GULF COAST ECOSYSTEM RESTORATION COUNCIL

RESTORE

2019 Annual Report to Congress

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Gulf Coast Ecosystem Restoration Council

Fiscal Year 2019

Submitted March 2020

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1. Letter from the Executive Director

The Gulf Coast Ecosystem Restoration Council (Council) hereby submits its Fiscal Year 2019 Annual Report to Congress. The Council was created by the Resources and Ecosystems Sustainability, Tourist Opportunities, and Revived Economies of the Gulf Coast States Act (RESTORE Act) in 2012 as an independent federal agency charged with administering a portion of the civil settlements associated with the *Deepwater Horizon* oil spill. Consisting of the five Gulf Coast states and six federal agencies, the Council's mission is to implement a comprehensive plan for the ecological and economic recovery of the Gulf Coast.

In fiscal year 2019 (FY2019), the Council obligated $51.2 million through grants and interagency agreements to carry out projects and programs under the RESTORE Act, bringing the total amount awarded to $254.9 million: $177.0 million from the Council-Selected Restoration Component and $77.9 million from the Spill Impact Component. Now that State Expenditure Plans have been approved by the Council and each of the States, projects and programs under the Spill Impact Component are being awarded at an increasing pace. Also, as the Council works to award the few remaining Initial Funded Priorities List (FPL) projects, it has continued its collaborative efforts and taken steps to develop and approve the next FPL. The Council completed a Planning Framework in 2019 to advance its vision for a healthy and productive Gulf ecosystem achieved through collaboration on strategic restoration projects and programs.

Foundational to the Council's success during FY2019 were the funds provided to its members through the Commitments and Planning Support Funded Priority List (CPS FPL) to enhance collaboration, planning and public engagement in support of future funding decisions under the Council-Selected Restoration Component of the RESTORE Act. In concomitance with the CPS FPL, an internal Council collaboration strategy was finalized by the Council as the foundation for the development of subsequent FPLs. This strategy is embodied in what the Council calls its "Planning Framework." The Planning Framework serves as a "bridge" from one FPL to the next. It is not intended to describe all of the restoration needs of the Gulf. Rather, the Planning Framework identifies priorities that will strategically link past and future restoration funding decisions.

On behalf of the Council, I am pleased to submit this Annual Report to Congress outlining our progress over the past twelve months. The Council remains committed to maintaining active communication with Congress. Please contact us at any time with your thoughts, suggestions or questions. Thank you for your continued leadership and support in restoring the Gulf Coast region.

Ben Scaggs

Executive Director

2. Mission and Organization

The Council is charged by the *Resources and Ecosystems Sustainability, Tourist Opportunities, and Revived Economies of the Gulf Coast States Act* (RESTORE Act or Act) with helping to restore the ecosystem and economy of the Gulf Coast region by developing and overseeing Trust Fund expenditures in implementation of the Comprehensive Plan and approval of State Expenditure Plans (SEPs), and carrying out other responsibilities.

The Council includes the Governors of the States of Alabama, Florida, Louisiana, Mississippi and Texas, and the Secretaries of the U.S. Departments of the Interior, Army, Commerce, Agriculture, Homeland Security, and the Administrator of the U.S. Environmental Protection Agency (EPA), who currently serves as the chair of the Council.

Gulf Coast Ecosystem Restoration Council Members

Environmental Protection Agency - Chair
Andrew Wheeler
Administrator

State of Alabama
Kay Ivey
Governor

State of Florida
Ron DeSantis
Governor

State of Louisiana
John Bel Edwards
Governor

State of Mississippi
Tate Reeves
Governor

State of Texas
Greg Abbott
Governor

Department of Agriculture
Sonny Perdue
Secretary

Department of the Army
Ryan D. McCarthy
Secretary

Department of Commerce
Wilbur Ross
Secretary

Department of Homeland Security
Chad Wolf
Acting Secretary

Department of the Interior
David Bernhardt
Secretary

3. Background on the RESTORE Act

The Gulf Coast environment was significantly injured by the 2010 *Deepwater Horizon* oil spill as well as by past and ongoing human actions. Restoring an area as large and complex as the Gulf Coast region is a costly, multi-generational undertaking. Gulf habitats are also continually degraded and lost due to development, infrastructure, sea-level rise, altered riverine processes, ocean acidification, salinity changes and other human-caused factors. Water quality in the coastal and marine environments is degraded by upstream pollution and hydrologic alterations spanning multiple States and involving the watersheds of large and small rivers alike. Stocks of marine and estuarine species are depleted by over-utilization and conflicting resource use. Some of the region's environmental problems such as wetland loss and hypoxia span areas the size of some U.S. states. This degradation represents a serious risk to the cultural, social and economic benefits derived from the Gulf ecosystem.

On October 5, 2010, the President issued Executive Order 13554, which established the Gulf Coast Ecosystem Restoration Task Force (Task Force) [1] "to coordinate intergovernmental responsibilities, planning, and exchange of information to better implement Gulf Coast ecosystem restoration and to facilitate appropriate accountability and support throughout the restoration process." The Task Force was an advisory body composed of senior officials from the five Gulf Coast states of Alabama, Florida, Louisiana, Mississippi, and Texas, and eleven federal agencies and White House offices. The EPA's former Administrator Lisa P. Jackson served as Chair of the Task Force, and the former Chair of the Coastal Protection and Restoration Authority of Louisiana, Garret Graves, served as Vice-chair.

The primary charge of the Task Force was to create a unified, strategic approach to restore the region's ecosystem. In December 2011, the Task Force members published the Gulf of Mexico Regional Ecosystem Restoration Strategy (Strategy) and the Gulf of Mexico Ecosystem Science Assessment and Needs that articulated an overarching vision for restoration.

Signed into law in July 2012 the RESTORE Act (33 U.S.C §1321(t) and *note*) enacted as an amendment to the federal *Clean Water Act (*or *Federal Water Pollution Control Act* established the Gulf Coast Ecosystem Restoration Council (Council) and the Gulf Coast Restoration Trust Fund (Trust Fund); the latter receives 80 percent of the civil and administrative penalties assessed under the Clean Water Act (CWA) resulting from the *Deepwater Horizon* oil spill. The Act imposed a one-year timeline for development of the Initial Comprehensive Plan (Initial Plan) to describe how the Council would restore the ecosystem and the economy of the Gulf Coast region.

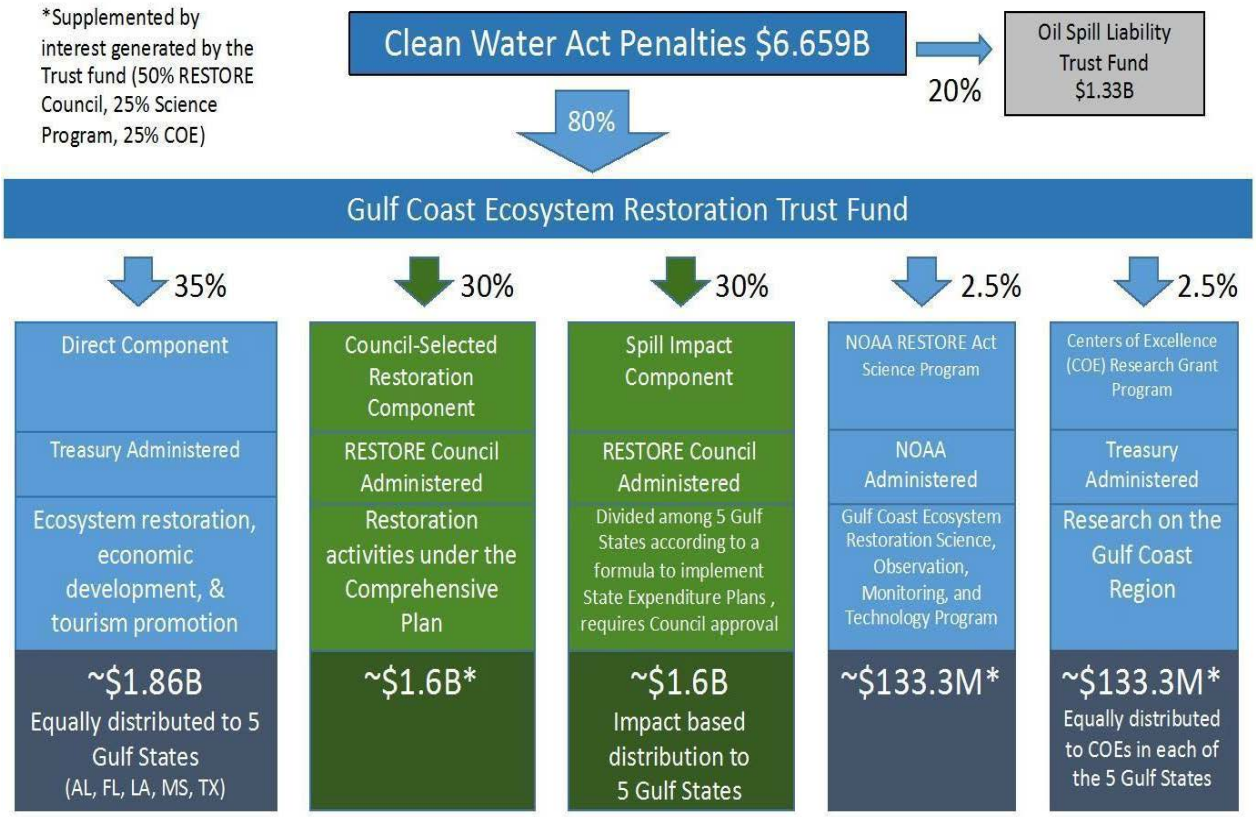
In 2015 the Council approved the Initial Funded Priorities List (FPL) for approximately $156.6 million in restoration activities such as hydrologic restoration, land conservation, and planning for large-scale restoration projects. The funding for the Initial FPL came from the settlement of CWA civil penalties against *Transocean Deepwater* Inc. and related entities. When it approved the Initial FPL, the Council did not know the amount and timing of additional funding that could be obtained from the then-ongoing litigation with British Petroleum (BP).

In 2016 the United States entered into a Consent Decree with BP for the resolution of civil claims for entities held responsible for the *Deepwater Horizon* oil spill totaling more than $20 billion, the largest civil

[1] The Gulf Coast Ecosystem Restoration Task Force was the result of a recommendation made in Secretary Mabus' report on long term recovery following the Deepwater Horizon Oil Spill..

penalties ever awarded under any environmental statute and the largest recovery of damages for injuries to natural resources of the United States. Of these penalties, the RESTORE Act will provide $5.33 billion (80 percent of $6.659 billion, plus interest) to the Trust Fund, consisting of 80 percent of the following: $1 billion (plus interest) in civil penalties from Transocean Deepwater Inc. and related entities for violating the CWA in relation to their conduct in the Deepwater Horizon oil spill; $159.5 million from a civil fine paid by Anadarko Petroleum Corporation; and $5.5 billion (plus interest) from BP Exploration and Production, Inc. (BP) for a CWA civil penalty under the April 4, 2016, consent decree (Consent Decree), payable over a fifteen-year period at approximately $91 million per year through 2031 (Figure 1).

Figure 1. *Allocation of the Gulf Coast Restoration Trust Fund based on settlements with BP, Transocean and Anadarko; RESTORE Council oversight components are highlighted in green.*



Pursuant to the RESTORE Act, the Council is responsible for administering a portion of the funds associated with settlement of civil penalties against parties responsible for the *Deepwater Horizon* oil spill. Specifically, the Council is responsible for administering two funding sources: (1) the Council-Selected Restoration Component (Bucket 2) and (2) the Spill Impact Component (Bucket 3). Bucket 2 receives 30% of the funds allocated under the RESTORE Act. Figure 1 shows the funding allocations and amounts under the RESTORE Act and associated settlements of civil penalties.

3.1. Comprehensive Plan Goals and Objectives

The Initial Plan provided a framework to implement a coordinated, Gulf Coast region-wide restoration effort in a way that restores, protects, and revitalizes the Gulf Coast. This Plan was the first version of a Plan

that continues to evolve. It guided the Council's actions to restore the Gulf Coast ecosystem and economy. The Plan established the Council's Goals for the region and provides a process to fund restoration projects and programs as funds become available. The RESTORE Act requires the Council to update the Comprehensive Plan every 5 years.

The 2016 Comprehensive Plan update provides a Ten-Year Funding Strategy which includes an overarching vision statement: *A healthy and productive Gulf ecosystem achieved through collaboration on strategic restoration projects and programs*. Other elements of the Ten-Year Funding Strategy include the three-year FPL development process and a strategy for the support of large-scale projects and programs. The Council also refined and amplified its foundational commitments, with a strong emphasis on collaboration (among Council members and with other *Deepwater Horizon* funding streams), and on improving transparency and application of best available science in support of its decision-making processes. Further, given the 15-year payment schedule, the 2016 Comprehensive Plan update proposes developing FPLs on approximately three-year cycles. The 2016 Comprehensive Plan update also commits to enhancing public engagement and the use of best available science to support a holistic approach to Gulf restoration. These commitments are intended to ensure that future Council investments provide the greatest possible ecological return.

Goals

To provide the overarching framework for an integrated and coordinated approach for region-wide Gulf Coast restoration and to help guide the collective actions at the local, state, tribal, and federal levels, the Council has adopted five goals.

1. ***Restore and Conserve Habitat*** – Restore and conserve the health, diversity, and resilience of key coastal, estuarine, and marine habitats.
2. ***Restore Water Quality and Quantity*** – Restore and protect the water quality and quantity of the Gulf Coast region's fresh, estuarine, and marine waters.
3. ***Replenish and Protect Living Coastal and Marine Resources*** – Restore and protect healthy, diverse, and sustainable living coastal and marine resources.
4. ***Enhance Community Resilience*** – Build upon and sustain communities with capacity to adapt to short- and long-term changes.
5. ***Restore and Revitalize the Gulf Economy*** – Enhance the sustainability and resiliency of the Gulf economy.

The fifth goal focuses on reviving and supporting a sustainable Gulf economy. This goal pertains to expenditures by the Gulf Coast States authorized in the RESTORE Act under the Direct Component (administered by the Department of the Treasury) and the Spill Impact Component (Bucket 3), and ensures that these investments can be considered in the context of comprehensive restoration. This goal does not apply to the Council-Selected Restoration Component.

To achieve all five goals, the Council will support ecosystem restoration that can enhance local communities by giving people desirable places to live, work, and play, while creating opportunities for new and existing businesses of all sizes, especially those dependent on natural resources. In addition, the Council will support ecosystem restoration that builds local workforce capacity.

The Council coordinates restoration activities under the Council-Selected Restoration Component and the Spill Impact Component to further the goals. While the Council does not have direct involvement in the activities undertaken by the States or local governments through the Direct Component, the Council will strive, as appropriate, to coordinate its work with those activities. In addition, the Council actively

coordinates with the Gulf Coast Ecosystem Restoration Science Program (administered by NOAA) and the Centers of Excellence Research Grants Program (administered by Treasury).

Objectives
The Council will select and fund projects and programs that restore and protect the natural resources, ecosystems, water quality, fisheries, marine and wildlife habitats, beaches, and coastal wetlands of the Gulf Coast region. Projects and programs not within the scope of the following Objectives for ecosystem restoration will not be funded under the Council-Selected Restoration Component.

1. **Restore, Enhance, and Protect Habitats** – Restore, enhance and protect the extent, functionality, resiliency, and sustainability of coastal, freshwater, estuarine, wildlife, and marine habitats.
2. **Restore, Improve, and Protect Water Resources** – Restore, improve, and protect the Gulf Coast region's fresh, estuarine, and marine water resources by reducing or treating nutrient and pollutant loading; and improving the management of freshwater flows, discharges to and withdrawals from critical systems.
3. **Protect and Restore Living Coastal and Marine Resources** – Restore and protect healthy, diverse, and sustainable living coastal and marine resources including finfish, shellfish, birds, mammals, reptiles, coral, and deep benthic communities.
4. **Restore and Enhance Natural Processes and Shorelines** – Restore and enhance ecosystem resilience, sustainability, and natural defenses through the restoration of natural coastal, estuarine, and riverine processes, and/or the restoration of natural shorelines.
5. **Promote Community Resilience** – Build and sustain Gulf Coast communities' capacity to adapt to short- and long-term natural and man-made hazards, particularly increased flood risks associated with sea-level rise and environmental stressors. Promote ecosystem restoration that enhances community resilience through the re-establishment of non-structural, natural buffers against storms and flooding.
6. **Promote Natural Resource Stewardship and Environmental Education** – Promote and enhance natural resource stewardship through environmental education efforts that include formal and informal educational opportunities, professional development and training, communication, and actions for all ages.
7. **Improve Science-Based Decision-Making Processes** – Improve science-based decision-making processes used by the Council.

3.2. Fiscal Year 2019 Significant Council Actions

To ensure that Council investments provide the greatest possible ecological return, the Council and its staff have worked diligently since the inception to substantially improve processes, policies and practices. The RESTORE Act (33 U.S.C. § 1321(t) and *note)* requires Council approval of the following types of actions (referred to as "Significant Actions") (33 U.S.C § 1321(t)(2)(C)(vi)):

1. Approval of the Comprehensive Plan and revisions and updates thereto;
2. Approval of State Expenditure Plans (SEPs) and revisions and updates thereto;
3. Approval of reports to Congress required by the Act;
4. Approval of transfers pursuant to 33 U.S.C. § 1321(t)(2)(E)(ii)(II); and
5. Other Significant Actions as determined by the Council (e.g., approval of the Council regulation establishing the formula required under 33 U.S.C. § 1321(t)(3)).

All Significant Actions of the Council, except approval of SEPs, require the affirmative vote of the Chairperson and three State members to be effective. Approval of a SEP or a revision requires only the

affirmative vote of the Chairperson together with certification by the State member submitting the SEP that the SEP satisfies all applicable requirements of the RESTORE Act.

Following is a list of Council Significant Actions taken in FY 2019:

Alabama State Expenditure Plan: In March of 2019, the Council approved the State of Alabama's State Expenditure Plan which includes 29 proposed projects totaling $117,894,752.

Texas State Expenditure Plan: In March 2019, the Council approved the State Expenditure Plan submitted by the State of Texas which requested $31.32 million of the state's $121.5 million allocation under the Oil Spill Impact Component of the RESTORE Act to support 4 projects.

Amendment to FPL 1 – Upper Mobile Bay Beneficial Use Wetland Creation Site: In May, 2019, the Council approved changing the Responsible Member for this project, which was originally submitted by USACE as a component of the proposal "Beneficial Use of Dredged Material to Create Emergent Tidal Marsh in Upper Mobile Bay," to the State of Alabama. This planning effort will develop the final design and permitting of a 1,200-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.

Amendment to FPL 1 – Mobile Bay National Estuary Program Implementation: In August of 2019 the Council voted to approve moving the Mobile Bay National Estuary Program to Category 1 (see page 21, Making Projects "Shovel Ready").

Mississippi State Expenditure Plan Amendment: In April 2019, the Council approved the second Amendment to the State of Mississippi's State Expenditure Plan. This amendment supports 7 projects previously approved and 3 new projects which total approximately $18.65 million, yielding a total $95 million for projects funded under the SEP.

Florida State Expenditure Plan Amendment: The first amendment to the State Expenditure Plan (SEP) for the State of Florida, prepared by the Gulf Consortium (Consortium) in collaboration with Manatee County describes a new, proposed project not presented in the original SEP. This project, Kingfish Boat Ramp, will improve recreational access and community resilience. Additionally, two projects are being removed from the original SEP to allow for sufficient funding for the Kingfish Boat Ramp. Project 18-3 Preserve Management Plans and project 18-8 Coastal Watershed Management Plans are being withdrawn from the SEP. These will be funded by other means outside of Spill Impact Component funds. The Council approved this action in August 2019.

4. Council-Selected Restoration Component Accomplishments

4.1. Background

The Council's Bucket 2 funding decisions are guided by criteria set forth in the RESTORE Act, the Council's *2016 Comprehensive Plan Update: Restoring the Gulf Coast's Ecosystem and Economy* (2016 Comprehensive Plan Update), and other policies, including the Council's 2019 Planning Framework. Pursuant to the RESTORE Act, Council approval of Bucket 2 funding requires an affirmative vote from at least three state members and the Chair. The other federal members do not have a vote. Following is a brief overview of the Bucket 2 criteria and policies, with links to additional information.

RESTORE Act Priority Criteria

In selecting projects and programs under Bucket 2, the RESTORE Act requires that the Council give the highest priority to activities that address one or more of the following criteria:

1. **Projects that are projected to make the greatest contribution to restoring and protecting** the natural resources, ecosystems, fisheries, marine and wildlife habitats, beaches, and coastal wetlands of the Gulf Coast region, without regard to geographic location within the Gulf Coast region.

2. **Large-scale projects and programs** that are projected to substantially contribute to restoring and protecting the natural resources, ecosystems, fisheries, marine and wildlife habitats, beaches, and coastal wetlands of the Gulf Coast ecosystem.

3. **Projects contained in existing Gulf Coast State comprehensive plans** for the restoration and protection of natural resources, ecosystems, fisheries, marine and wildlife habitats, beaches, and coastal wetlands of the Gulf Coast region.

4. **Projects that restore long-term resiliency** of the natural resources, ecosystems, fisheries, marine and wildlife habitats, beaches, and coastal wetlands most impacted by the Deepwater Horizon oil spill.

FPL Proposal Submission Guidelines and Review Process

In 2019, the Council developed updated guidance for its members on the content and review process for Bucket 2 funding proposals. This updated guidance is called the FPL 3 Proposal Submission Guidelines and Review Process (2019 Submission Guidelines).The primary purpose of the Guidelines is to help Council members develop effective proposals for potential funding in FPL 3. Council members are the only entities eligible to submit proposals for potential funding under Bucket 2. Federally recognized Tribes may submit proposals via a federal Council member sponsor. This guidance document is divided into three sections:

- **Section 1- Proposal Evaluation Criteria and Related Information:** This section discusses the statutory criteria that FPL 3 proposals must address to be considered for funding under Bucket 2, along with other legal requirements pertaining to best available science (BAS) and environmental compliance. This section also discusses the FPL categories and Planning Framework that will help guide the selection of projects and programs for inclusion in FPL 3.

- **Section 2 - Guidance for FPL Proposal Content:** This section describes the information to be included in FPL 3 proposals.

- **Section 3 - FPL Proposal Review Process and Public Engagement:** This section outlines how the Council will review and consider FPL 3 proposals to ensure compliance with the RESTORE Act, BAS, and consistency with the goals, objectives, and commitments set forth in the Comprehensive Plan. It also describes the opportunities for the public to engage in the FPL 3 development process.

FPL Categories

FPLs include activities in two categories. Category 1 activities are approved for Bucket 2 funding. Such approval requires a Council vote as set forth in the RESTORE Act. To be approved in Category 1, a project or program must have documentation demonstrating that all applicable environmental laws have been addressed. For example, a construction project would need documentation demonstrating compliance with the National Environmental Policy Act and other applicable laws.

Category 2 activities are Council priorities for potential future funding, but are not approved for funding. These are projects and/or programs that are not yet in a position to be approved by the Council, but which the Council considers to be worthy of potential future funding. As appropriate, the Council will review the activities in Category 2 in order to determine whether to: (1) move an activity to Category 1 and approve it for funding, (2) remove it from Category 2 and any further consideration, or (3) continue to include it in Category 2. In these reviews, the Council can consider feasibility, environmental compliance and scientific, technical, policy and/or other related issues. A Council vote and FPL amendment are required to move an activity from Category 2 to Category 1, or to remove an activity from Category 2 and any further consideration

4.2. Building on a Foundation of Collaboration

Building on the strong foundation established in the Gulf Coast Ecosystem Restoration Task Force, Gulf of Mexico Regional Ecosystem Restoration Strategy and other local, regional, state, and federal plans, the Council is taking an integrated and coordinated approach to Gulf Coast restoration. This approach strives to both restore the Gulf Coast region's environment and, at the same time, revitalize the region's economy because the Council recognizes that ecosystem restoration investments may also improve economic prosperity and quality of life. In addition, this approach acknowledges that coordinated action with other partners is crucial to successfully restore and sustain the health of the Gulf Coast region.

The RESTORE Council is using a collaborative process to help ensure that Council-Selected Restoration Component (Bucket 2) funded projects and programs complement restoration being accomplished through other funding streams. The funding available through the Council, as well as the other DWH-related funding sources (including other components of the RESTORE Act, Natural Resource and Damage Assessment (DWH NRDA), and National Fish and Wildlife Foundation Gulf Environmental Benefit Fund (NFWF GEBF)) presents an unprecedented opportunity to restore Gulf ecosystem conditions and functions, representing one of the most substantial investments in landscape-level restoration in U.S. history. However, these funds will not fully address all the ecosystem restoration needs of the Gulf given the multiple stressors impacting the region, ranging from man-made sources like the DWH oil spill disaster, water quality/quantity issues and the annual offshore hypoxic zone, as well as naturally-occurring impacts including hurricanes. Because of these large-scale stressors and ever-changing conditions of these coastal environments, it is infeasible to restore the Gulf to conditions that were present at a specific time in the past. By working collaboratively among the Council members and with other DWH-related funding sources, as well as working with other

federal, state, and philanthropic funds, great progress can be made to increase the resiliency of the Gulf of Mexico ecosystem against these stressors.

Commitment and Planning Support FPL (FPL 2*)*

The Council recognized that meeting its Comprehensive Plan commitments requires resources to support personnel, travel, and logistics necessary for more effective collaboration and planning. A major challenge to Gulf-wide ecosystem restoration is coordinating efforts within each state, among Council members, among stakeholders, and across the Gulf restoration efforts. In 2018, this funding was approved in a second FPL titled "Funded Priorities List: Comprehensive Plan Commitment and Planning Support" (CPS FPL). Prior to FPL 2, there was no designated funding to support Council member efforts to plan and coordinate restoration activities under Bucket 2. Council members had to rely upon general, tax-generated or appropriated funds to support such work. The CPS FPL funding provides the necessary resources for Council members to stimulate and encourage the coordination and collaboration necessary to achieve the commitments of the Comprehensive Plan. Specifically, the funding will provide funds necessary for members to:

- Strengthen ecosystem restoration proposals for future FPL(s) under the Council-Selected Restoration Component;
- Enhance the efficiency of future FPL development processes; and
- Facilitate long-term planning and leveraging efforts across funding streams.

Under FPL 2, each of the eleven Council members may apply for up to $500,000 per year for up to three years and up to $300,000 per year for two years thereafter. This equals up to $23.1 million, or 1.44% of the total funds available (not including interest) in Bucket 2.

The Council believes that investing a relatively small amount of resources in planning can ensure that restoration projects selected for funding will yield greater ecosystem benefits in the future. The Council will review the effectiveness of this funding at year four and consider whether extending planning and commitment support efforts beyond the five-year period is needed to continue to meet the Comprehensive Plan commitments.

In approving the CPS FPL, the Council provided an opportunity for its members to receive the necessary funds to enhance collaboration, coordination, public engagement and use of best available science in developing and selecting restoration projects. Council members began using these CPS FPL funds to support the collaboration and other planning activities needed to develop effective project and program proposals for the next round of funding decisions in FPL 3. The Council was initially planning on developing FPL 3 as a single action, comprised of a list of restoration projects and programs addressing ecosystem needs across the Gulf coast. As a result of the collaborative process, it appears that developing FPL 3 in two phases would enable the Council to respond to ecosystem needs, save money, and take advantage of important partnership opportunities to advance large-scale ecosystem restoration in the first phase. In the second phase of FPL 3, the Council would consider restoration projects and programs that address additional ecosystem needs across the Gulf. Progress of the CPS awards, which provided $18.7 million through 2023, are summarized by Council member in Appendix A.

Planning Framework

As the Council turned its attention to laying the foundation for the next FPL members used CPS FPL funds to work with other Council members, potential funding partners (including other DWH funding sources),

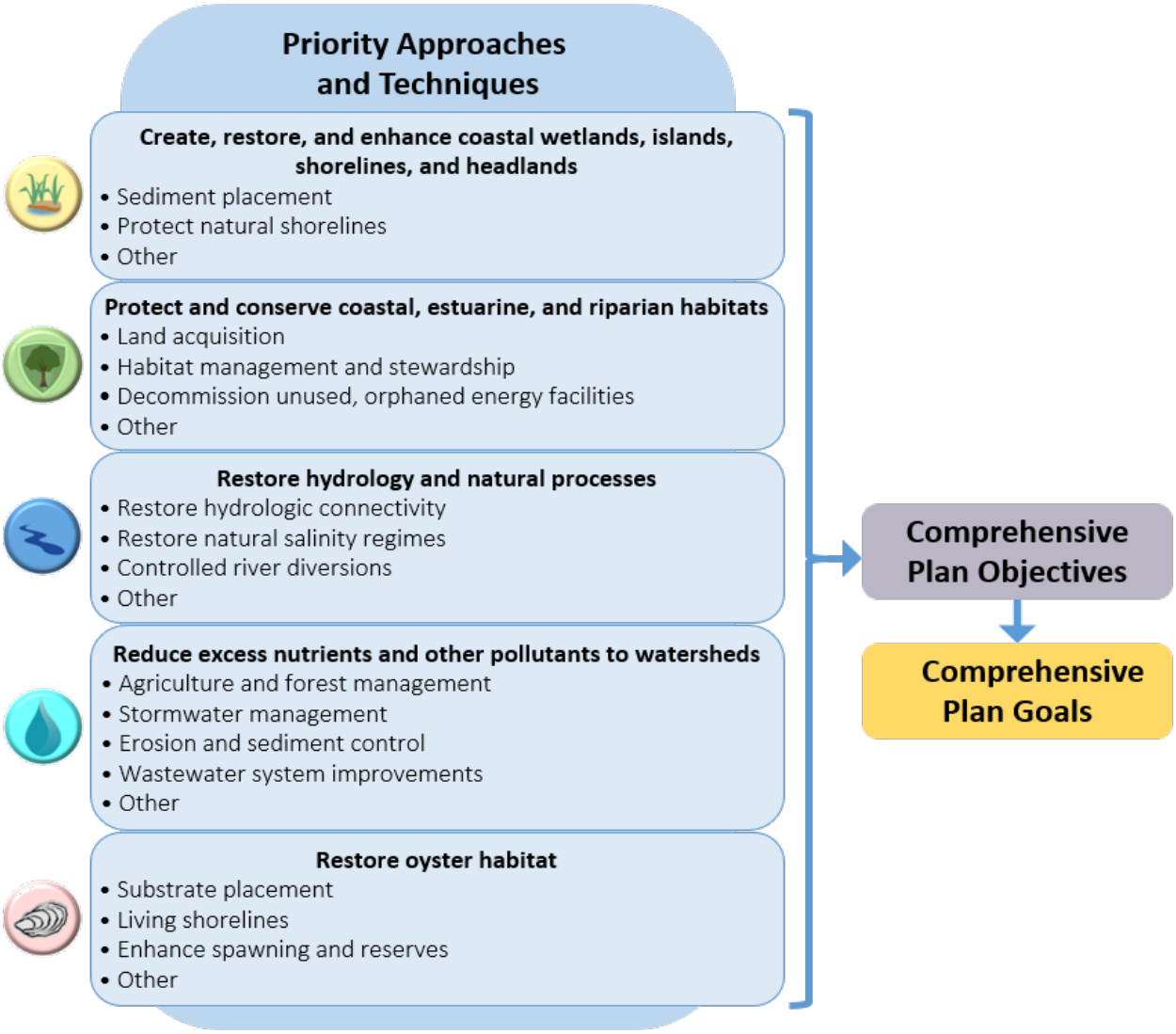
stakeholders, and the public to generate project ideas that address known environmental challenges and stressors across the Gulf. Members held numerous meetings throughout the Gulf to discuss ecosystem restoration concepts and potential techniques to address environmental challenges and stressors in various watersheds, estuaries and broader geographic regions. An outcome of these collaborative efforts led to the Council's development of the 2019 Planning Framework.

The Planning Framework is a new element of the FPL process and is being used for the first time in the development of FPL 3. The Planning Framework is intended to serve as a "bridge" between the Comprehensive Plan and FPLs, and from one FPL to the next. The Planning Framework strategically links past and future restoration funding decisions to the overarching goals and objectives outlined in the 2016 Comprehensive Plan Update. As the 2015 Initial FPL focused on Comprehensive Plan goals related to habitat and water quality, the Planning Framework draft provides an indication of the types of resources, habitats, and geographic areas where the RESTORE Council will focus in FPL 3 in advance of selecting projects and programs. In this way, this Planning Framework indicates priorities designed to continue building on previous investments in habitat and water quality, while expanding opportunities to meet all Comprehensive Plan goals and objectives in the future.

For the RESTORE Council, the Planning Framework represents another step toward meeting the commitments of improved, transparent, and collaborative planning and decision-making to achieve the vision of the 2016 Comprehensive Plan Update for "*A healthy and productive Gulf ecosystem achieved through collaboration on strategic restoration projects and programs.*" The priority approaches and associated techniques discussed in this document and their application within certain geographic areas are intended to provide the public and potential funding partners with a better understanding of the context under which projects will be developed as part of FPL 3. The Council views the Planning Framework as a "living document" that will support the Council's continued efforts to build upon prior restoration investments during the project or program selection process. As part of the development process for future FPLs (e.g., FPL 4, FPL 5, etc.), this Planning Framework will be reviewed and revised as needed. In addition to RESTORE Act activities, the Council will consider restoration activities funded by DWH NRDA, NFWF GEBF, and other restoration efforts in the Gulf of Mexico region as it determines future funding priorities

The Planning Framework lists priority restoration approaches and techniques (Figure 2), their relationship to the Comprehensive Plan goals and objectives, and associated geographic areas. The purpose of this document is to provide the public and potential funding partners with an indication of the kinds of projects that are anticipated to be developed for FPL 3 funding consideration. As part of the process of developing future FPLs, the Planning Framework will be reviewed and revised as needed to incorporate outcomes and lessons learned from previously implemented projects, scientific and technical developments, changing policy, public input, and other planning considerations.

Figure 2. The 2019 Planning Framework priority approaches and techniques can be applied to support the Comprehensive Plan objectives and goals.



It was also through this collaborative process that the Council recognized that developing FPL 3 in two phases would enable the Council to fund projects requiring near-term attention and take advantage of important partnership opportunities to advance large-scale ecosystem restoration in the first phase, FPL 3a. In the second phase, FPL 3b, the Council will consider restoration projects and programs that address additional ecosystem needs across the Gulf.

Enhancing Environmental Compliance Efficiency through Interagency Collaboration

The RESTORE Council is an active member of the Gulf Coast Interagency Environmental Restoration Working Group (GCIERWG), which was formed to help achieve more effective and efficient environmental reviews of Gulf ecosystem restoration projects. Improved environmental reviews should then result in more timely restoration implementation. Formed in recognition of the critical need for increased regulatory collaboration through early and consistent interagency coordination and prioritization of restoration work

across funding streams, GCIERWG coordinates through standing monthly interagency conference calls and is currently led by the National Oceanic and Atmospheric Administration (NOAA) assisted by Council staff.

