existence from across the Gulf and use them to develop decision support tools that offer a Gulf-wide perspective of land conservation based on local and shared priorities. Previously existing land conservation plans are limited either geographically (they only cover a portion of the Gulf) or organizationally (they only cover the interests of a single entity). The goal of this proposal is to combine these previously existing plans into a set of decision support tools. These tools and the subsequent analysis will help Council Members select and implement land conservation actions that provide the greatest benefits to current and future ecosystem sustainability and resilience within the states and across the Gulf.

All of the Council Members will participate in the development of these tools. A Core Working Group, comprised of representatives from each RESTORE Council member agency will oversee the project. The four Gulf LCCs have existing representation from state, federal and private organizations across the Gulf and will provide the science support for the development of this project. In addition, a series of stakeholder meetings – at least 4 in each state over the 3-year developmental period of the project – will provide opportunities for local community engagement. A significant portion (nearly 30%) of the project budget is earmarked to support partner travel to these meetings to overcome one major hurdle in stakeholder participation.

This project has three objectives:

1. Develop shared priorities and objectives for land conservation;

2. Develop tools to prioritize existing land conservation proposals; and
3. Develop a map showing the shared land conservation priorities across entire GCR.

Specific actions and activities associated with achievement of these objectives include:

1. Establish the Core Working Group (approximately 15 people);
2. Review existing plans to identify shared priorities;
3. Host stakeholder meetings throughout the process to obtain input on draft deliverables;
4. Identify ranking criteria for land conservation that reflect these shared priorities;
5. Develop a Conservation Planning Tool that applies these criteria so that Council members can use the tool to rank conservation proposals;
6. Develop a Strategic Conservation Assessment that prioritizes opportunities in the GCR for land conservation;
7. Develop models that optimize conservation investments over time; and
8. Conduct outreach and extension to ensure utilization of decision support tool deliverables.

Deliverables: Three decision support tools will be developed from this work:

1. A Conservation Prioritization Tool (CPT) in the first year that can be used to evaluate the benefits of existing land conservation proposals;
2. A Strategic Conservation Assessment (SCA) in year two that will enable Council Members to prioritize Gulf-wide conservation investments across the GCR; and
3. Advanced conservation modeling in year three will inform Council Members of the optimal conservation project design and cost benefits for a targeted landscape.

Ecological Benefits/Outcomes and Metrics: The value of conservation planning and design lies in its ability to strategically identify actions with the highest potential to achieve shared priorities. The ecological benefits realized by making decisions informed by strategic planning versus "random acts of conservation" are well documented. Making wise choices on which lands to place in conservation can support local economies by increasing tourism, keeping working lands working (e.g., timber harvest, cattle ranching, etc.), and maintaining ecosystem goods and services (e.g., water quality). Tools like the CPT and SCA will increase the efficiency of decision-making on conservation actions selected by the Council Members. This will result in objectives and targets that can be met with less effort and maximize leveraging of available resources. The successful application of these planning tools will provide the best representation of outcomes and metrics for this project.

Leveraging and Co-Funding:

- **Building on prior or other investments:** This project builds on significant prior and ongoing investments in planning and design by RESTORE Council member states and agencies, the LCCs, and other stakeholders along the Gulf. This project will help bridge planning across the Gulf landscapes, building upon such foundational work as the State Wildlife Action Plans and the ongoing coastal planning efforts of the Gulf states under the National Fish and Wildlife Foundation Gulf Environmental Benefit Fund. These investments to date total in the tens of millions of dollars.

Duration of Activity: 3 years.

Life of Activity: Over 20 years.

RESPONSE TO SCIENCE REVIEWS:

The Department of the Interior's "Strategic Conservation Assessment of Gulf Coast Landscapes" proposal details the specifics of the assessment framework referenced in Objective 3 of Mississippi's "Strategic Land Protection, Conservation, and Enhancement of Priority Gulf Coast Landscapes. All three of the External Science Reviews were positive and did not express any significant concerns regarding the information presented in the proposal.

ENVIRONMENTAL COMPLIANCE:

Council approval of funding for this proposed activity would not involve or lead directly to ground-disturbing activities that may have significant effects on the environment individually or cumulatively, nor would it commit the Council to a particular course of action affecting the environment. The Council has considered potential extraordinary circumstances, including potential negative effects to threatened and endangered species, essential fish habitat, Tribal interests and/or historic properties, where applicable, and has determined that no such circumstances apply. Accordingly, the Council has determined that this proposed activity would be covered by the Council's National Environmental Policy Act (NEPA) Categorical Exclusion for planning, research or design activities. (See the Council's NEPA Procedures, Section 4(d)(3): insert link to Procedures.)

MAP:

Activity: US EPA & USGS Joint Proposal for Baseline Flow & Gage Analysis and On-Line Tool Development to Support Bay and Estuary Restoration in Gulf States (Planning)
Unique Identifier: EPA_RESTORE_004_000_Cat1
Location: Gulf-wide flow assessment, Focus Watershed in Mississippi
Type of Activity: Planning
FPL Category: 1 – Funding Eligible
Cost Estimate: $4,990,000
Responsible Council Member: Environmental Protection Agency (EPA) and Department of the Interior (DOI)/U.S. Geologic Survey (USGS)
Partnering Council member(s): All, with focus watershed study in Mississippi
Originally submitted by: The EPA/USGS as a component within the proposal "US EPA & USGS Joint Proposal for Baseline Flow & Gage Analysis and On-Line Tool Development to Support Bay and Estuary Restoration in Gulf States"

Executive Summary: Adequate freshwater flow to the rivers and estuaries is not only critical to the health and function of those ecosystems, but it is also important for the support of a thriving state, local and coastal economy. The USGS and the EPA propose to collaborate on a comprehensive, large-scale project to provide vital information on the timing and delivery of freshwater to streams, bays, estuaries, and wetlands of the Gulf states. In a focus watershed study in Mississippi, a tool will be developed for one large watershed to understand how changes in water withdrawals and reservoir operations could minimize streamflow alterations and impacts to freshwater and estuarine ecosystems.

PROJECT DESCRIPTION:

Specific Actions/Activities:
Streamflow metrics— describing critical low, average, and high flows from the Gulf States. The magnitude, duration, frequency, timing, and rate-of-change of flow are metrics that are critical to the ecological health of streams. Regionally consistent methods will be used to estimate these flow characteristics for gaged locations throughout the Gulf states. This regionally consistent information will provide a foundation for Gulf resource managers to prioritize streamflow restoration.

Streamflow alteration—Regional assessment of flow alteration in streams and rivers. Flow alteration will be estimated by comparing streamflows in watersheds with different amounts of urban and agricultural lands to streamflows in mostly forested watersheds. This analysis will also help identify gaps in the current streamflow gage network and will guide the selection of new gages.

Trend analysis—human and climatic effects on flow alteration for streams, rivers, and freshwater inputs to estuaries. Trends in streamflow metrics will be assessed to evaluate whether and how climatic and human disturbances have influenced natural flows across the Gulf states, and how these flows are changing through time. Evaluation of streamflow from a

regional perspective will provide an indication of where natural flows in streams, rivers, and estuaries are under the greatest stress.