Until this year the working group was comprised of only federal members including representation from the U.S. Departments of Army, Agriculture, Commerce, the Interior, and the Environmental Protection Agency. In mid-2018, the Gulf states were invited to participate in GCIERWG to increase the group's utility and inclusiveness moving forward.

In FY2019 GCIERWG continued two interagency regulatory clearinghouse pilots the Pensacola Bay Living Shoreline – Phase 1 project, sponsored by the Florida Department of Environmental Protection and the Golden Triangle Marsh Creation project, sponsored by the Coastal Protection and Restoration Authority of Louisiana. These pilot efforts are demonstrating both the utility and efficiency of early, field-level collaborative technical review during restoration project planning. Both Florida and Louisiana have expressed that the assistance of GCIERWG proved to be very valuable, and they have an interest in working to potentially expand this pilot approach. This year, NOAA elected to dedicate a portion of its upcoming CPS FPL funding over the next several years to work with GCIERWG to identify, refine and utilize tools and approaches to enhance the efficiency, effectiveness and transparency of environmental compliance to accelerate achievement of ecosystem benefits.

4.3. Actions and Results from FPL 1

The Council made significant progress during 2019 towards funding and implementing the Initial FPL. Only four projects selected in FPL 1 are either not yet funded or in the process of being evaluated for funding at the end of the fourth quarter of FY2019 (Figure 3). Funding actions are identified by Council member in Figure 4.

Figure 3. Progress of processing and funding projects selected in the Initial FPL. "RAAMS" refers to the Council's grants management system, the Restoration Assistance and Awards Management System.

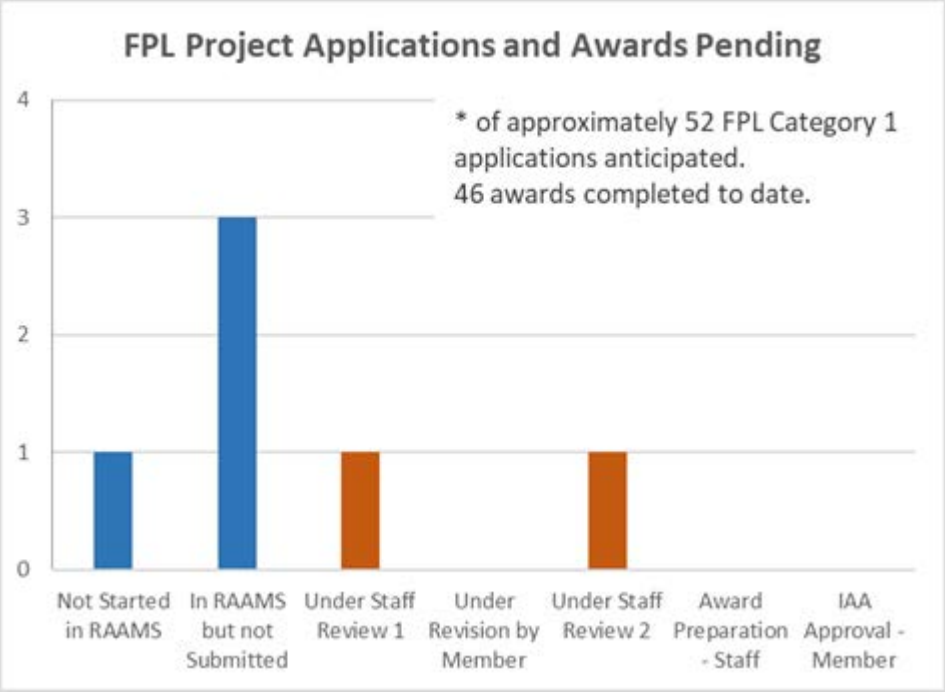
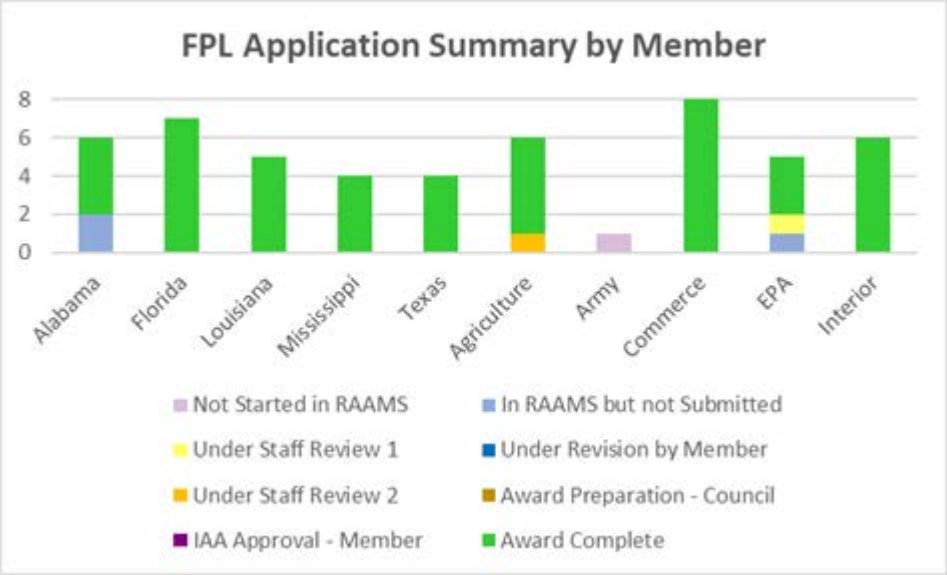


Figure 4. Application status by member for projects selected in the Initial FPL. "RAAMS" refers to the Council's grants management system, the Restoration Assistance and Awards Management System



Funds are distributed by the Council through grants to State members and Interagency agreements (IAAs) with Federal members. During FY19, four grants and four IAA's totaling $34,888,807 ($21,465,763 in grants and in $11,023,044 under IAA) were funded from the Initial FPL. A summary of each of these Initial FPL awards funded during FY19 is found in **Appendix A**. Over the three fiscal years of 2016 through 2018, the Council had previously awarded 20 grants and 18 IAAs under the Initial FPL providing $123.7 million in funding over this time period for restoration activities in the Gulf. A summary of accomplishments of these Initial FPL awards is found in **Appendix B**.

The Initial FPL purposely focused on the first two Council Goals resulting in $130.8 million to support the Restore and Conserve Habitat Goal ($87.8 million in grants to states and $43 million in IAAs), and $25.3 million in support of the Council goal to Restore Water Quality and Quantity ($15.8 million in grants and $9.6 million in IAA's (Table 1). A similar trend is found for the Council objectives (Table 2). The Initial FPL focused on ten watersheds and estuaries, along with a number of Gulf-wide projects. To date, nearly $52.2 million has been invested in the Louisiana Mississippi River Delta watershed (Table 3), followed by Mississippi Sound, MS ($20.5 million), Apalachicola Bay, FL ($14.3 million), Mobile Bay, AL ($10.4 million), Pensacola Bay, FL ($8.8 million), Galveston Bay, TX ($8.1 million), Laguna Madre, TX ($6.1 million) Matagorda Bay, TX ($6.0 million), Tampa Bay, FL ($4.2 million), and Suwannee Watershed ($2.9 million). Gulf-wide project investments now total $21.3 million (Table 3).

The Council's second FPL completed in 2017 focused on providing financial resources to members to meet Council commitments defined in the Comprehensive Plan Update (e.g., enhanced member collaboration in project/program development, focusing on a watershed approach to restoration, and better defining best available science parameters). Designated as the Commitment and Planning Support (CPS), this FPL provided $10,493,880 for grants to the five states over a five-year period (fiscal year 2018- fiscal year 2022) and $10,333,596 to the federal members to support efforts under the CPS FPL which support all five of the Council's goals. A summary of the work conducted under the CPS FPL is found in **Appendix C**.

Table 1. RESTORE Council-Selected Component funding by Goals and Fiscal Year (F-IAA; S-Grant). Amounts shown include award under both FPL 1 and the CPS FPL.

Year	GOAL			Totals
	Restore and Conserve Habitat	Restore Water Quality and Quantity	All Goals	
2016	F- $500,000 S-$7,259,216	F-$0 S-$0	F-$0 S-$0	F-$500,000 S- $7,259,216
2017	F-$22,879,667 S-$39,988,854	F-$7,358,000 S-$11,427,706	F-$0 S-$0	F-$30,237,667 S-$51,416,560
2018	F-$8,610,826 S-$19,108,430	F-$2,200,000 S-$4,342,500	F-$8,233,596 S-$10,493,880	F-$19,044,422 S-$33,944,810
2019	F-$11,023,044 S-$21,465,763	F-$0 S-$0	F-$2,100,000 S-$0	F-$13,123,044 S-$21,465,763
Total to Date	F-$43,013,537 S-$87,822,263	F-$9,558,000 S-$15,770,206	F-$10,333,596 S-$10,493,880	F-$62,905,133 S-$114,086,349 T-$176,991,482

Table 2. RESTORE Council-Selected Component funding by Objective and Fiscal Year (F-IAA; S-Grant). Amounts shown include award under both FPL 1 and the CPS FPL.

OBJECTIVE	2016	2017	2018	2019	**Total to Date**
Restore, Enhance, and Protect Habitats	F- S-$7,259,216	F- $18,162,084 S- $39,238,854	F-$7,110,826 S- $23,450,930	F- $11,023,044 S- $21,465,763	**F-$36,295,954** **S-$91,414,763**
Restore, Improve and Protect Water Resources		F-$7,358,000 S- $11,427,706	F-$3,700,000		**F-$11,058,000** **S-$11,427,706**
Protect and Restore Living Coastal and Marine Resources					**$0**

Restore and Enhance Natural Processes and Shorelines					**$0**
Promote Community Resilience					**$0**
Promote Natural Resource Stewardship and Environmental Education	F-$500,000	F- S-$750,000			**F-$500,000** **S-$750,000**
Improve Science-based Decision-Making Processes		F-$4,717,583			**F-$4,717,583** **S-$0**
All Objectives			F-$8,233,596 S- $10,493,880	F- $2,100,000	**F-$10,333,596** **S-$10,493,880**
Other Objective					**$0**
TOTALS	**F-$500,00** **S-$7,259,216**	**F- $30,237,667 S- $51,416,560**	**F- $19,044,422 S- $33,944,810**	**F- $13,123,044 S- 21,465,763**	**F-$62,905,133** **S-$114,086,349** **GT-$176,991,482**

Table 3. RESTORE Council-Selected Component funding by Watershed and Fiscal Year (F-IAA; S-Grant). Amounts shown include award under both FPL 1 and the CPS FPL.

WATERSHED	2016	2017	2018	2019	Total to Date
APALACHICOLA BAY		F-$7,000,000 S-$6,899,856		F-$387,726	**F-$7,387,726 S-$6,899,856**
GALVASTON BAY			S-$8,077,000		**F-$0** **S-$8,077,000**
GULFWIDE	F-$500,000	F-$17,717,583	F-$3,049,800		**F-$21,267,383**
LAGUNA MADRE		S-$4,378,500	F-$1,317,567	F-$404,318	**F-$1,721,885 S-$4,378,500**
MATAGORDA BAY		F-			**F-$0**

		S-$6,012,000			**S-$6,012,000**
MOBILE BAY		F-$358,000	F-$907,953 S-$5,217,500	S- $3,908,500	**F-$1,265,953** **S-$9,126,000**
MISSISSIPPI RIVER DELTA	S-$7,259,216	F-$5,162,084 S-$21,758,193	S-$9,300,00	F- $8,731,000	**F-$13,893,084** **S-$38,317,409**
MISSISSIPPI SOUND		F- S-$2,928,847		F- S- $17,557,263	**F-$0** **S-$20,486,110**
OTHER			F-$8,233,596 S- $10,493,880	F- $3,600,000	**F-$11,833,596** **S-$10,493,880**
PENSACOLA BAY		F- S-$6,555,164	F-$2,200,000		**F-$2,200,000** **S-$6,555,164**
SUWANNEE WATERSHED		F- S-$2,884,000			**F-$0** **S-$2,884,000**
TAMPA BAY			F-$3,335,500 S-$856,430		**F-$3,335,500** **S-$856,430**
TOTALS	**F-$500,000** **S-$7,259,216**	**F-$30,237,667** **S-$51,416,560**	**F- $19,044,422 S- $33,944,810**	**F- $13,123,044 S- $21,465,763**	**F-$62,905,133 S-$114,086,349 GT-$176,991,482**

Making Projects "Shovel-Ready"

In addition to approving funds for specific projects and programs, the Initial FPL also lists activities the Council has identified as priorities for potential future funding. This category of activities (referred to as Category 2 activities) are projects and programs the Council believes have merit, but which were not ready for implementation funding because the requisite environmental compliance had not been completed. The Council set aside a pool of available funds for potential use on Category 2 activities, pending Council approval. The Council also approved planning funds to address the environmental laws applicable to these Category 2 activities. Once these laws have been addressed for a Category 2 activity, the Council can vote to approve funding for that activity through an amendment to the Initial FPL. Such a vote only occurs after public comments have been considered by the Council. In FY2019, the Council amended the Initial FPL to approve implementation funding for the following restoration project that was originally in Category 2:

Amendment to FPL 1 – Mobile Bay National Estuary Program Implementation: In August of 2019 the Council voted to approve moving the Mobile Bay National Estuary Program to Category 1. The project submitted by EPA, the responsible Council Member, 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.

Sub-Awards to Non-Governmental Organizations

The RESTORE Act requires that, for purposes of awards made under the Council-Selected Restoration Component, a State or federal award recipient may make a grant or subaward to or enter into a cooperative agreement with a non-governmental entity that equals or exceeds 10 percent of the total amount of the award provided to the State or federal award recipient only if certain notice requirements are met. The Council has provided notice in advance of each such proposed subaward through the *Federal Register* and to specified Congressional Committees. In addition, the Council must include the name, purpose and amount of each qualifying subaward in its Annual Report to Congress. Table 4 provides the required information.

Table 4. 2019 Subawards to Nongovernmental Entities that Exceed 10 Percent of an Award

Name of Subrecipient	Purpose and Amount of Subaward
Ducks Unlimited, Inc.	Under an interagency agreement (IAA) with the Council for the Bahia Grande Wetland System Restoration (planning) project, the National Oceanic and Atmospheric Administration (NOAA) Restoration Center, Department of Commerce, will complete the planning and design necessary to restore natural hydrology to approximately 600 acres of estuarine tidal and open water in the Laguna Atascosa National Wildlife Refuge. The ultimate goal of the project is to reconnect the bisected watershed via culvert installation under Highway 100 so that freshwater will flow into wetlands adjacent to Laguna Larga. Increased freshwater inflows will increase the wildlife benefits of the wetlands and the wildlife and estuarine fishery benefits in the Bahia Grande system. The NOAA Restoration Center will provide a subaward in the amount of $313,115.31 to Ducks Unlimited, Inc. to complete planning, design, and engineering for this restoration project in the Laguna Atascosa Wildlife Refuge. Notice of this subaward was originally published in the *Federal Register* on December 12, 2018 (83 FR 63889).
National Fish and Wildlife Foundation	Under an IAA with the Council for the Robinson Preserve Wetlands Restoration (Implementation) project, the National Oceanic and Atmospheric Administration (NOAA) Restoration Center, Department of Commerce, will implement restoration activities, conduct monitoring to assess restoration

	outcomes, engage in outreach and educational activities, and develop a hydrologic restoration project inventory for the Tampa Bay watershed. The NOAA Restoration Center will provide a subaward in the amount of $1,624,625 to the National Fish and Wildlife Foundation to implement restoration activities, conduct monitoring to assess restoration outcomes, engage in outreach and educational activities, and develop a hydrologic restoration project inventory for the Tampa Bay watershed. When completed, the project will provide an estimated 57.6 acres of coastal upland habitat and 60.6 acres of wetland, open water sub-tidal, and open freshwater habitats, for a total of 118.2 acres of restored productive habitat. Notice of this subaward was originally published in the *Federal Register* on December 12, 2018 (83 FR 63889).

5. Spill Impact Component Accomplishments

5.1. Background

In addition to the Council-Selected Restoration Component funding, the remaining 30 percent of the Trust Fund under the Council's purview is allocated to the States under the Spill Impact Component, according to a formula established by the Council and implemented through a regulation. These funds are spent according to individual State Expenditure Plans (SEPs) that contribute to the overall economic and ecological recovery of the Gulf. The SEPs must adhere to four basic criteria set forth in the RESTORE Act and are subject to approval by the Council in accordance with those criteria. On December 15, 2015, the Council published the Spill Impact Component regulation, which set forth allocation for each State. These allocations became effective on April 12, 2016, following entry of the Consent Decree.

5.2. Approving State Expenditure Plans

A SEP is approved by the Council Chair following a submittal by the respective State and a review process to verify adherence to the four basic criteria. Once a SEP is approved, funding for activities in the SEP is disbursed to the respective State via Council grants when the requisite funds become available in the Trust Fund and upon application by the State. As part of the grant process, all activities for which funding is sought are carefully reviewed to ensure consistency with the approved SEP and compliance with the RESTORE Act and all other applicable requirements. Funding for implementation activities is disbursed to the State after verification of compliance with all applicable federal environmental and other laws.

A total of nine SEPs and amendments have been approved by the Council to date. During fiscal year 2019, five SEP grants were approved totaling $16.6 million (**Appendix D**), bringing the total of grants funding awarded to date to nearly $78 million in awards have been dispersed to date (**Appendix E**).

The five Gulf states have now received $42.6 million through Spill Impact grants to support the Restore and Conserve Habit Goal (Table 5), and $32.1 million to support the goal to Restore Water Quality and Quantity. The SEP funding supports a number of the Council's objectives (Table 6), including Improving Science-based Decision-making Processes ($24.1 million), Restoring, Improving, and Protecting Water Resources ($19.9 million) and Restoring, Enhancing and Protecting Habitats ($18.5 million). Much of the work funded thus far supports program development, but some projects are underway in the Mississippi River Delta ($21.3 million) and Mississippi Sound ($31.8 million) watersheds (Table 7).

Table 5. Spill Impact Component Funding by Council Goal and Fiscal Year

GOAL	2016	2017	2018	2019	Total to Date
Restore and Conserve Habitat	$4,640,675	$19,467,856	$18,520,214		$42,628,745
Restore Water Quality and Quantity	$1,374,612	$292,503	$17,077,742	$13,398,031	$32,142,888

Enhance Community Resilience				$2,827,150	$2,827,150
Restore and Revitalize the Gulf Economy				$338,943	$338,943
TOTALS	**$6,015,287**	**$19,760,359**	**$35,597,956**	**$16,564,124**	**$77,937,726**

Table 6. RESTORE Spill Impact Component funding by Objective and Fiscal Year

	2016	2017	2018	2019	**Total to Date**
Restore, Enhance, and Protect Habitats			$18,520,214		**$18,520,214**
Restore, Improve and Protect Water Resources			$15,777,936	$4,100,000	**$19,877,936**
Protect and Restore Living Coastal and Marine Resources	$1,374,612	$292,503	$1,299,806	$9,298,031	**$12,264,952**
Restore and Enhance Natural Processes and Shorelines					**$0**
Promote Community Resilience				$2,827,150	**$2,827,150**
Promote Natural Resource Stewardship and Environmental Education					**$0**
Improve Science-based Decision-Making Processes	$4,640,675	$19,467,856			**$24,108,531**
All Objectives					**$0**
Other Objective				$338,943	**$338,943**
TOTALS	**$6,015,287**	**$19,760,359**	**$35,597,956**	**$16,564,124**	**$77,937,726**

Table 7. RESTORE Spill Impact Component funding by Watershed and Fiscal Year

	2016	2017	2018	2019	Total to Date
GULFWIDE				$221,038	**$221,038**
MISSISSIPPI RIVER DELTA			$18,520,214	$2,827,150	**$21,347,364**
MISSISSIPPI SOUND	$1,374,612		$17,077,742	$13,398,031	**$31,850,385**
OTHER	$4,640,675	$19,760,359		$117,905	**$24,518,939**
TOTALS	**$6,015,287**	**$19,760,359**	**$35,597,956**	**$16,564,124**	**$77,937,726**

6. Best Available Science and Data System Accomplishments

6.1. Background

Under the RESTORE Act, the Council is required to "undertake projects and programs, using the best available science (BAS) that would restore and protect the natural resources, ecosystems, fisheries, marine and wildlife habitats, beaches, coastal wetlands, and economy of the Gulf Coast." The RESTORE Act defines BAS as science that "maximizes the quality, objectivity, and integrity of information, including statistical information; uses peer-reviewed and publicly available data; and clearly documents and communicates risks and uncertainties in the scientific basis for such projects." In 2019, the Council engaged in a variety of activities that promote enhanced application of BAS at all stages of project/program development.

6.2. Best Available Science Reviews

The Council's Initial Funded Priorities List utilized voluntary, confidential and external mail-in reviews to ensure all proposals were developed using Best Available Science. To follow through with the Council's comprehensive plan commitments to revise this process for FPL 3, Council staff developed an updated BAS Review Process that incorporates an internal BAS Proposal Review Panel in addition to external mail-in reviews. This panel, comprised of technical experts from each Council-member agency, will also review proposal application materials, including the external mail-in reviews.

6.3. Monitoring Progress, Success, & Performance

In its Comprehensive Plans, the Council has committed to delivering results, measuring impacts, and implementing/improving adaptive management. Ongoing coordination around science and monitoring has already reaped tangible benefits such as alignment of overlapping tasks across entities, shared work products, and plans for future leveraging of shared resources.

Funded under the initial FPL, the Council Monitoring and Assessment Program (CMAP) is a network of diverse experts who collaborate around Gulf-wide regional monitoring to measure impacts of investments in restoration. The Council Monitoring and Assessment Workgroup (CMAWG), comprised of technical staff from each Council member agency, is partially supported by CMAP funds and will largely be responsible for developing monitoring standards and protocol recommendations for RESTORE Council approval. In 2018, Council Staff and CMAWG members updated the Observational Data Plan Guidance to assist projects and programs in providing the Council with a plan for data collection and compilation. Data will be used to evaluate if funded projects are meeting or exceeding project goals and restoration targets.

6.4. Enhanced Access to Information through Data Systems

Data collected for Council-funded activities can only be useful for reporting and evaluation if users are able to find the data, assess its utility, and understand how it was generated. To enhance current and future use of data, Council staff and partners developed the Council Metadata Records Library and Information Network (MERLIN) in 2018. MERLIN is an online metadata records tool developed in partnership with the US Geological Survey and NOAA's National Centers for Environmental Information. MERLIN houses metadata-- records that describe information about data. The development of this tool supports the

Council's 2018 approval of the use of the ISO 19115 metadata standard for all Council funded projects to promote consistency in the data collection for Council-funded activities.

7. Cumulative Results of Bucket 2 and 3

Over the four fiscal years of 2016 through 2019, a total of 24 grants and 22 IAAs have been awarded from FPL1, 5 grants and 5 IAA's under the CPS FPL, and 13 SEP awards to date (Table 8).

Table 8. Number of awards (grants and IAA) by program and year

Year	FPL 1		CPS (FPL2)		SEP
	Grants	IAA	Grants	IAA	
2016	1	1	0	0	2
2017	13	8	0	0	2
2018	6	9	5	4	4
2019	4	4	0	1	5
Totals	24	22	5	5	13

All projects funded by the Council are required to monitor the performance of the award toward ecosystem restoration. The Council has currently identified 56 RESTORE Council Project Metrics for grants to states and Interagency Agreements (IAA) with the federal members funded through the Council-Selected Restoration Component (*aka* "Bucket 2"), and for grants funded under the Spill Impact Component (*aka* "Bucket 3") of the RESTORE Act. These metrics are used to monitor and evaluate the efficacy of projects and programs in meeting mission goals and objectives of the Council and track annual performance.

Table 9. Performance-level metrics results from projects funded under the Comprehensive Plan Component and Spill-Impact Component Funding. The information in the table summarizes the accomplishments (for FY18 and FY19) resulting from funding under the Initial FPL and SEPs awarded to date. For each metric measure, the associated Council Goal and Objective is provided.

Metric Category	Metric Measure	Goals	Objective	Year		Total
				2018	2019	
Land Acquisition	Acres Acquired in fee simple	Restore and Conserve Habitat; Restore Water Quality and Quantity	Restore, Enhance and Protect Habitats	7,243 acres	215 acres	7,458 acres
	Miles Acquired	Restore and Conserve Habitat; Restore Water Quality and Quantity	Restore, Enhance and Protect Habitats	8 miles	0	8 miles
Improved Management Practices	Acres under Best Management Practices	Restore and Conserve Habitat; Restore Water Quality and Quantity; Enhance Community Resilience	Restore, Improve and Protect Water Resources; Promote Community Resilience	0	827	827 acres
	Acres under improved management	Restore and Conserve Habitat; Restore Water Quality and Quantity	Restore, Enhance and Protect Habitats	5,164 acres	2294	7,458 acres

	Miles under improved management	Restore and Conserve Habitat; Restore Water Quality and Quantity	Restore, Enhance and Protect Habitats	8 miles	0	8 miles
Land Restoration	Acres restored	Restore and Conserve Habitat; Restore Water Quality and Quantity	Restore, Enhance and Protect Habitats	1,481 acres	0	1,483 acres
Marine Habitat Restoration	Acres restored - Oysters habitat	Restore and Conserve Habitat	Restore, Enhance and Protect Habitats	317 acres	0	317 acres
Removal of Invasive Species	Acres restored	Restore and Conserve Habitat	Restore, Enhance and Protect Habitats	57 acres	176	233 acres
Wetland Restoration	Acres restored	Restore and Conserve Habitat; Restore Water Quality and Quantity	Restore, Enhance and Protect Habitats	398 acres	51	449 acres
Research and Planning	Number of studies used to inform management	All	Improve Science-based Decision-Making Processes	6 studies	6	12 studies
	Number of planning tools developed	All	Improve Science-based Decision-Making Processes	0	2	2 tools

	Number of management plans developed	All	Planning Phase	0	4	4 plans
Monitoring Activities	Number of streams/sites being monitored	All	Improve Science-based Decision-Making Processes	0	130	130 sites
	Acres being monitored	All	Improve Science-based Decision-Making Processes	0	2202	2202
Outreach/ Education / Technical Assistance	Number of individuals reached by outreach, training, or technical assistance activities	All	Promote Natural Resource Stewardship and Environmental Education	263	450	713 individuals
	Number of people enrolled to implement best management practices	All	Promote Natural Resource Stewardship and Environmental Education; Economy	0	4	4 individuals
	Number of users engaged online	All	Promote Natural Resource Stewardship and Environmental Education	345	1389	1734 users
	Number of subgrants/agreements to disseminate education and outreach materials	All	Promote Natural Resource Stewardship and Environmental Education	5 subgrants/ agreements	0	5 subgrants/ agreements

Building institutional capacity	Number of participants that successfully completed training	All	Promote Natural Resource Stewardship and Environmental Education	258 participants	123	381 participants
Economic benefits	Number of jobs created - temporary jobs	Restore and Revitalize the Gulf Economy	Gulf Economy	75 jobs	91	166 jobs
	Number of local contracts	Restore and Revitalize the Gulf Economy	Gulf Economy	1	1	2
	Percentage of program funding to existing local organization(s)	Restore and Revitalize the Gulf Economy	Gulf Economy	17.5%	48% from NOAA Conservation Corps Program	no total on percentages

To date, Council funds have been used to acquire 7458 acres of land and improved management practices on 8285 acres, primarily in support of the Council's goal to Restore and Conserve Habitat (Table 9). It should be noted that most land acquisition and improved management practices also have direct connection to improving water quality and quantity. Council funds under Council-Selected Restoration and Spill Impact Components are being used to restore land, marine habitat, wetlands and remove invasive species (2,480 acres) which support the Council's goal to Restore and Conserve Habitat. Funds invested through the Council-Selected Restoration and Spill Impact Components are also providing support for research and planning, monitoring activities, outreach and education, and providing economic benefits in support of the Council's goal to Restore and Revitalize the Gulf Economy.

Meeting Council Goals

As noted in the previous section, ecosystem restoration efforts by the Council have primarily focused on two of the Council Goals: Restore and Conserve Habitat and Restore and Conserve Water Quality and Quantity. Funding trends by fiscal year are shown in Figure 5 for all funding sources in support of the Council's goal to Restore and Conserve Habitat and Restore Water Quantity and Quality in Figure 6. The cumulative funding for both goals by fiscal year (Figure 7) indicates the higher funding in support of the goal to Restore and Conserve Habitat (68.1% of all funds). In total, 90.7% of the funding from the Council-Selected Restoration and Spill Impact Components has supported Restore and Conserve Habitat ($173,464,545 / 68.1%) (Table 10) and Restore Water Quality and Quantity ($57,471,094 / 22.6%).

Table 10. Summary of funding for all programs in support of Council goals. (F-Federal IAA; S-State Grant; T-Total)

GOAL	2016	2017	2018	2019	Total to Date
Restore and Conserve Habitat	$12,399,891	$82,336,377	$46,239,470	$32,488,807	$173,464,545
Restore Water Quality and Quantity	$1,374,612	$19,078,209	$23,620,242	$13,398,031	$57,471,094
Enhance Community Resilience	$0	$0	$0	$2,827,150	$2,827,150
Restore and Revitalize the Gulf Economy	$0	$0	$0	$338,943	$338,943
All Goals	$0	$0	$18,727,476	$2,100,000	$20,827,476
TOTALS	$13,774,503	$101,414,586	$88,587,188	$51,152,931	T-$254,929,208 F-$62,905,133 S-$192,024,075

Figure 5. Funding trends for grants and IAA's from FPL 1 and SEPs in support of the Restore and Conserve Habitat Goal by fiscal year.

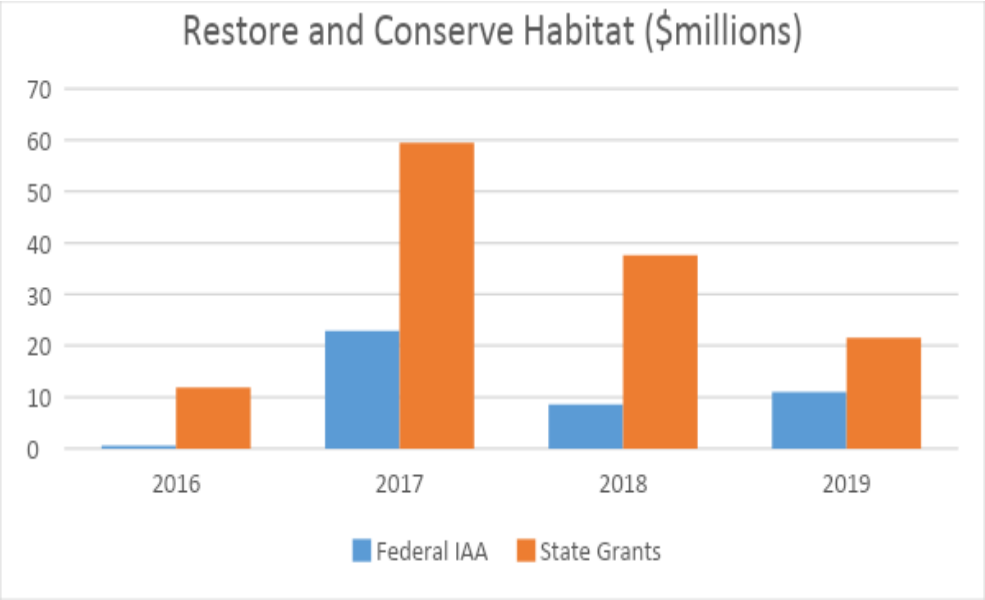


Figure 6. Funding trends for grants and IAA's from FPL 1 and SEPs in support of the Restore and Conserve Water Quality and Quantity Goal by fiscal year.

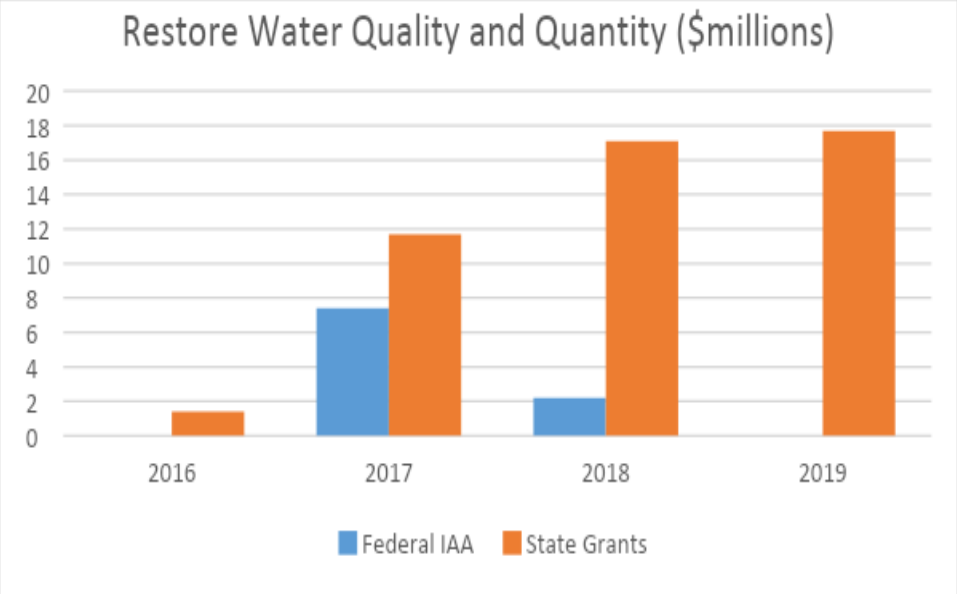
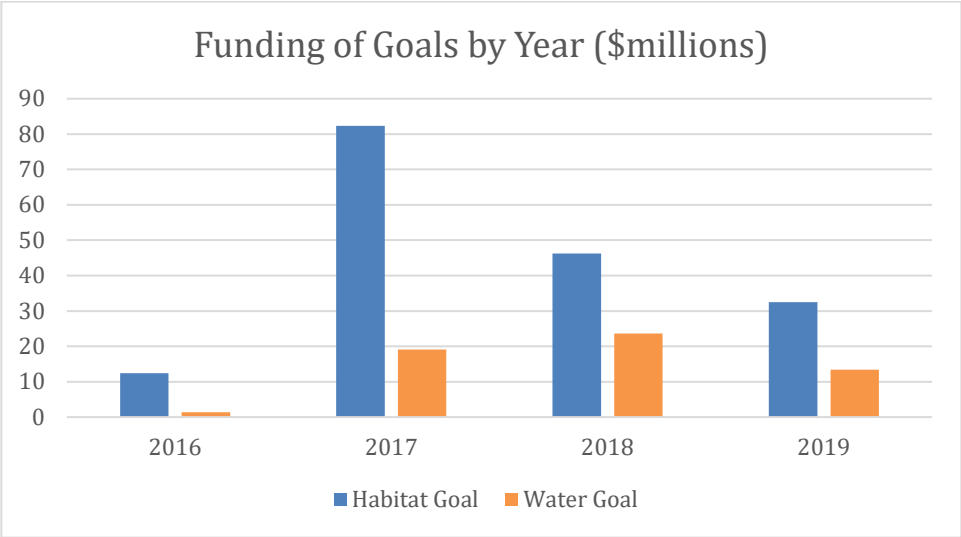


Figure 7. Funding trends (all sources) by fiscal year in support of two of the Council's Goals.



Meeting Council Objectives

The Council identified seven (7) objectives in its Comprehensive Plan to support the Council's Goals. The Council uses these objectives to select and fund projects and programs that restore and protect the natural resources, ecosystems, water quality, fisheries, marine and wildlife habitats, beaches, and coastal wetlands of the Gulf Coast region. Projects and programs not within the scope of the following Objectives for ecosystem restoration will not be funded under the Council-Selected Restoration Component.

The initial Council focus on restoring and conserving habitat and restoring water quality and quantity goals are reflected in the level of funding supporting the associated objectives to Restore, Enhance and Protect Habitats ($146,230,931 from all funding sources) and Restore, Improve and Protect Water Resources ($42,363,642), which represents 57.4% and 16.7% , respectively, of all Bucket 2 and 3 funds (grants and IAAs) as shown in Table 11.

Table 11. Total funding by Objective and Fiscal Year.

Objective	2016	2017	2018	2019	Total to Date
Restore, Enhance, and Protect Habitats	$7,259,216	$57,400,938	$49,081,970	$32,488,807	**$146,230,931**
Restore, Improve and Protect Water Resources	$0	$18,785,706	$19,477,936	$4,100,000	**$42,363,642**
Protect and Restore Living Coastal and Marine Resources	$1,374,612	$292,503	$1,299,806	$9,298,031	**$12,264,952**
Restore and Enhance Natural Processes and Shorelines	$0	$0	$0	$0	**$0**

Promote Community Resilience	$0	$0	$0	$2,827,150	**$2,827,150**
Promote Natural Resource Stewardship and Environmental Education	$500,000	$750,000	$0	$0	**$1,250,000**
Improve Science-based Decision-Making Processes	$4,640,675	$24,185,439	$0	$0	**$28,826,114**
All Objectives	$0	$0	$18,727,476	$2,438,943	**$21,166,419**
Other Objective	$0	$0		$338,943	**$338,943**
TOTALS	**$13,774,503**	**$101,414,586**	**$88,587,188**	**$51,152,931**	**T-$254,929,208 F-$62,905,133 S-$192,024,075**

Funding by Gulf of Mexico Watershed

The use of a watershed/estuary-based approach for comprehensive ecological restoration was captured as a fundamental component of the Comprehensive Plan Update following completion of FPL 1 which included funding in 10 key watersheds. Linking projects to environmental stressors by watershed or estuary is scientifically sound and offers operational advantages which assist in leveraging ecosystem restoration program resources. While the use of a watershed/estuary-based approach is a good framework, it is important to note that there are features of the Gulf system that extend beyond coastal watershed boundaries, including private lands in upper watersheds, and marine and offshore habitats.

The watersheds that have received the most funding as a total of all funding sources (Table 12) are the Mississippi River Delta ($73,557,857) and Mississippi Sound ($52,336,495), representing 28.9% and 20.5% of total funds (Figure 8). The focus of the federal IAA's (Figure 9) is primarily been toward a Gulf wide focus ($21,267,383) and the Mississippi River Delta ($13,893,084); the "Other" category includes funds to support the CPS FPL ($10,333, 596) and other non-watershed focused efforts. The states have funded work in several watersheds through both the Council-Selected Restoration and Spill Impact Components (with the relatively large funding levels under "Other" capturing stand up of SEPs in each of the five states ($24,518,939)) as shown in Figure 9.

Table 12. Total funding by Watershed and Fiscal Year**.**

Watershed	2016	2017	2018	2019	Total to Date
APALACHICOLA BAY	$0	$13,899,856	$0	$387,726	**$14,287,58**
GALVASTON BAY	$0	$0	$8,077,000	$0	**$8,077,000**
GULFWIDE	$500,000	$17,717,583	$3,049,800	$221,038	**$21,488,421**
LAGUNA MADRE	$0	$4,378,500	$1,317,567	$404,318	**$6,100,385**
MATAGORDA BAY	$0	$6,012,000	$0	$0	**$6,012,000**
MOBILE BAY	$0	$358,000	$6,125,453	$3,908,500	**$10,391,953**

MISSISSIPPI RIVER DELTA	$7,259,216	$26,920,277	$27,820,214	$11,558,150	**$73,557,857**
MISSISSIPPI SOUND	$1,374,612	$2,928,847	$17,077,742	$30,955,294	**$52,336,495**
OTHER	$4,640,675	$19,760,359	$18,727,476	$3,717,905	**$46,846,415**
PENSACOLA BAY	$0	$6,555,164	$2,200,000	$0	**$8,755,164**
SUWANNEE WATERSHED	$0	$2,884,000	$0	$0	**$2,884,000**
TAMPA BAY	$0	$0	$4,191,936	$0	**$4,191,936**
TOTALS	**$13,774,503**	**$101,414,586**	**$88,587,188**	**$51,152,931**	**T-$254,929,208** **F-$62,905,133** **S-$192,024,075**

Figure 8. Total funding from the RESTORE Council-Selected Restoration and Spill Impact Components by watershed from Fiscal Year 2016 through 2019.

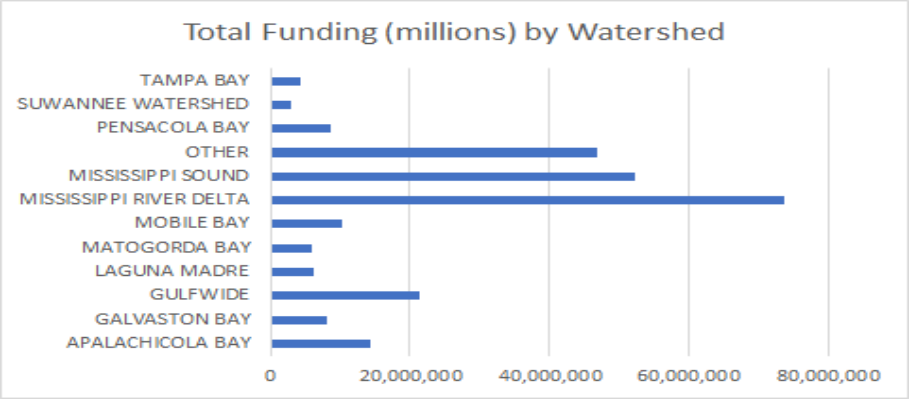
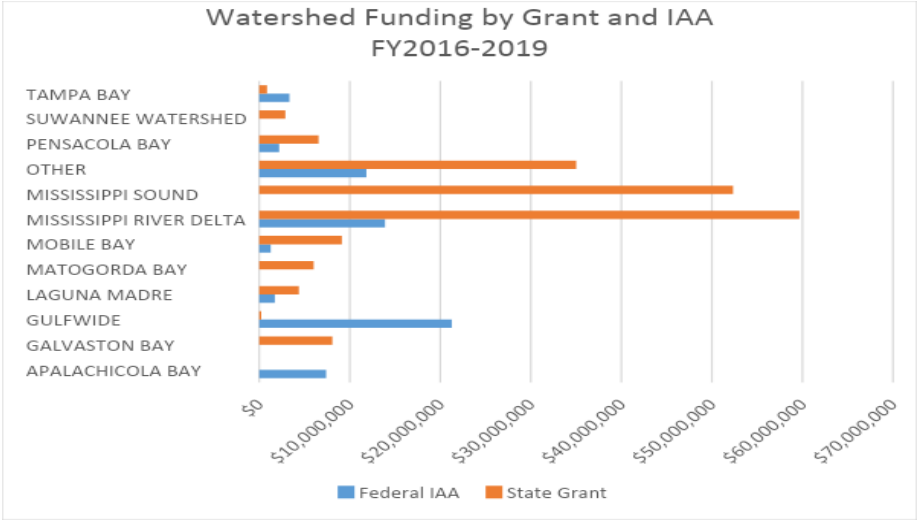


Figure 9. Grant and IAA funding from the RESTORE Council-Selected Restoration and Spill Impact Components by watershed from Fiscal Year 2016 through 2019.



8. Council Public Engagement and Tribal Relations Accomplishments

The 2016 Comprehensive Plan Update: Restoring the Gulf Coast's Ecosystem and Economy (2016 Comprehensive Plan Update) outlined the RESTORE Council's (Council) intent to improve its decisions by "improving the efficiency, effectiveness and transparency of Council actions." The Council staff hired to focus on external affairs, public engagement and tribal relations assessed the past practices and tools available to create a strategy to begin implementing the Council's two overarching commitments to "engagement, inclusion and transparency" and to "maintain and enhance public engagement and transparency".

The Council distributes information about their activities via automatic email updates referred to as Eblasts. As of late FY2019, the Council's Eblast distribution network had 970 unique subscribers, distributed as follows (some subscribe to more than one category):

- **Press- Media:** 837
- **Gulf-wide:** 810
- **Texas:** 290
- **Louisiana:** 328
- **Mississippi:** 281
- **Alabama:** 272
- **Florida:** 364
- **Tribal:** 296
- **Public Meetings or Public Comments Periods:** 58

To further streamline the distribution of information of interest to Gulf stakeholders as part of the commitment to transparency, the Council staff then began develop a strategy for communicating the process for the next round of funding of ecosystem restoration activities expand the Council's social media presence. By the end of FY2019, a daily message was being sent out via Twitter, with well over 100 followers.

As stated in the 2016 Comprehensive Plan Update, "It is the Council's intent to seek broad participation and input from the diverse stakeholders who live, work, and play in the Gulf Coast region in both the continued development of this Plan and the ultimate selection and funding of ecosystem restoration activities". This group of stakeholders is inclusive of under-represented communities and federally-recognized tribes. Council staff is working with other Council Member agencies to finalize an agreement to re-establish a relationship with the federally-recognized tribes to continuing developing a Tribal policy to ensure effective coordination and consultation.

To increase awareness of the Council's future activities, public engagement staff and technical staff represented the Council at public meetings, workshops and conferences. The majority of the Gulf states have hosted meetings to provide a status report and overview of the path forward for ecosystem restoration. The Council has used these meetings as an opportunity to obtain feedback from participants on the ongoing restoration and develop a common understanding of the challenges.

The Council published and requested comments on the Planning Framework draft from stakeholders during a 52-day public review and comment period. During this timeframe, the Council held five public

meetings across the Gulf Coast, hosted two public webinars and engaged with stakeholders across the region receiving 446 unique public comments received from 2,932 stakeholders.

individual meetings in all five Gulf states, worked on providing translations into Vietnamese and Spanish. These meetings were very successful and well-attended.

Working with the Council's Public Engagement Workgroup as well as many individual and group meetings, work continued to build strong, productive and predictable public engagement with all Gulf stakeholders (including underserved/underrepresented communities and federally-recognized Tribes). For example, the Gulf of Mexico Alliance and Vietnamese commercial fisher groups. Further, In the past year, the Council has re-engaged the federally recognized Tribal community with interests in the Gulf Region, re-invigorating discussions to develop a RESTORE Council Tribal policy. Further, Director of EA and Tribal affairs has traveled to tribal communities and participated in national meetings to ensure the tribal community is aware of Funded Priorities List opportunities.

9. Administrative Accomplishments

9.1. Financial Summary

Apportionments

The Council financial statements should be viewed in light of the status of the funds available to and used by the Council. Table 13 below shows the current status of the Council-managed Trust Fund components -, the Council-Selected Restoration Component and the Oil Spill Impact Component. The Council-Selected Administrative Funds and Council-Selected Program Expense Funds are subcategories of the Council-Selected Funds and are used by the Council to carry out its operations. The apportionments received by the Council are used to develop programs, carry out operations and fund projects.

Table 13. Trust Fund Apportionments Received Summary

Trust Fund Balance (After Sequestration)	Council Selected Administrative Funds	Council Selected Restoration Funds			Spill Impact Funds
		Council Selected Program Expense Fund	Council Selected- Projects and Programs Funds	Total	
TRUST FUND AMOUNTS DEPOSITED	**$15,717,340**	**$523,911,350**			**$510,738,792**
Apportionment FY13	($360,000)	($0)	($0)	($0)	($0)
Apportionment FY14	($896,214)	($1,067,950)	($0)	($1,067,950)	($0)
Apportionment FY15	($1,241,229)	($2,307,158)	($0)	($2,307,158)	($0)
Apportionment FY16	($1,107,649)	($3,157,558)	($156,553,618)	($159,711,176)	($6,400,000)
Apportionment FY17	($1,375,568)	($4,078,906)	($0)	($4,078,906)	($70,800,000)
Apportionment FY18	($1,417,740)	($4,544,671)	($30,611,276)	($35,155,947)	($22,300,001)
Apportionment FY19	($1,445,181)	($4,317,211)	($5,717,000)	($10,034,211)	($94,310,000)
Total Apportioned to the Council	**($7,873,581)**	($19,473,454)	($192,881,894)	**($212,355,348)**	**($193,810,001)**
Balance Available in Trust Fund	**$7,873,759**	**$303,712,421**			**$316,928,791**

Operational Costs

To best serve the communities of the Gulf Coast region, the Council strives to implement the Comprehensive Plan and accomplish the requirements of the RESTORE Act in an effective and efficient manner, at the minimum cost possible in order to maximize the funds available for restoration projects and programs. The Council has managed its fiscal resources through a strategy of incremental growth corresponding to the development of the Council-Selected Restoration Component and Spill Impact Component programs.

Table 14 shows the Council's full funding and operational cost history. The imputed revenue column identifies the value of the services provided by Council members, offset by non-reimbursed costs incurred. The table also identifies the funds apportioned each year, recoveries from reduced or cancelled obligations, and unspent funds carried forward to each subsequent year. Carry-forward funds are primarily the result of under-execution in the travel and salaries/benefits budget categories. The use of carry-forward funds requires Council approval if a proposed expense exceeds a certain threshold. In fiscal year 2019, the Council utilized $1.2 million in carry-forward funds for the grants management system replacement project, and $586,000 was used for operations in lieu of requesting new funding. Carry-forward funds of $1.12 million will be used in fiscal year 2020 to support administrative and programmatic operational expenses, and $784,000 will be used to complete the development and implementation of the two grants management replacement systems – Grant Solutions and the Program Information Platform for Ecosystem Restoration (PIPER). The latter amount is the amount remaining from the original budget of $1.2 million.

Table 14. Revenue and Operational Cost History (dollars in thousands)

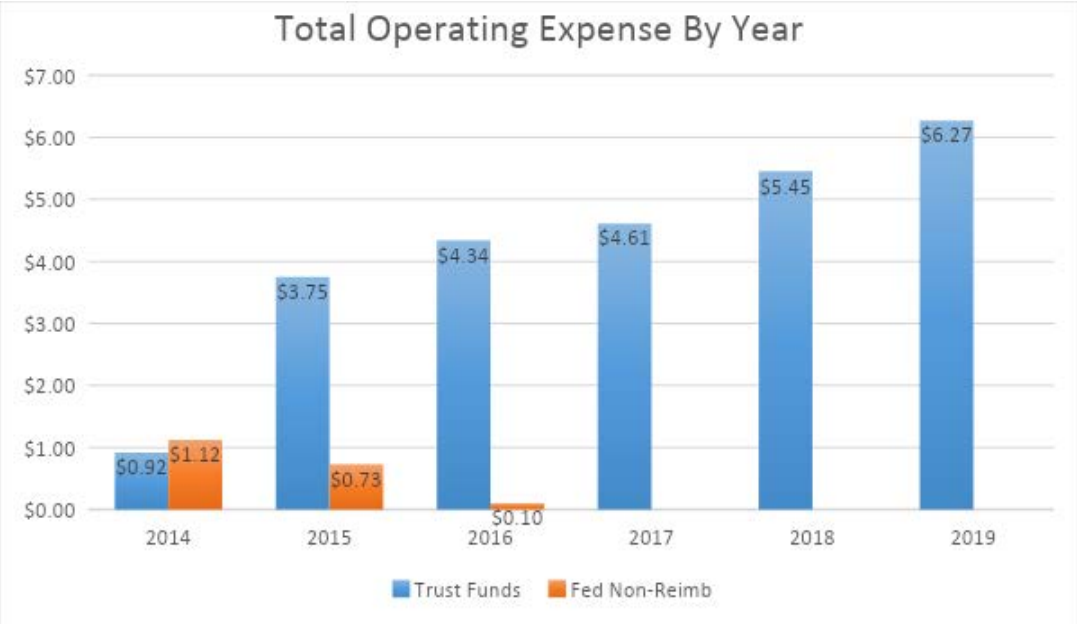
Council Operational Cost History	Carry-forward from PY	New apportionment	Recoveries from PY obligations	Current year trust fund revenue	Imputed revenue	Total revenue	Funded obligations incurred	Non-reimbursed costs incurred	Total Cost of Operations	Carry-forward
FY13 Operational Costs	$ -	$ 360	$ -	$ 360	$ 1,089	$ 1,503	$ 360	$ 1,089	$ 1,503	$ -
FY14 Operational Costs	$ -	$ 1,964	$ 79	$ 2,043	$ 1,120	$ 3,163	$ 920	$ 1,120	$ 2,040	$ 1,123
FY15 Operational Costs	$ 1,123	$ 3,548	$ 2	$ 4,673	$ 728	$ 5,401	$ 3,751	$ 728	$ 4,479	$ 922
FY16 Operational Costs	$ 922	$ 4,265	$ 374	$ 5,561	$ 101	$ 5,738	$ 4,337	$ 101	$ 4,514	$ 1,224
FY17 Operational Costs	$ 1,224	$ 5,454	$ 19	$ 6,697	$ -	$ 6,697	$ 4,608	$ -	$ 4,608	$ 2,089

FY18 Operational Costs	$ 2,089	$ 5,962	$ -	$ 8,051	$ -	$ 8,051	$ 5,447	$ -	$ 5,447	$ 2,604
FY19 Operational Costs	$ 2,604	$ 5,792	$ -	$ 8,396	$ -	$ 8,396	$ 5,769	$ -	$ 5,769	$ 2,627

The Council achieved a steady-state level of operations that was consistent with the full implementation of its administrative infrastructure in fiscal year 2015, and no longer required non-reimbursed support from other federal agencies as of fiscal year 2017, other than for federal benefits as provided by OPM to all agencies. Costs increased in fiscal year 2015 due the establishment of the Council's New Orleans headquarters office; development of its administrative and programmatic infrastructure; development and deployment of its core administrative systems; implementation of its grants, science, and environmental compliance programs; acquisition and deployment of its website; and the design and development of the automated grants management system.

Costs continued to increase each year as the Council brought on additional staff commensurate with the maturation of operations (Figure 10). In fiscal year 2016 additional costs were incurred due to the completion and deployment of the Restoration Assistance and Awards Management System (RAAMS), the Council grants management system. In fiscal year 2017 costs increased slightly as the Council stood up its information technology (IT) administrative infrastructure in order to enable compliance with the Federal Information Security Modernization Act of 2014 (FISMA) and as the Council incurred the costs of a full year of RAAMS hosting expense, system support and helpdesk services. Finally, the increase in costs in fiscal year 2018 reflects the hiring of the permanent executive director, additional staff and contractor support; FISMA compliance activities; a three-year IT equipment refresh; and the development of Metadata and FPL Collaboration tools.

Figure 10. Annual Total Cost of Operations (dollars in millions)

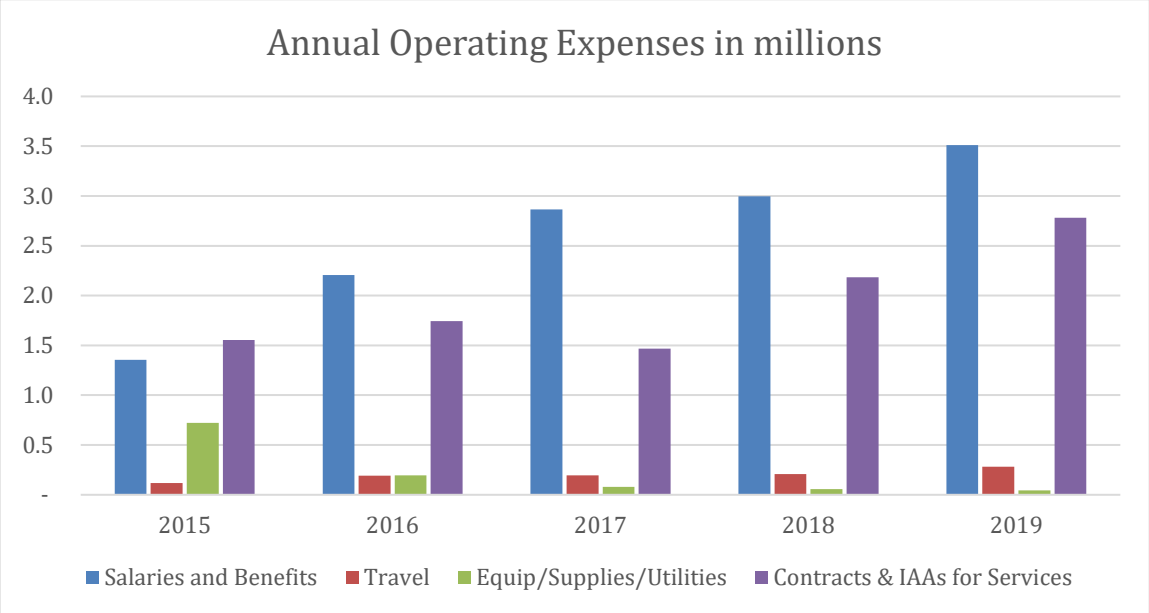


The increase in fiscal year 2019 is primarily attributable to hiring two new employees and a contractor to assist with workload in the grants, finance, and external affairs offices and the development of two automated systems that will replace RAAMS in fiscal year 2020. The replacement of RAAMS is required because the commercial developer of the software advised the Council that it would be ending support of the software. As a result, the Council developed a two-system replacement strategy that will utilize a federal grants management service provider, Grant Solutions, and the development of a program-focused system, the Program Information Platform for Ecosystem Restoration (PIPER) system. PIPER will be comprised of a suite of modules designed to manage program information, including proposal development and program information associated with awards, scope of work, ecological restoration metrics, geospatial information, and environmental compliance documentation while Grant Solutions will support grant administrative, budgetary and compliance activities. The Council anticipates that this "unified" solution will be an effective replacement for RAAMS that will enhance the grants management process. In addition, there were increases for the cost of contractual support for IT systems and staff travel to conduct site visits, support collaboration, and attend public meetings, workshops, and training.

As of September 30, 2019, the Council operating expense cost drivers were personnel compensation and benefits, interagency agreements and contracts for services, and travel (Figure 11). In fiscal year 2019 there was a slight increase in operational and grant expenses over fiscal year 2018. The increase in costs of operations was due to the recruitment of a financial analyst and expert consultants and new contracts for the grant system implementation and transition, administrative and public engagement support, and IT security services.

Figure 11. Historical comparison of Funded Annual Obligations by Expense Category

(in millions)



Administrative Expenses

The RESTORE Act specifies that of the Council-Selected Restoration Component amounts received by the Council, not more than 3% of the funds may be used for administrative expenses, including staff. This is

further detailed in the Treasury regulation implementing the Act at 31 CFR §34.204(b), "*Limitations on administrative costs and administrative expenses*" (as amended September 28, 2016), which provides that "Of the amounts received by the Council under the Comprehensive Plan [Council-Selected Restoration] Component, not more than three percent may be used for administrative expenses. The three percent limit is applied to the amounts it receives under the Comprehensive Plan [Council-Selected Restoration] Component before the termination of the Trust Fund. Amounts used for administrative expenses may not at any time exceed three percent of the total of the amounts received by the Council and the amounts in the Trust Fund that are allocated to, but not yet received by the Council under § 34.103."

The Council worked with OMB to segregate administrative expense funds through the apportionment process. The Treasury regulation implementing the Act at 34 CFR § 34.2 provides the definition of administrative expenses that guides the Council in properly classifying certain expenses as administrative and the remaining categories of expenses as programmatic.

The Council oversees projects and programs during the post-award period. Since the Council will cease operations upon the expenditure of all funds available from the Trust Fund, a long-term forecast for its administrative and operational expenses is developed based on the projected closeout date of all grants. Based on the Consent Decree payment schedule and the projected closeout timeframe for grants awarded, Council operations have been projected through 2040 to ensure that operational costs are fiscally prudent and well managed through the life of the program. This analysis projects that the cumulative administrative expense will be approximately $42.7 million, which is less than the $48.5 million that will be available for such expenses from the aggregate current and future deposits into the Trust Fund (not including accrued interest).

Table 15 shows the funds deposited as of September 30, 2019 for the Council-Selected Restoration component, and the amount of funds available for administrative expenses. The amount apportioned for administrative expenses is well below the amount of administrative funds available in the Trust Fund totaling 3% of the total funds allocated to the Council-Selected Restoration Component. Of the $523.9 million, including interest, deposited into the Trust Fund for the Comprehensive Plan component, $518.3 million was made available. Due to sequestration, $5.6 million was withheld in fiscal year 2019, but these funds will be returned at the start of fiscal year 2020. Of the $15.5 million available for administrative expenses, $7.7 million still remains in the trust fund. Overall, only 1.5% of the available administrative funds have been drawn down.

Table 15. Three Percent Analysis

STATUS OF 3% ADMINISTRATIVE EXPENSE FUNDS (*as of 09/30/2019)*	
Trust Funds-Comprehensive Plan	
Amount Available	$523,911,350.00
Sequestration for 2019	(5,644,138.00)
Total Amount Available	518,267,212.00
Administrative Expense Funds Available (Total Amount Available x 3%)	15,548,016.36

Total Administrative Funds Apportioned through 2019	(7,843,581.00)
Balance of Administrative Funds Remaining in the Trust Fund	**$7,704,435.36**

Costs Incurred by Program

Costs incurred through fiscal year 2015 primarily consisted of salaries and benefits, contracts, and interagency agreements for administrative services, automated services in support of program and grant activities, and travel (Table 16). Upon the approval of the Initial FPL and SEPs in fiscal year 2016, the first four grant and IAA awards were issued; however, due to the large, complex and diverse planning, design, engineering and implementation requirements for large restoration efforts, expenditures have been incurred more slowly. In fiscal year 2019, the Council continued awarding and administering grants and IAAs, and funding administrative and programmatic expenses.

In fiscal year 2020 the Council expects that the liquidation rate for grants and IAAs will increase as projects achieve long-term milestones in the planning process, including design, engineering and permitting.

Table 16. Total Council Incurred (Actual) Costs to Date *(in dollars)*

Year(s)	Administrative Expense	Programmatic Operating Expense	Council-Selected Projects and Programs	Spill Impact Projects and Programs	TOTAL COST
2013-2015	$2,764,301	$3,428,477	$0	$0	**$6,192,778**
2016	1,467,244	3,061,711	226,400	496,553	**5,251,908**
2017	1,382,651	3,408,642	17,439,961	3,716,366	**25,947,620**
2018	1,087,320	4,009,184	7,281,852	1,813,877	**14,192,233**
2019	1,451,259	5,366,030	31,822,483	14,067,879	**52,707,651**
TOTAL	**8,152,775**	**19,274,044**	**56,770,696**	**20,094,675**	**104,292,190**

9.2. Grant System Replacement and Upgrades

Grant System Replacement and Upgrades

In December 2015, the Council deployed its automated grants management system, the Restoration Assistance and Agreements Management System (RAAMS), and began implementing its grants and IAA program concurrent with the approval of the Initial FPL. The Council is committed to ensuring that the process used for awarding and disbursing funds is as efficient as possible, while also providing the oversight needed for sound fiscal management. As it did with the Initial FPL, after a year of experience the Council initiated a thorough review of its application, disbursement and post-award oversight processes to identify and implement system changes that will lead to greater efficiency and effectiveness.

In September 2017, the commercial owner of Easygrants (the COTS software underlying RAAMS) announced they will no longer support the program beyond a reasonable transition period to select and move to a new system. In response, the Council established a Task Force to develop system requirements and explore replacement options. The Task Force considered both federal shared service and commercial off-the-shelf grants management systems and recommended the Council's needs would best be met by a federal shared service provider. Upon the Task Force's recommendation, the Council approved entering into an Interagency Agreement with the U.S. Department of Health and Human Services (HHS) to conduct an analysis of GrantSolutions, a federal shared service provider, to determine key data and components of Council programs and processes that fit within Grant Solutions and gaps needing solutions. HHS Grant Solutions completed the Fit/Gap Analysis Summary and Transition Plan in August 2018.

The Council made a final "unified solution" systems selection and funding decision at the November 28-29, 2018 Steering Committee meeting. The Council developed a unified two-system replacement strategy that will utilize a federal grants management provider, GrantSolutions as the grant management system and the development of the Program Information Platform for Ecosystem Restoration (PIPER). As a result PIPER system. PIPER will be comprised of a suite of modules designed to manage program information, including proposal development and program information associated with awards, scope of work, ecological restoration metrics, geospatial information, and environmental compliance documentation, while Grant Solutions will support grant administrative, budgetary and compliance activities. The Council anticipates that this "unified" solution will be an effective replacement for RAAMS that will enhance the grants management process.

The Council anticipates that the transition to the unified solution will be completed in the 2nd quarter of FY20. The Council is taking advantage of this opportunity to reengineer processes and streamline award processing and management while maintaining the existing rigorous financial and compliance controls and does not expect any impact to its operations during the transition period or as a result of a migration of its data

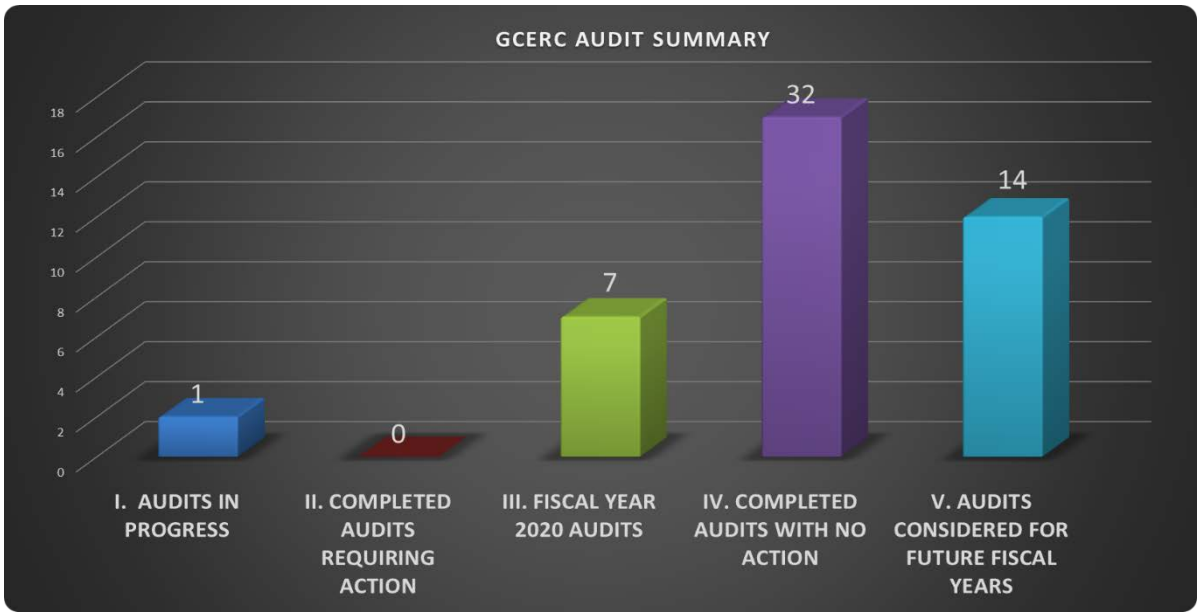
9.3. Enterprise Risk Management

Audits of the Gulf Coast Ecosystem Restoration Council
Audits are a significant review of how well our internal controls and processes are performing: The following Audits were planned by Treasury OIG for FY19. The audits underway or completed included the DATA Act, Charge Card Program, IPERA, Audit of Financial Statements and the FISMA evaluation. The remainder have not been scheduled this Fiscal Year. Results of the audits will be reviewed and applied to internal controls as required.

- Data Quality Reporting und the Data Act;
- Risk Assessment of the GCERC Charge Card Program;
- Improper Payments Elimination and Recovery Act;
- Agency Compliance with OMB's A-123 Enterprise Risk Management Requirements;
- FY2018/FY2019 Audit of Financial Statements;
- FY2018/2019 FISMA Evaluation;
- GCERC's Progress in Implementing Card Recommendations;
- Pre-award Phase Administration Process for Spill Impact Components Awards; and
- Grantee Compliance with RESTORE Act Land Purchase Requirements.

The Council's mission is to effectively manage and execute the Council's RESTORE Act responsibilities with a primary focus of overseeing Trust Fund expenditures in implementation of the Comprehensive Plan and State Expenditure Plans. To provide proper oversight, the U.S. Treasury and other Federal entities audit the Council's programs, financial management and administrative functions to ensure compliance with federal regulatory requirements. The following graphic (Figure 12) provides a summary of audits in FY19 and future audits scheduled in FY 2020.

Figure 12. Summary of audits that were completed, audits in progress and future audits planned as of October 201*9.*



The audits have revealed the following information:

- The majority of the audits are from Treasury OIG;
- The Council is in compliance with all Federal Statutory and Regulatory requirements;
- Results from our Annual Audit of Financial Statements show the Council has adequate Financial internal controls and processes in place with Financial Statements accurately reflecting the Council's Financial Position, in accordance with accounting principles generally accepted in the United States of America;
- A certified independent public accountant (IPA), working under OIG supervision, issued an unmodified opinion on Council fiscal years 2018 and 2017 financial statements. The audit did not identify any matters involving internal control and its operation to be considered material weaknesses in internal control over financial reporting. No instances of reportable noncompliance with laws, regulations, contracts, and grant agreements tested were identified. All Financial Statement audits since the Council inception have received unmodified (clean) opinions.