Focus Watershed Study in Mississippi—evaluating how changes in water management can reduce streamflow alteration. A streamflow accounting tool will be developed to evaluate how water withdrawals and reservoir operations alter flow magnitude, timing, duration, and frequency in streams and rivers throughout the focus watershed. In addition, the combined effects of multiple upstream withdrawal scenarios will help evaluate potential changes in freshwater inputs to the estuary.

Deliverables: Proposed Publications and Products

Streamflow metrics— describing critical low, average, and high flows from the Gulf States. Data from over 950 streamgages will be summarized using widely accepted metrics describing magnitude, timing, duration, frequency, and rate-of-change of flow.

Regional assessment of streamflow alteration in streams and rivers. A report will describe trends in streamflow data and assess how climate and human disturbance have changed natural flow conditions through time. Streamflow alteration will be calculated for gaged watersheds and estimated at ungaged areas in Gulf states. Recommendations on an optimal streamgage network for assessing flow alteration will be provided.

Online streamflow alteration mapping tool. Streamflow metrics, flow alteration, trends in flow alteration, and watershed characteristics for gaged/ungaged sites for Gulf states will be incorporated into an online mapping tool to provide access to data and visual representation of streamflow characteristics.

Focus Watershed Study in Mississippi—Evaluation of how resource management actions change streamflow metrics in a large river basin in Mississippi. Streamflow metrics and ecological data will be evaluated and included in a flow accounting tool to determine how changes in water withdrawals and reservoir operations may affect freshwater ecosystems. Water withdrawal scenarios can then be weighed to determine which alternatives have minimal impacts.

Press releases, webinars and fact sheets. A variety of communication products will be produced to communicate the importance of streamflow to healthy streams and estuaries. Successful streamflow restoration efforts across the Gulf states will also be highlighted.

Ecological Benefits/Outcomes and Metrics: The data and information provided through this proposal will support state and local freshwater flow decisions. The project will promote community resilience in helping Gulf communities in adapting to short and long-term changes in flows, and will improve science-based decision making in targeting and siting restoration work.

Leveraging and Co-Funding:

- **Building on prior or other investments:** The streamflow assessment will utilize data from the USGS streamflow network of about 950 stream gages across the Gulf states, leveraging over $15 million in annual operating funds provided through the USGS Cooperative Water Program and the National Stream Information Program in cooperation with numerous local, state, and other federal agencies. Freshwater flows to coastal areas, improving connectivity and removing dams and barriers to restore habitat for species that migrate between the ocean and freshwater rivers and streams has long been a priority for many state and federal agencies and this project will build upon these long-standing efforts.

Duration of Activity: Project funds will be expended over a seven-year period.

Life of Activity: Consistent, regional streamflow alteration metrics can be used to inform and prioritize streamflow restoration plans for the next decade.

RESPONSE TO SCIENCE REVIEWS:

Comment: The majority of the reviewer comments were positive. One comment questioned how the online mapper would be developed to ensure it meets the needs of the targeted audience. "you can build it, but will they come"?

Response: Determining the target audience and getting routine feedback on the components and the look and feel of the online mapper are critical steps in developing a tool that can strike a delicate balance between ease of use and sufficient complexity to inform water resource management decisions. A Mapper Advisory team consisting of a broad suite of local, state, and federal partners will help identify the target audience for the online mapper and provide initial guidance on the content of the mapper. Small user groups consisting of the target audience will be brought in at various stages of development to provide feedback on the ease of use and content of the mapper. After it is released, website tracking information will provide an indication of mapper use.

Comment: One comment questioned the scale and location of the Focus Watershed and how many additional focus watersheds would be needed?

Response: The focus watershed will be in Mississippi and selected in cooperation with Mississippi partners to ensure the proposed technical approaches will address the local, state, and regional ecological flow needs. A technical advisory team will provide feedback on the technical design of the project and get routine updates on progress and major findings. While the flow accounting model will be developed for a specific watershed in Mississippi, a similar process can be applied at additional watersheds. However, new flow accounting models will require additional investments.

Comment: One comment raised the issue of the lack of information on risks and uncertainty related to the existing stream gage network and how this could impair the stream flow analysis.

Response: Despite a large network of existing streamflow gages, there will be uncertainty in any assessment of streamflow metrics and alteration, as with all environmental resource models. Understanding the degree of uncertainty and where it is largest can assist the prioritization of new stream gages. It can take several years before significant flow information at these new sites can be used in regional flow assessments. Based on previous regional and national experience assessing streamflow conditions, the existing network can provide valuable information on streamflow metrics and alteration needed to inform current water resource decisions. Uncertainty must be quantified and reported so managers can incorporate into the decision making process.

Comment: One comment questioned the budget and made specific reference to year 6.

Response: The budget reflects the resources needed to develop a robust suite of indicators of streamflow metrics and alteration in streams (gaged and ungaged) and freshwater inputs to estuaries in Gulf states and represent this information in an online mapper and document the findings in reports. In year 6 of the proposal, about 24 percent of the funds will be allocated towards stream gaging. The remaining funds will be allocated to the evaluation of the flow accounting model (applying several flow scenarios developed in coordination with the technical advisory team and evaluating potential ecological impacts), and to write articles on linkages between streamflow metrics and ecological communities and how streamflow metrics have changed over time at large river sites in the Focus Watershed.

ENVIRONMENTAL COMPLIANCE:

Council approval of funding for this proposed activity would not involve or lead directly to ground-disturbing activities that may have significant effects on the environment individually or cumulatively, nor would it commit the Council to a particular course of action affecting the environment. The Council has considered potential extraordinary circumstances, including potential negative effects to threatened and endangered species, essential fish habitat, Tribal interests and/or historic properties, where applicable, and has determined that no such circumstances apply. Accordingly, the Council has determined that this proposed activity would be covered by the Council's National Environmental Policy Act (NEPA) Categorical Exclusion for planning, research or design activities. (See the Council's NEPA Procedures, Section 4(d)(3): insert link to Procedures.)

MAP:

Member provided map of the locations of existing USGS streamflow network that will be assessed to develop streamflow metrics and assess streamflow alteration. We will reinsert after language review is complete.