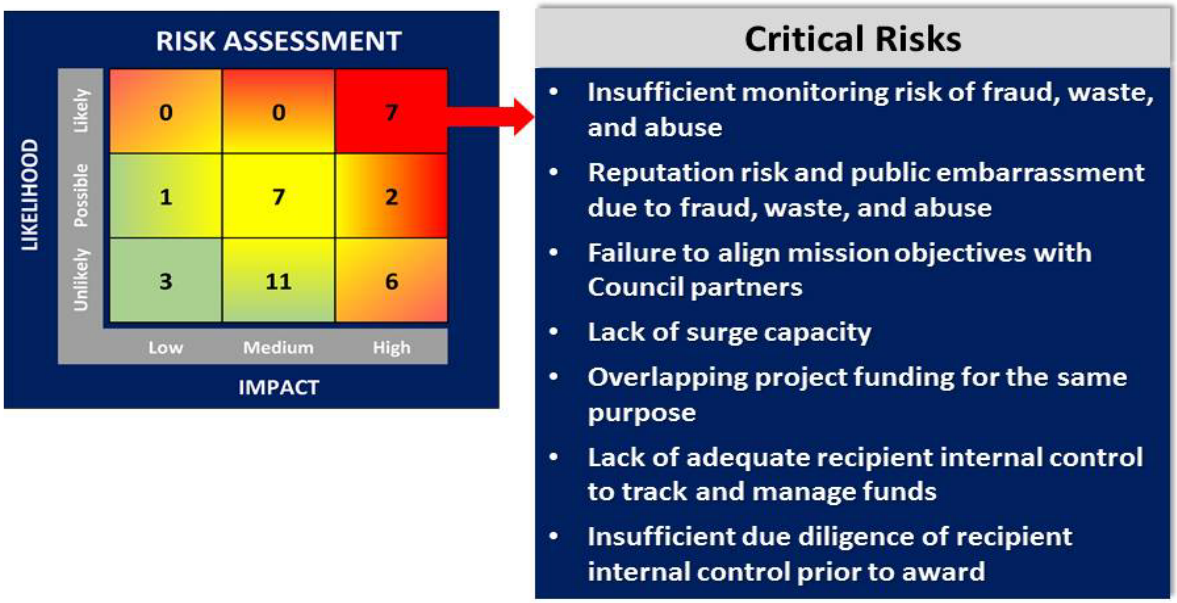
Enterprise Risk Management (ERM)

The Council complies with the requirements of OMB Circular A-123 Management's Responsibility for Enterprise Risk Management (ERM) and Internal Controls, as well as Improper Payments and Elimination

and Recovery Act (IPERA), the Uniform Guidance (2 CFR Part 200 - Uniform Administrative Requirements, Cost Principles and Audit Requirements for Federal Awards), the President's Management Agenda, etc., as well as internally generated ERM requirements. The Council has established an ERM governance structure that begins with the Council with specific oversight responsibility assigned to the Audit Committee. The Executive Director is delegated responsibility for implementation and oversight of the ERM program and in turn, has assigned program development and execution responsibilities to the CFO/Director of Administration. The Executive Director has designated the Director of Administration as the agency Chief Risk Officer who is supported directly by a risk management specialist. Risk management and internal controls are managed by staff within finance, budget, IT and the grants and compliance, although risk and internal controls are integrated into all elements of the organization.

The Council completed an Enterprise Risk Assessment in May 2016, and developed a risk profile that has identified strategic, operational, compliance, financial and reporting risks, assessed their likelihood and impact, and determined an overall risk rating with a categorization of critical, high, medium and low. The risk assessment identified 37 Program risks that the Council needs to mitigate, 7 of which are considered critical (Figure 13).

Figure 13. The following graphic provides a Summary Risk Matrix of the 37 Program Risks categorized by High, Medium and Low Impact and Likely, Possible, and Unlikely Likelihood.



The Council has implemented and integrated internal control framework to govern its operations, reporting and compliance and is currently developing its risk mitigation strategies, metrics, performance indicators, monitoring, analytics, communication, and remediation.

In the FY19 Risk Profile update, the main effort was focused on the top 7 critical risks. Each risk was reviewed and it was determined that effective controls were in place. To assist Program, Grants and Finance to mitigate some of the surge capacity risk, five new GS employees have been hired in FY19, including 2 Program Staff scientists, 1 Financial Analyst, and 2 Grant Analysts. This additional staffing will also help with the refinement of policies and procedures, processing efficiencies, and monitoring due diligence in our critical risk areas. In FY19, the Council will continue to closely monitor the top 7 risks and implement mitigation activities with the continued refinement and development of the Council Post-Award

Grant/IAA Monitoring process and continued internal controls testing. The Council's 17 Principles of Internal Control checklist has been updated in FY19. This annual checklist update is critical to demonstrate how the Council meets the requirements outlined in the GAO Green Book and OMB Circular A123.

FY19 Summary of GCERC risks

- Initial site visits with each of the primary grant recipients (state) and the Florida Consortium were completed. These visits were to provide a basic understanding of risk assessment and monitoring requirements.
- The Risk Management Analyst reviewed undated Organizational Self-Assessments (OSA) of all Council member states and the Florida Consortium. All entities received an official risk rating letter.
- Organizational Internal Control Review (OICR) site visits were conducted in Texas, Mississippi, and Alabama to review project and financial systems, organizational policies and procedures, associated audits/management reports, and overall general structure. OICRs were completed for Louisiana and the State of Florida in FY2018.
- Grant administrative desk reviews were conducted by the grants team to assess expenditure compliance with requirements of the grant Special Award Conditions, 2 CFR 200, and other federal regulation.
- Program site visits were completed to assess overall performance of the project, outcome/results, and possible environmental impacts.
- ERM staff completed internal risk assessment through reviews of GCERC purchase card transactions, procurement, travel, and financial obligations to assess compliance with existing internal controls.
- ERM conducted compliance tests of the process for desk reviews conducted by the grant's team.
- IT Security Testing is being conducted on a regular basis by the GCERC CIO and is reviewed quarterly by ERM staff.
- Better compliance and efficiency are being achieved with clarification and improvements being made to the Purchase Card, ARC invoice payment system (IPP), and MOU/Procurement approval process.

The Risk Assessment conducted in 2016 identified a total of 37 program risks that the Restore Council needs to mitigate, 7 of which are considered critical. The term critical means the risk is likely to occur and have a high negative impact on the Restore Council's reputation, operations or both. Mitigation is a response to a risk, designed to reduce or eliminate the probability and/or impact of the risk. This document provides a strategy to mitigate these top 7 critical risks. Risk Management is reviewing the effectiveness of identified mitigation and ongoing efforts of improving mitigation activities such as site visits and/or desk reviews performed to help ensure compliance. In FY2019, the Council implemented an Internal Control Testing and Risk Mitigation Policy.

The critical risk of overlapping project funding for the same purpose is being mitigated through a contract with the Gulf of Mexico Alliance (GOMA) to support and update the GOMA Gulf Coast Federal Funding Database. Interagency agreements with Treasury and NOAA to also utilize the GOMA database will provide a vehicle for all awarding agencies to input their grant award data and thus have a means by which grants can be screened for overlap.

The critical risk of failure to align mission objectives with Council partners is being mitigated through increased public engagement, collaboration meetings with Council members and partners, and the development of future projects that include ecosystem wide projects and programs.

9.4. Other Administrative Updates

Federal Information Security Modernization Act (FISMA)

The *Federal Information Security Modernization Act of 2014* (FISMA) requires federal agencies to have an annual independent evaluation performed of their information security program and practices to determine the effectiveness of such program and practices, and to report the results of the evaluations to the Office of Management and Budget (OMB). OMB delegated its responsibility to Department of Homeland Security (DHS) for the collection of annual FISMA responses. DHS prepared the FISMA questionnaire to collect these responses (FISMA Reporting Metrics). Applicable OMB policy and guidelines, and the National Institute of Standards and Technology (NIST) standards and guidelines were also considered.

In FY2019, the Council sustained an effective Information Assurance (IA) program as required by the Federal Information Security Modernization Act (FISMA). The Council's IA program uses the National Institute of Standards and Technology (NIST) Risk Management Framework (RMF); which is an effective methodology for managing IA risk to ensure FISMA compliance. The Council implemented NIST RMF security controls and performed periodic testing to validate the selected controls effectiveness. This action resulted in the Council having an effective Information Assurance (IA) program and shows the Council is managing IA risk to acceptable levels.

Freedom of Information Act Requests (FOIA)

During FY 2019, Council staff received 9 Freedom of Information Requests (FOIA). The average number of days needed to respond to these requests was 8.8 days. No funds were collected from the requesters.

10. Centers of Excellence Accomplishments

10.1. Background

The RESTORE Act dedicates 2.5 percent of the Trust Fund to the Centers of Excellence Research Grants Program, administered by the Department of Treasury. These funds may be used to establish Centers of Excellence and by those Centers of Excellence for science, technology, and monitoring in one or more of the following disciplines:

- Coastal and deltaic sustainability, restoration, and protection, including solutions and technology that allow citizens to live in a safe and sustainable manner in a coastal delta in the Gulf Coast Region;
- Coastal fisheries and wildlife ecosystem research and monitoring in the Gulf Coast Region;
- Offshore energy development, including research and technology to improve the sustainable and safe development of energy resources in the Gulf of Mexico;
- Sustainable and resilient growth, economic and commercial development in the Gulf Coast Region; and
- Comprehensive observation, monitoring, and mapping of the Gulf of Mexico.

The RESTORE Act specifies who may apply to receive funds under the Centers of Excellence Research Grants Program. The following are the Centers of Excellence Research Grants Program eligible applicants for each State:

- In Alabama, the Alabama Gulf Coast Recovery Council or such administrative agent as it may designate;
- In Florida, the Florida Institute of Oceanography;
- In Louisiana, the Coastal Protection and Restoration Authority Board of Louisiana through the Coastal Protection and Restoration Authority of Louisiana;
- In Mississippi, the Mississippi Department of Environmental Quality; and
- In Texas, the Office of the Governor or an appointee of the Office of the Governor.

Pursuant to the RESTORE Act, each Center of Excellence provides an annual report to the RESTORE Council with information regarding all grants, including the amount, discipline or disciplines, and recipients of the grants, and in the case of any grant awarded to a consortium, the membership of the consortium. This information is to be included in the Council's Annual Report to Congress. As of the date of this report, four Centers of Excellence have been established. Following are summaries of the activities of these Centers of Excellence.

10.2. Alabama's RESTORE Act Center of Excellence

On October 1, 2019 the United States Department of Treasury, in cooperation with the Alabama Gulf Coast Recovery Council (AGCRC) and the Alabama Department of Conservation and Natural Resources (ADCNR) issued a Notice of Grant Award selecting the Dauphin Island Sea Lab (DISL) as the home for Alabama's Center of Excellence. Alabama's Center of Excellence will build upon the network of experts from the Marine Environmental Sciences Consortium (MESC), the Mobile Bay National Estuary Program (MBNEP), and the Mississippi-Alabama Sea Grant Consortium (MASGC) to identify and fund research that addresses the health and sustainability of the Gulf of Mexico.

Building on 46 years of proven academic and scientific success, DISL will develop and implement a competitive grant program that awards RESTORE Act funds to academic institutions in Alabama to perform cutting edge, forward-looking, scientific research. These studies are expected to mimic changes in ocean conditions (i.e., ocean acidification, ocean warming, and oxygen depletion). Experiments with changing ocean conditions will be possible, in large part, due to upgrades to DISL's wet lab facilities paid for with Center of Excellence funds. Data and information generated by Center of Excellence funded research will help provide science-driven solutions and recommendations for current and future conditions in coastal Alabama. Funds will also be used to create new and enhanced education activities to inform policymakers and concerned citizens on the role and importance of our coastal resources in the lives of Alabama citizens.

10.3. Florida's RESTORE Act Centers of Excellence

The Florida RESTORE Act Centers of Excellence Program (FLRACEP) applied for and received it second Centers of Excellence Research Grant award from the U.S. Department of the Treasury's Office of Gulf Coast Restoration (Treasury). This award enabled FLRACEP to renew the University of South Florida's long-term fisheries monitoring project for an additional three years and run its third Request for Proposals (RFP III) process. FLRACEP completed final reporting to Treasury for its first award (2015-2019) and has applied for additional funds to implement the six projects selected via the RFP III process earlier this year. In addition, the program solicited comment on and updated the FLRACEP Rules and Policies and updated the Program Management Team (PMT) Bylaws.

The detailed report required by the RESTORE Act is found in **Appendix F.**

10.4. Louisiana's RESTORE Act Centers of Excellence

On April 8, 2014, the Louisiana Coastal and Protection and Restoration Authority (CPRA) named The Water Institute of the Gulf as the State of Louisiana's Center of Excellence. On November 1, 2015, the U.S. Department of the Treasury awarded CPRA a grant to begin its research program. The mission of the RESTORE Act Center of Excellence for Louisiana (LA-COE) is to support research directly relevant to implementation of Louisiana's Coastal Master Plan by administering a competitive grants program and providing the appropriate coordination and oversight support to ensure that success metrics are tracked and achieved.

The LA-COE has been managing research subrecipients that were executed in March 2018 under the first request for proposals (RFP1). A total of 13 research subawards were granted; six graduate studentship awards, two collaborative awards, and five research awards. Assessment and reporting on progress using defined metrics that address federal reporting requirements including reports to the U.S. Department of Treasury have been developed and are ongoing.

The LA-COE Research Strategy document was revised and renamed 'Research Needs' (to better reflect its technical content and layout). It was released for public comment November 1-30, 2018. Comments were reviewed by both LA-COE staff and CPRA, and discussions took place regarding how best to address the comments. Revisions were made to the document, and the final version was posted on the LA-COE website and on the CPRA Coastal Information Management System (CIMS) website.

An in-person meeting with the Executive Committee was convened in January 2019 in Baton Rouge, LA. During the meeting, concurrence was received to finalize the 'notification of dissemination' and 'conflict of

interest' language in the Standard Operating Procedures (SOP V2), and the finalized document was posted on the LA-COE website and on the CPRA CIMS website.

Key highlights in 2019 include the LA-COE moderating a conference session at the Gulf of Mexico Oil Spill and Ecosystem Science Conference (GoMOSES) in February 2019 in New Orleans, LA. Presentations were given by two LA-COE research subrecipients, the CPRA COE Grant Program Project Manager, the LA-COE Director, and several other RESTORE Act Centers of Excellence Directors or Deputy Directors to highlight research findings, explain how the LA-COE research findings will be used to support Louisiana's Coastal Master Plan implementation, and to provide information regarding the various operations of the others COEs. The session concluded with a panel discussion, and a session summary was prepared and submitted to the GoMOSES organizers. Another important event included the hosting of the second All-hands meeting in August 2019 where researchers, post-doctoral fellows, students, coastal managers, and research officials of the Executive Committee met in person to receive updates on the funded research and to discuss how the results could help implement the Coastal Master Plan.

The detailed report required by the RESTORE Act is found in **Appendix G.**

10.5. Mississippi's RESTORE Act Centers of Excellence

The Mississippi Department of Environmental Quality (MDEQ) selected the Mississippi Based Restore Act Center of Excellence (MBRACE) as its RESTORE Act Centers of Excellence, consisting of a consortium of four Mississippi universities - Jackson State University, Mississippi State University, University of Mississippi and University of Southern Mississippi. The University of Southern Mississippi serves as the lead university for the consortium.

The focus of MBRACE is a sound, comprehensive science- and technology-based understanding of the chronic and acute stressors, both anthropogenic and natural, on the dynamic and productive waters and ecosystems of the northern Gulf. The goals of MBRACE are: (1) serve as a focal point for new, long-term research and socioeconomic initiatives along the northern Gulf with relevance to Mississippi's resources; (2) serve the people of Mississippi and the northern Gulf region with a scientifically based understanding of ecosystem status and trends (past to present, predictive) with special emphasis on improved forecasting abilities to ensure sustainable coastal and ocean ecosystems of the Gulf; and (3) work within a consortium of stakeholders including Mississippi's research universities under the Mississippi Research Consortium, state and federal agencies, local communities, private industry, and non-governmental organizations.

MBRACE established a five-person Executive Steering Committee (ESC) comprised of leadership from the four MBRACE universities. The ESC developed core research questions and a science plan relative to the COE eligible disciplines. The science plan guides the Core Research Program conducted by MBRACE. A Call for Proposals to fund research under the Core Research Program was developed to solicit proposals from MBRACE universities. Proposals submitted by the University of Southern Mississippi, the University of Mississippi, Mississippi State University, and Jackson State University have been approved, and the sub-award agreements have been executed.

The detailed report required by the RESTORE Act is found in **Appendix H**.

10.6. Texas' RESTORE Act Centers of Excellence

In January 2015, Texas Commission on Environmental Quality (TCEQ) competitively selected two consortia, the Texas A&M University Corpus Christi - Texas OneGulf **Consortium and University of Houston (UofH) - Subsea Systems Institute.**

OneGulf

The mission of the Texas OneGulf (OG) Center of Excellence is to gather and improve knowledge about the Gulf of Mexico to inform decision making around the challenges to environmental and economic sustainability of the Gulf of Mexico and its impact on the health and well-being of Texans and the nation. Texas OneGulf is designed with the capacity and flexibility to address all five focus disciplines denoted in Section 1605 of RESTORE. This Center has been awarded funding and has begun or completed activities on eight projects. Highlights include: Stakeholder Communication and Engagement Plan was completed, Hurricane Harvey Decision Support and Harmful Algal Bloom Monitoring projects have commenced and made significant progress.

Subsea Systems Institute

The Subsea Systems Institute (SSI) is a Center of Excellence formed under the Restore Act and represents a collaboration between the University of Houston, Rice University and NASA/Johnson Space Center. The SSI has a focus on the translational engineering, validation science and appropriate policy towards maintaining the technological, economic and workforce leadership of the Gulf coast area in the realm of deepwater and ultra-deepwater hydrocarbon use. The key outcomes from the work of the SSI are:

Provide unbiased third-party validation to build public trust in the safety and operation of offshore drilling and production;

Economically develop and assist in the deployment of advantaged safest technologies for offshore energy development, elevate and ensure the energy industry's safety and operational excellence in offshore applications;

Be the repository for best practices and policies for deployment;

Attract talent for jobs and investment in the local, state, and national economy and reinforce Houston and the state of Texas's reputation as the Energy Capital of the World.

An Advisory Board and a Technical Advisory Committee have been established to support the governance and technical supervision of the SSI. The membership for both committees is on a volunteer basis drawn primarily from industry. These committees support both the strategic planning and the scope of technical work for SSI.

The detailed report required by the RESTORE Act is found in **Appendix I**.

Appendices

Appendix A – FPL 1 Projects Funded During FY19

Project Title: Strategic Land Protection, Conservation, and Enhancement of Priority Gulf Coast Landscapes in Mississippi (EGID 60)

Council Member(s)**:** State of Mississippi, Department of Environmental Quality

Project Start Date: 10/24/2018

Project End Date: 2/28/2023

Award Amount: $15,500,000

Project Abstract**:** Under the Strategic Land Protection, Conservation, and Enhancement of Priority Gulf Coast Landscapes in Mississippi (the Program), lands will be acquired from willing sellers, under a land acquisition plan, using fee simple acquisition and/or conservation easements. The lands to be purchased will be acquired at fair market value, using Uniform Appraisal Standards for Federal Land Acquisitions (UASFLA) standards. The expenditure of funds under the Program will occur based upon availability of potential prioritized acquisition parcels. Further, under this Program, the Mississippi Department of Environmental Quality (MDEQ), as the applicant, will lead and/or assist a lead federal agency in preparing the requisite National Environmental Policy Act (NEPA) analysis documentation for future land acquisition and related restoration and conservation activities proposed in the Mississippi Gulf Coast Region, coordinating with the RESTORE Council as needed.

Project Title: Money Bayou Wetlands Restoration (Planning)

Council Member(s)**:** Department of Commerce, NOAA Restoration Center

Project Start Date: 12/21/2018

Project End Date: 11/30/2020

Award Amount: $387,726

Project Abstract**:** The overall goal of the Money Bayou Wetlands Restoration project is to restore natural hydrology to approximate 1,000 acres of wetlands in the St. Joseph Bay State Buffer Preserve in Florida. This planning phase of the project would complete planning, engineering, design, and environmental compliance activities and also develop plans for a robust monitoring and evaluation approach using objective measures of success. An outreach and education plan would be developed to engage the public and transfer best practices to restoration practitioners.

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. The Money Bayou basin is now protected within the St. Joseph Bay State Buffer Preserve. Extensive ditching, road construction and fire plow lines were constructed across the basin that disrupt the area's natural hydrology, resulting in degraded wetlands, the loss of aquatic communities, and invasive plant species. 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. Enhancing wetland hydrology and function would 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.

Project Title: Bahia Grande Wetland System Restoration (Planning)

Council Member(s): Department of Commerce, NOAA Restoration Center

Project Start Date: 3/4/2019

Project End Date: 10/15/2020

Award Amount: $404,318

Project Abstract: The purpose of this project is to complete the planning, flow regime analysis, engineering, design, and permitting required to restore the hydrology of 600 acres of estuarine tidal marsh and open water (Laguna Larga) in the northern portion of the Bahia Grande located with the Laguna Atascosa National Wildlife Refuge (LANWR). The watershed of this portion of the Bahia Grande is bisected by Highway 100. This ultimate goal of this project (with implementation in Category II) will focus on reconnecting the bisected watershed via culvert installation under Highway 100 so that freshwater will flow into wetlands adjacent to and ultimately into Laguna Larga. This project will also include a science-based inventory of wetland hydrology restoration opportunities. This project is part of the Connecting Coastal Waters (CCW) initiative that 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. The Bahia Grande Wetlands System Restoration project will be implemented by the NOAA Restoration Center.

The project includes activities in two FPL categories. Category I activities will complete the planning and design to restore natural hydrology to approximately 600 acres of estuarine tidal and open water in the Laguna Atascosa National Wildlife Refuge. Planning, engineering, design, regulatory compliance, monitoring plan, and an outreach and education plan will be completed as part of Category I. Category II activities would fund implementation of the preferred recommended alternative developed as part of Category I.

Project Title: Enhancing Opportunities for Beneficial Use of Dredge Sediments

Council Member(s): State of Alabama, Department of Conservation and Natural Resources

Project Start Date: 4/1/2019

Project End Date: 3/31/2022

Award Amount: $3,000,000

Project Abstract: The Alabama Department of Conservation and Natural Resources (ADCNR) will complete planning, design, engineering, and feasibility assessments for three project areas where future placement of dredge sediments would 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 dredge material disposal sites 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. These planning activities lay the groundwork for significant

restoration activities in coastal Alabama. Once this planning phase is completed, the State would 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.).

The Denton Oyster Reef Restoration Through Beneficial Use of Upriver Sediment project will complete Phase I planning, engineering, design, and permitting necessary for using available dredge sediments to restore and expand the 75-acre Denton Reef that is within the 453-acre Whitehouse oyster reef complex in Mobile Bay. 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 water bottoms, the low DO conditions can be avoided. 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.

The Grand Bay Mississippi Sound Back-Barrier Island Restoration Project Feasibility Study activities will include field investigations, bathymetric and topographic surveys, geotechnical investigations, development of initial restoration alternatives, and hydrological and sediment transport modeling of those initial designs. 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, and the Isle Aux Dames at the south end of Point Aux Pins. Most of these islands, except for 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.

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. Shoaling patterns in lower Perdido Bay also appear to have changed. The Lower Perdido Bay/Perdido Pass Navigation Project Hydrological Modeling and Sediment Budget Study will conduct a hydrological model and sediment budget study linking lower Perdido Bay to the tidal inlet (and its associated ebb-tidal shoal), 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.

Project Title: Alabama Living Shorelines Program (Construction Planning)

Council Member(s): State of Alabama, Department of Conservation and Natural Resources

Project Start Date: 4/15/2019

Project End Date: 4/30/2021

Award Amount: $908,500

Project Abstract: 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 Alabama Living Shorelines Program promotes the use of living shoreline techniques to restore and protect eroding estuarine shorelines in coastal Alabama. This project is part of a larger effort being undertaken in Alabama and around the Gulf to promote living shorelines as an alternative to bulkheads and similar shoreline erosion abatement structures. The proposed program would support these efforts by developing and implementing properly designed, site-specific projects as living shoreline exemplars while simultaneously providing monitoring data to demonstrate effectiveness of various techniques. This project will take place at the following locations: Boggy Point

(Orange Beach, Baldwin County); Point Aux Pins (Mobile County); and Coffee Island (Mobile County). Activities for this planning component will include field investigations, surveys, construction planning, engineering design, and regulatory compliance/permitting.

Project Title: The Mississippi Sound Estuarine Program

Council Member(s): State of Mississippi, Department of Environmental Quality

Project Start Date: 6/4/2019

Project End Date: 6/30/2022

Award Amount: $2,057,263

Project Abstract: This project develops coordination tools to support the establishment and function of a Mississippi Sound Estuarine Program (MEP). The Program would geographically encompass the Pearl River on the west to the Escatawpa River in the east. It would include the Hydrologic Unit Code (HUC) 8 watersheds of these two major river systems, as well as those in between the two systems, as an area of interest (AOI). This AOI overlaps with the AOI associated with the National Fish and Wildlife Foundation (NFWF) Gulf Environmental Benefit Fund (GEBF) Mississippi Coastal Restoration Plan project. The purpose of the MEP is to create a structure to connect restoration and investment efforts of Mississippi state agencies, federal agencies, as well as the restoration and ecosystem-based research of academic institutions (both community colleges and universities) toward a greater collaborative, cohesive, science-based restoration effort.

Project Title: Jean Lafitte Canal Backfilling

Council Member(s): Department of the Interior, National Park Service

Project Start Date: 8/8/2019

Project End Date: 12/31/2024

Award Amount: $8,731,000

Project Abstract: Prior to the establishment of Jean Lafitte National Historical Park and Preserve (JELA) and before the imposition of stricter regulatory requirements under the wetland provisions of the Clean Water Act, numerous access canals were dredged by oil and gas companies to reach well drilling locations and construct pipelines. The National Park Service (NPS) exhausted all regulatory avenues for these operators to take necessary corrective actions and the operations were determined to be abandoned. Without an established funding program to correct the hazards and resource impacts associated with abandoned oil and gas operations, the NPS has pursued various funding opportunities.

Project area canals will generally be restored by backfilling, degrading spoil banks to meet the level of the surrounding wetlands and partially filling the open water of the canals with the degraded spoil and vegetative material. The canal edges will revert to marsh, swamp, and shallow water habitat through natural processes, thereby recreating freshwater wetlands. Spoil bank gapping, intermittently breaching spoil banks to restore hydrological connections between canals and surrounding wetlands, may be used as an alternative to backfilling to reduce the impact of the project on existing native woody vegetation, avoid or minimize potential impacts to navigation and recreation, and meet budgetary constraints. Degrading

spoil banks will be accomplished from the canals and/or the spoil banks using barge-mounted excavators, marsh buggies, or similar earthmoving equipment.

The NPS will utilize one or more contracts to restore 16.5 miles of canals and their associated spoil banks thereby restoring wetland functions and values including hydrology (water, sediment, and nutrient movement), improving resiliency of ecosystems in the face of subsidence and climate change impacts (sea level rise and intensified tropical storms), and improving visitor experience. Canal backfilling and spoil bank gapping at JELA will enhance the resiliency of a significant wetland complex adjacent to 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.

Project Title: Gulf Conservation Reserve Program (GCCRP) Planning and Implementation - Texas

Council Member(s): U.S. Department of Agriculture, Natural Resource Conservation Service

Project Start Date: 9/18/2019

Project End Date: 9/30/2024

Award Amount: $1,500,000

Project Abstract: The Gulf Coast Conservation Reserve Program (GCCRP) is completing the last segment to establish GCCRP in Texas. GCCRP will be administered in Texas for the purpose of protecting and restoring critical wildlife habitat and improving water quality through the development and implementation of conservation plans that address classic gully erosion in the Wilson County.

USDA will complete site-specific conservation plans, engineering designs, environmental evaluations, and conservation practice (best management practices or BMPs) implementation on agricultural and forested lands within the Lower Cibolo Creek Watershed. The Cibolo Creek flows into the San Antonio River and on to the Gulf of Mexico. The Lower Cibolo Creek is approved for primary water contact including swimming, fishing, and kayaking. The region around Cibolo Creek is mostly rural, with some ranch and recreational use. The conservation efforts associated with this project will have direct positive environmental benefits to Cibolo Creek, thus also to the San Antonio River and Gulf of Mexico.

Appendix B. Progress for FPL1 Projects During FY19

Project Title: Bayou Greenways (Planning & Implementation)

Council Member(s): State of Texas

Project Start Date: 04/28/2016???? In financial database its 2018

Project End Date: 11/30/2020

Award Amount: $7,109,000

Performance Narrative: The Houston Parks Board (HPB), has acquired and permanently conserved 69 acres of riparian land along Clear Creek within the Galveston Bay estuary. The project is part of the larger Bayou Greenways initiative to preserve 4,000 acres of undeveloped riparian corridors along major bayous running through Harris County and the City of Houston to restore and protect habitat and secure its threatened flood retention values. The HPB will continue to perform required due diligence investigations to work toward achieving their goal of protecting approximately 80 acres of riparian corridor with this grant.

Project Title: Matagorda Bay System Priority Landscape Conservation

Council Member(s): State of Texas

Project Start Date: 04/28/2016 In financial database its 2017

Project End Date: 11/30/2020

Award Amount: $6,012,000

Performance Narrative: The Texas Parks and Wildlife Department (TPWD) has acquired and permanently conserved 5,380 acres of coastal land located within the Matagorda Bay/San Antonio Bay estuary. Acquired conservation land includes emergent marshes, tidal flats, lagoons and coastal prairie with several miles of frontage on the Matagorda Bay system. TPWD continues to evaluate opportunities for land acquisitions and to perform required due diligence to facilitate additional purchases toward achieving their goal to protect approximately 6,554 acres of high-quality habitats.

Project Title: Bahia Grande Coastal Corridor

Council Member(s): State of Texas

Project Start Date: 04/28/2016 financial doc says 2017

Project End Date: 08/31/2019

Award Amount: $4,378,500

Performance Narrative: The Nature Conservancy (TNC) acquired 2,078 acres of coastal land located in the Bahia Grande system within the Laguna Madre watershed, and completed initial stewardship activities including the planting seedlings along a previously disturbed area. Ownership of the acquired land has been transferred to the U.S. Fish and Wildlife Service (USFWS), and it is now a part of the Laguna Atascosa National Wildlife Refuge. The land is permanently protected as conservation land and managed by the USFWS.

Project Title: West Grand Terre Beach Nourishment and Stabilization (Planning)

Council Member(s): State of Louisiana, Coastal Protection and Restoration Authority (CPRA)

Project Start Date: 10/3/2016

Project End Date: 7/31/2020

Award Amount: $7,259,216

Performance Narrative: A no-cost extension was granted. The Detailed Geotechnical Borrow Area Survey was submitted for review and subsequently finalized. Cultural Investigations of the existing buildings and rock dike alignment were performed. Culture Resources Reports on the borrow area, historic building survey, and rock dike alignment were submitted and finalized. The final Contaminant Analyses was provided to Louisiana Coastal Protection and Restoration Authority (CPRA). Contaminant sampling for assessing requirements for structure removal and demolition work were performed. CPRA received its Coastal Use Permit from Louisiana Department of Natural Resources and the permit application was submitted to USACE for review. Final Plans and Specifications were submitted to CPRA for review and Comment prior to finalization. The Structure Demolition and Removal task initiated and completed preliminary and final design and the contractor began preparing the draft construction bid documents. Land Rights contractor completed title research/abstracts and began obtaining servitude agreements from willing landowners. Project Team meets on a recurring basis to discuss progress, forthcoming work, and discuss 3-month outlooks.

Project Title: Biloxi Marsh Living Shoreline (Planning)

Council Member(s): State of Louisiana, Coastal Protection and Restoration Authority (CPRA)

Project Start Date: 11/01/2016

Project End Date: 12/30/2020

Award Amount: $3,220,460

Performance Narrative: The CPRA applied for a Clean Water Act permit for this project in December 2018. The coastal engineering analysis for this project was finalized in January 2019. In February 2019, CPRA published a request for Information on artificial reef products to gather information to supplement the ongoing engineering and design effort. As of the date of this report, CPRA continues the planning, engineering and design, and permitting work for this project.

Project Title: Golden Triangle Marsh Creation (Planning)

Council Member(s): State of Louisiana, Coastal Protection and Restoration Authority (CPRA)

Project Start Date: 11/01/2016

Project End Date: 5/1/2020

Award Amount: $4,347,733

Performance Narrative: The CPRA contractor for this project completed the survey of the borrow and fill areas. Permits for geotechnical investigations have been received for all field work associated with

geotechnical and cultural investigation. Most of the data collection effort has been completed. The draft 30% design has been submitted to CPRA for review. As of the date of this report, CPRA continues the planning, engineering and design, and permitting work for this project.

Project Title: Enhancing Opportunities for Beneficial Use of Dredge Sediments (Planning)

Council Member(s): State of Mississippi, Mississippi Department of Environmental Quality (MDEQ)

Project Start Date: 12/01/2016

Project End Date: 11/30/2019

Award Amount: $2,178,847

Performance Narrative: As a result of due diligence performed, MDEQ updated the selected site-specific locations for beneficial use planning activities. MDEQ will no longer pursue the Pelican Key site and will instead conduct site refinement activities on three potential sites: east of the Gulfport channel from nearshore to the Channel Islands, north of Cat Island, and south of Cat Island. (The areas near Cat Island are collectively referred to as the Western Sound Site.) Work orders for the Western Sound site area and the Greenwood Island site were executed in July 2018. As of the date of this report, MDEQ continues the planning, engineering and design, and permitting work for this project. MDEQ requested and received a no-cost extension, which extends the award through November 30, 2020.

Project Title: Sea Grant Education and Outreach

Council Member(s): State of Mississippi, Mississippi Department of Environmental Quality (MDEQ)

Project Start Date: 7/01/2016

Project End Date: 11/30/2020

Award Amount: $750,000

Performance Narrative: MDEQ has finalized its review of Mississippi-Alabama Sea Grant Consortium's evaluation of the eleven proposals received during the prior period. MDEQ selected five projects for implementation. MDEQ has executed a Sub-Award Agreement for each selected project. MDEQ held a project kickoff webinar for each sub-recipient to review the scope of work, reporting requirements, and the terms and conditions of each sub-award agreement. MDEQ requested and received a one-year, no-cost extension, which extends the award through November 30, 2020. As of the date of this report, MDEQ continues the oversight and management of this project.

Project Title: Baseline Flow, Gage Analysis & On-Line Tool to Support Restoration

Council Member(s): Department of Interior, US Geological Survey (USGS)

Project Start Date: 12/01/2016

Project End Date: 11/30/2023

Award Amount: $5,549,800

Performance Narrative: As of the date of this report, this project has produced two journal articles released in Water Resources Research and three journal articles in review. An additional 12 datasets have been approved for public release which describe a variety of new basin and flow characteristics, solar radiation, boundaries, salinity, and trends data utilized for/generated by the project. A web mapping application continues in development, and was demoed for a technical advisory committee in September 2018. In 2019 USGS initiated a contract for a decision-support framework. Data analysis and modelling is ongoing.

Project Title: Pensacola Bay Living Shoreline - Phase 1 (Planning)

Council Member(s): State of Florida, Department of Environmental Protection (FDEP)

Project Start Date: 01/01/2017

Project End Date: 07/31/2021

Award Amount: $231,314

Performance Narrative: A contractor has been selected and approved for this planning project. In May 2019, the sub-recipient, Escambia County, hosted an interagency project kick-off and coordination meeting and site visit. This meeting established working relationships among agency stakeholders, and helped identify next steps to move this project forward. A source of co-funding has been identified to support the portion of the project of interest to the Pensacola Naval Air Station. This co-funding is a Defense Infrastructure grant from the Florida Department of Economic Opportunity. As of the date of this report, FDEP continues the planning, engineering and design, and permitting work for this project.