Activity: Strategic Land Protection Conservation, and Enhancement of Priority Gulf Coast Landscapes
Unique Identifier: MS_RESTORE_001_007_Cat1
Location: Texas, Mississippi, Alabama, and Florida
Type of Activity: Planning
Category: 1 – Funding Eligible
Cost Estimate: $900,000
Responsible Council Member: U.S. Department of Agriculture (USDA)
Partnering Council member(s): USDA and the State of Mississippi
Originally submitted by: The State of Mississippi as a component within the proposal entitled "Strategic Land Protection, Conservation, and Enhancement of Priority Gulf Landscapes"

Executive Summary: Given the popularity and success of USDA's Natural Resource Conservation Service (NRCS) and Forest Service (FS) programs, their strong acceptance by private landowners, and the existence of an effective decentralized delivery system, there is a significant opportunity to create a conservation program that helps private landowners invest in conservation. In the five Gulf states, over 80% of the geographic acreage is in private ownership (USDA-NRCS, 2014) and is used for forestry and agriculture. The Gulf Coast Conservation Reserve Program (GCCRP) will be established through USDA in Texas, Mississippi, Alabama, and Florida for the purposes of protecting and restoring critical wildlife and improving water quality through the development of wildlife habitat, conservation, and forest management plans. The plans will identify natural resource concerns on private property throughout the Gulf Coast Region. Wildlife habitat restoration and natural resource conservation opportunities will be prioritized on individual land units and plans will be written based on best available science to strategically target and prioritize conservation activities. Conservation planning and environmental due diligence efforts will be completed during this phase of the project.

PROJECT DESCRIPTION: This project is a planning project. If the planned-for contemplated activities are eventually implemented, they will consist of the following activities.

Specific Actions/Activities: The quality and, to a large extent, the quantity of freshwater entering the Gulf is affected by how those land uses are managed and whether they are converted to more intensive urban purposes. Thus land protection and conservation aimed at private landowners is a priority for foundationally securing Gulf-wide ecosystem integrity. This action item establishes the USDA's Gulf Coast Conservation Reserve Program as a Gulf-wide conservation program that foundationally targets priority conservation in both pristine and degraded habitats and in both agricultural and forestry lands.

The GCCRP would be operated in a way similar to and parallel with the Environmental Quality Incentive Program, the Agricultural Conservation Easement Program, the Forest Legacy Program, the Land and Water Conservation Fund, and the Regional Conservation Partnership Program under the 2014 Farm Bill. The intent of the program will allow for the implementation of conservation practices on private lands including, but not limited to wetland restoration and

other water management techniques to the benefit of water quality to priority bays and estuaries. The health of the Gulf of Mexico depends upon the health of its estuaries, and the health of those estuaries is influenced by what happens upstream along tributary rivers including the Mississippi.

USDA staff will engage state and local conservation partners in planning efforts to identify tracts of lands within the Gulf Coast Region that could benefit from conservation measures that would address natural resources and wildlife habitat degradation. These tracts of lands will be prioritized by watersheds (or sub-watersheds) that provide the most conservation benefit for the dollar invested. Conservation, forest management, and wildlife habitat plans will be developed to address the private landowner's conservation goals.

The plans will document the natural resource concerns and conservation practices/measures that will be implemented to address the resource concerns. The plans will be developed with a regional perspective that fully considers the needs of restoration and conservation needs of the Gulf Coast. Conservation practices that address water quality, wildlife habitat restoration and protection, and farmland preservation will be considered.

The USDA NRCS and FS will be lead agencies in implementing the program. The agencies' existing conservation delivery system will be used to expedite the project planning and implementation efforts. This will involve coordination across all partner agencies, including other federal and state environmental agencies, local conservation districts, and nonprofit organizations with interest in natural resource conservation.

Deliverables: Planning efforts will be completed on approximately 9,000 acres. Conservation, forest management, and/or wildlife habitat plans on private lands that address priority natural resource concerns within the Gulf Coast Region. Environmental due diligence, engineering planning and design, and permitting efforts will be completed within this the planning phase.

Ecological Benefits/Outcomes and Metrics: Conservation planning and National Environmental Policy Act (NEPA) compliance activities are necessary and labor-intensive tasks. There are educational and sustainability benefits to working with landowners to draft a conservation or restoration plan for their land. Conservation planning will be completed on approximately 9,000 acres. The immediate outcome of this project will be the actual conservation, forest management, and/or wildlife habitat management plans that address priority natural resource concerns in the Gulf. The plans will be developed with the landowners' conservation goals in mind, which will facilitate ownership in the conservation and management activities that are required to have a positive impact on water quality and wildlife habitat conditions. These plans will lead to the implementation of coordinated conservation and restoration activities. Future outcomes will include direct improvements in water quality, wetland and upland wildlife habitat, and forest health.

Leveraging and Co-Funding: USDA staff will engage state and local conservation partners in planning efforts to identify tracts of lands within the Gulf Coast Region that could benefit from

conservation measures that would address natural resources and wildlife habitat degradation. The agencies' existing conservation delivery system will be used to expedite the project planning and implementation efforts. USDA staff time will be leveraged by the staff time of partnering agencies and organizations.

- **Co-funding:** Planning support for the GCCRP will be provided by Texas, Mississippi, Alabama, and Florida.
- **Adjoining:** Existing holistic and individual plans will be considered and utilized when applicable/appropriate. Environmental due diligence, engineering planning and design, and permitting efforts will be completed for the previously planned tracts that are considered high priority.
- **Building on prior or other investments:** The USDA NRCS and FS programs are tremendously popular among private landowners. The existing decentralized delivery system will provide a significant opportunity to expedite the recovery efforts in the Gulf Coast Region that helps private landowners invest in conservation. The agencies will make use of existing planning and environmental due diligence efforts to expedite the process of getting the plans ready for implementation.

Duration of Activity: 5 years.

Life of Activity: Over 15 years depending on best available science and technology.

RESPONSE TO SCIENCE REVIEWS:

Comment: The three external science reviews contain mainly positive feedback about the proposal. Most of the comments relative to needing additional information were centered on risk and uncertainties. The reviewers point out similar concerns relative to focus around the lack of a risk mitigation plan and planning for uncertainties.

Response: For the planning portion of our proposal, which this project is focused on, the actual plan itself (conservation, wildlife habitat, or forestry plan) will consider the impact of the conservation/restoration measures on natural resource concerns. The planned practices will be designed to improve the resource conditions. Conservation measures that will lead to long-term or significant impacts to the environment, threatened and endangered species, or cultural and historical properties will not be implemented.

There are over 160 conservation practice standards in the NRCS National Handbook of Conservation Practices. NRCS has developed network effects diagrams to illustrate the chain of expected direct, indirect, and cumulative effects of applying each conservation practice according to the standard for the land use on which it is intended.

NRCS undertakes environmental review at subsequent stages of conservation planning consistent with NEPA requirements, other requirements for protection of the environment, and NRCS regulations. This additional review includes conducting an onsite environmental evaluation (EE) and documenting the results on an EE worksheet before

conservation/restoration implementation is initiated. The EE assesses the effects of conservation alternatives and provides information for the purpose of determining the need for consultation or to develop additional NEPA analysis.

In situations where a single conservation practice may result in increased risk to the condition of another resource, additional conservation practices are integrated into the conservation plan to avoid creating new resource concerns. The EE process helps to ensure that all potential impacts to natural resources are identified and appropriate alternatives and practices are available to the landowner.

ENVIRONMENTAL COMPLIANCE:

Council approval of funding for this proposed activity would not involve or lead directly to ground-disturbing activities that may have significant effects on the environment individually or cumulatively, nor would it commit the Council to a particular course of action affecting the environment. The Council has considered potential extraordinary circumstances, including potential negative effects to threatened and endangered species, essential fish habitat, Tribal interests, and/or historic properties, where applicable, and has determined that no such circumstances apply. Accordingly, the Council has determined that this proposed activity would be covered by the Council's NEPA Categorical Exclusion for planning, research or design activities. (See the Council's NEPA Procedures, Section 4(d)(3): *insert link to Procedures*.)