Project Title: Bayou DuLarge Ridge, Marsh and Hydrologic Restoration (Planning)

Council Member(s): U.S. Department of Agriculture, Natural Resources Conservation Service (NRCS)

Project Start Date: 02/23/2017

Project End Date: 12/31/2021

Award Amount: $5,162,084

Performance Narrative: This planning project is behind schedule due to the delay in making the subaward because of the federal shutdown. NRCS requested and received a no-cost extension, which extends the award through December 31, 2021. As of the date of this report, NRCS continues the planning, engineering and design, and permitting work for this project.

Project Title: Apalachicola Bay Oyster Restoration (Implementation)

Council Member(s): State of Florida, Department of Environmental Protection (FDEP)

Project Start Date: 04/01/2017

Project End Date: 07/01/2020

Award Amount: $4,680,000

Performance Narrative: Project construction, which involved the deposition of oyster cultch material, was completed on November 30, 2017. At the completion of the project construction, 317 acres of oyster reefs were restored using 95,000 cubic yards of material. A Memorandum of Understanding between the FDEP Division of Water Restoration's Deepwater Horizon program and the DEP Florida Coastal Office's Central Panhandle Aquatic Preserve program (CPAP) was executed on September 20, 2017 for the post-implementation monitoring. CPAP developed an implementation plan and schedule for the monitoring that identifies the location of the reefs with latitudes and longitudes and map; and the monitoring schedule and methodology. As of the date of this report, FDEP continues the monitoring and post-construction activities for this project.

Project Title: Bayou Chico Contaminated Sediment Removal-Planning, Design and Permitting

Council Member(s): State of Florida, Department of Environmental Protection (FDEP)

Project Start Date: 04/14/2017

Project End Date: 01/15/2021

Award Amount: $356,850

Performance Narrative: Escambia County hired an engineering contractor to complete design and obtain environmental compliance permits required for the future dredging and removal of contaminated sediments from approximately 125 acres of Bayou Chico. The project, if implemented, will improve water quality, benthic habitat, and the area's ecology. After initial coordination with the contractor, the County and FDEP jointly determined the initial planning budget is insufficient. The County is currently working with the Florida Gulf Consortium and Council staff to obtain additional RESTORE restoration funding through the approved State Expenditure Plan to achieve the project's goals.

Project Title: Mobile Bay National Estuary Program - Planning

Council Member(s): Environmental Protection Agency (EPA)

Project Start Date: 06/01/2017

Project End Date: 03/30/2020

Award Amount: $358,000

Performance Narrative: A no-cost extension was granted. On May 3, 2018, upon completion of the RFQ and candidate selection process, MBNEP negotiated and executed a professional services contract with Stantec for planning phase engineering and design services for the project. On May 22, 2018, MBNEP met with representatives from the US Army Corps of Engineers, Mobile District (USACE) and USEPA to review the project and issues related to the permit application for a Nationwide Permit for the project. On June 7, 2018, MBNEP held a meeting with property owners to provide the public with information about the project and obtain access agreements to adjacent properties. On August 8, 2018, MBNEP contractors completed a Phase 1 Environmental Site Assessment for the project. No significant issues were noted during the assessment. On September 11, 2018, MBNEP contractors completed an Ecological Assessment.

Jurisdictional Wetlands Determination/Endangered Species Review for the project. On September 20, 2018, MBNEP's project engineer submitted 30% design drawings. 60% plan set submitted to MBNEP November 2018. Preliminary Technical Specifications submitted to MBNEP November 2018. Prepared presentation

and documents for USACE pre-application meeting held October 2018. Nationwide 27 permit application submitted November 2018 – electronic letter of receipt received from USACE November 21, 2018. Contractor gathering information to address comments from USACE. Contractor submitted additional information to USACE April 2019. Received USACE permit on May 15th, 2019. On May 29, 2019, EPA submitted environmental compliance information to RESTORE Council staff and requested FPL amendment to provide implementation funding to execute the project design.

Project Title: Beach Haven – Joint Stormwater & Wastewater Improvement Project Phase II

Council Member(s): State of Florida, Department of Environmental Protection (FDEP)

Project Start Date: 06/15/2017

Project End Date: 12/31/2022

Award Amount: $5,967,000

Performance Narrative: The final design plans completed during Phase 1 of this project are being reviewed for final acceptance. The design phase took longer than initially expected, which has delayed progression to construction. Escambia County anticipates beginning construction of stormwater treatment facilities and wastewater improvements such as, septic tank removal and connection to central sewer facilities in early 2020. This project, when implemented, will reduce sediment and nutrient loadings to Bayou Chico to improve water quality.

Project Title: Council Monitoring & Assessment Program Development (2 Interagency Agreements) (

Council Member(s): Department of Commerce, National Oceanic and Atmospheric Administration (NOAA) and Department of Interior, US Geological Survey (USGS)

Project Start Date: 06/15/2017

Project End Date: 06/14/2020

Award Amount: $1,700,000 (NOAA); $1,175,000 (USGS)

Performance Narrative: Since its inception the CMAP has held regular conference meetings (via phone, webinar, and face-to-face) through its various internal working groups and with the greater Council Monitoring and Assessment Working Group (CMAWG) (Task 1). CMAP submitted their Task 2 Report (Monitoring Programs Inventory) to Council staff as a final deliverable on June 20, 2019. CMAP team has reviewed Task 3 (Minimum Monitoring Elements) and Task 4 (Monitoring Program suitability Evaluation) materials with the CMAWG, focusing on summary outputs on the most frequently measured parameters, methods, and units used. These Tasks were merged with a revised due date of December 31, 2019. Development of Task 5 (Gap Analysis) is ongoing. Development of Task 6 (AL SAV Pilot) is ongoing and the regional SAV Community of Practice has held two workshops to begin planning the field-work associated with the SAV Pilot. The Task 7 Report (Baseline Assessment Inventory) was submitted to Council staff as a final deliverable. CMAP team has developed a beta version of the web tool that will be used to visualize information from the Task 2 inventory (Task 8).

Project Title: Gulf of Mexico Habitat Restoration via Conservation Corps Partnership

Council Member(s): Department of Commerce, National Oceanic and Atmospheric Administration (NOAA)

Project Start Date: 06/15/2017

Project End Date: 09/30/2020

Award Amount: $7,500,000

Performance Narrative: Project Implementation: The second year of GulfCorps began in September 2018 with an expanded project; 10 crews (now 2 in each state) worked between 22 and 32 weeks on site at prioritized locations. The 62 Year 2 projects addressed problems of varying scale within watersheds and habitats that are priorities in the RESTORE Council's Comprehensive Plan. Mapping and treating invasive species are common project types across all 10 crews in Year 2. In Florida, Alabama and Mississippi, crews are removing overgrown brush and invasive species, which allow pitcher plants and other carnivorous plants to flourish in bogs. The same exists for coastal prairies in Texas where crews treated invasive species such as bahiagrass, tallow-trees and Brazilian pepper trees, and have begun planting native species such as Florida paspalum, Goldenrod, Gulf Coast muhly and Little bluestem. The crews are also protecting the red cockaded woodpecker nests in Longleaf pines in Florida and Louisiana by clearing organic material from around the trees to prevent them from burning during controlled burns that were administered soon after. In Mississippi, the crews are assisting the USFWS dusky gopher frog rearing program by restoring the rearing ponds and preparing the growing tanks for tadpoles. They also repaired and reopened the once-popular Fontainebleau Trail, which was badly damaged by Hurricane Katrina and kept closed for 10 years until the crew cleared the trail, repaired the foot bridges and cleared a decade of undergrowth and tall brush. Many crews are planting, propagating and transplanting native saltmarsh and prairie plants including Longleaf pine as they clear invasive species to help give these endemic species a better chance in competing for water and light. Crews are also building, maintaining and monitoring living shorelines to slow or repair erosion and restore the estuarine functions necessary for many shrimp, crabs, oysters and fish in the Gulf of Mexico.

Orientation: GulfCorps Orientation for Year 2 occurred at Beckwith Camp and Conference Center on the shores of Weeks Bay and within the Weeks Bay NERR management boundary in Fairhope, AL, over the course of two sessions (to accommodate a larger number of participants).

Project Work: Crews worked over 67,327 hours on projects as of March 2019. While this is only 75% of our Year 2 target, the crews outperformed again on Measure II (Removal of Invasives), and the program has additional hours to tally. So far in Year 2, crews have worked on conservation/restoration projects directly impacting over 2,000 acres on federal, state or local lands. In Year 2 of GulfCorps, as of March 2019, the crews have managed over 175 acres of invasive species, planted over 12 acres of wetlands, improved 37 acres of marshes and bogs, and helped to restore over 370 acres of upland areas through fire lane creation and applying prescribed fire to several locations. The crew has also maintained, repaired and/or created miles and miles of trails and boardwalks on public lands.

As of March 31, 2019, all crews except one (LACC) continued to operate. Project work continues with the remaining 9 crews, who will likely work under the current work order through June 30, 2019.

Noteworthy event: GulfCorps staff and crews attended The Corps Network's Annual Conference where the GulfCorps Program was awarded the 2019 Project of the Year, our crewmember Jasmine Poole from LVI was awarded the 2019 Corpsmember of the Year and our project partner Tate Thriffiley from De Soto National Forest was awarded the 2019 Champion of the Year.

Project Title: Strategic Conservation Assessment of Gulf Coast Landscapes

Council Member(s): Department of Interior, Fish and Wildlife Service (FWS)

Project Start Date: 06/20/2017

Project End Date: 04/30/2020

Award Amount: $1,842,583

Performance Narrative: In 2017 the SCA project team reviewed approximately 300 existing conservation plans and identified shared priority attributes, which were geospatially cataloged and visualized in an online web-mapping environment. This work helped inform two rounds of charrettes which took place over the course of 2018, in conjunction with the development of the SCA's Conservation Prioritization Tool. This tool went from beta and into production mode in 2019. As of the date of this report, the development of the alpha version of the Strategic Conservation Assessment tool is ongoing.

Project Title: Tate's Hell Strategy 1

Council Member(s): U.S. Department of Agriculture, US Forest Service (USFS) and Natural Resources Conservation Service (NRCS)

Project Start Date: 06/20/2017

Project End Date: 10/15/2022

Award Amount: $7,000,000

Performance Narrative: On October 14, 2018 Hurricane Michael made landfall in the SW portion of the Tate's Hell project area. Hurricane Michael had massive impacts on the Apalachicola region including extensive damage to property, forests and infrastructure. In an effort to fully understand the scope of the damage within the project area, the following actions were performed during the period covered by this Performance Report.

Resurvey and analysis of 70 field plots was conducted to assess the impacts to previously collected project data. These plots were selected from post-hurricane imagery to cover a wide range of damage severity and historic natural communities. The results show a loss of 10% of all trees that were surveyed across all plots. Over 30% of the surveyed plots sustained moderate to heavy levels of damage. Surveys showed that the damage was heaviest in wetland communities (such as bottomland forests and bay galls). Storm debris (downed trees, limbs and foliage) across most natural communities was classified as heavily damaged (15-45%). The percentage of Coarse Woody Debris increased significantly (7.9% to 15.6%) across all previously survey plots. Damage varied significantly by species; however additional analysis is ongoing to isolate locational effects.

Upon conclusion of the survey, work has resumed. USDA anticipates no project delays due to the hurricane.

Project Title: Apalachicola Watershed Agriculture Water Quality Improvements

Council Member(s): State of Florida, Department of Environmental Protection (FDEP)

Project Start Date: 07/10/2017

Project End Date: 07/10/2022

Award Amount: $2,219,856

Performance Narrative: The sub-recipient, Florida Department of Agriculture and Consumer Services (FDACS), held a public meeting on Sept. 25, 2018 at the University of Florida Extension Office in Marianna, FL. The purpose of the meeting was to discuss how the program works, eligibility, eligible activities, and initial application. FDACS staff has been working with the Jackson Soil and Water Conservation District (JSWCD) on developing forms, outreach materials and advertising the program. Procurement protocols have been drafted by the JSWCD and submitted to FDACS for review and approval. One best management practice (BMP) project was completed in April 2019 for the purchase of a no till drill with small seed box. Two additional cost-share agreements with producers were executed in 2019. As of the date of this report, FDEP continues the implementation of this project.

Project Title: Suwannee River Partnership Irrigation Water Enhancement Program (Implementation)

Council Member(s): State of Florida, Department of Environmental Protection (FDEP)

Project Start Date: 08/25/2017

Project End Date: 08/25/2022

Award Amount: $2,884,000

Performance Narrative: Florida Department of Agriculture and Consumer Services' (FDACS) Offices of Energy Agricultural Water Policy) and the Suwannee County Conservation District developed the Landowner/Producer Agreement template that will be utilized as the cost-share agreement for agricultural producers participating in this energy and water conservation project. Outreach materials have also been developed. The first landowner project was implemented to retrofit the nozzle package on a center pivot irrigation system along with converting an existing diesel-powered pumping plant to a more energy efficient electric pumping plant. More projects will be implemented with landowners in 2020.

Project Title: Mississippi River Reintroduction into Maurepas Swamp (Planning)

Council Member(s): State of Louisiana

Project Start Date: 09/22/2017

Project End Date: 09/21/2020

Award Amount: $14,190,000

Performance Narrative: As of the date of this report, CPRA continues the planning, engineering and design, and permitting work for this project. This includes development of a Preliminary Operations, Maintenance, Monitoring, and Adaptive Management Plan, including a new Delft3D model grid to analyze project performance. Additionally, CPRA is coordinating with the US Army Corps of Engineers regarding the integration of the West Shore Lake Pontchartrain Project levee and this diversion. The Council is considering budgeting $130,000,000 for the implementation of the River Reintroduction into Maurepas Swamp project in its next Funded Priorities List. The Council plans to seek public comment on this proposed funding decision in late 2019.

Project Title: Gulf Coast Conservation Reserve Program (GCCRP) (Planning & Implementation) – Mississippi

Council Member(s): U.S. Department of Agriculture, Natural Resource Conservation Service

Project Start Date: 1/5/2018

Project End Date: 2/3/2023

Award Amount: $1,500,000

Performance Narrative: The NRCS published two outreach newsletters to encourage participation in this project. NRCS hosted six educational/technical assistance meetings with local landowners. About 157 individuals were reached by outreach effort. As a result of this outreach effort, NRCS received 154 applications for this project. To increase landowner participation an initial CAP was set at $187,500/county and $50,000/plan. NRCS utilized a screening tool to identify the best applications that would result in greater habitat restoration return on our investment. Currently, NRCS is hoping to fund 80 applications (over ˜5,000 acres) with estimated conservation plan landowner payment of $1,147,862.34. As of the date of this report, NRCS continues to implement this conservation program.

Project Title: Gulf Coast Conservation Reserve Program (GCCRP) (Planning & Implementation) - Alabama

Council Member(s): U.S. Department of Agriculture, Natural Resource Conservation Service

Project Start Date: 2/15/2018

Project End Date: 9/30/2026

Award Amount: $1,500,000

Performance Narrative: The GCCRP in Alabama is well derway with landowners to invest in conservation efforts on privately owned lands addressing natural resources and wildlife habitat degradation. To date, fifty-seven program applications have been received, and planning work is in progress. Thirty field visits have been made, and engineering survey work has commenced on six sites. Additional planning and implementation is anticipated in 2020.

Project Title: Tampa Bay National Estuary Program (Implementation)

Council Member(s): Environmental Protection Agency

Project Start Date: 2/22/2018

Project End Date: 1/31/2023

Award Amount: $1,544,960

Performance Narrative: The EPA is using a Cooperative Agreement with the Tampa Bay Estuary Program (TBEP) to implement the specific elements of this project. An agreement was executed between TBEP and Pinellas County to conduct habitat restoration activities at Fort DeSoto in September 2018. Plantings to revegetate the circulation cut were conducted in December 2018. A project kick-off and scoping meeting with Pinellas County was conducted in February 2019. Draft agreements with the cities of Tampa and St. Petersburg, and Manatee and Hillsborough counties are pending. TBEP staff is working with partners to develop and finalize Quality Assurance Project Plans for the different elements. As of the date of this report, EPA continues to monitor and oversee implementation of this project.

Project Title: Lowermost Mississippi River Management Program (Planning)

Council Member(s): State of Louisiana, Coastal Protection and Restoration Authority

Project Start Date: 3/6/2018

Project End Date: 9/30/2021

Award Amount: $9,300,000

Project Title: Palm River Restoration Project Phase II, East McKay Bay (Implementation)

Council Member(s): State of Florida, Department of Environmental Protection

Project Start Date: 4/2/2018

Project End Date: 5/31/2023

Award Amount: $856,430

Performance Narrative: FDEP and the Southwest Florida Water Management District (SWFWMD) executed a subrecipient agreement. The SWFWMD became aware that a portion of the project boundary is owned by Tampa Electric (TECO), not SWFWMD as originally thought. This has delayed the project, because an agreement with TECO must be negotiated to allow for site access to perform the proposed exotic vegetation removal. Assuming an access agreement can be executed, the project schedule will be re-evaluated, and an amendment will be sought to extend the grant award.

Project Title: Plug Abandoned Oil and Gas Wells (Implementation)

Council Member(s): Department of Interior, National Park Service

Project Start Date: 04/25/2018

Project End Date: 04/01/2020

Award Amount: $1,317,567

Performance Narrative: The NPS is working with a sub-recipient, the Texas Railroad Commission (RRC), to complete this project. The NPS completed all procurement actions required to begin this project including: development of a written task agreement, detailed budget/cost estimate, purchase request, and more. NPS requested and received a no-cost extension, which extends the award through April 1, 2020. As of the date of this report, the NPS continues to oversee and monitor implementation of this project.

Project Title: Gulf of Mexico Estuary Program (GMEP) (Planning)

Council Member(s): Environmental Protection Agency

Project Start Date: 6/25/2018

Project End Date: 4/30/2023

Award Amount: $2,200,000

Performance Narrative: The Cooperative Agreement was executed by EPA on August 15, 2018, approved by the Pensacola and Perdido Bays Estuary Program Policy Board on September 5, 2018, and approved by the

Escambia County Board of County Commissioners (host agency) on September 20, 2018. The grant award was presented by EPA Region 4 Administrator Trey Glenn to Policy Board Chairman Grover Robinson on September 5, 2018.

Program work and outcomes remain on schedule as outlined in the project narrative. The Estuary Program Interlocal Agreement, which formally establishes the Estuary Program, has been adopted by the nine member Parties. Those include Baldwin, Escambia, Santa Rosa, and Okaloosa counties and the cities of Pensacola, Gulf Breeze, Milton, Orange Beach, and the Town of Century.

At the November 14, 2018 Policy Board meeting, the Board adopted bylaws and unanimously approved establishing the Technical Committee and Education Committee, two of four committees proposed in the project narrative. The Policy Board and Technical Committee have held four meetings to date: September 5, 2018, October 24, 2018, November 14, 2018, and January 16, 2019. The Education Committee's first meeting will be held February 7, 2019. The Technical Committee has been very active in the Program's development. A Technical Committee Workshop will be held during the next reporting period to begin developing the CCMP workplan.

The Estuary Program Director position was advertised in early November 2018 after being approved by the Policy Board and Escambia County Board of County Commissioners. The position originally closed on December 2, 2018 but was extended until January 13, 2019 to attract a larger and more diverse applicant pool. At the October 24th Policy Board meeting, the Board approved establishing the Estuary Program Director Shortlisting Committee to recommend three applicants, in no particular order, to the Policy Board for their consideration and final selection. The application period closed on January 13th with 38 applications submitted. The Shortlisting Committee reviewed and scored each applicant. The Shortlisting Committee met on February 12th to review the draft rank and determine how many applicants should be shortlisted for interviews with the Committee. The Policy Board interviewed the top two candidates and made an offer to the top candidate. After consideration, the top candidate declined the position. The Policy Board met again on May 15th and agreed to make an offer to the second candidate.

Project Title: Alabama Submerged Aquatic Vegetation Restoration and Monitoring Program (Implementation)

Council Member(s): State of Alabama

Project Start Date: 07/30/2018

Project End Date: 9/30/2023

Award Amount: $875,000

Performance Narrative: Subcontractors from Dauphin Island Sea Lab (DISL) continued planning for the 2019 SAV mapping effort. The project was presented to the Mobile National Estuary Program Science Advisory Committee on May 10, 2019 to solicit feedback on the project plans to remain consistent with previous coastal mapping efforts. An RFQ for the 2019 SAV mapping was released on April 30, 2019 on the DISL website and social media channels. A contract was awarded to Barry A. Vittor & Assoc., Inc. and aerial imagery acquisition occurred on July 26, July 29 and August 5, 2019. Subcontractors held a quarterly progress meeting with Vittor & Associates on August 22, 2019 during which plans and methods for imagery ground-truthing were discussed. Ground-truthing activities began on August 29, 2019 and concluded on October 25, 2019. PIs coordinated with The Nature Conservancy, the City of Orange Beach, and Alabama Marine Resources-Marine Police to produce and distribute a boating guide brochure for Lower Perdido Bay.

Brochures were printed and delivered on May 22, 2019 to the City of Orange Beach who handled the distribution. PIs coordinated with The Nature Conservancy on need and placement of navigational "No Motor" buoys in Lower Perdido Bay. PIs engaged the Gulf of Mexico Seagrass Community of Practice, Mobile Bay Seagrass/ Alabama Pilot Project Working group (of which both PIs are members) on August 21, 2019 and September 11, 2019 to discuss the implementation of the Tiered monitoring approach (based on Neckles et al., 2012) to enhance the mapping efforts currently underway. This approach would align Alabama's SAV monitoring program with that of other State and Federal programs and would provide more detailed information on the status and trend of Alabama's SAV, allowing for detection of resource losses before they are irreversible. Monitoring at permanently established stations would not only serve as ground-truthing points for the aerial imagery, but will also allow resource managers to address the temporal patterns of SAV over annual and decadal scales. *Vallisneria americana* seedlings were maintained in aquaria at DISL. Planning for expansion of the outside greenhouse/nursery pond located at DISL's mesocosm facility continued and collection of Vallisneria seed pods began for future restoration activities.

Project Title: Texas Beneficial Use/Marsh Restoration

Council Member(s): State of Texas

Project Start Date: 7/31/2018

Project End Date: 5/31/2021

Award Amount: $968,000

Performance Narrative: This project has been subject to delays due to extended time required to negotiate the subrecipient contract between TCEQ and the Texas General Land Office (GLO) and due to internal staffing delays within the GLO. The subrecipient contract has now been executed, and an engineering contractor has been selected to begin project design, planning, and permitting for three beneficial use marsh restoration sites. TCEQ is requesting an extension to the award time period to accommodate encountered delays.

Project Title: Robinson Preserve Wetlands Restoration (Implementation)

Council Member(s): Department of Commerce, National Oceanic and Atmospheric Agency

Project Start Date: 8/17/2018

Project End Date: 9/30/2023

Award Amount: $1,790,546

Performance Narrative: NOAA has executed an agreement finalized a scope of work with the National Fish and Wildlife Foundation (NFWF) to implement restoration, outreach and education, and monitoring at Robinson Preserve in partnership with Manatee County. NOAA also provided RESTORE Council staff with the necessary information for Congressional and Federal Register notices related to NFWF's subrecipient award. NFWF is anticipating beginning the construction bid advertisement processes and fulfilling all pre-construction special conditions for the NOAA-RESTORE agreement very soon.

Project Title: Marsh Restoration in Fish River, Weeks Bay, Oyster Bay & Meadows Tract (Planning) - Fish River and Weeks Bay Marsh

Council Member(s): Department of Commerce, National Oceanic and Atmospheric Agency

Project Start Date: 8/17/2018

Project End Date: 7/31/2020

Award Amount: $333,651

Performance Narrative: : Work performed during this period includes: awarding a task order to Moffatt and Nichol for engineering and design services; holding regular calls with Moffatt and Nichol, a site reconnaissance visit, meetings with NERR staff, a topographic and bathymetric survey, geotechnical investigations, a cultural resources assessment, a T&E survey, a pre-design investigation report, an outreach and communications plan, and development of 30% design plans.

Project Title: Marsh Restoration in Fish River, Weeks Bay, Oyster Bay & Meadows Tract (Planning) - Meadows Tract

Council Member(s): Department of Commerce, National Oceanic and Atmospheric Agency

Project Start Date: 8/17/2018

Project End Date: 7/31/2020

Award Amount: $309,651

Performance Narrative: Work performed during this period includes: awarding a task order to Moffatt and Nichol for engineering and design services; regular project conference calls between NOAA and Moffatt and Nichol; a site reconnaissance visit, meetings with NERR staff, development of a plan of work and detailed schedule, a topographic survey, a cultural resources assessment, geotechnical investigations, a T&E survey, a pre-design investigation report, an outreach and communications plan, pre-application meetings with USACE, and initial permitting coordination with ADEM.

Project Title: NOAA Marsh Restoration in Fish River, Weeks Bay, Oyster Bay & Meadows Tract (Planning) - Oyster Bay

Council Member(s): Department of Commerce, National Oceanic and Atmospheric Agency

Project Start Date: 8/17/2018

Project End Date: 7/31/2020

Award Amount: $264,651

Performance Narrative: Work conducted under this period includes awarding a task order to Moffatt and Nichol for engineering and design services; holding regular progress calls with Moffatt and Nichol; conducting a site reconnaissance visit, attending local stakeholder discussions, preparing a plan of work and detailed schedule, preparing a Cultural Resources Assessment, attending pre-application meetings with USACE, initial permitting coordination with ADEM, conducting geotechnical investigations, and a T&E survey.

Project Title: Coastal Alabama Comprehensive Watershed Restoration Planning Project (Planning)

Council Member(s): State of Alabama

Project Start Date: 9/14/2018

Project End Date: 9/13/2022

Award Amount: $4,342,500

Performance Narrative: A contract was executed for the Western Shore complex of watersheds and the development of the Watershed Management Plan (WMP) has commenced. Requests for Qualifications (RFQs) for the development of baseline watershed data as well as the watershed plans for the Little Lagoon/Perdido-Gulf Frontal and Mobile-Tombigbee Delta complexes of watersheds were released. Contracts have been executed for both the baseline data and Little Lagoon/Perdido Gulf Frontal WMP, and those projects have commenced. A contractor for the Mobile-Tombigbee Delta WMP has been selected and development of a scope of work is underway. Scoping for this WMP project is expected to be completed, contract executed, and project is expected to commence within the next reporting period. Additionally, an RFQ for development of the Fly Creek/Eastern Shore complex of watersheds is expected to be released, and a professional services firm is expected to be selected for the development of that WMP. Development for aforementioned WMPs and watershed baseline data is expected to continue with regular progress updates from contractors to MBNEP. During this reporting period, the Alabama Department of Conservation and Natural Resources Grant Manager has continued monitoring of the subrecipient, Mobile Bay National Estuary Program (MBNEP). Management tasks include ensuring adherence to special award conditions, responding to MBNEP inquiries, and process invoices for payment.

Appendix C – CPS Progress Reporting.

Project Title: Commitment and Planning Support – Florida
Council Member(s): State of Florida

Project Start Date: 4/23/2018

Project End Date: 3/31/2023

Award Amount: $2,093,880

Performance Narrative: During this reporting period, the first year Work Plan (April 2018 - March 2019) was developed and submitted. The Work Plan identified specific activities to be accomplished during the Work Plan period.

Activity 1 - Procurement of contracts to provide logistical and other support for planning and restoration activities. The Request for Proposals was developed and posted on the Florida Vendor Bid System (8.6.18). Eleven vendors submitted responses. An Evaluation Committee reviewed and independently scored the responses. Based on the scores, six of the vendors were selected to contract with. Currently the individual contracts are being prepared and routed for execution. The solicitation documentation is provided as an upload to this report. The six contracts will be provided once they are executed. Work has begun on developing a Task Assignment to these contracts for a consultant to assist with a FL DWH Restoration Summit.

Activity 2 - Agreement with Florida Fish and Wildlife Conservation Commission for travel expenses associated with CPS activities. This agreement was developed and executed (6.22.18). The contract is provided as an upload to this report.

Activity 3 - Stakeholder and Collaboration Meetings.

3.a During the reporting period, Florida staff held meetings with the following stakeholders: Pensacola Bay Stakeholders (Pensacola Beach, FL 4/23/2018); FDEP Coastal Office (Tallahassee, FL 5/22/2018 and 7/17/2018); Non-governmental Coalition (Tallahassee, FL 8/14/2018); Charlotte Harbor, Sarasota Bay, and Tampa Bay NEPs (St. Petersburg, FL 8/27/2018); Southwest Fl Water Management District and South Fl Water Management District (St. Petersburg, FL 8/27/2018); and Florida Institute of Oceanography (FL COE) (St. Petersburg, FL 8/28/2018).

3.b Collaboration meeting with other RESTORE Council Members occurred as follows: USDA (Tallahassee, FL 6/21/2018); EPA (Gulfport, MS 7/30/2018); Mississippi (Gulfport, MS 7/31/2018); Louisiana (Mobile, AL 9/11/2018); Alabama (Mobile, AL 9/11/2018); NOAA (Tallahassee, FL 10/31/2018); and DOI (Tallahassee, FL 12/12/2018). Outcomes from these meetings have been reported at RESTORE Council Steering Committee meetings.

3.c Gulf Consortium Meetings: FL staff has attended and presented information pertaining to RESTORE Bucket 2 at Gulf Consortium meetings/RESTORE Coordinators meetings on 5/17/2018 (Panama City, FL), 6/27/2018 (Orlando, FL), 9/27/2018 (Punta Gorda, FL), and 11/29/2018 (Tampa, FL).

Activity 4 - Council Member Commitments: FL staff attended RESTORE Council Steering Committees meetings on 4/24-4/25/2018 (Pensacola Beach, FL), 7/31 - 8/1/2018 (Gulfport, MS), 9/11-9/12/2018 (Mobil, AL), and 11/27-28/2018 (Austin, TX) and participated in Public Engagement meetings.

Project Title: Commitment and Planning Support—Coastal Protection and Restoration Authority

Council Member(s): State of Louisiana

Project Start Date: 5/16/2018

Project End Date: 5/15/2023

Award Amount: $2,100,000

Performance Narrative: During this performance period, the Louisiana Coastal Protection and Restoration Authority (CPRA) has utilized award funds to enhance collaboration, coordination, public engagement, and use of best available science to meet the requirements of the RESTORE Act.

CPRA staff participated in Council-led activities, including Council Monitoring and Assessment Workgroup CMAWG), Gulf Coast Interagency Environmental and Restoration Workgroup, Grants System Working Group, and other such meetings and/or calls. CPRA staff also participated in discussions of future Funded Priorities List funding and potential future projects.

The Water Institute of the Gulf was tasked with 3 separate tasks, including a task to determine and present stressors across the Gulf through a Collaboration Tool, a task to coordinate with Texas on a possible FPL 3 project, and a visualization task to better present FPL projects. The stressors task and the Texas tasks are nearing completion. The visualizations task is complete.

CPRA has also utilized travel costs to attend CMAWG and Steering Committee meetings.

Project Title: Commitment and Planning Support – Alabama

Council Member(s): State of Alabama

Project Start Date: 5/16/2018

Project End Date: 5/15/2023

Award Amount: $2,100,000

Performance Narrative: The Alabama Department of Conservation and Natural Resources (ADCNR) has performed a number of grant development activities, including application packages for the following FPL1 projects: Alabama Living Shorelines Program (Construction Planning Component), Enhancing Opportunities for Beneficial Use of Dredge Sediments, Comprehensive Living Shorelines Monitoring, Alabama Submerged Aquatic Vegetation Restoration and Monitoring Program, and Coastal Alabama Comprehensive Watershed Management Planning. Awards have been received for the Watershed Management Planning and the SAV Restoration and Monitoring projects. The Department has also continued to meet Alabama's Council Member commitments by participating in Steering Committee calls and in-person meetings and Council Monitoring and Assessment and Public Engagement workgroup meetings.

To meet Commitment and Planning Support goals and commitments, ADCNR has hosted and/or participated in various collaboration meetings with federal and state Council members in addition to potential local collaboration partners such as the Mobile Bay National Estuary Program and the University of South Alabama. For brevity, this is not an exhaustive list.

As detailed in Alabama's Year 1 Workplan, ADCNR has updated the State's Alabama Coastal Restoration website. Volkert, Inc., ADCNR's Deepwater Horizon (DWH) Program Manager, worked with ADCNR staff to complete an extensive update to the State's website, www.alabamacoastalrestoration.org. This update was designed to increase clarity around Alabama's past and upcoming restoration activities, provide additional information about projects, and to make the site generally easier to navigate and find information. As Alabama prepares to identify priorities for FPL 3 and subsequent FPLs, it is important for stakeholders to have a clear understanding of what projects have already been funded as well as the benefits those projects are expected to have. The website has been well-received by local stakeholders.

Also detailed in the workplan, the State of Alabama held its inaugural Alabama Governor's Restoration Summit on October 11, 2018 in Spanish Fort, AL. The ADCNR and its DWH Program Manager, Volkert, Inc., planned and held the event. RESTORE Council staff and other Federal restoration partners were in attendance to present, listen, and/or assist members of the public with various DWH restoration-related inquiries. The Summit began with two break-out sessions: a RESTORE 101 session which provided an overarching review of the various DWH restoration funding streams and an update on Bucket 2 activities in Alabama, and a Monitoring and Adaptive Management breakout session which allowed participants the opportunity to provide thoughts on how adaptive management should be approached during the restoration process. The Summit ended with an evening presentation by ADCNR Commissioner Blankenship and RESTORE Director Ben Skaggs, followed by a successful listening session in which members of the public provided comment. Overall, the Summit was a success with over 130 participants, and ADCNR received many positive and helpful comments on what the public would like to see in future restoration projects.

Project Title: Commitment and Planning Support – DHS / U.S. Coast Guard

Council Member(s): Department of Homeland Security, U.S. Coast Guard

Project Start Date: 6/1/2018

Project End Date: 5/31/2023

Award Amount: $1,964,776

Performance Narrative: During the first year of performance, the Coast Guard moved forward on the scope of work described in the Commitment and Planning Support inter-agency agreement (IAA). To do so, the Coast Guard embarked on a hiring process for a civilian TERM employee to serve as Point of Contact (POC), to provide regular representation of DHS and the Coast Guard to the Council Steering Committee and to undertake related RESTORE obligations. The IAA also provides for the hiring of a supporting position. Following an internal assessment of mechanisms available to meet this need, the Coast Guard elected to leverage an existing, previously awarded to contract in order to onboard a second civilian employee, expected to start co-incident with the start of the next federal fiscal year. Substantial internal administrative work was required to establish linkages and reporting vehicles for the award, cross-walking Council requirements with Coast Guard's existing framework for financial tracking and reporting. This was brought to the forefront in part by the lapse in appropriations early in 2019, and additional work to coordinate and streamline reporting processes continues.

Once hired, the POC convened a working group of subject matter experts within the Coast Guard, and established a regular schedule for teleconferences supported by additional communications, thus leveraging different tiers of the Coast Guard command and response structures. The primary focus of this

group is to scope an optimal proposal for future funding that will implement work within the parameters of "Bucket 2" to advance the concept of “Response Ready Restoration” through a collaboration of Coast Guard and other parties, as described in earlier materials. The group was also leveraged for additional expertise and insights when responding to RESTORE Council member requests for review/advice on potential proposals.

The POC also integrated into the ongoing work of the Council Monitoring and Assessment Working Group, the Public Engagement Working Group and the Texas state-federal group in addition to meeting obligations to participate in the Council’s Steering Committee.

The POC also met with Council representatives and stakeholders both in-person and via separate telephone conversations, to discuss Coast Guard support for ongoing and anticipated RESTORE work, or other areas of mutual interest. This was accomplished through separately scheduled meetings appurtenant to regularly scheduled working group and public comment meetings or separately scheduled telephone calls.

Project Title: Commitment and Planning Support – Texas

Council Member(s): State of Texas

Project Start Date: 6/1/2018

Project End Date: 5/31/2023

Award Amount: $2,100,000

Performance Narrative: Resources and efforts for the first year of the Commitment and Planning Support grant have focused on the development of the Council’s Planning Framework to ensure that the concerns and interest of the Texas coast are appropriately presented in that document. To that end, many of the activities through June 2019 have involved securing input from various sources, including the public, and entailed establishing several Texas-based workgroups. These efforts have included working in coordination with a team of Texas coastal experts, elected officials, representatives for Natural Resource Dmage Assessment (NRDA) and National Fish and Wildlife Foundation (NFWF), the four of the Gulf states, federal entities and the public.

Year-one efforts have resulted in actively participating in the development of the Council’s Planning Framework and instituting processes to facilitate the identification of potential programs/projects to be funded in the next Bucket 2 funding cycle, referred to as FPL3. These efforts have begun to set up the foundation for beneficial and successful long-term restoration projects

The State hired a contractor, Harte Research Institute (HRI) to assist TCEQ in all planning, evaluation, project identification and collaboration activities. HRI has been working with TCEQ to compile information and craft language to discuss and convey types of undertakings that should be incorporated into a 10-year Strategy for long-term restoration activities across Texas and the other Gulf of Mexico States.

The two public hearing presentations can be accessed at:

https://www.restorethetexascoast.org/wp-content/uploads/2019/05/4_B2-P-December-2018-Public-Mtg_Presentation_20181214.pdf

https://www.restorethetexascoast.org/wp-content/uploads/2019/05/5_B2-P-December-2018-Public-Mtg-HRI_Presentation_20181214.pdf

Project Title: Commitment and Planning Support—Mississippi (EGID – 56)

Council Member(s): State of Mississippi

Project Start Date: 6/8/2018

Project End Date: 6/7/2023

Award Amount: $2,100,000

Project Title: Commitment and Planning Support – Department of Interior (EGID – 65)

Council Member(s): Department of Interior

Project Start Date: 7/18/2018

Project End Date: 7/15/2023

Award Amount: $2,100,000

Project Title: Commitment and Planning Support—United States Department of Agriculture

Council Member(s): U.S. Department of Agriculture, Natural Resource Conservation Service

Project Start Date: 8/8/2018

Project End Date: 7/15/2023

Award Amount: $2,100,000

Performance Narrative: USDA has participated in Commitment and Planning Support -related activities. However, the Agency has opted not to expend any of the funds authorized for this award. Council staff are working with USDA to determine whether a scope change is needed for this award.

Project Title: Commitment and Planning Support

Council Member(s): Environmental Protection Agency

Project Start Date: 8/15/2018

Project End Date: 6/30/2023

Award Amount: $2,068,820

Performance Narrative:

COUNCIL CHAIR – On March 14, 2019, EPA Administrator Andrew Wheeler designated Douglas Benevento, Senior Counselor for Regional Management and State Affairs, to serve on the Council and vote on the

Administrator's behalf. The Administrator also notified the Council that Mr. Benevento is the EPA's Primary representative to the Steering Committee and John Bowie continues as EPA's Alternate representative. As Council Chair, EPA reviewed and approved numerous State Expenditure Plans and Amendments; and participated in Council staff meetings; and Steering Committee conference calls; and Council votes; and member discussions of issues as necessary; and Federal member conference calls and in-person meetings as warranted to discuss federal member perspectives prior to Council votes.

STATE EXPENDITURE PLANS (SEP) – As Chair, EPA worked closely with the Council's Executive Director and staff to review and approve the following SEPs and SEP Amendments;

March 4, 2019	Texas SEP
March 29, 2019	Alabama SEP
April 12, 2019	2018 Mississippi SEP Amendment
August 16, 2019	Florida SEP Amendment #1

STEERING COMMITTEE (SC) – As Council member, EPA participated in (a) 12 Biweekly Steering Committee conference calls; and (b) 3 In-person SC meetings (Baton Rouge, St. Petersburg, FL, Gulfport); and (c) provided review/Comment of Council documents. Summary of all the Decisions/Actions from the SC conference calls and in-person meetings is attached to this semi-annual report.

COUNCIL WORKGROUPS- As Council member, EPA representatives participated in conference calls and in-person meetings during this semi-annual period ending July 31, 2019 for the following Council Workgroups: (a) Public Engagement Workgroup - conference calls, in-person meetings, document review; and (b) Council Monitoring and Assessment Workgroup – conference calls, in-person meetings, document review; and (c) Monitoring Coordination Committee Workgroup – conference calls, in-person meetings, document review; and (d) Gulf Coast Interagency Environmental and Restoration Workgroup – conference calls, in-person meetings, document review; and (e) Baseline Flow TAC – conference calls, in-person mtg, document review; and (f) SCA – conference calls, in-person meetings, document review

COLLABORATION - In addition to the collaboration that occured in conjunction with the Steering Committee and Council Workgroups, EPA also engaged in the following member-specific meetings and gulf-regional collaboration meetings and discussions (a) Northwest Florida Estuary Stakeholders meeting in Pensacola, FL; and (b) Gulf of Mexico Governors' Alliance Annual Meeting in Gulf Shores, AL; and (c) State of Texas State/Federal Agency Workgroup conference calls, document review and in-person meeting in Austin, TX; and (d) AL - RESTORE Summit in Spanish Fort, AL; and (g) USDA – conference calls, in-person meetings and in conjunction w/ SC meetings; and (i) DOI – conference calls, in-person meetings and in conjunction w/ SC meetings; and (j) DOC – conference calls, in-person meetings and in conjunction w/ SC mtgs; and (k) USCG – conference calls, in-person meetings and in conjunction w/ SC mtgs; (l) LA – conference calls, in-person meetings and in conjunction w/ SC mtgs; and (m) LA – Tour projects and coastal impacts in May 2019; and (n) LA – conference calls, in-person meetings associated with discussions w/ Representative Garret Graves (R-LA) development of FPL3; (o) TX, MS, AL, FL – development of FPL3; and (p) Council staff and LA – development of FPL3.

PUBLIC MEETINGS – As Council member and Chair, EPA participate in the following meetings held across the Gulf region during the public comment period for the draft Planning Framework:

April 30th	Spanish Fort, Alabama

May 6th	New Orleans, Louisiana
May 7th	Tallahassee, Florida
May 22nd	Long Beach, Mississippi
May 30th	Corpus Christi, Texas

Project Title: Commitment and Planning Support

Council Member(s): Department of Commerce, National Oceanic and Atmospheric Administration

Project Start Date: 5/1/2019

Project End Date: 9/30/2023

Award Amount: $2,068,820

Performance Narrative**:** Due to delays in finalizing the Interagency Agreement, no reports have been submitted for this award to date.

Appendix D - SEP Projects Funded During FY19

Project Title: Florida Stand-Up State Expenditure Plan

Council Member(s): Florida Gulf Consortium

Project Start Date: 3/11/2019

Project End Date: 9/30/2019

Award Amount: $221,038

Project Abstract: The Gulf Consortium will complete all planning assistance activities associated with the single project of the approved Stand-Up State Expenditure Plan. Completion of these activities will provide the Consortium the administrative capacity to oversee the implementation of all projects contemplated by Florida's State Expenditure Plan (in 23 Gulf Coast counties). The activities include implementing a COSO framework with segregation of duties, procuring technical services, establishing procedures for sub-recipients, and developing a grant management system consistent with Council's adopted software. This grant supports the Gulf Consortium's administrative capacity to oversee the implementation of all projects contemplated by Florida's State Expenditure Plan (in 23 Gulf Coast counties). The activities include implementing a COSO framework with segregation of duties, procuring technical services, establishing procedures for sub-recipients, and developing a grant management system consistent with Council's adopted software.

Project Title: Pascagoula Oyster Reef Complex Relay and Enhancement

Council Member(s): State of Mississippi, Department of Environmental Quality

Project Start Date: 4/16/2019

Project End Date: 4/30/2024

Award Amount: $4,100,000

Project Abstract: The purpose of the Pascagoula Oyster Reef Complex Relay and Enhancement Project (Project) is to enhance productivity of the Pascagoula Oyster Reef Complex (ORC). This Project will restore, improve, and protect water resources, promote community resilience, and protect and restore coastal and marine living resources like oysters. Enhancing productivity will increase ecosystem functionality of the reef itself and increase harvest through sustainable oyster management (i.e., oyster relay project). Improving the understanding of the resource will ultimately bolster sustainable use of the reefs and contribute to economic recovery through the seafood industry sector, enhance local water quality conditions and ecosystem functioning. This Project will fund benthic habitat mapping, reef monitoring for water quality and disease, and the relay of oysters to increase productivity on harvestable reefs in the Mississippi Sound. The Project is administered by the Mississippi Department of Environmental Quality (MDEQ) with collaboration from the Mississippi Department of Marine Resources (MDMR). Individual components of the Project may be implemented by eligible sub-recipients.

Project Title: Paradise Canal Gate (CPRA-Parish Matching Opportunities Project)

Council Member(s): State of Louisiana, Coastal Protection and Restoration Authority

Project Start Date: 6/18/2019

Project End Date: 10/31/2021

Award Amount: $2,827,150

Project Abstract: The construction of the Paradise Canal Gate, part of the St. Charles Parish West Bank Hurricane Protection Levee and the larger Upper Barataria Risk Reduction System, will provide flood protection for the residents, businesses, and industries of the west bank of St. Charles Parish. CPRA, as the grantee of this award, will provide general oversight to St. Charles Parish, the subrecipient in charge of construction.

Project Title: Remote Oyster Setting Facility

Council Member(s): State of Mississippi, Department of Environmental Quality

Project Start Date: 8/1/2019

Project End Date: 7/31/2024

Award Amount: $9,298,031

Project Abstract**:** The Remote Oyster Setting Facility Project (Project) supports the restoration and protection of natural resources, ecosystems, fisheries, marine and wildlife habitats, beaches, and coastal wetlands of the Mississippi Gulf Coast Region through the planning, construction, and operations activities associated with an oyster setting facility. Remote setting is the placement of oyster larvae onto cultch (hard material for oysters to attach to; usually shell, crushed concrete, limestone, and the like) at a remote location from the hatchery itself. This facility will enable the Mississippi Department of Marine Resources (MDMR) to place cultch, laden with spat, at high volumes into Mississippi waters which will support increases in oyster populations on Mississippi's harvestable reefs and benefit the oyster fishery economy. The Project is administered by the Mississippi Department of Environmental Quality (MDEQ) with MDMR as a sub-recipient responsible for project planning and setting facility implementation. This Project is phased; Phase I – Oyster Setting Facility Planning, and Phase II – Construction and Start-up Operations.

Project Title: 15-1 Artificial Reef Program - Hudson Reef (EGID – 86; Matt)

Recipient: Florida Gulf Consortium

Project Start Date: 2/19/2019

Project End Date: 10/15/2020

Award Amount: $117,905

Project Abstract: The Gulf Consortium, through its subrecipient, Pasco County, will complete a deployment of up to 500 tons of material to augment the current reef known as Pasco Reef #4 located approximately 12 miles west of Hudson Beach, FL. The County has completed a reef permit for the site and is awaiting funding necessary to move the materials to the reef. Completion of this deployment will increase the size of the existing artificial reef and benefit users of the artificial reefs offshore for recreational activities such as fishing, diving and spearfishing.

Appendix E - Progress of SEP Projects During FY19

Project Title: Mississippi State Expenditure Plan

Council Member(s): State of Mississippi

Project Start Date: 5/10/2016

Project End Date: 4/30/2019

Award Amount: $1,374,612

Performance Narrative: The State of Mississippi obtained planning assistance funds to support the development of the Mississippi State Expenditure Plan (MSEP). The planning funds for this project were used to develop projects and programs that best complement the State of Mississippi's restoration needs in accordance with the eligible activities of the Spill Impact Component. This project involves foundation building, project filtering, and project vetting, which will result in the development of the MSEP. These activities were an iterative process that support Mississippi's holistic approach to restoration and transparency to stakeholders. During the period of performance MDEQ reevaluated the MSEP and revisited each milestone, as needed, to incorporate additional projects through an Amendment (#1) to the MSEP. Project milestones and deliverables were adjusted along with anticipated start dates and target dates for each milestone to consider time needed for completion of MSEP Amendment #1.

Project Title: Gulf Consortium Preparation of Full State Expenditure Plan

Recipient: Gulf Consortium

Project Start Date: 6/23/2016

Project End Date: 8/2/2019

Award Amount: $4,640,675

Project Title: Texas Planning State Expenditure Plan

Council Member(s): State of Texas, Commission on Environmental Quality

Project Start Date: 4/6/2017

Project End Date: 12/31/2018

Award Amount: $292,503

Performance Narrative: Due to the devastating effects of Hurricane Harvey, Texas' initial State Expenditure Plan was developed using Texas Planning SEP funds to focus on hurricane recovery efforts that include ecological and economic, as well as resiliency-related programs. To proceed in an expedited manner to assist communities continuing to face ecologic and economic challenges posed by Hurricane Harvey, this SEP takes a programmatic approach focusing on four key areas: nature-based tourism, water quality and quantity restoration, shoreline and beach restoration, and removal of debris and/or sediment from waterways to address ecological impacts. The Texas SEP was approved by the Council in March of 2019.

Project Title: Compatibility, Coordination and Restoration Planning

Council Member(s): State of Mississippi

Project Start Date: 4/13/2017

Project End Date: 4/30/2022

Award Amount: $1,299,806

Performance Narrative: Over FY2019, MDEQ developed, submitted, and was awarded approval for the 2018 Amendment to the Mississippi State Expenditure Plan (MSEP). For this amendment, MDEQ worked to identify, evaluate, and develop projects for inclusion that contributed to the overall ecological and economic recovery of the Gulf Coast and were consistent with the goals, objectives and commitments of the RESTORE Council's Comprehensive Plan. Coordination activities included engaging stakeholders, local, State and Federal governmental organizations, non-governmental organizations, and the general public. MDEQ coordinated with project sponsors; vetted projects for environmental compliance and compatibility with other SEP projects in adjacent states; and conducted preliminary feasibility analyses for budget, operations, and implementation logistics. During this reporting period, MDEQ also began the planning process for the 2019 Amendment to the MSEP, identifying and engaging stakeholders about potential project inclusions.

Project Title: Mississippi Gulf Coast Water Quality Improvement Program

Council Member(s): State of Mississippi

Project Start Date: 3/15/2018

Project End Date: 7/31/2023

Award Amount: $14,326,789

Performance Narrative: : Program Management and Oversight – During the reporting period, MDEQ performed administrative and program oversight activities including coordination of activities performed and funds expended under this Program. Regular telephone conferences were held with contractual support and program expenditures were reviewed. Contractor invoices were reviewed for consistency with the grant agreement scope of work and contractor payments were released. MDEQ also reconciled expenditures and performed compliance monitoring in accordance with grant agreement terms. Data Management – During the reporting period, MDEQ managed data associated with sample analyses tied to the outfalls and hotspot monitoring. Project Identification and Monitoring – Through existing data and analysis, MDEQ identified three water quality improvement projects to implement new stormwater system improvements. Project Workplans for each of the three projects were submitted for Council review; at the end of the reporting period, an amendment to incorporate the Project Workplans into the scope of work was pending RESTORE Council approval. MDEQ also began systematic source tracking to identify sources and stressors of water quality impairment. Source tracking continues throughout the coast with sampling beginning to progress upstream from beach outfalls to begin to identify source problems and begin to draft scopes of work tied to infrastructure improvements. Project Implementation – Project implementation activities have not yet begun. The MS Gulf Coast Water Quality Improvement Program was amended to incorporate three approved projects under the program in accordance with special award condition (SAC) # 8: Beach Outfall Pilot Projects I, II & III (BOPPs 1, 2 & 3).

Project Title: Houma Navigation Canal Lock Complex (Planning)

Council Member(s): State of Louisiana

Project Start Date: 3/19/2018

Project End Date: 5/29/2020

Award Amount: $18,520,214

Performance Narrative: The 95% design for this lock complex is estimated to be completed by August 1, 2020. The necessary permits are being sought. CPRA has received the 408 No Objection Letter from the U.S. Army Corps of Engineers. A compensatory mitigation plan was submitted to the Louisiana Department of Natural Resources on January 25, 2019. Permitting is anticipated to be complete in 2019. As of the date of this report, CPRA continues to implement the elements of this award.

Project Title: Adaptive Management

Council Member(s): State of Louisiana

Project Start Date: 8/31/2018

Project End Date: 6/30/2020

Award Amount: $19,467,855

Performance Narrative: In 2018 work was completed on the applied Science Program, a basin-scale analytic report on the Mermentau Basin was released, and LiDAR was acquired for the Chinere Plain with USGS. In 2019 work on SWAMP design was completed and a basin-scale analytic report on the Calcasieu-Sabine Basin was released. Some work necessitated the completion of SWAMP to move forward and was delayed as a result. As of the date of this report, work is ongoing on data collection and monitoring activities (e.g., soil coring west of Bayou Lafourche), support of LASARD, data gap analysis, data management and visualization, and geographic information and technical support.

Project Title: Laboratory to Support Mississippi Gulf Coast Water Quality Improvement Program

Council Member(s): State of Mississippi

Project Start Date: 9/7/2018

Project End Date: 7/31/2020

Award Amount: $1,451,147

Performance Narrative: Over FY2019, MDEQ performed due diligence necessary to satisfy pre-construction requirements established by the RESTORE Council, as well as other special award conditions that must be met before the construction authorization can be released. Design for the construction and remodeling of the microbiology laboratory continued through this period, and an assessment of needed laboratory equipment and supplies was completed. During this performance period, MDEQ also executed an agreement procuring architectural and engineering services for the project.

Appendix F – Center of Excellence Report - Florida

A. Executive Summary

The Florida RESTORE Act Centers of Excellence Program (FLRACEP) applied for and received it second Centers of Excellence Research Grant award from the U.S. Department of the Treasury's Office of Gulf Coast Restoration (Treasury). This award enabled FLRACEP to renew the University of South Florida's long-term fisheries monitoring project for an additional three years and run its third Request for Proposals (RFP III) process. FLRACEP completed final reporting to Treasury for its first award (2015-2019) and has applied for additional funds to implement the six projects selected via the RFP III process earlier this year. In addition, the program solicited comment on and updated the FLRACEP Rules and Policies and updated the Program Management Team (PMT) Bylaws.

B. Background

On August 20, 2015, the Department of the Treasury issued the Florida Institute of Oceanography its first award for the project titled "Florida RESTORE Act Centers of Excellence Program (FLRACEP)" to solicit and issue sub-awards for Florida Centers of Excellence research grants for the eligible disciplines:

1. Coastal fisheries and wildlife ecosystem research and monitoring in the Gulf Coast Region;
2. Comprehensive observation, monitoring, and mapping of the Gulf of Mexico; and
3. Coastal sustainability, restoration and protection, including solutions and technology that allow citizens to live in a safe and sustainable manner in a coastal delta in the Gulf Coast Region.

Priority objectives within these eligible disciplines are defined by the FLRACEP PMT in the specific request for proposal language.

In 2015, FLRACEP selected ten research grant projects at eight Florida Centers of Excellence under RFP-1 via the peer-reviewed, competitive process detailed in the program Rules and Policies. In 2016, FLRACEP approved a two-year pilot award for a long-term fisheries monitoring Center of Excellence that could potentially extend for seventeen total years after science and management review of progress. The first of these reviews was conducted in 2018 and the project was extended through 2022 when additional review will determine future funding.

The RFP III process included a solicitation for Centers of Excellence for marine wildlife research, habitat mapping coordination, and science support for Northwest Florida Panhandle Estuary Program planning. RFP III was released in January 2019, and six Centers were selected for funding in June 2019. Implementation of these awards, totaling $2,140,000, is pending receipt of the funds from the Department of Treasury and execution of sub-agreements with the institutions.

C. Programmatic Elements

1. Award Recipient

The Florida Institute of Oceanography (FIO) is an Academic Infrastructure Support

Organization (AISO) of the State of Florida approved by the State University System's Council of Academic Vice Presidents, ratified by the presidents and chairs of the boards of trustees of the member organizations and approved by the Florida Board of Governors (BOG). Under a Memorandum of Understanding ratified by the member organizations and approved by the BOG, the University of South Florida (USF) assumes the role of host university, and fiscal accounting functions are administered by USF and overseen by the USF Board of Trustees. FIO is the Gulf Coast State Entity for administering Florida's RESTORE Act Centers of Excellence Program.

The FLRACEP includes the following organizational elements:
PROGRAM OFFICE: FIO serves as the FLRACEP program office. The FIO Director is ultimately responsible for program funds and performance; the Program Director reports to the FIO Director and is responsible for programmatic tasks that the Gulf coast state entities must perform including: coordination of competitive selection process for FL Center of Excellence grants; developing award terms and conditions and monitoring performance based on required deliverables and metrics; and coordination with other Gulf restoration programs as mandated by the guidelines and RESTORE Act. The Program Director also represents the Florida Centers of Excellence on regional coordination efforts (e.g., NOAA RESTORE Science Program advisory working group, etc.).

PROGRAM MANAGEMENT TEAM (PMT): The PMT includes the FIO Director and other senior-level advisors appointed by the FIO Director, based on their knowledge of FL regional science, technology and management needs. Members are not eligible to submit or participate on FLRACEP grants or contracts. Duties include: review and approve all FLRACEP Requests for Proposals, review and rank Letters of Intent, determine proposals that will be awarded funding, participate in annual all-hands meetings, and other ad hoc tasks on request of the FIO Director.

SCIENCE REVIEW PANEL (SRP): The SRP is an ad hoc team of science and technology experts not involved in any FLRACEP proposals, from in and outside Florida, responsible for technical review of CE grant proposals. Panelists are appointed by the FIO Director. Members change based on RFP priorities.

CENTERS OF EXCELLENCE: Per the approved program Rules and Policies, FLRACEP establishes Centers of Excellence via competitively awarded grants or contracts to produce outputs and outcomes that address the eligible disciplines. Specific responsibilities of the Principal Investigator and grantee institution are further defined in Requests for Proposals and in subsequent award terms and conditions. Notably, CE projects are expected to produce at least one peer-reviewed journal article.

2. Award Subrecipient(s)

A. Current Award Recipient: The current project was awarded under RFP-2 in July of 2016 and re-awarded in 2019 to address the comprehensive observation, monitoring, and mapping eligible discipline.

FLRACEP RFP II CE--University of South Florida

PI Last Name: Peebles; PI Institution: Univ. of South Florida; Title: Spawning Habitat and Early-Life Linkages to Fisheries (SHELF, phase II). Executive Summary: The overall strategy of the SHELF project is to use DNA barcoding to survey fish eggs on the West Florida Shelf (WFS) on an annual basis to develop a long-term fisheries monitoring database, and to conduct targeted studies of anomalies found during the egg surveys. SHELF II will collect samples from 68 stations extending from the Florida Keys to the Alabama border, seasonally targeting collection of eggs of particular species (e.g. groupers or snappers). DNA metabarcoding will be conducted on aggregates of fish eggs in order to produce a list of species encountered at each of the stations. Targeted studies will examine regions of interest (ROI) identified during annual egg surveys, and will include active acoustic surveys, video transects, and a small-scale, local egg survey from the ROI.

B. Prior Award Recipients: The PMT previously selected ten (10) research projects from eight (8) Florida Centers of Excellence to address the Coastal Fish and Wildlife Research and Monitoring eligible activity under RFP-1 via 2-year research grant awards, and one (1) project from an existing Center of Excellence (USF) to address long-term fisheries monitoring as a part of the comprehensive observation, monitoring, and mapping of the Gulf of Mexico eligible activity.
In brief, the awarded Centers of Excellence and projects are:

1) FLRACEP CE 1--Project # 1--University of Florida
PI Last Name: Allen; PI Institution: Univ. of Florida; Title: Examining Fisheries Impact of Invasive Lionfish with an Ecopath with Ecosim Model.

2) FLRACEP CE 2--Project #2--University of Miami
PI Last Name: Ault; PI Institution: Univ. of Miami; Title: Biological and Economic Indicators for Assessing Recreational Fisheries.

FLRACEP CE 2--Project # 3--University of Miami
PI Last Name: Babcock; PI Institution: Univ. of Miami; Title: Improving the use of products derived from monitoring data in ecosystem models of the Gulf of Mexico.

3) FLRACEP CE 3--Project # 4--Florida International University
PI Last Name: Boswell; PI Institution: Florida International Univ.; Title: Fishery-Independent Surveys of Reef Fish Community, Size, and Age Structure off Northwest Florida.

4) FLRACEP CE 4--Project # 5--University of West Florida
FPI Last Name: Caffrey; PI Institution: Univ. of West Florida; Title: Evaluating Fish Production and Ecosystem Impacts of Artificial Reefs.

5) FLRACEP CE 5--Project # 6--Florida State University
PI Last Name: Grubbs; PI Institution: Florida State Univ.; Title: Monitoring oil spill effects and recovery in large deep-sea fishes.

6) FLRACEP CE 6--Project #7--University of South Florida

PI Last Name: Lembke; PI Institution: Univ. of South Florida; Title: Demonstration of Fisheries Assessment Applications for Underwater Gliders.

FLRACEP CE 6--Project # 8--University of South Florida
PI Last Name: Peebles; PI Institution: Univ. of South Florida; Title: Egg and larval barcoding for Gulf DEPM stock assessments.

7) FLRACEP CE 7--Project # 9--University of Central Florida
PI Last Name: Mansfield; PI Institution: Univ. of Central Florida; Title: Ontogenetic Shifts in Sea Turtle Habitat Use and Foraging Ecology.

8) FLRACEP CE 8--Project # 10--Nova Southeastern University
PI Last Name: Walker; PI Institution: Nova Southeastern University; Title: Hardbottom Mapping and Community Characterization of the West-Central Florida Gulf Coast.

FLRACEP RFP II CE – University of South Florida

PI Last Name: Peebles; PI Institution: University of South Florida; Title: Spawning Habitat and Early-Life Linkages to Fisheries (phase I).

At the time of their completion, the above FLRACEP Centers of Excellence were responsible for 46 papers, either submitted to or in preparation for submission to peer-reviewed scientific journals, and support of 57 graduate students.

D. Financial Elements

1. Award Recipient

Budget narrative: FLRACEP was awarded $4,707,093 throughout the course of its five-year award from Treasury. This award closed on August 31, 2019 with final program expenditures of $4,387,873. Of this, $3,515,245 was expended by Centers of Excellence Research Grants (see below), with the remaining funds spent on program administration (travel, staff salary, supplies, etc.), independent science review, data management, program meetings, etc.

Additionally, FLRACEP received another Treasury award in February of 2019 totaling $1,951,773 for the 2019-2023 performance period. FLRACEP has obligated $750,000 in project funding for the second phase of the USF SHELF Center of Excellence (see below) and expects to receive an amendment to this award adding additional funds for six Centers of Excellence in early 2020.

2. Award Subrecipient(s)

Budget narrative: The Department of Treasury FLRACEP award authorized $3,645,843 for Centers of Excellence research grant sub-awards, of which $3,515,245 was expensed and invoiced (details below).

The USF SHELF Center of Excellence has work underway, and $134,075 has been expended of their total $750,000 award (period of performance 2019-2022).

Final Centers of Excellence Expenses:

Florida Institute of Oceanography (Florida RESTORE Act Center of Excellence Program)

Award	Project Name	CE Name	Award Amount	Expended (close-out)
RFP I	Assess management options to mitigate lionfish impacts to reef ecosystems	University of Florida	$ 294,006.00	$ 283,877.47
	Optimizing economic value and sustainability of Florida's recreational fisheries	University of Miami	$ 294,000.00	$ 290,529.04
	Better use of directly-observed data in ecosystem simulation models	University of Miami	$ 285,119.00	$ 248,980.51
	Informing fishery-independent reef fish surveys through advanced survey techniques	Florida International University	$ 290,742.00	$ 290,741.95
	Evaluating the role of artificial reefs as hotspots of biological productivity	University of West Florida	$ 293,991.00	$ 290,147.47
	Study will examine long-term effects of DwH on large deep-sea fishes	Florida State University	$ 293,960.00	$ 288,825.50
	Robotic monitoring of Red Grouper in the Eastern GoM	University of South Florida	$ 293,555.00	$ 293,522.67
	Tracking sea turtle "lost years" in the Gulf of Mexico	University of Central Florida	$ 290,803.00	$ 290,772.88
	Egg and larval DNA barcoding support Gulf reef fish stock assessments	University of South Florida	$ 129,265.00	$ 123,864.42
	Habitat mapping to inform future survey efficiencies, management strategies, and climate change research	Nova Southeastern University	$ 293,202.00	$ 292,242.99
Total RFP I Centers of Excellence			$ 2,758,643.00	$ 2,693,504.90
RFP II	Spawning habitat and early-life linkages to fisheries (SHELFI)	University of South Florida	$ 887,200.00	$ 821,740.92
			$ 887,200.00	$ 821,740.92
Grand Total Centers of Excellence			$ 3,645,843.00	$ 3,515,245.82
Note: All projects above have closed				

Existing Centers of Excellence Expenses:

Florida Institute of Oceanography (Florida RESTORE Act Center of Excellence Program)

RFP II Renewal	Spawning habitat and early-life linkages to fisheries (SHELFII)	University of South Florida	$ 749,999.00	$ 134,075.19
Total RFP II Center of Excellence (Renewal)			$ 749,999.00	$ 134,075.19

E. Gulf Coast Ecosystem Restoration Council Element

1. Leveraging Multipliers

No FLRACEP projects or elements have leveraged RESTORE Act funding streams to the best of our knowledge, due in part to the differences in priority areas, timing of projects, and areas of focus. FLRACEP staff continue to work with other restoration science funding entities to explore opportunities for collaboration and leveraging of. In addition, our CE grantees have leveraged significant non-RESTORE resources in their work, and this can be made available upon request.

Appendix G – Center of Excellence Report - Louisiana

Executive Summary

On April 8, 2014, the Louisiana Coastal and Protection and Restoration Authority (CPRA) named The Water Institute of the Gulf as the State of Louisiana's Center of Excellence. On November 1, 2015, the U.S. Department of the Treasury awarded CPRA a grant to begin its research program. The mission of the RESTORE Act Center of Excellence for Louisiana (LA-COE) is to support research directly relevant to implementation of Louisiana's Coastal Master Plan by administering a competitive grants program and providing the appropriate coordination and oversight support to ensure that success metrics are tracked and achieved.

The LA-COE has been managing research subrecipients that were executed in March 2018 under the first request for proposals (RFP1). A total of 13 research subawards were granted; six graduate studentship awards, two collaborative awards, and five research awards. Assessment and reporting on progress using defined metrics that address federal reporting requirements including reports to the U.S. Department of Treasury have been developed and are ongoing.

The LA-COE Research Strategy document was revised and renamed 'Research Needs' (to better reflect its technical content and layout). It was released for public comment November 1-30, 2018. Comments were reviewed by both LA-COE staff and CPRA, and discussions took place regarding how best to address the comments. Revisions were made to the document, and the final version was posted on the LA-COE website and on the CPRA Coastal Information Management System (CIMS) website.

An in-person meeting with the Executive Committee was convened in January 2019 in Baton Rouge, LA. During the meeting, concurrence was received to finalize the 'notification of dissemination' and 'conflict of interest' language in the Standard Operating Procedures (SOP V2), and the finalized document was posted on the LA-COE website and on the CPRA CIMS website.

Key highlights in 2019 include the LA-COE moderating a conference session at the Gulf of Mexico Oil Spill and Ecosystem Science Conference (GoMOSES) in February 2019 in New Orleans, LA. Presentations were given by two LA-COE research subrecipients, the CPRA COE Grant Program Project Manager, the LA-COE Director, and several other RESTORE Act Centers of Excellence Directors or Deputy Directors to highlight research findings, explain how the LA-COE research findings will be used to support Louisiana's Coastal Master Plan implementation, and to provide information regarding the various operations of the others COEs. The session concluded with a panel discussion, and a session summary was prepared and submitted to the GoMOSES organizers. Another important event included the hosting of the second All-hands meeting in August 2019 where researchers, post-doctoral fellows, students, coastal managers, and research officials of the Executive Committee met in person to receive updates on the funded research and to discuss how the results could help implement the Coastal Master Plan.

Programmatic Elements

Award Recipient

Following a mandate by the U.S. Department of Treasury requiring that Centers of Excellence must focus efforts on a selected set of disciplines, the LA-COE focuses on the following:

- Coastal and deltaic sustainability, restoration and protection, including solutions and technology that enable citizens to live in a safe and sustainable manner in a coastal delta in the Gulf Coast region
- Coastal fisheries and wildlife ecosystem research and monitoring in the Gulf Coast region
- Sustainable and resilient growth, economic, and commercial development in the Gulf Coast region
- Comprehensive observation, monitoring, and mapping of the Gulf of Mexico

The status of performance and annual accomplishments include that LA-COE: Coordinated the review of proposals by SMEs, CPRA, and the ERB. CPRA provided review of the relevance of the proposed research to implementation of Louisiana's Coastal Master Plan. Developed summary reviews and, subject to CPRA's concurrence, selected research projects for funding. Principal investigators were notified for selection of funding, and a project kick-off webinar with subrecipients was conducted. Subrecipient risk assessments were completed on all selected subrecipients, and subawards were drafted and sent to research institutions for review and negotiation. The LA-COE was operated according to Standard Operating Procedures, including development and maintenance of a website, coordination with other Centers of Excellence and additional outreach. A webinar was held in September 2019 with the External Review Board members to discuss the progress of LA-COE in the first four years and to gain written feedback from those members. Contracting and research grants management standards were developed and implemented to help manage subrecipients, including quarterly performance progress reports from the subrecipients. Assessment and reporting on progress using defined metrics that address federal reporting, including reports to the U.S. Department of Treasury, was also conducted.