MAP:

Activity: Gulf of Mexico Conservation Enhancement Grant Program – Planning
Unique Identifier: MS_RESTORE_001_005_Cat1
Location: Gulf-wide
Type of Activity: Planning
FPL Category: 1 – Funding Eligible
Cost Estimate: $375,000
Responsible Council Member: Environmental Protection Agency (EPA)
Partnering Council member(s): ALL
Originally submitted by: The State of Mississippi as a component within the proposal "Strategic Land Protection, Conservation, and Enhancement of Priority Gulf Coast Landscapes"

Executive Summary: As described in the proposal entitled MS Proposal for Strategic Land Protection, Conservation, and Enhancement of Priority Gulf Coast Landscapes, Objective 1-Action 2, EPA will develop and implement the Gulf of Mexico Conservation Enhancement Grant Program (GMCEGP), a funding assistance opportunity to enhance private/public partnerships that support land protection and conservation across the Gulf Coast region. This program will be available to land conservation organizations such as land trusts, non-governmental organizations (NGOs), and state land preservation agencies across the Gulf of Mexico region through a competitive grant selection process.

The GMCEGP planning activity includes developing and conducting the funding assistance opportunity competition; evaluating and ranking the proposals received; documenting all necessary environmental and regulatory compliance and clearance that will be required tentative awardee(s); and documenting commitments of proposed 1:1 match requirements.

As part of the unfunded implementation activity of the GMCEGP (see the below Category 2 project with unique identifier MS_RESTORE_001_005_Cat2), the awardee will be responsible for ensuring timely initiation and completion of the scope of work for which funds were awarded, as well as ensuring compliance with all necessary environmental and regulatory compliance and clearances. Awardee(s) will also be responsible for documenting the required 1:1 match and ensuring project reporting required by the GMCEGP program agreement.

PROJECT DESCRIPTION:

The GMCEGP will make RESTORE funds available to enhance private/public partnerships that support land protection and conservation across the Gulf Coast. This program will be aimed at land conservation organizations such as land trusts, NGOs, and state land preservation agencies across the Gulf region. This GMCEGP will have several objectives:

- Enhance land protection and conservation in priority landscapes of the Gulf;
- Improve habitats and water quality across the Gulf; and
- Enhance the understandings of the benefit of land protection to communities through focused outreach and education supporting conservation and stewardship.

This GMCEGP will be administered through the EPA-Gulf of Mexico Program Office. The program will: 1) occur within the statutory geographic scope as articulated by Treasury regulations; 2) have a single call for proposals and will not be operated on an annual cycle; 3) require a mandatory 1:1 cost share component of in-kind or leveraged funds; 4) strongly encourage coordinated efforts between land conservation groups and their respective resource management agencies to enhance leveraging opportunities; and 5) fund projects that are *foundational* and *sustainable* to habitat protection and conservation and water quality improvement for the Gulf of Mexico.

The GMCEGP can be used to assist land conservation organizations to conduct necessary due diligence and conservation baseline assessments; restore or enhance previously preserved conservation lands (e.g. invasive species removal, hydrologic restoration); conduct regional assessments of conservation effectiveness; conduct economic evaluation of land conservation and restoration; and/or conduct economic evaluation of ecological services provided by the restored conservation land.

Specific Actions/Activities: Specific actions and activities of the planning activity of the Competitive GMCEGP include:

- Develop a Letter of Interest (LOI) and Request for Proposal (RFP) for land conservation projects or programs;
- Conduct the funding assistance opportunity competition, including a webinar to answer questions regarding the RFP;
- Evaluate and rank the proposals received;
- Confirm all necessary environmental and regulatory compliance and clearance documentation; and
- Complete funding assistance agreements with awardee(s).

Deliverables: Deliverables of the planning activity of the Competitive Conservation Enhancement Grant Program include the following:

- Request for proposals (RFP), including project or program selection evaluation criteria;
- Webinar to answer questions regarding the RFP process;
- Proposal evaluations;
- Documentation of necessary environmental and regulatory compliance for selected proposals; and
- Documentation of proposed match commitment.

Ecological Benefits/Outcomes and Metrics: Not applicable for the planning activity of the Conservation Enhancement Grant Program.

Leveraging and Co-Funding:

- **Co-funding:** The funding opportunity that will be developed will require the recipients to match the awarded funds at a 1:1 ratio.

Duration of Activity: Estimated project duration, period of time during which the funds will be expended and the planning activity of the GMCEGP is completed, will be 1 year from funds award date.

Life of Activity: N/A for planning activity of the GMCEGP.

RESPONSE TO SCIENCE REVIEWS:

Most of the science reviews associated with the MS Proposal for Strategic Land Protection, Conservation, and Enhancement of Priority Gulf Coast Landscapes focused on the planning and prioritization of acquisition components and are addressed in other related project(s). It is our understanding that there were no science comments associated with this component of the proposal for a GMCEGP to be administered through the EPA Gulf of Mexico Program for enhancing private/public partnerships that support land protection and conservation efforts across the Gulf region.

ENVIRONMENTAL COMPLIANCE:

Council approval of funding for this proposed activity would not involve or lead directly to ground-disturbing activities that may have significant effects on the environment individually or cumulatively, nor would it commit the Council to a particular course of action affecting the environment. The Council has considered potential extraordinary circumstances, including potential negative effects to threatened and endangered species, essential fish habitat, Tribal interests, and/or historic properties, where applicable, and has determined that no such circumstances apply. Accordingly, the Council has determined that this proposed activity would be covered by the Council's National Environmental Policy Act (NEPA) Categorical Exclusion for planning, research or design activities. (See the Council's NEPA Procedures, Section 4(d)(3): *insert link to Procedures*.)

MAP:

Activity: Gulf of Mexico Habitat Restoration via Conservation Corps Partnerships
Unique Identifier: DOC_RESTORE_003_007_Cat1
Location: States of Texas, Louisiana, Mississippi, Alabama, and Florida
Type of Activity: Programmatic Implementation
FPL Category: 1 – Funding Eligible
Cost Estimate: $8,000,000
Responsible Council Member: Department of Commerce (DOC)/National Oceanic and Atmospheric Administration (NOAA), Economic Development Administration (EDA), Minority Business Development Agency (MBDA))
Partnering Council member(s): Department of the Interior (DOI); States of Alabama, Florida, Louisiana, Mississippi, and Texas ("State" or "States")
Originally submitted by: The DOC as a component within the proposal "Gulf of Mexico Habitat Restoration via Conservation Corps Partnerships"

Executive Summary: The Gulf Coast Conservation Corps (GCCC) Program (Program) will establish a regional workforce training program to benefit local communities and support long-term Gulf coast restoration implementation. The program will help to implement priority restoration projects; recruit and train local workers (particularly youth, veterans, and displaced workers) in a variety of habitat restoration techniques; and provide paid, hands-on work experience in on-the-ground restoration projects. These jobs vary depending upon the scope of the project, but can include operators, machinists, welders, surveyors, and a variety of laborers, scientists, and managers. The GCCC Program will have two primary activities– the first administered by DOC/NOAA and tailored to the unique needs and communities of each State and the second administered by DOI/Bureau of Indian Affairs (BIA) focused on tribal youth. DOI/BIA will work with the Federally Recognized Tribes within the Gulf Region to engage tribal youth in environmental restoration and implementation of other projects selected by the Council. The GCCC Program will leverage existing partnerships among federal, state, academic and non-profit organizations and provide opportunities for local citizens to gain the knowledge, skills and training to implement and manage restoration projects.