<u>Award Subrecipient(s) Selected for Funding:</u>

1. Louisiana State University, Dr. Kehui Xu
    - Researcher role: Help implement Louisiana's Coastal Master Plan
    - Eligible discipline: Coastal and deltaic sustainability, restoration and protection, including solutions and technology that allow citizens to live in a safe and sustainable manner in a coastal delta in the Gulf Coast
    - Research project undertaken: Integrating High-Fidelity Models with New Remote Sensing Techniques to Predict Storm Impacts on Louisiana Coastal and Deltaic Systems
    - Subaward executed in April 2018. Summary: The role and dynamics of barrier islands and back-barrier marshes is important to understand as they represent the "first line of defense" against sea level rise and erosion by wave impacts and storms. The research goal of this project is to develop and apply an innovative model system that integrates Delft3D and XBeach models with field and remotely-sensed observations of hydrodynamic and biophysical data. This integration will enable the prediction of barrier-marsh dynamics, and assess the effectiveness of marshes as a nature-based defense. New XBeach model results indicate that including back-barrier marshes and a realistic thickness of the sand layer is important. This was found by the successful coupling of Delft3D, SWAN, and XBeach, processing remotely sensed data, and validating XBeach for wave reduction in wetlands with two field datasets. Ultimately, this research shows that the coupling of Delft3D-XBeach enables realistic modeling of storm impacts on barrier islands and wetlands, which can be a powerful and useful implementation tool for the Louisiana Coastal Master Plan, in which a major focus is on barrier island restoration.

2. Louisiana State University, Dr. Scott Hagen
    - Researcher role: Help implement Louisiana's Coastal Master Plan

- Eligible discipline: Coastal and deltaic sustainability, restoration and protection, including solutions and technology that allow citizens to live in a safe and sustainable manner in a coastal delta in the Gulf Coast
- Research project undertaken: Coupling Hydrologic, Tide and Surge Processes to Enhance Flood Risk Assessments for the Louisiana Coastal Master Plan
- Subaward executed in March 2018. Summary: In the wake of the August 2016 floods in southeastern Louisiana, officials were concerned about the potential consequences of a tropical storm making landfall on already saturated soils and a flooded landscape. This project seeks to understand the compound effect of rainfall with storm surge on flooding in low-lying coastal areas as defined by flood transition zones (see graphic from Bilskie & Hagen, "Defining Flood Zone Transitions in Low-Gradient Coastal Regions." Geophysical Research Letters, Vol. 45(6), pp. 2761-2770, 2018. https://doi.org/10.1002/2018GL077524). By coupling hydrologic (e.g., rainfall and runoff) and tide and surge flooding processes at the coastal land margin, the ability to model the overall process was enhanced. This compound flood modeling application could provide further information on the combined effects of storms (winter and tropical) with antecedent rainfall, lead to a more complete return period analyses, and ultimately result in the capability to assess flood risk in the transition zone – all of which will benefit restoration projects. Research outputs include numerical models on the Lake Maurepas and Barataria watersheds that can capture surge and wind with modeled and/or gridded rain. This modeling tool can be especially important for the assessment of Coastal Master Plan projects in low gradient coastal regions and is the basis for all work that will be done within flood transition zones under the Louisiana Watershed Initiative.

3. University of New Orleans, Dr. Mark Kulp
    - Researcher role: Help implement Louisiana's Coastal Master Plan
    - Eligible discipline: Coastal and deltaic sustainability, restoration and protection, including solutions and technology that allow citizens to live in a safe and sustainable manner in a coastal delta in the Gulf Coast
    - Research project undertaken: An Evaluation of Faulting in Holocene Mississippi River Delta Strata through the Merger of Deep 3-D and 2-D Seismic Data with Near Surface Imaging and Measurements of Vertical Motion at Three Study Areas
    - Subaward executed in March 2018. Summary: South Louisiana contains a number of faults, some of which could extend to the surface which would be essential to be aware of in planning coastal restoration projects since these surface-impacting faults could impact how land subsides locally. While there is a good amount of information from deep seismic data collected through oil and gas exploration, this project is meant to bridge the gap between this data set and the surface. Looking at deep faults in three study areas using seismic industry data, this team is working to determine things like slip rates where possible, determine whether these faults have had impacts near the surface, and assess impacts to infrastructure by mapping elevation changes along roads that cross the faults. Three study areas are planned in northern Terrebonne-Timbalier Bay, Bayou Lafourche near Golden Meadow, and the Lake Pontchartrain/Lake Borgne areas of the Deltaic Plain to better understand the vertical motion of land surfaces. While the work continues, early results show that shallow movement of faults in the Lake Pontchartrain study area coincide with visible offsets and elevation changes along the Causeway and Highway 11 bridges. Similar surveys are being done in the Terrebonne Parish study area. Overall, this research will help

develop a template for determining whether the presence of a fault should be considered during a project to improve a project's long-term success or viability.

4. University of Louisiana at Lafayette, Dr. Paul Leberg
    - Researcher role: Help implement Louisiana's Coastal Master Plan
    - Eligible discipline: Coastal fisheries and wildlife ecosystem research and monitoring in the Gulf Coast Region
    - Research project undertaken: Assessment of Coastal Island Restoration Practices for the Creation of Brown Pelican Nesting Habitat
    - Subaward executed in March 2018. Summary: Restoration efforts on coastal islands, such as barrier islands, can significantly impact the habitats and the livelihoods of the seabirds that rely on them. This work seeks to understand the effects of restoration efforts on the suitability of coastal islands as seabird sites for breeding, nesting, and foraging, and how changes in vegetation and predator communities affect seabird colony success. Two field seasons are completed, and one more season of transmitter and nest success data remains to be collected. At this time, some of the preliminary results indicate that birds tend to use smaller islands and ones that are further away from the mainland, that they are much more likely to nest on restored islands, and that the number of islands used by seabirds is rapidly declining. This research has many potential implications for the Louisiana Coastal Master Plan, for example, these results can be used to improve habitat suitability models for the Brown Pelican in the upcoming and future Coastal Master Plan.

5. University of New Orleans, Dr. Marla Nelson
    - Researcher role: Help implement Louisiana's Coastal Master Plan
    - Eligible discipline: Sustainable and resilient growth, economic and commercial development in the Gulf Coast Region
    - Research project undertaken: From Adapting in Place to Adaptive Migration: Designing and Facilitating an Equitable Relocation Strategy
    - Subaward executed in March 2018. Summary: As sea levels encroach upon our coasts and threaten coastal communities, difficult decisions about adaption and, in some extreme cases, relocation, must be considered. This project is working to understand how households adapt and respond to increasing environmental vulnerability, as well as the role of public officials in facilitating and supporting equitable relocation. Several communities in Terrebonne Parish are identified in the Louisiana Coastal Master Plan as particularly vulnerable to flooding in the next 25 and 50 years. In order to better understand the challenges and identify innovative practices, interviews were conducted with Terrebonne Parish residents and officials, and past policies and programs were reviewed. This research can inform policy in the Louisiana Coastal Master Plan to assist in implementing relocation as nonstructural mitigation. Specifically, the following outputs from this research can be utilized: (1) identification of resident and public official priorities and concerns, (2) explanation of how residents make adaptation decisions, (3) identification of innovative practices and barriers from other buy-out and relocation efforts, (4) development of a strategy to collaborate with communities to design, evaluate, and implement relocation strategies, and (5) development of criteria for identifying suitable relocation and resettlement sites.

6. Louisiana State University, Dr. Kehui Xu

- Researcher role: Help implement Louisiana's Coastal Master Plan
- Eligible discipline: Coastal and deltaic sustainability, restoration and protection, including solutions and technology that allow citizens to live in a safe and sustainable manner in a coastal delta in the Gulf Coast
- Research project undertaken: Enhancing Sediment Retention Rates of Receiving Basins of Louisiana Sediment Diversions
- Subaward executed in March 2018. Summary: One of the major coastal restoration and protection efforts undertaken by CPRA is to build river sediment diversions to reconnect the river to its floodplain and mitigate land loss. This project is investigating the sediment transport and retention rate in Barataria Bay, one of the proposed sites for a sediment diversion. Specifically, the study explores the sediment characteristics, the settling and compaction of dredged sediment, and the impact of Sediment Retention Enhancement Devices (SREDs) on how well sediment can be retained (in order to build land) in the receiving area of a river diversion site. Two tripods were deployed in Barataria Bay in late 2018 to early 2019 to capture the effects of winter cold fronts. A conceptual model was developed, wherein the SREDs effectively divide the receiving area into smaller sub-basins. This model showed that the sediment retention rates generally increased landward (or upstream), but that this can be complicated by impacts of storm surge. There are several potential uses of this research for implementation in the Louisiana Coastal Master Plan. These include focusing on enhancing river sediment delivery, increasing sediment retention, minimizing erosion, testing the design of SREDs, terraces, and living shorelines, and considering the potential benefit of higher retention rates in more landward receiving basins.

7. Louisiana State University, Dr. Tracy Quirk
    - Researcher role: Help implement Louisiana's Coastal Master Plan
    - Eligible discipline: Coastal and deltaic sustainability, restoration and protection, including solutions and technology that allow citizens to live in a safe and sustainable manner in a coastal delta in the Gulf Coast
    - Research project undertaken: Plant and Soil Response to the Interactive Effects of Nutrient and Sediment Availability: Enhancing Predictive Capabilities for the Use of Sediment Diversions and Dredge Sediment for Marsh Creation
      Subaward executed in March 2018. Summary: This project seeks to understand the interactive effects of nutrient and sediment availability on marsh nutrient cycling, plant productivity, biomass allocation, decomposition, and soil organic matter accumulation and accretion. This work can enhance the predictive modeling capabilities of sediment retention at diversion sites. The hypothesis is that the availability of mineral sediment deposition and elevation influences plant and soil response to nutrient-enrichment. One field-based study in Barataria Bay and two greenhouse studies were conducted. Results indicate that mineral sedimentation deposition and nutrient enrichment treatments generally resulted in stimulated plant growth (above and below ground) or at least reduced the negative effects of low intertidal elevations. These results can be incorporated in predictive models of marsh morphology and accretion response to sediment diversions (e.g., the basin wide Delft3D model and the Master Plan model), this can also inform adaptive management (e.g., thin-layer deposition, marsh creation).

8. Louisiana Tech University, Dr. Sanjay Tewari
    - Researcher role: Help implement Louisiana's Coastal Master Plan
    - Eligible discipline: Coastal and deltaic sustainability, restoration and protection, including solutions and technology that allow citizens to live in a safe and sustainable manner in a coastal delta in the Gulf Coast & Comprehensive observation, monitoring, and mapping of the Gulf of Mexico
    - Research project undertaken: Electrokinetic Barrier for Seawater Intrusion
    - Subaward executed in March 2018. Summary: The project investigates electrokinetic barriers against seawater intrusion in the coastal region of Louisiana. Efforts will be made to compare the efficacy of this electrokinetic barrier against other techniques that are being used, which is important for many coastal areas that have freshwater crises due to saltwater intrusion. Tewari and his graduate student both left Louisiana Tech University and moved to separate universities. Subaward has been terminated.

9. Louisiana State University, Dr. Robert Twilley
    - Researcher role: Help implement Louisiana's Coastal Master Plan
    - Eligible discipline: Coastal and deltaic sustainability, restoration and protection, including solutions and technology that allow citizens to live in a safe and sustainable manner in a coastal delta in the Gulf Coast
    - Research project undertaken: Multiple Tools for Determining the Fate of Nitrate
    - Subaward executed in March 2018. Summary: Graduate student Alex Christensen presented the updates at the All-Hands meeting on the research looking at how nitrates travel through the water column. Fieldwork in the spring of 2019 was interrupted when Hurricane Barry came to shore in July which killed all the plants at the Wax Lake study area. Sampling continued in August with plans to continue in October. Research is ongoing, but one of the interesting things the researchers think might be going on is that some of the nitrate is turning into ammonium. Fieldwork and modeling results will help refine water quality models currently in use which could be applied to more specific planning of marsh creation projects for nitrogen uptake and potential impacts from upcoming sediment diversions.

10. Louisiana State University, Dr. George Xue
    - Researcher role: Help implement Louisiana's Coastal Master Plan
    - Eligible discipline: Coastal and deltaic sustainability, restoration and protection, including solutions and technology that allow citizens to live in a safe and sustainable manner in a coastal delta in the Gulf Coast.
    - Research project undertaken: Project Louisiana Rivers' Sediment Flux to the Coastal Ocean
    - Subaward executed in March 2018. Summary: This research aims to better understand the contribution local rivers such as the Calcasieu, Mermentau, and Vermillion have on the stability of the Chenier Plain, especially as these local rivers are more vulnerable to long-term and short-term disturbances such as climate change, sea level rise, flooding, and restoration projects. This project is coupling surface water and sediment modeling to better understand sediment movement through these local rivers and examine possible changes in water and sediment changes due to climate change or future restoration projects. Test runs of coupled models have been performed and the next step is to transfer this combination of models to the coastal landscape of Louisiana.

11. University of Louisiana at Lafayette, Dr. Emad Habib
    - Researcher role: Help implement Louisiana's Coastal Master Plan
    - Eligible discipline: Coastal and deltaic sustainability, restoration and protection, including solutions and technology that allow citizens to live in a safe and sustainable manner in a coastal delta in the Gulf Coast & Comprehensive observation, monitoring, and mapping of the Gulf of Mexico
    - Research project undertaken: Evaluation of Radar-Based Precipitation Datasets
    - Subaward executed in March 2018. Summary: Precipitation varies over space and time and no dataset that currently exists is perfect, but it is an input into various models used by CPRA for coastal restoration and protection planning. In addition, there are currently only 10-15 rain gauges included within the 946 model compartments included in the model used in the 2017 Coastal Master Plan. This research looks into whether radar-based precipitation datasets could provide a vital improvement to these models for future plans. Radar-based precipitation products offer the advantage of identifying short- and long-term spatial rainfall patterns, ability to provide rainfall estimates at different time scales (hourly, daily, monthly), and could better support project-scale modeling studies that require high-resolution rainfall patterns.

12. Louisiana State University, Dr. Frank Tsai
    - Researcher role: Help implement Louisiana's Coastal Master Plan
    - Eligible discipline: Coastal and deltaic sustainability, restoration and protection, including solutions and technology that allow citizens to live in a safe and sustainable manner in a coastal delta in the Gulf Coast
    - Research project undertaken: Constructing Mississippi River Delta Plain Soil Stratigraphy
    - Subaward executed in March 2018. Summary: This study investigates coastal land building and compactional subsidence through soil stratigraphy analysis and subsidence modeling of the Mississippi River Deltaic Plain. Essentially, this work hopes to show how groundwater impacts coastal projects. The project is developing a three-dimensional soil stratigraphy model, analyzing spatial patterns to identify seepage pathways for surface-groundwater interaction, and to develop a groundwater flow model which will imply where the ground rises, where it sinks, and where erosion could be implicated. Preliminary information shows interactions between the river, the gulf, and the groundwater system, can particularly be seen during high water events.

13. Louisiana State University, Dr. John White
    - Researcher role: Help implement Louisiana's Coastal Master Plan
    - Eligible discipline: Coastal and deltaic sustainability, restoration and protection, including solutions and technology that allow citizens to live in a safe and sustainable manner in a coastal delta in the Gulf Coast
    - Research project undertaken: Determining the Influence of Surface Water Diversions
    - Subaward executed in March 2018. Summary: In 2007, a series of 139 stations in the Davis Pond outflow area were sampled for plant type, bulk density, total carbon, nitrogen and phosphorus, pH, moisture content, and organic matter content. Results from this were published in 2012. Now more than 11 years later and with years of operation at Davis Pond, this project team is taking samples in the same areas to help answer the questions on whether the operation of the diversion has altered soil properties such as bulk density, organic matter content, or nutrient content, all of which are important to coastal marsh

growth and resilience in Barataria Basin. Field work on this project is underway. Data from this research could help inform CPRA about the continued use of freshwater diversions such as Davis Pond and Caernarvon.

Financial Elements

Award Recipient

The RESTORE Act Center of Excellence Research Grant Program amended award to CPRA was issued on May 25, 2017 and is funded for $4,202,509.00. An amended Cooperative Endeavor Agreement dated June 9, 2017 was executed between CPRA and The Water Institute of the Gulf (The Water Institute) to administer the award with a current contract value of $4,036,238. Invoices from The Water Institute total $2,571,796.77 through the period ending August 31, 2019, including subaward expenditures.

Award Subrecipient(s)

As a result of a competitive and peer-reviewed request for proposal process, subrecipients of research awards were selected. Subawards were executed in March & April 2018. The subrecipients and associated subaward amounts are provided below:

Number	Subrecipient	Subaward Amount
1	Louisiana State University	$501,270.00
2	Louisiana State University	$499,882.00
3	University of New Orleans	$349,173.52
4	University of Louisiana at Lafayette	$299,733.16
5	University of New Orleans	$295,338.00
6	Louisiana State University	$292,495.00
7	Louisiana State University	$292,914.80
8	Louisiana Tech University	$57,519.00
9	Louisiana State University	$63,100.00
10	Louisiana State University	$77,015.26
11	University of Louisiana at Lafayette	$71,148.00
12	Louisiana State University	$70,070.00
13	Louisiana State University	$83,328.00

Gulf Coast Ecosystem Restoration Council Elements

Leveraging Multipliers

The LA-COE and CPRA participate in bimonthly conference calls of the Gulf of Mexico Restoration and Science Programs Coordination Forum that allows for funding organizations in the Gulf region to discuss their programs, share ideas, and promote collaborations.

Appendix H – Center of Excellence Report – Mississippi

Executive Summary

Brief Description of the selected COE

In February 2015, the Mississippi Department of Environmental Quality (MDEQ) made available for public comment for 45 days a draft Request for Proposals (RFP) describing the competitive selection process, rules, and policies. MDEQ prepared the draft RFP in accordance with state law and in compliance with 31 C.F.R. §34.700-708. Notice of the public comment and review period for the draft RFP was published in the Sun Herald and Clarion Ledger newspapers as well as online at www.restore.ms. After consideration of meaningful input from the public, a final RFP was published in April 2015. Notice of availability of the final RFP was published in the Sun Herald and Clarion Ledger newspapers on April 6, 2015 and April 13, 2015, as well as online at www.restore.ms. The deadline to submit proposals was May 7, 2015. As a result of the Final RFP, MDEQ received two proposals. After reviewing the proposals according to the qualifications and criteria described above, the Mississippi Based Restore Act Center of Excellence (MBRACE) was selected. MBRACE is a consortium of four Mississippi universities - Jackson State University, Mississippi State University, University of Mississippi and University of Southern Mississippi. The University of Southern Mississippi serves as the lead university for the consortium.

Overview of focus of the COE

The focus of MBRACE, a consortium of Mississippi's research universities, is a sound, comprehensive science- and technology-based understanding of the chronic and acute stressors, both anthropogenic and natural, on the dynamic and productive waters and ecosystems of the northern Gulf. The goals of MBRACE are: (1) serve as a focal point for new, long-term research and socioeconomic initiatives along the northern Gulf with relevance to Mississippi's resources; (2) serve the people of Mississippi and the northern Gulf region with a scientifically based understanding of ecosystem status and trends (past to present, predictive) with special emphasis on improved forecasting abilities to ensure sustainable coastal and ocean ecosystems of the Gulf; and (3) work within a consortium of stakeholders including Mississippi's research universities under the Mississippi Research Consortium, state and federal agencies, local communities, private industry, and non-governmental organizations.

Summary of the annual performance of the COE

MBRACE established a five-person Executive Steering Committee (ESC) comprised of leadership from the four MBRACE universities. The ESC developed core research questions and a science plan relative to the COE eligible disciplines. The science plan guides the Core Research Program conducted by MBRACE. A Call for Proposals to fund research under the Core Research Program was developed to solicit proposals from MBRACE universities. Proposals submitted by the University of Southern Mississippi, the University of Mississippi, Mississippi State University, and Jackson State University have been approved, and the sub-award agreements have been executed. Research activity under each sub-award agreement is underway; a summary of activity for each sub-award is provided below.

Programmatic Elements

Award Recipient

Treasury – MDEQ: Treasury issued the federal award to MDEQ in August 2015, with an effective date of September 1, 2016. MDEQ selected MBRACE to implement the Centers of Excellence Research Grants Program. MBRACE is a consortium of four Mississippi universities - Jackson State University, Mississippi State University, University of Mississippi and University of Southern Mississippi. The University of Southern Mississippi serves as the lead university for the consortium. During the reporting period, MDEQ, with contractual support, performed program management activities, including the oversight, coordination, and monitoring of grant activities, sub-recipient activities, and funds expended under the program. MDEQ prepared federal financial and performance reports for the prior reporting period. MDEQ reviewed the sub-recipient's Monthly Project Progress Reports and monthly status calls were held to discuss project activities and support overall program scope and schedule management. Sub- recipient reimbursement requests were reviewed for consistency with the grant and sub-award agreement scope of work and budget.

Award Sub-recipient/Consortium Lead

MDEQ – University of Southern Mississippi: The sub-award agreement was executed on May 21, 2017, between MDEQ and the University of Southern Mississippi (Principal – Marcia Landen, DUNS - 62-333-5775) for $3,442,337.00.

MBRACE was selected as the Mississippi's Center of Excellence under Bucket 5 of the RESTORE Act. MBRACE is a consortium of four Mississippi universities - Jackson State University, Mississippi State University, University of Mississippi and University of Southern Mississippi. The University of Southern Mississippi serves as the lead university for the consortium. The funds are being used to implement the MBRACE program. This program is conducting research and development on the Gulf Coast Region that focuses on science, technology, and monitoring. The mission of MBRACE is to seek sound comprehensive science- and technology-based understanding of the chronic and acute stressors on the dynamic and productive waters and ecosystems of the northern Gulf of Mexico, and to facilitate sustainable use of the Gulf's important resources.

During the reporting period, MDEQ and MBRACE conducted routine monitoring and reporting activities, including monthly reporting submittal and monthly status calls, and participated in routine meetings. A Scientific Collection Permit was updated and submitted to the U.S. Department of the Treasury in accordance with Special Award Condition #3 of the Notice of Award. A Key Personnel Change occurred; effective May 1, 2019, Dr. Kelly Darnell assumed the role of Principal/Lead Investigator for The University of Southern Mississippi/MBRACE. MDEQ submitted an amendment request to the U. S. Department of the Treasury to extend the period of performance, extend the Core Research Program, and implement the Competitive Research Program; this request was under Treasury review as of September 30, 2019.

The MBRACE ESC finalized the Science Plan and submitted it to the U.S. Department of the Treasury during the prior reporting period. MBRACE's long-term Science Plan focuses on Mississippi's directive toward sustainable coastal management through three major thrust areas: 1) monitoring and ocean observations, 2) modeling, and 3) process studies. No modifications were made to the Science Plan during the current reporting period. New appointments were made to the to the External Advisory Group (EAG) during the reporting period. MBRACE finalized an agreement with Texas A&M University to perform data management services; data management activities were underway as of September 30, 2019. At the All Hands meeting the EAG appointed Greg Steyer as the Group's Chair.

Additionally, the Executive Steering Committee (ESC) decided to move to quarterly teleconferences, with Lead PI conference calls during non-ESC call months to maximize efficiencies of communication and coordination between PIs.

MBRACE's monitoring strategy for Core Research Program sub-recipients was finalized in a prior reporting period.

Proposals approved under the Core Research Program focus on understanding oyster reefs and their sustainability. MBRACE approved four projects that examine how ecological conditions relevant to oysters vary over time and between newly reported oyster reefs and adjacent unrestored oyster reefs in the Mississippi Sound:

1. Water Quality and Benthic Habitat Observations for Enhanced Understanding and Sustainable Management of Oyster Reefs in the Mississippi Sound
   Mississippi State University
   Principal Investigators: R. Moorhead, P. Dash, A. Skarke
2. Abiotic and Biotic Influences on Current and Historic Distributions of Oyster Reefs
   University of Mississippi
   Principal Investigators: M. Slattery, G. Easson, D. Gochfeld, S. Showalter, K. Willett
3. Sustainability and Restoration of Oyster Reef Habitat in Mississippi Sound: A Larval Transport and Recruitment Approach
   The University of Southern Mississippi
   Principal Investigators: J.D. Wiggert, K. Barbor, M.K. Cambazoglu, A. Diercks, S. Howden, S. Milroy, C. Rakocinski
4. Monitoring, Mapping, and Visualization of Oyster Reefs Habitat in the Mississippi Gulf Coast
   Jackson State University
   Principal Investigators: K. Ali, F. Tuluri, H. Shih, R. Kafouri

Core Research Program University of Southern Mississippi
Project Summary: USM's proposal for funding under the Core Research Program was approved for $625,000; activities are being performed under the existing subaward between MDEQ and USM. These

funds are being used for research on the sustainability and restoration of oyster reef habitat in the Mississippi Sound. The University of Southern Mississippi continued work on their project titled "Sustainability and Restoration of Oyster Reef Habitat in Mississippi Sound: A Larval Transport and Recruitment Approach."

Work performed in prior reporting periods: University of Southern Mississippi researchers began collecting ocean current data using stations in Waveland and Pass Christian, Mississippi, and researchers began implementing plankton sampling. University of Southern Mississippi researchers collected CODAR ocean current data using stations in Waveland and Pass Christian, Mississippi. Additional activities included completing planned baseline mapping, development of sediment transport models and circulations models, plankton and larvae sampling, as well as model simulations.

Work performed in the current reporting period: The University made several field trips over the reporting period as well as initiated and continued sample processing including zooplankton samples. Data analytical work was undertaken tied to the model assessment and validation, including CODAR data collection, continuing to process bathymetric and backscatter data sets, and coordinating data between PIs and institutions.

Lower-Tier Sub-Recipient(s)

MBRACE is a consortium of four Mississippi universities - Jackson State University, Mississippi State University, University of Mississippi and University of Southern Mississippi. The University of Southern Mississippi serves as the lead university for the consortium. USM issued sub-award agreements during the prior reporting period; a summary of work being performed by each lower-tier sub-recipient is provided below:

University of Southern Mississippi – University of Mississippi:
Project Summary: The sub-award agreement was executed on August 31, 2017, between University of Southern Mississippi and the University of Mississippi (Principal - Marc Slattery, DUNS –- 06-771-3560) for $625,000. The funds are being used to identify differences in abiotic and biotic stressors at current and historic oyster reef sites, to better understand oyster reef health and to inform management regarding the best places and practices to improve oyster reef restoration strategies.

Work performed in prior reporting periods: The University of Mississippi began work on their project titled "Abiotic and Biotic Influences on Current and Historic Distributions of Oyster Reefs" Researchers coordinated with University of Southern Mississippi to submit a joint "MDMR Scientific Research Permit" application form. Permit # SRP-035-17 was approved and issued on September 8, 2017. Additional activities included transferring oyster broodstock from University of Southern Mississippi Gulf Coast Research Lab to University of Mississippi and collecting water and sediment samples. The University of Mississippi deployed the landers at each of the designated sites, water quality samples were collected, and the biomarker oysters that had been deployed earlier were retrieved and processed. A summer exposure experiment

also took place. All landers have been retrieved that could be found and the University is currently in the data analysis phase, analyzing raw data, and continued data collection of clearance rates and hemocyte samples from summer exposure experiment. Additionally, data was collected from the Bonnet Carre spillway opening in May, 2018.

Work performed in the current reporting period: The University of Mississippi made several trips into the field over the reporting period retrieving landers, deploying landers, as well as coordinating with Jackson State University. Continued biological sample processing occurred including completed RNA extraction / collected cDNA of tissue samples to be used for gene expression analysis. Additionally, new assays for detecting multiple proteins and biological pathways were tested, as well as sample processing and analyses occurred from deployments.

University of Southern Mississippi – Mississippi State University:
Project Summary: The sub-award agreement was executed on September 15, 2017, between the University of Southern Mississippi and Mississippi State University (Principal - Robert Moorhead, DUNS - 07-546-1814) for $624,953.25. The funds are being used for research on the influence of water quality and benthic habitat conditions on the health of oyster reefs in the Mississippi Sound.

Work performed in prior reporting periods: Mississippi State University began work on their project titled "Water Quality and Benthic Habitat Observations for Enhanced Understanding and Sustainable Management of Oyster Reefs in the Mississippi Sound." Laboratory supplies were purchased and the procurement process for necessary field equipment was initiated. MSU worked on the development of UAS and satellite algorithms and tested various data acquisition protocols. Several in-field measurements and data collection efforts were undertaken, including the collection of water quality data using both in-situ and remote sensing sensors (data being analyzed for relationships between sensors and in-situ water quality parameters). Several other data parameters were collected including chirp sub-bottom profilers data, as well as the initiation of several data analysis streams including processing of MSI/HIS imagery, examination of side-sonar data, and continued collection of water samples and testing for algal components, organic and inorganic sediments, and absorption. Additionally, data was collected from the Bonnet Carre spillway opening in May, 2018.

Work performed in the current reporting period: MSU undertook several field surveys in which they collected their suite of water quality variables, biological samples, and imagery. MSU continued to work on improving the remote sensing algorithms, as well as stood up several collaborations between this research work and USM investigators on submarine groundwater discharge data and providing access to data in support of MBRACE goals. MSU also continued to process MSI/HIS imagery and associated data to obtain reflectance of the water and thus produce algorithms for water quality determination.

University of Southern Mississippi – Jackson State University:

Project Summary: The sub-award agreement was executed on October 11, 2017, between the University of Southern Mississippi and Jackson State University (Principal - Joseph A. Whitaker, DUNS - 044507085) for a total of $624,599. The funds are being used to develop and build a sensor system that can remotely measure and record the valve movement of bivalves. This system will be used in the Mississippi Gulf oyster reefs to continuously measure and report the valve gaping of oysters. This data, together with data from the other University partners, may be used to better assess the health of oyster reefs.

Work performed in prior reporting periods: Jackson State University began work on their project titled "Monitoring, Mapping, and Visualization of Oyster Reefs Habitat in the Mississippi Gulf Coast." The University performed research on the experimental setup by developing a waterproof setup, testing underwater connectors and battery enclosure, testing battery longevity under different software settings, starting Wi-Fi ready code development, starting GSM/GPRS code development, and starting sensor calibration and linearization. JSU tested the sensor systems and developed the code and hardware needed for project implementation. Late summer oysters were selected and transferred into experimental tanks and sensors were installed. Data acquisition started on collected oysters analyzing for a spawning event, working on various power consumption scenarios with the individual sensors, and completing the build out of a cellular sensor system for remote data transfer.

Work performed in the current reporting period: The University continues to refine and complete construction and refinement on the underwater sensor, as well as 6 Underwater time release mechanisms, in preparation for deployment with University of Mississippi. The Underwater Sensor as well as the underwater release mechanism had to be redesigned to be more efficient in the field, to fit the lander appropriately, as well as redesigned to have minimal moving parts.

Competitive Research Program and Continuation of Core Research Program

In June 2019, MBRACE issued a Request for Proposals (RFP) soliciting proposals from the four consortium universities (Jackson State University, Mississippi State University, University of Mississippi and University of Southern Mississippi) for implementation of the Competitive Research Program and continuation of the Core Research Program. Approximately $1.4M will be available to fund three (3) awards under the Competitive Research Program and approximately $1.4M will be available to fund one (1) award under the Core Research Program, which will build on prior research. Proposals were accepted in July 2019 and were under review as of September 30, 2019.

Annual All-Hands Meeting

The annual All-Hands meeting was held at Jackson State University on August 22-23, 2019.. This meeting was an opportunity for the lead PIs of the respective institutions to present their research to the larger Center of Excellence group, hear from the state agencies (MDEQ and MDMR) to restoration priorities and research needs, as well as hear from the External Advisory Group. The All Hands meeting brought together all of the Lead PIs and related researchers, the EAG, as well as representatives from MDEQ and MDMR to hear progress of the Core Research Program, as well as understand how the various PI

components fit together for the Core Research Proposal II. It was clear that Core Research Proposal II was a more synergistic effort between the four MBRACE institutions and that collectively better understanding of coastal ecosystems, specifically around oysters will begin to materialize. Additional topics of discussion included: Core Research Program project updates; data management and entry into GRIIDC; data synthesis and integration; State needs to support restoration; and feedback provided by the EAG.

Financial Elements

Award Recipient	
Recipient:	Mississippi Department of Environmental Quality
Award Amount:	$4,036,236.00
Expenditures to Date:	$1,584,894.64
Funds Leveraged:	$0.00
Consortium Lead	
Sub-recipient:	The University of Southern Mississippi
Sub-award Amount:	$3,442,337.00
Expenditures to Date:	$426,077.53
Funds Leveraged:	$0.00
Core Research Program	
Sub-recipient:	The University of Southern Mississippi
Sub-award Amount:	$658,033.50
Expenditures to Date:	$285646.87
Funds Leveraged:	$0.00
Sub-recipient:	University of Mississippi
Sub-award Amount:	$658,033.50
Expenditures to Date:	$234,651.24
Funds Leveraged:	$0.00
Sub-recipient:	Mississippi State University
Sub-award Amount:	$658,033.50
Expenditures to Date:	$299,848.02
Funds Leveraged:	$0.00
Sub-recipient:	Jackson State University
Sub-award Amount:	$658,033.50
Expenditures to Date:	$50,071.6
6 Funds Leveraged:	$0.00

Gulf Coast Ecosystem Restoration Council Elements

Relevant Synergies/Collaboration with other RESTORE funding streams

In 2016, MDEQ included a $3.5 million project titled “Pascagoula Oyster Reef Complex Relay and Enhancement” on its initial Mississippi State Expenditure Plan (RESTORE Act Oil Spill Impact Component). This project supports the restoration and protection of natural resources by relaying oysters from the Pascagoula Oyster Reef Complex (ORC) to harvestable reefs and enhancing the ORC. This project may include benthic habitat mapping, reef monitoring, and relay of oyster resources to increase productivity on harvestable reefs. The data collected from the MBRACE-funded projects will help inform the outcomes of this project. MDEQ will coordinate the storing and analysis of the data to come out of various DWH-funded projects. This coordination will be key in leveraging results coming out of multiple projects and multiple funding mechanisms. MDEQ is still determining the next steps with this project and will coordinate with MBRACE accordingly.

Relevant Synergies/Collaboration with other DWH funding mechanisms

In 2015, the National Fish and Wildlife Foundation Gulf Environmental Benefit Fund (NFWF GEBF) funded an $11.7 million project to replenish and protect oyster populations in Mississippi through increasing oyster reef habitat acreage and productivity. Project components include experimental cultch deployment, contaminated cultch assessment, water quality analysis, oyster gardening, and data synthesis. The results from the various MBRACE-funded projects will leverage the NFWF GEBF-funded findings to bolster new and relevant data regarding oyster populations in the Mississippi Sound. MDEQ is working very closely with the Mississippi Department of Marine Resources (MDMR), University of Southern Mississippi, and Mississippi State University on this project. Not only will the results from the multi-faceted NFWF GEBF-project inform future oyster research funded out of MBRACE and vice versa, but the close partnerships with MDMR allow for this research to directly impact the management of Mississippi’s marine shellfish resources. MDEQ is collaborating and coordinating with MSU to provide the benthic habitat mapping data from this NFWF project to help with swath bathymetry work that MBRACE is undertaking.