PROJECT DESCRIPTION:

Specific Actions/Activities: Over a two-year period, NOAA, in partnership with the EDA, MBDA, DOI and the States, will invest $8 million to implement priority coastal habitat projects across the Gulf via a GCCC Program. The GCCC Program will have two primary activities – the first administered by DOC/NOAA and tailored to the unique needs and communities of each State and the second administered by DOI/BIA focused on tribal youth engagement. DOC and its partners will work with these groups to recruit and train members in a variety of skills, and mobilize paid crews to implement portions of other projects selected by the Council. Through a GCCC, it is anticipated that at least 500 acres of coastal habitat is expected to be restored, including: oyster reef, marsh, seagrass, shorelines, long leaf pine forest/savanna, and coastal prairie.

DOC and DOI, working with State and federal partners, will determine Gulf restoration project implementation needs and tailor work crews and training to both implement the projects and monitor project performance over time. A corps organization or multiple organizations will be competitively selected to help coordinate: the enhancement of local corps programs, recruitment of crew members, training, mentoring, labor and oversight, maintenance of administrative records, and support some supply and equipment costs. The program will seek to help revitalize local economies through implementation of these restoration projects.

DOI/BIA working with local tribes will design a tribal conservation corps program that will follow the model of adult mentors guiding crews of youth working on conservation projects along with education, workforce programming and support services. Given the comprehensive nature of corps organizations, they can easily adapt program models to align with a variety of career pathways based on the type of project they are working on. The corps model also focuses heavily on ensuring essential skills.

Deliverables: The Program will deliver regional habitat restoration while providing training, skills, and hands- on experience to local communities. Additionally, restoration via conservation corps will directly enhance restoration projects funded by the Council. Approximately 500 acres or more of habitat will be restored by the Program depending on which projects are identified for the GCCC to help implement. The initial recruitment target is to employ approximately 25 crewmembers per State, per year, with a total of approximately 375 crewmembers working a total of 750,000 hours. These crews may work for varying durations ranging from 3, 6, or 12 months at a time depending upon project needs. Through the tribal youth conservation corps activity, DOI/BIA will work with the Federally Recognized Tribes within the Gulf Region to engage tribal youth in local restoration projects and implementation of other Council projects. This will be accomplished through youth leadership and development, civic engagement, natural resource management, and hands-on job training.

Ecological Benefits/Outcomes and Metrics: A minimum of 500 acres of coastal habitat will be restored through the Program. The ecological measures of habitat restoration and water quality projects completed by the GCCC will vary from project to project. Where feasible, crew members will be trained in monitoring techniques to assist in accurate data collection and to provide an additional technical skill set.

The types of metrics that will be utilized, where applicable include:

- Percent cover of invasive/exotic flora removed,
- Increased utilization of restored habitats by waterfowl and other native wildlife,
- Percent cover of oysters, emergent vegetation, forest canopy and understory vegetation,
- Reduction in shoreline erosion and improvement of tidal exchange, and
- Aquatic fauna relative frequency and abundance.

In addition, labor statistics will be collected, including total number of crews employed, total labor hours, and training provided. Furthermore, NOAA and its project partners will meet

during the course of project implementation to evaluate monitoring data, and project and corps' performance, to make adjustments as needed to the program. As the program and local experience mature, NOAA and its partners will evaluate the efficacy of the Program and apply adaptive management principles to refine and optimize efficiencies.

Leveraging and Co-Funding:
This proposal is based on leveraging, by both adjoining to other FPL projects and by building on the investments of existing local conservation groups. First, this program will leverage labor and specialized training to implement portions of other projects funded on this Funded Priorities List (FPL); and will utilize this experience towards the development of a local labor force to support implementation of future FPLs or other project opportunities in the region. Second, the GCCC will be formed by leveraging the expertise and proximity of existing conservation groups across the Gulf coast to form the core of the program.

Additionally, DOC bureaus, as discussed within the proposal, will be intimately involved in informing labor force development, skills needs, and recruitment throughout the Gulf Coast. Furthermore, the state and federal partners have various locations across the region that could help serve as training venues, such as refuges and the National Estuarine Research Reserve System (NERRS), which are anticipated to be leveraged as a part of the program. Specifically, the NERRS have existing training capacity to coordinate classes and workshops on diverse topics that facilitate stewardship and training to increase specific job skills for local workforces.

Duration of Activity: 3 years.

Life of Activity: Over 10 years, depending upon the specific project.

RESPONSE TO SCIENCE REVIEWS:

Comment: There is a noticeable absence of detailed discussion of the scientific basis and techniques to be employed vis-a-vis the individual restoration projects. Three concerns come to mind: 1) it is unclear as to why the projects were selected; 2) there is inadequate documentation demonstrating that the proposed projects are consistent with existing restoration plans for the affected states; and 3) no techniques/methodologies are presented in any detail to demonstrate that the restoration practices will reflect generally accepted principles and approaches used within the scientific, engineering, and design communities. Despite the fact that each proposed project has unique scientific, engineering, design, implementation and monitoring requirements, the proposal calls for an identical amount of funding for each. The project and contractor selection process is unclear; whereas, it seems more effective to issue a request for proposals (RFP) to existing institutions to perform these functions of a Corps, rather than establish an entirely new entity in an already crowded set of institutional arrangements.

Response: The reviewers commented that the proposal lacked specificity in discussing discrete restoration projects. The projects submitted in the proposal were intended to be representative

of the types of restoration work that the Corps members would be trained in, to be further developed based upon our initial collaboration with state and federal partners. The program was originally conceived to occur within the NERRS because of synergies between: (1) the restoration needs (and training opportunities) within the diverse NERRS ecosystems affected by the Deepwater Horizon spill; and (2) the proximity of economically depressed communities to the NERRS. The proposed actions reflect real restoration needs of fragile coastal habitats across the Gulf coast, from which training and recruitment of local labor will be focused.

A major element of this program is upfront collaboration with RESTORE state and federal partners, who are critical to shaping restoration project priorities based on existing and current planning efforts within each state. Given the reduction in budget, the focus of this proposal is to leverage the other projects funded on the FPL by training Corps members to complete elements of those projects, in lieu of designing and developing new projects independent of the FPL. This approach will not preclude work on the NERRS, but rather create synergies with the other FPL projects to demonstrate the efficacy of using conservation corps groups to conduct meaningful regional restoration. NOAA will work with the other Council members to identify FPL projects in each respective state that best meet the objectives of the GCCC Program, and where the GCCC can contribute to efficient implementation of those projects. Project implementation costs will be leveraged with GCCC labor, and the GCCC Program will leverage training, engineering and design, and environmental compliance that would otherwise have to be completed on non-FPL projects. Given the reduction in administration and overhead requirements of this approach, each state will be able to benefit from more on-the-ground labor hours. NOAA agrees that issuing an RFP to optimize participation within existing regional organizations is the most effective path to administering the program, which we have always seen as the primary leveraging opportunity of this proposal.

ENVIRONMENTAL COMPLIANCE:

Council approval of funding for this proposed activity would not involve or lead directly to ground-disturbing activities that may have significant effects on the environment individually or cumulatively, nor would it commit the Council to a particular course of action affecting the environment. The Council has considered potential extraordinary circumstances, including potential negative effects to threatened and endangered species, essential fish habitat, Tribal interests and/or historic properties, where applicable, and has determined that no such circumstances apply. Accordingly, the Council has determined that this proposed activity would be covered by the Council's National Environmental Policy Act (NEPA) Categorical Exclusion for planning, research or design activities. (See the Council's NEPA Procedures, Section 4(d)(3): *insert link to Procedures*.)

MAP:

9159 ***Category 2:***
9160
9161 **Activity:** US EPA & USGS Joint Proposal for Baseline Flow & Gage Analysis and On-Line Tool
9162 Development to Support Bay and Estuary Restoration in Gulf States (Implementation)
9163 **Unique Identifier:** EPA_RESTORE_004_000_Cat2
9164 **Location:** Gulf-wide
9165 **Type of Activity:** Implementation
9166 **FPL Category:** 2 – Prioritized for Further Review
9167 **Cost Estimate:** $810,000
9168 **Responsible Council Member:** Environmental Protection Agency (EPA) and Department of the
9169 Interior (DOI)/U.S. Geologic Survey (USGS)
9170 **Partnering Council member(s):** All, with USGS streamgage installation in all 5 Gulf States
9171 **Originally submitted by:** The EPA/USGS as a component within the proposal "US EPA & USGS
9172 Joint Proposal for Baseline Flow & Gage Analysis and On-Line Tool Development to Support Bay
9173 and Estuary Restoration in Gulf States"
9174
9175 **Executive Summary:** Adequate freshwater flow to rivers and estuaries is not only critical to the
9176 health and function of those ecosystems, but it is also important for the support of a thriving
9177 state, local and coastal economy. The USGS and the EPA propose to collaborate on a
9178 comprehensive, large-scale project to provide vital information on the timing and delivery of
9179 freshwater to streams, bays, estuaries, and wetlands of the Gulf states. This proposal includes
9180 the installation and operation of 18 streamgages, based on a flow alteration gap analysis, to
9181 create a more robust gage network and help to minimize flow alteration predictions in future
9182 analyses.
9183
9184 **PROJECT DESCRIPTION:**
9185
9186 **Specific Actions/Activities:**
9187 A gap analysis of the existing USGS streamgage network (currently about 950 sites) in the Gulf
9188 states will identify the types and locations of watersheds where more streamflow information
9189 is needed. The gap analysis will be completed as part of planning activity proposal. Six
9190 streamgages will be installed and operated beginning in year 4. An additional six gages will be
9191 added in years 5 and 6, for a total of 18 gages in year 7. Selection of gage locations will be
9192 prioritized to maximize the value of any existing information such as previous long-term flow
9193 records. Funding sources for continued operation of these gages will begin to be developed in
9194 year 6.
9195
9196 **Deliverables:** Eighteen streamgages will be installed to complement the existing gage network
9197 in the Gulf states. Selection of gage locations will be guided by the results of a gap analysis,
9198 indicating the kinds of basins that should be gaged in terms of basin size, land cover, geographic
9199 location, and human disturbance.
9200
9201 **Ecological Benefits/Outcomes and Metrics:** Additional targeted streamflow monitoring will
9202 provide an improved understanding of streamflow metrics and alteration. Data collected at

new gage locations will be available to extend models of flow alteration and ecological response to a broader range of sites as well as reducing model bias and making better use of existing gage networks.

Leveraging and Co-Funding:

- **Building on prior or other investments:** The streamflow assessment will utilize data from the USGS streamflow network of about 950 stream gages across the Gulf states, leveraging over $15 million in annual operating funds provided through the USGS Cooperative Water Program and the National Stream Information Program in cooperation with numerous local, state, and other federal agencies. Freshwater flows to coastal areas, improving connectivity and removing dams and barriers to restore habitat for species that migrate between the ocean and freshwater rivers and streams has long been a priority for many state and federal agencies and this project will build upon these long-standing efforts.

Duration of Activity: Streamgage installation and operation is included in years 4-7 of the project.

Life of Activity: Targeting new streamgages in areas and land cover types currently under represented in existing network will improve future streamflow assessments. The plan is to develop long-term (10+ years) funding for these new and additional stream gages.

RESPONSE TO SCIENCE REVIEWS: Please see Unique Identifier EPA_RESTORE_004_000_Cat1 for response to science reviews.

ENVIRONMENTAL COMPLIANCE:

The Council proposes to list this activity as a priority for potential future funding. Notwithstanding anything to the contrary set forth herein, at this time the Council is not approving or committing any funds for the implementation of this activity. Additional environmental compliance information is needed before the Council considers whether to approve funding for implementation of this activity. If sufficient additional environmental compliance information becomes available between the issuance of this draft FPL and completion of the final FPL, the Council may consider such information and thereafter approve this activity for funding, and move it to FPL Category 1. In such case the final FPL would include information necessary to demonstrate compliance with NEPA and other applicable laws. Where applicable, the final FPL would also inform the public of any comment opportunities pertaining to environmental compliance. In some cases, Council approval of funding for an activity in Category 1 would not be final until after the public has had an opportunity to provide comments, and the Council has considered such comments as it prepares required decision documentation (such as a Finding of No Significant Impact for use of an Environmental Assessment).

MAP:

Member provided map of the locations of existing USGS streamflow network that will be assessed to develop streamflow metrics and assess streamflow alteration. We will reinsert after language review is complete.