Opportunities

MDEQ is constantly seeking opportunities for research and data acquisition to further the sustainable implementation of oyster restoration projects. Currently, MDEQ does not see any need for modifications to existing laws or program rules to improve the COE grant program.

Appendix I – Center of Excellence Report – Texas

I. Executive Summary

In January 2015, Texas Commission on Environmental Quality (TCEQ) competitively selected two consortia, the Texas A&M University Corpus Christi - Texas OneGulf Consortium and University of Houston (UofH) - Subsea Systems Institute.

OneGulf

The mission of the Texas OneGulf (OG) Center of Excellence is to gather and improve knowledge about the Gulf of Mexico to inform decision making around the challenges to environmental and economic sustainability of the Gulf of Mexico and its impact on the health and well-being of Texans and the nation. Texas OneGulf is designed with the
capacity and flexibility to address all five focus disciplines denoted in Section 1605 of RESTORE. This Center has been awarded funding and has begun or completed activities on eight projects. Highlights include: Stakeholder Communication and Engagement Plan was completed, Hurricane Harvey Decision Support and Harmful Algal Bloom Monitoring projects have commenced and made significant progress.

Subsea Systems Institute

The Subsea Systems Institute (SSI) is a Center of Excellence formed under the Restore Act and represents a collaboration between the University of Houston, Rice University and NASA/Johnson Space Center. The SSI has a focus on the translational engineering, validation science and appropriate policy towards maintaining the technological, economic and workforce leadership of the Gulf coast area in the realm of deepwater and ultra-deepwater hydrocarbon use. The key outcomes from the work of the SSI are:

- Provide unbiased third-party validation to build public trust in the safety and operation of offshore drilling and production;
- Economically develop and assist in the deployment of advantaged safest technologies for offshore energy development, elevate and ensure the energy industry's safety and operational excellence in offshore applications;
- Be the repository for best practices and policies for deployment;
- Attract talent for jobs and investment in the local, state, and national economy and reinforce Houston and the state of Texas's reputation as the Energy Capital of the World.

An Advisory Board and a Technical Advisory Committee have been established to support the governance and technical supervision of the SSI. The membership for both committees is on a volunteer basis drawn primarily from industry. These committees support both the strategic planning and the scope of technical work for SSI.

II. Programmatic Elements

A. Award Recipient

As the Texas Governor's appointee to the RESTORE Council, Toby Baker, Executive Director of the TCEQ, has established Centers of Excellence in Texas in accordance with the requirements set

forth in the RESTORE Act and U.S. Treasury regulations. On behalf of Baker and the Governor, TCEQ has received two awards from Treasury totaling $6,230,588 ($4,036,238 on June 9, 2015 and $2,194,350 on October 31, 2017) that addresses all five disciplines denoted in Section 1605 of RESTORE (1605).

Annual TCEQ accomplishments include:

- completed sub-awarding process for two Proposal of Grant Activities to the Centers;
- monitored and reviewed deliverables of Centers;
- responded to inquiries from Centers;
- reviewed invoices and processed eligible expenditure reimbursements;
- generated and submitted required federal reporting;
- held End-of-Year meetings with each of the two Centers to discuss detailed reviews of the progress of each of the projects;
- coordinated an Institutional Review Board (IRB) exemption request with Treasury for Proposal of Grant Activities (PGA) Stakeholder Communication and Engagement Plan project (previously titled: Gulf coast Health Alliance: achieving Resiliency Together);
- coordinated a request for prior approval of participant support cost with Treasury for lower tier sub-awardee for Stakeholder Communication and Engagement Plan project;
- coordinated prior approval of foreign travel for lower tier sub-awardee for Remote Robotics for Unmanned Human Environments project; and
- conducted site visit at Subsea Systems Institute to discuss new Robotics project and tour labs for Remote High Power for Subsea Emergencies and Hazard Mitigation and Facility Monitoring Program: Fiber-Optic Seismic Systems projects.

B. Award Subrecipient(s)

Texas OneGulf Consortium

The nine participants in the Texas OneGulf Consortium include:

- Texas A&M University Harte Research Institute for Gulf of Mexico;
- Texas A&M University at Galveston;
- University of Houston Law Center;
- Texas A&M University Center for Translational Environmental Health Research (CTEHR);
- Gulf of Mexico Coastal Ocean Observing Regional Association (GCOOS);
- University of Texas Medical Branch at Galveston (UTMB);
- Texas A&M University Geochemical and Environmental Research Group (GERG);
- University of Texas Brownsville (Rio Grande Valley); and
- Texas State University the Meadows Center for Water and the Environment.

Project Activities: One Gulf
1-57790 General Operations of Center of Excellence project, principals Dr. Larry McKinney (Harte) and Dr. Jennifer Horney (TAMU), awarded 10/19/15, Scope of Work – This project tasks are to establish a fully functional Center of Excellence (COE). Project addresses all five eligible disciplines denoted in 1605. Status of performance and annual accomplishments include:

- Met the reporting requirements of the COE and continues to oversee the day-to-day operations and administration of the COE.
- Developed and implement a competitive grant program which includes:
    - Designing and initiating a grant portal function with webforms is completed.
    - Completed establishment of grant administration and management system with Texas A&M University Sponsored Research Services.
    - Completed establishment of grant review system within the Texas OneGulf Management Team and Science Advisory Committee.
    - Completed first and second Request for Proposal (RFP) which resulted in approved projects.

2-61593 Strategic Research and Action Plan (SRAP) project, principal Dr. Larry McKinney (Harte), awarded 01/07/2016, Scope of Work – This project is to develop a strategic planning process to address priority Gulf problems that would guide a grant process that fosters a science-based and solutions driven framework addressing the disciplines designated in the RESTORE Act. The project addresses all five 1605 eligible disciplines. The status of performance and annual accomplishments are listed below.

- All tasks, deliverables, and milestones for the project have now been completed.
- Future SRAPs will come from an annual cycle of input and review to help ensure that the SRAP evolves with Texas OneGulf as a means of guiding future work plans and focus.

3-62428 Environmental, Human Health and Safety project, principals Dr. Larry McKinney (Harte) and Dr. Jennifer Horney (TAMU) replaced Dr. Cheryl Walker (CTEHR), awarded 02/25/2016, Scope of Work – This project will create a first time infrastructure to support disaster research response encompassing both environmental, human health and economic assessment capabilities that can be employed rapidly to assess the impact of disaster along the Texas Gulf coast in real-time. The project addresses the 1605 eligible discipline of coastal and deltaic sustainability, restoration, and protection, including solutions and technology that allow citizens to live in a safe and sustainable manner in a coastal delta in the Gulf Coast Region. Status of performance and annual accomplishments include:

- Completed all tasks, deliverables, and milestones for the project.

4-62971 Mechanisms Controlling Hypoxia – Gilder Applications to Gulf of Mexico Hypoxic Zone Monitoring project, principals are Dr. Larry McKinney (Harte) and Dr. Anthony Knap (GERG), awarded 04/22/2016, Scope of Work – This project will gather and share unique data about hypoxia off the Texas coast to assist in the development of a scalable glider monitoring implementation plan for the Gulf of Mexico hypoxic zone. The project addresses the 1605 eligible discipline comprehensive observation, monitoring, and mapping of the Gulf of Mexico. Status of performance and annual accomplishments include

- All collected observations from the eight glider missions were examined and finalized quality assured data sets were placed on the dedicated project web site at http://tabs.gerg.tamu.edu/tceq/
- The infrastructure to quickly assess the impact of both man-made and natural disasters has been completed. It is recommended that a combination vehicle types (surface gliders and sub-surface buoyancy gliders) be deployed to maximize spatial coverage and temporal duration of the event.

- PI Anthony Knap hosted and participated in the "Prioritizing Public Health Risks from Oil Spills: 2018 Stakeholder Meeting" on 6 April 2018
- The final glider monitoring implementation plan for the DR2 program has been completed
- All tasks, deliverables, and milestones in Mechanisms Controlling Hypoxia have now been completed

6-70739 Texas Knowledge Base project, principals Dr. Larry McKinney (Harte), Dr. James Gibeaut (Harte), and Dr. Matthew Howard (TAMU), awarded 01/18/2017, Scope of Work – This project will establish the Gulf of Mexico Coastal Ocean Observing System Regional Association's (GCOOS-RA) and Gulf of Mexico Research Initiative Information & Data Cooperative (GRIIDC) programs as part of the Texas OneGulf Knowledge Base (TOKB) information system. This system will provide decision-makers with the best available science and real-time data and information on which to make such decisions and act to the benefit of Texas. TOKB will bring together extensive, complementary, and well-maintained online information systems for marine science, oceanographic and related data currently available from the Gulf of Mexico. The project addresses all five 1605 eligible disciplines. Status of performance and annual accomplishments include:

- The development and launching of the first version of the website was a significant milestone that will serve to establish the TOKB for managing the coast and providing data and tools for addressing future environmental issues
- The coastal Texas Sensitive Areas geodatabase, which includes more than 30 state-wide Texas geographic layers showing the distribution of environments and other ancillary information such as dredged channels, and protected areas was compiled
- The first version of the Texas coast literature atlas was launched
- The deliverable requirements for the Knowledge Base data integration products have been completed
- All tasks, deliverables, and milestones for the Texas Knowledge Base project have now been completed

7-84395 Stakeholder Communication and Engagement Plan, principal investigators Sharon Croisant (UTMB) and Katya Wowk (Harte), awarded 9/21/18, Scope of Work – This project aims to: 1) provide a stakeholder analysis, with emphasis on policy- and decision makers; 2) solicit broad-based stakeholder perceptions of short- and long-term issues and threats related to the Gulf; 3) analyze the ability of Texas OneGulf and the Texas OneGulf Network of Experts (TONE) to help address these issues; and 4) develop a comprehensive Communications and Engagement Plan for Texas OneGulf based on findings. The project addresses the 1605 eligible discipline comprehensive observation, monitoring, and mapping of the Gulf of Mexico. Status of performance and annual accomplishments include:

- Convened a series of meetings with TONE members (Galveston, Corpus Christi, and College Station) to determine priorities and gaps in research related to: Gulf status and trends, risks and threats, mitigation and adaptation, and recommendations for policy.
- Key informant interviews continued
- Completed final analysis for survey and interview data
- Completed final qualitative analysis

- Completed final report
- All tasks, deliverables, and milestones for the Texas Knowledge Base project have now been completed

8-91613 Hurricane Harvey Decision Support- Resilient Environments and Communities, principal investigators Katya Wowk (Harte), Yuriy Fovanov (UTMB), and George Golovko (UTMB), awarded 11/14/18, Scope of Work – This research will examine the impacts of Hurricane Harvey to help Texas OneGulf provide decision support by: 1) identifying data and linkages across public health, socioecological and environmental impacts in affected communities 1; 2) understanding impacts and recovery dynamics of key waterbodies, and potential linkages to community resilience2; 3) understanding potential public health and socioeconomic impacts linked with environmental impacts3; and 4) providing a framework for recovery that outlines strategic recommendations to improve resilience to future events, identifies gaps in mitigation planning and policy implementation, and provides recommendations to researchers and decision-makers to improve response, recovery, mitigation and data collection in subsequent events. Status of performance and annual accomplishments include:
Researchers collected water samples to assess microbial communities post- Hurricane Harvey

- Researchers travelled to disaster-stricken communities in the Coastal Bend to assess the degree of alignment in community plans toward the overall goal of disaster resilience and mitigation, in at least two communities.
- Researchers created the survey protocol to conduct stakeholder interviews to assess the importance of relationships through a social network analysis. Researcher also applied to the TAMU Institutional Review Board (IRB) to ensure compliance with 45 CFR 46.118 for research involving human test subjects.
- Researchers conducted legal review of key challenges and consideration for disaster response and resilience in Texas, including by identifying any gaps or conflicts.
- Next Steps: Continue work on the Disaster Recovery Framework

9-92349 Harmful Algal Bloom Monitoring and Assessment Plan for Texas Estuaries, principal investigators Michael Wetz (Harte) and Andrew Ropicki (University of Florida), awarded 2/25/19, Scope of Work – This project will address two priority needs pertaining to HABs on the Texas coast, including: 1) an immediate need to understand the evolution and drivers of K. brevis blooms and toxin production in estuarine environments where human exposure to algal toxins is most likely, and 2) a longer-term need to develop a comprehensive HAB monitoring program and network in the Coastal Bend region of Texas that will ultimately serve as a framework for the rest of the Texas coast. Status of performance and annual accomplishments include:

- Engaged stakeholders to acquire information on strengths/weaknesses of current harmful algal bloom monitoring efforts in Texas
- Ordered equipment and supplies in preparation for field sampling this fall
- Next Steps: Synthesize stakeholder information, begin writing HAB monitoring plan, and conduct field sampling

Subsea Systems Institute Consortium

The Subsea Systems Institute is a collaboration between the University of Houston, Rice University, and National Aeronautics and Space Administration (NASA)/Johnson Space Center. The Subsea Systems Institute (SSI) is located on the University of Houston campus in Houston, TX.

Dr. Ramanan Krishnamoorti, serves as Director of SSI and Center of Excellence principle. He provides day-to-day leadership for the institute including external relations with industry and government institutions. Airica Rollins is the Program Manager with responsibility for the administration of the research projects. Charles McConnell (Rice) and Dr. Kamlesh Lulla (NASA-JSC) are the Co-PIs and provide institutional support to the Director.

All projects address the 1605 eligible discipline 3 (offshore energy development, including research and technology) to improve the sustainable and safe development of energy resources in the Gulf of Mexico.

- One Notice to Commence (NTC) awarded this reporting period.

Project Activities: SSI
1-57794 General Operations of the Center of Excellence, principal Dr. Ramanan Krishnamoorti (UofH), awarded 10/05/15, Scope of Work – This project tasks are the ongoing administrative monitoring of existing projects, the integration of industry expert insight, and meeting of the reporting requirements. The status
of performance and annual accomplishments are listed below.

- Continued ongoing monitoring of existing projects and reporting requirements.

2-62404 Remote High Power for Subsea Emergencies project, principals are Dr. Ramanan Krishnamoorti (UofH), Dr. James Tour (Rice), and Dr. Haleh Ardebili (UofH), awarded 05/03/2016, Scope of Work – The goal of this project is to develop a combination of two new technologies using batteries and high power supercapacitors for subsea applications including the control pod for a subsea blowout preventer (BOP). This work will pave the way for improved energy storage and power supply solutions that enable not only next generation blowout preventers to reliably operate and provide a safer environment for the exploration and production of oil in subsea environments, but to provide electrical high-power for a range of subsea equipment needs. The specific goals are to:

- Design and fabricate high power, high voltage nanoporous nickel fluoride (NP-NF) thin-film supercapacitors;
- Design and fabricate high capacity, thin-film Li ion batteries to trickle charge the supercapacitors;
- Stack and integrate NP-NF thin-film supercapacitors with thin-film Li ion batteries;
- Develop a prototype supercapacitor-battery unit for electrical testing under subsea environmental conditions.
- Completed all tasks, deliverables, and milestones for the project.

The project commenced with the design, fabrication and feasibility testing of thin-film Li ion batteries and thin-film supercapacitors. The integrated testing of nanoporous thin-film supercapacitors with thin-film Li ion batteries include tests under subsea environmental pressure conditions. Project was complete and final report submitted May 2018.

3-62406 A Model-Based Real-Time Annular Blowout Preventer (BOP) Monitoring System project, principals are Dr. Ramanan Krishnamoorti (UofH), Dr. Matthew Francheck (UofH), and Matthew Brake (Rice), awarded 05/03/2016, Scope of Work – This project will develop a rigorous analytical approach to systematic BOP monitoring using an adaptive model-based real-time strategy, and then validate/demonstrate the approach on a small-scale BOP annular health monitoring testbed. The program will focus on real time health
and risk assessment (monitoring) of annular BOPs. A blowout preventer is a large specialized mechanical device used to seal, control, and monitor oil and gas wells to prevent the uncontrolled release (blowout) of crude oil and/or natural gas from a well. This project will produce a BOP Monitoring System capable of self- integration whereby it learns the specific BOP thereby enabling accurate estimations of BOP health. The status of performance and annual accomplishments are listed below.

- Completed experimentally validating the adaptive mode health monitoring solution for A Model-Based Real-Time Annular Blowout Preventer (BOP) Monitoring System project.
- Submitted the final report in August 2018.
- Completed all tasks, deliverables, and milestones for the project.

4-62408 Marine Drilling Hazard Mitigation and Production Facility Monitoring using Seismic and Sonar Imaging project, principals are Dr. Ramanan

Krishnamoorti (UofH) and Dr. Robert Stewart (UofH), awarded 05/03/2016, Scope of Work – This project, in the first phase, addressed the areas of early kick detection, wellbore monitoring and subsea processing via subsea monitoring. The project adapts existing seismic technology for surveying geological formations to the specific purpose of monitoring the health of subsea drilling or production systems. The project will also develop a proof-of-concept monitoring system for the early detection and assessment of drilling or production problems. It will thus inform about the design and capability of a full field system which will contribute substantially toward the safety and efficacy of deep-water operations. The second phase of the project included field trials of the systems. Phase 2 program was contingent on the results of this phase 1 and was not part of this project. The status of performance and annual accomplishments are listed below.

- Fiber-optic motion sensors (distributed acoustic systems - DAS) on the riser to monitor hydrocarbon flow and pressure transients. The riser is a flow line from the sea floor to the surface platform and forms part of an existing production facility. There is no funding for this component during the first phase of the project;
- Ocean-bottom seismometers (OBS) arrayed around the well-head to detect gas and overpressure zones, micro seismic events, and sediment deformation;
- Active sonar scanners near the BOP to create 3D images of the wellhead vicinity and possible hydrocarbon leaks.
- Completed all tasks, deliverables, and milestones for the project.

- The project's next step to this project is being completed under 7-74785 Hazard Mitigation and Facility Monitoring Program: Fiber-Optic Seismic Systems.

5-62412 Autonomous Underwater Vehicles (AUV) for Subsea Energy Applications project, principals are Dr. Ramanan Krishnamoorti (UofH) and Dr. Fathi Ghorbel (Rice), awarded 06/08/2016, Scope of Work – Develop an AUV prototype that will be highly maneuverable in tight spaces, can hold station vertically, can perform docking, and will be capable of autonomous manipulation. The final goal of the project is to establish a sound and comprehensive program in autonomous AUVs for subsea energy applications with engagement and endorsement of major operators. This project is broken into two programs. Program 1 is to organize a workshop to engage industry in overviewing the state of the art of AUV technology and build a collaborative relationship with operators
in subsea energy applications to define the new challenges of subsea AUVs. Program 2 is to build an updated, more functional, and more robust version of the Rice University RiSYS Lab swimming robot prototype and for it to be tested at NASA's Neutral Buoyancy Lab. The status of performance and annual accomplishments are listed below.

- All appropriate paperwork has been filed and specifications for testing apparatus and space proximal to autonomous underwater vehicle (AUV) has been identified.
- Completed testing of updated prototype at NASA's Neutral Buoyance Lab (NBL) for the autonomous underwater vehicle (AUV) project.
- Submitted the final report in August 2018.
- Completed all tasks, deliverables, and milestones for the project.

6-74270 Stress Wave Assisted Communications in Subsea Environments project, principals are Dr. Ramanan Krishnamoorti (UofH), Dr. Miao Pan (UofH), Dr. Robert Stewart (UofH), Dr. Jiefu Chen (UofH), and Dr. Aijun Song (University of Alabama), awarded 06/30/2017, Scope of Work – Develop a novel stress wave-based communication method for subsea applications. This method of communication will bypass most drawbacks of conventional communication techniques (i.e. radio, optical, and acoustic) and allow artificial structures such as pipelines to be used as robust, low loss communication conduits. The status of performance and annual accomplishments are listed below.

- Underwater acoustic testing using distributed fiber optic sensors and piezoelectric transducers
- Realtime Demodulation of Stress Wave Signal in LabVIEW
- Transducer Fixture Design and Implementation
- Further Analysis of Wave Propagation in Pipe Structures
- Mode Analysis of Current Pipe Geometry
- Acoustic Experiments in Gulf of Mexico
- Project was completed and final report submitted September 2019.

7-74785 Hazard Mitigation and Facility Monitoring Program: Fiber-Optic Seismic Systems project, principals are Dr. Ramanan Krishnamoorti (UofH), Dr. Robert Stewart (UofH), and Dr. Michael Ho (UofH), awarded 08/24/2017, Scope of Work – Develop a proof-of-concept marine, fiber-optic vibration sensing system, an instrumented flow loop for the lab and field. Along with associated analysis and interpretation methods, this system will provide learnings for improved subsea

reservoir monitoring and production: The Instrumented and Intelligent Marine Oilfield. Industry support will come in the form of collaborations with Apache Corporation. Lawrence Berkeley National Laboratory, OptaSense, and Halliburton. The status of performance and annual accomplishments are listed below.

- Successful buildout of pipeline, flow system with interrogator and fiberoptic System
- Performing seismic test in marine environments
- Testing the LaMarque, Texas site through a 100' well and 200' trench horizontal stretch and assessment at the bayou
- Successful measurement of fiber-optic sensors
- Project was completed and final report submitted April 2019.

8-84091 Remote Robotics for Unmanned Human Environments project, principals are Dr. Ramanan Krishnamoorti (UofH), Dr. Kimberly Hambuchen (NASA), Dr. Joshua Mehling (NASA), and Dr. Marcia O'Malley (Rice), awarded 07/17/2018, Scope of Work – Increase the ability of robotic assets to
manage the physical operations and tasks necessary for both oil platform and spacecraft habitat maintenance by advancing the autonomous skills of dexterous robots capable of performing these remote tasks. The Robotics Advisory Council was engaged to develop roadmap for the Remote Robotics for Unmanned Human Environments project. The roadmap provides candidate tasks to be achieved by the robots used in the project. The specific tasks identified are:

- Advisory Council Kick-Off Meeting
- SmartTouch and Valkyrie Integration
- Collision Avoidance in Subsea Interfacing Robots and Oil Rig Platform Doors

Next steps are to complete force feedback control, test the transmission/receiving circuits in water, and to mobilize the provided roadmap.

9-93274 SmartTouch: Towards Autonomous Subsea Robotics for Underwater Pipeline Inspection project, principles are Zheng Chen (UofH), Co-Investigator Gangbing Song (UofH), and Siu Chun Michael Ho (UofH), awarded 01/10/2019, Scope of Work – develop transformative robotic and SmartTouch sensing technology, that will lead to a time efficient and cost-effective system for underwater pipeline inspection. Through this autonomous robotic system equipped with SmartTouch pipeline anomalies due to bolt loosening, seismic activity, offshore drilling, turbulence, and ship anchoring, may be detected at early stages and thus allow operators to make informed decisions on maintenance of the pipeline. The following tasks will be investigated to achieve the objective:

- SmartTouch sensor development
- Robotic manipulator development
- Force feedback grasping control
- Systems integration

This project has been mobilized with the sensor development and integration, energy-based monitoring methods, a completed robotic manipulator and force feedback grasping control. Next

steps will include completion of the modeling of the connection interface and integration of the robotic manipulator with ROV and demonstrations.

10-93275 Flexible Low-Temperature Lithium Ion Batteries for Subsea Applications, principals are Dr. Haleh Ardebili, with co-investigator Dr. Rafael Verduzco, awarded 01/15/2019, Scope of work – design and fabricate polymer-based flexible and safe lithium ion batteries (LIB) able to operate under subsea conditions. Potential applications include powering devices in underwater vehicles, emergency outage backup power, and subsea drilling structural energy storage. The device should be reliable, safe, and able to instantly provide power for subsea applications. The specific goals of this project are the following:

- Design/Fabricate LIBs (Steady and Long-Term Power Voltage at Low Temperatures
- Boost the Performance of LIBs
- Develop Electro thermal Model and Conduct Simulation at Low Temperatures

This project initiated each task including the Design/Fabrication of the LIBs, the boosting of the performance of the LIBs through feasibility testing, characterization, and performance optimization, and development of the electro thermal model and conduct simulation at low temperatures. The next steps are to assemble and test more prototype using the new fabricated polymer and to develop thermos electrochemical model and conduct simulations.

III. Financial Elements

A. Award Recipient

During this reporting period, TCEQ has drawn down funds and obligated project funding to the Centers:

- $6,230,588 awarded from Treasury, TCEQ has drawn down $5,649,725.64 (90.7%) for Center's expenditure reimbursement request
- $2,823,657.78 of $3,018,119 (94%) has been obligated to Texas A&M University Corpus Christi - Texas OneGulf
- $2,922,588.75 of $3,018,119 (97%) has been obligated to University of Houston - Subsea Systems Institute (SSI)
- TCEQ has no leverage funds

B. Award Subrecipient(s)

Center	Project	Awarded	Expended	Lower Tier Sub awardee	Awarded
Texas OneGulf	1-57790	$768,318.00	$655,399.00	Amazee Texas A&M (TAMUHSC)	$18,500.00 $167,036.00
Texas OneGulf	2-61593	$139,041.78	$139,041.78	N/A	$0
Texas OneGulf	3-62428	$182,531.99	$182,531.99	Texas A&M (TAMUHSC) University of Texas (UTMB)	$ $

Texas OneGulf	4-62971	$457,361.00	$ 392,622.77	Texas A&M (TAMU)	$457,361.00
Texas OneGulf	6-70739	$389,443.00	$318,733.86	Texas A&M (TAMU)	$194,998.00
Texas OneGulf	7-84395	$94,759.00	$74,679.02	University of Texas (UTMB)	$79,094.00
Texas OneGulf	8-91613	$470,265.00	$86,037.47	University of Texas (UTMB) Texas A&M (Bush) Texas A&M (ISC) University of Houston	$214,332.00 $75,572.00 $70,000.00 $72,000.00
Texas OneGulf	9-92349	$217,501.00	$4,941.00	University of Florida	$29,225.00
Subsea Systems Institute (SSI)	1-57794	$802,184.00	$717,055.12	N/A	$0
SSI	2-62404	$300,000.00	$293,032.07	Rice University	$150,000.00
SSI	3-62406	$189,535.00	$175,130.86	Rice University	$99,330.00
SSI	4-62408	$109,868.75	$109,868.74	N/A	$0
SSI	5-62412	$100,000.00	$99,999.86	Rice University	$92,000.00
SSI	6-74270	$300,000.00	$274,795.13	University of Alabama	$40,075
SSI	7-74785	$248,056.46	$248,056.46	N/A	$0
SSI	8-84091	$714,028.00	$128,484.97	BayTech Rice University Allen Energy Northeastern University	$20,000.00 $20,432.00 $100,000.00 $20,000.00
SSI	9-93274	$40,000.00	$15,042.27	N/A	$0
SSI	10-93275	$39,997.00	$7,653.57	N/A	$0

IV. Gulf Coast Ecosystem Restoration Council Element

A. Leveraging Multipliers

Texas OneGulf Consortium

Texas OneGulf projects funded by the Office of the Governor focused on habitats, living marine resources, environmental flows, estuarine and coastal systems, offshore and deep gulf systems, socio-ecological connections, and the pressures and stressors that affect the current and future health of the Gulf of Mexico large marine ecosystem. Improved understanding in each of these areas is required to understand the system holistically. Therefore, our focus was to connect each

of these research areas in a manner that is actionable and relevant to the improved understanding and management of the Gulf of Mexico.

1-57790 Total other funds for this project is $28,519 from the Harte Charitable Foundation and Harte Research Support Foundation to assist in with the important task of establishing the center and having it operational as soon as possible. The goal of Harte Research Institute (HRI) is to allow more money to be put toward research by providing additional funds that reduce the center's burden of administrative costs.

Coordination between RESTORE Centers of Excellence Texas OneGulf has played a leading role in establishing coordination between both designated and presumptive COE's. There is a monthly call between the Centers hosted by Florida RESTORE Act Centers of Excellence Program (FLRACEP), where the focus has been on joint research activities.

The Gulf Restoration Science Programs Ad Hoc Coordination Forum, hosted by the NOAA RESTORE Science Program, provides a venue for all Gulf science programs to come together to develop common data management, share funding opportunities and look for synergies and activities that can be shared. The Texas OneGulf Executive Director and Coordinator participates in the monthly call and attends events like Gulf of Mexico Oil Spill and Ecosystem Science Conference (GOMOSES). These face to face meetings serve to enhance coordination and joint actions, reduce duplication and afford opportunities to leverage individual actions.

In addition, Texas OneGulf collaborated with the NOAA RESTORE Science Program to hold a knowledge co-production workshop for Texas researchers and state and federal decision-makers. The workshop helped to strengthen coordinated research toward the production of usable, actionable science that meets RESTORE program needs.

The Texas OneGulf Executive Director also serves on the Friends Board of the Florida Institute of Oceanography, providing additional opportunities for coordination of COE funding. This Board also acts as part of the Florida COE Management Team and provides review and approval for funding FLRACEP projects. The management team looks for opportunities to minimize duplication and promote coordinated research.

6-70739 Total other funds for this project is $143,976. The Harte Research Support Foundation and a grant from Gulf of Mexico Alliance have provided two years of funding to support the Texas OneGulf Knowledge Base system.

This project is utilizing underserved datasets which are datasets of significant value that are difficult to use for one or more reasons. For example, a dataset may not be available online or if it is available online it may be in an obscure location. Data can be difficult to use if it is in an inconvenient format such as those used by some environmental sampling systems. Data use can be improved when data are transformed into preferred formats with complete metadata and served through systems that support both human and machine access.

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monthly call between the Centers hosted by Florida RESTORE Act Centers of Excellence Program (FLRACEP), where the focus has been on joint research activities.

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research.

Subsea Systems Institute
The Subsea Systems Institute has secured the grant with the Office of the Governor (OOG).
The following activities have taken place under the award from the OOG.

- Research Programs: This includes research programs that have not been funded by TCEQ. These programs are in the following categories:
    - programs identified through the TCEQ grant award process, but not funded by TCEQ, which are identified as valuable research topics that meet the SSI objectives; and
    - research topics that are identified through SSI engagement with industry or the government that meet SSI objectives including safety, risk mitigation and improved reliability.
- The following Research Programs have been launched using OOG funds:
    - Pilot project to develop new computational methods for hydrocarbon behavior in a marine riser.
        - The Principal Investigator on this project is Dr. Andrea Prosperetti (UH). This project has undertaken a theoretical and computational study of the character of hydrocarbons that are inadvertently introduced into a marine riser. This issue has been discussed with industry and the need for new methods and understanding has been identified in order to establish improved operating procedures. Current project status includes a newly developed algorithm and has been successfully applied to a set of equations. This work may be extended through programs to be awarded by the Bureau of Safety and Environmental Enforcement (BSEE) and the Gulf Research Program (GRP). The value of the pilot program is $50,000.
    - Demonstration project with industry partner The Jukes Group, to develop improved manufacturing and testing methods to predict the performance of API pipe flanges under a combination of loading conditions.

        - The Principal Investigator on this project is Dr. Gangbing Song (UH). This work will improve the leak performance of pipe flanges, as is a major topic for operators. In September 2017 a meeting was held with industry operators to engage in discussions to focus the testing of the flange in a way that would most benefit the industry and make improvements to industry standards. A follow up meeting was held with joint industry project-interested operators in May 2018 to discuss the preparation of a proposal to fund phase II. Current project status includes the writing of the proposal and planning of the demonstration testing. The cost of this demonstration project is $41,731.
    - Development project of High-Power Density Fault Tolerant Subsea Drives with Advanced Circuit Breaker to support the ongoing development of the power requirements for subsea equipment.
        - The Principal Investigator on this project is Dr. Kaushik Rajashekara (UH). The first year of this project will be supported by the grant funds. There are several technology components to this program.
            - The development of advanced power converter topologies using high frequency magnetics to reduce the footprint of subsea and down-hole drive systems.
            - Real-time simulation of the entire subsea system to evaluate the harmonics, to study the effects of long-distance cable capacities and voltage stability.
            - The project also targets development of a novel solid-state DC circuit breaker and connector suitable for subsea systems.
        - The project launched in September 2017 and laboratory personnel have been established and a database was developed. Current project status includes testing and extracting data and experimental results have been verified and shown the capability of the proposed circuit performance. In the coming months, the thermal cycling test board which have already been designed, will be implemented and a high-temperature SiCMOSFET and high-temperature gate driver will be installed, and tests will commence in high-temperature. The cost for the first year of research project is $148,000.

Center of Excellence federally funded Grant Activity Descriptions (GADs) that include leveraging multipliers are listed here:

- GAD No. 2:
    - Dr. James Tour (PI) provides supervision for work being done on the project at Rice as delineated in the SOW and proposal. His annualized salary is $129,272.00. His contribution to the project over the 22 months will be 1 month each year (12 months).
        - Year 1: PI salary will be provided from the Rice University (non-federal local) (1 month).
        - Year 2: PI salary will be provided from the Rice University (non-federal local) (1 month).
        - This amount includes a 3% merit increase.
        - Fringe Benefits are actual and is estimated at about 30% for faculty
- GAD No. 3:

- Dr. Matt Franchek (PI), with an annualized salary of $279,600, will dedicate 1-month effort to manage the UH portion of the work.
    - Year 1: $13,255.00 will be paid by the University funds (state appropriations) for .5 month in the academic year.
    - Year 2: $13,255.00 will be paid by the University funds (state appropriations) for .5 month in the academic year.
    - Fringe Benefits are actual and is estimated at 16% in the summer for this faculty.
- Dr. Brake (Co-I) will supervise the work to be done on the 22-month project at Rice as delineated in the SOW.
    - Year 1: $10,946.94 will be paid by the University funds (non-federal local) for .4 month in the academic year.
    - Year 2: $11,095.01 will be paid by the University funds (non-federal local) for .4 month in the academic year.
    - Fringe Benefits rates for this faculty is 23.40%.
- Use of a testbed, which is a Transocean test facility, is made available to this project at no cost. The approximate market value for access to this test equipment is $10,000 per year.

- GAD No. 4:
    - Dr. Rob Stewart (PI), with an annualized salary of $281,856.00, has dedicated .6 month in the summer (20%) and .5-month academic time (6%) to manage the work.
        - Year 1: $14,129.00 of the PI salary was provided by the grant and $11,744.00 by the university.
        - Fringe Benefits are actual and is estimated at 30% in the academic year for this faculty and 22% in the summer.
    - Jiming Bao (Co-I) with an annualized salary of $137,592.00, dedicated .4-month summer (13%) and .5-month academic time (6%) to work on the project.
        - Year 1: $4,610.00 of the Co-I salary was provided by the grant and the other$5,733.00 by the university.
        - Fringe Benefits are actual and is estimated at 30% in the academic year for this faculty and 22% in the summer.
- GAD No. 5:
    - Dr. Fathi Ghorbel (PI) oversees the statistical analyses, data management, and be responsible for reporting the project's results.
        - Year 1: The PI will devote 2 months effort to the project. One-month salary will be provided from the grant funds and one-month funding will be provided by Rice University (non-federal funds). The PI will spend the remaining time not spent on the project on other university activities.
        - Fringe Benefits 23.4% for faculty.

The use of an existing prototype AUV represents an in-kind contribution (Estimated amount $10,000.00).