Activity: Strategic Land Protection Conservation, and Enhancement of Priority Gulf Coast Landscapes
Unique Identifier: MS_RESTORE_001_007_Cat2
Location: Texas, Mississippi, Alabama, and Florida
Type of Activity: Implementation
Category: 2 – Prioritized for Further Review
Cost Estimate: $5,100,000
Responsible Council Member: U.S. Department of Agriculture (USDA)
Partnering Council member(s): USDA and the State of Mississippi
Originally submitted by: The State of Mississippi as a component within the proposal "Strategic Land Protection, Conservation, and Enhancement of Priority Gulf Landscapes"

Executive Summary: Given the popularity and success of USDA's Natural Resources Conservation Service (NRCS) and Forest Service (FS) programs, their strong acceptance by private landowners, and the existence of an effective decentralized delivery system, there is a significant opportunity to create a conservation program that helps private landowners invest in conservation. In the five Gulf states, over 80 percent of the geographic acreage is in private ownership (USDA-NRCS, 2014) and is used for forestry and agriculture. The Gulf Coast Conservation Reserve Program (GCCRP) will be established through USDA in Texas, Mississippi, Alabama, and Florida for the purposes of protecting and restoring critical wildlife and improving water quality through the implementation of wildlife habitat, conservation, and forest management plans. Conservation practices and restoration activities will be implemented to address the priority resource concerns identified in the Category 1 (Planning Phase). Wildlife habitat restoration and natural resource conservation measures will be prioritized on individual land units and implemented based on best available science.

PROJECT DESCRIPTION:

Specific Actions/Activities: The quality and, to a large extent, the quantity of fresh water entering the Gulf is affected by how those land uses are managed and whether they are converted to more intensive urban purposes. Thus land protection and conservation aimed at private landowners is a priority for foundationally securing Gulf-wide ecosystem integrity. This action item establishes the USDA GCCRP as a Gulf-wide conservation program that foundationally targets priority conservation in both pristine and degraded habitats in agricultural and forest lands.

The GCCRP will operate in a way similar to and parallel with the Environmental Quality Incentive Program, the Agricultural Conservation Easement Program, the Forest Legacy Program, the Land and Water Conservation Fund, and the Regional Conservation Partnership Program under the 2014 Farm Bill. The intent of the program will allow for conservation easements and land management to improve conservation practices on land including restoration of wetlands and other water management techniques to the benefit of water quality to priority bays and estuaries. The health of the Gulf of Mexico depends upon the health

of its estuaries, and the health of those estuaries is influenced by what happens upstream along tributary rivers, including the Mississippi.

USDA staff will engage state and local conservation partners in planning efforts to identify tracts of lands within the Gulf Coast Region that could benefit from conservation measures that would address natural resources and wildlife habitat degradation. These tracts of lands will be prioritized by watersheds (or sub-watersheds) that provide the most conservation benefit for the dollar invested. Conservation practices and restoration activities will be implemented to address the private landowner's conservation goals and the natural resource concerns.

Conservation practices that address water quality, wildlife habitat restoration and protection, and farmland preservation will be implemented according to NRCS and FS practice standards. The agencies' existing conservation delivery system will be used to expedite the implementation efforts. This will involve coordination across all partner agencies, including other federal and state environmental agencies, local conservation districts, and nonprofit organizations with interest in natural resource conservation.

Deliverables: Conservation practices will be implemented to address wildlife habitat and water quality concern on approximately 9,000 acres. The acres treated will be subject to the conservation and restoration practices outlined in the conservation, forest management, and/or wildlife habitat plans developed in Phase 1 of this program.

Ecological Benefits/Outcomes and Metrics: This program will serve to assist private landowners with implementing conservation measures that improve water and wildlife habitat conditions. The immediate outcome of this project will be the actual implementation of conservation, forest management, and/or wildlife habitat plans on private lands that address priority natural resource concerns in the Gulf. This will result in improvement to the water quality and wildlife habitat conditions over time. An immediate response will be realized with the implementation of wildlife habitat practices such as prescribed burn, vegetation management, timber management, and hydrologic restoration. There will be incremental improvements to water quality with comprehensive conservation measures being implemented in the watershed. The conservation implementation will be conducted with the landowner's conservation goals in mind, which will allow for greater ownership in conservation and management activities that affect water quality and wildlife habitat conditions within the Gulf Coast Region. The conservation and restoration activities will be coordinated with conservation partners in the Gulf. Future outcomes will include direct improvements in water quality, wetland and upland wildlife habitat, and forest health.

Leveraging and Co-Funding: The agencies' existing conservation delivery system will be used to expedite the conservation implementation efforts. This will involve coordination across all partner agencies, including other federal and state environmental agencies, local conservation districts, and nonprofit organizations with interest in natural resource conservation. USDA staff time will be leveraged by the staff time of partnering agencies and organizations. Landowners may invest funds for implementing some of the proposed conservation practices.

Co-funding: Practice implementation support for the GCCRP will be provided by Texas, Mississippi, Alabama, and Florida.

Adjoining: Conservation and restoration efforts on adjoining private and public properties will be considered. The conservation and restoration efforts through this program will seek to provide synergy and build upon the ecosystem improvements in the watershed.

Building on prior or other investments: USDA's NRCS and FS programs are tremendously popular among private landowners. The existing decentralized delivery system will provide a significant opportunity to expedite the recovery efforts in the Gulf Coast Region that helps private landowners invest in conservation. The agencies will make use of existing planning and environmental due diligence efforts to expedite conservation and restoration implementation. The local USDA Service Centers have a record of landowners willing, ready, and able to participate in conservation programs.

Duration of Activity: 5 years.

Life of Activity: Over 15 years depending on best available science and technology.

RESPONSE TO SCIENCE REVIEWS:

Comment: The three external science reviews contain mainly positive feedback about the proposal. Most of the comments relative to needing additional information were centered on risk and uncertainties. The reviewers point out similar concerns relative to focus around the lack of a risk mitigation plan and planning for uncertainties.

Response: For the implementation portion of our proposal, which this Activity is focused on, will be based on planning efforts completed in Category 1 (Planning Phase). The planning and environmental due diligence efforts (conservation, wildlife habitat, or forestry plan) will consider the impact of the conservation/restoration measures on natural resource concerns. The planned practices will be designed to improve the resource conditions. Conservation measures that will lead to long-term or significant impacts to the environment, threatened and endangered species, or cultural and historical properties will not be implemented.

There are over 160 conservation practice standards in the NRCS National Handbook of Conservation Practices. NRCS has developed network effects diagrams to illustrate the chain of expected direct, indirect, and cumulative effects of applying each conservation practice according to the standard for the land use on which it is intended.

NRCS undertakes environmental review at subsequent stages of conservation planning consistent with the requirements of the National Environmental Policy Act (NEPA), other requirements for protection of the environment, and NRCS regulations. This additional review includes conducting an onsite environmental evaluation (EE) and documenting the results on an

EE worksheet before conservation/restoration implementation is initiated. The EE assesses the effects of conservation alternatives and provides information for the purpose of determining the need for consultation or to develop additional NEPA analysis (see also "Environmental Compliance" below).

In situations where a single conservation practice may result in increased risk to the condition of another resource, additional conservation practices are integrated into the conservation plan to avoid creating new resource concerns. The EE process helps to ensure that all potential impacts to natural resources are identified and appropriate alternatives and practices are available to the landowner.

All risks and migration considerations will be fully addressed prior to the initiation of practice implementation. NRCS will only promote and fund conservation/restoration activities that provide a net positive long-term benefit to the environment.

ENVIRONMENTAL COMPLIANCE:

The Council proposes to list this activity as a priority for potential future funding. Notwithstanding anything to the contrary set forth herein, at this time the Council is not approving or committing any funds for the implementation of this activity. Additional environmental compliance information is needed before the Council considers whether to approve funding for implementation of this activity. If sufficient additional environmental compliance information becomes available between the issuance of this draft FPL and completion of the final FPL, the Council may consider such information and thereafter approve this activity for funding, and move it to FPL Category 1. In such case the final FPL would include information necessary to demonstrate compliance with NEPA and other applicable laws. Where applicable, the final FPL would also inform the public of any comment opportunities pertaining to environmental compliance. In some cases, Council approval of funding for an activity in Category 1 would not be final until after the public has had an opportunity to provide comments, and the Council has considered such comments as it prepares required decision documentation (such as a Finding of No Significant Impact for use of an Environmental Assessment).

MAP:

Activity: Gulf of Mexico Conservation Enhancement Grant Program – Implementation
Unique Identifier: MS_RESTORE_001_005_Cat2
Location: Gulf-wide
Type of Activity: Implementation
FPL Category: 2 – Prioritized for Further Review
Cost Estimate: $2,125,000
Responsible Council Member: Environmental Protection Agency (EPA)
Partnering Council member(s): ALL
Originally submitted by: The State of Mississippi as a component within the proposal "Strategic Land Protection, Conservation, and Enhancement of Priority Gulf Coast Landscapes"

Executive Summary: As described in the proposal entitled MS Proposal for Strategic Land Protection, Conservation, and Enhancement of Priority Gulf Coast Landscapes, Objective 1-Action 2, EPA will develop and implement the Gulf of Mexico Conservation Enhancement Grant Program (GMCEGP), a funding assistance opportunity to enhance private/public partnerships that support land protection and conservation across the Gulf Coast region. This program will be available to land conservation organizations such as land trusts, non-governmental organizations (NGOs), and state land preservation agencies across the Gulf of Mexico region.

The GMCEGP implementation activity includes confirming all necessary environmental and regulatory compliance and clearance documentation has been provided by the selected awardee(s) in close coordination with the RESTORE Council, executing funding agreements with awardees, and documenting the required 1:1 match.

PROJECT DESCRIPTION:

The GMCEGP will make RESTORE funds available to enhance private/public partnerships that support land protection and conservation across the Gulf Coast. This program will be aimed at land conservation organizations such as land trusts, NGOs, and state land preservation agencies across the Gulf region. This Grants Program will have several objectives:

- Enhance land protection and conservation in priority landscapes of the Gulf;
- Improve habitats and water quality across the Gulf; and
- Enhance the understandings of the benefit of land protection to communities through focused outreach and education supporting conservation and stewardship.

This grants program will be administered through the EPA-Gulf of Mexico Program Office. The program will: 1) occur within the statutory geographic scope as articulated by Treasury regulations; 2) have a single call for proposals and will not be operated on an annual cycle; 3) require a mandatory 1:1 cost share component of in-kind or leveraged funds; 4) strongly encourage coordinated efforts between land conservation groups and their respective resource management agencies to enhance leveraging opportunities; and 5) fund projects that are *foundational* and *sustainable* to habitat protection and conservation and water quality improvement for the Gulf of Mexico.

Implementation funding of the GMCEGP can be used to assist land conservation organizations to conduct necessary due diligence and conservation baseline assessments; restore or enhance previously preserved conservation lands (e.g. invasive species removal, hydrologic restoration); conduct regional assessments of conservation effectiveness; conduct economic evaluation of land conservation and restoration; and/or conduct economic evaluation of ecological services provided by the restored conservation land.

Specific Actions/Activities: Specific actions and activities of the implementation activity of the GMCEGP include:

- Confirming all necessary environmental and regulatory compliance and clearance documentation;
- Executing funding agreements with awardees;
- Documenting required 1:1 match;
- Monitor selected projects to ensure necessary environmental and regulatory compliance and clearances; and
- Monitor selected projects to ensure timely initiation and completion of the scope of work for which funds were awarded.

Deliverables: Specific deliverables of the implementation activity of the GMCEGP include:

- Documentation of all necessary environmental and regulatory compliance and clearances for individual selected projects;
- Executed funding agreements for individual selected projects;
- Documentation of required 1:1 match for individual selected projects;
- Project progress and financial reports;
- Final progress and financial reports for individual projects; and
- Summary Report of the GMCEGP.

Ecological Benefits/Outcomes and Metrics: Ecological Benefits/Outcomes derived from projects and programs funded by the GMCEGP will focus on conservation of habitat; enhancing land protection and conservation in priority landscapes; improving habitats and water quality on conserved lands; enhancing the understandings of the benefit of land protection to communities through focused outreach and education supporting conservation and stewardship; developing and implementing conservation management plans; protecting critical aquatic habitat; restoring and managing critical aquatic shoreline and upland habitat utilizing hydrologic, landscape, vegetation and wildlife management actions; and implementing other water quality and habitat restoration techniques. Metrics will likely include, but not be limited to: acres restored/protected; linear feet of shoreline restored/protected; acres of upland habitat restored/protected; and acres restored/protected from invasive species.

Leveraging and Co-Funding:

- **Co-funding:** The funding opportunity that will be developed will require the recipients to match the awarded funds at a 1:1 ratio.

Duration of Activity: Estimated project duration, period of time during which the funds will be expended and the project scope of work is completed, will be 1-3 years from funds award date.

Life of Activity: N/A for awardee(s) whose scope of work focuses on implementing planning efforts to enhance their land protection and conservation efforts. Varies for awardee(s) whose scope of work focuses on implementing improvement and restoration programs on conserved lands. Estimated life of 10-30+ years for implemented improvements and restoration efforts on conserved lands

RESPONSE TO SCIENCE REVIEWS:

Most of the science reviews associated with the MS Proposal for Strategic Land Protection, Conservation, and Enhancement of Priority Gulf Coast Landscapes focused on the planning and prioritization of acquisition activities and are addressed in other related activities. It is our understanding that there were no science comments associated with this component of the MS proposal for a GMCEGP to be administered through the EPA Gulf of Mexico Program for enhancing private/public partnerships that support land protection and conservation efforts across the Gulf region.

ENVIRONMENTAL COMPLIANCE:

The Council proposes to list this activity as a priority for potential future funding. Notwithstanding anything to the contrary set forth herein, at this time the Council is not approving or committing any funds for the implementation of this activity. Additional environmental compliance information is needed before the Council considers whether to approve funding for implementation of this activity. If sufficient additional environmental compliance information becomes available between the issuance of this draft FPL and completion of the final FPL, the Council may consider such information and thereafter approve this activity for funding, and move it to FPL Category 1. In such case the final FPL would include information necessary to demonstrate compliance with NEPA and other applicable laws. Where applicable, the final FPL would also inform the public of any comment opportunities pertaining to environmental compliance. In some cases, Council approval of funding for an activity in Category 1 would not be final until after the public has had an opportunity to provide comments, and the Council has considered such comments as it prepares required decision documentation (such as a Finding of No Significant Impact for use of an Environmental Assessment).

MAP: