

FLORIDA RESTORE ACT CENTERS OF EXCELLENCE PROGRAM

2020 Annual RESTORE Council Report

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Executive Summary

Although in 2020, the Florida RESTORE Act Centers of Excellence Program (FLRACEP) was challenged with COVID-19 pandemic and personnel changes, it was still able to continue working with Treasury to receive the 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 and fourth Request for Proposals (RFPIII and RFPIII.5) process. In spring of 2020, Treasury approved FLRACEP's second amendment for additional funding (\$2,156,577) to support RFP III proposals.

The FLRACEP re-issued an RFPIII.5 late December 2019, to focus on Facilitating Development of a Standardized Mapping Framework. An existing Center of Excellence, the University of Florida was granted funds under RFPIII.5 in May 2020. FIO applied for a third amendment for additional funds with Treasury and received additional funds to execute the subagreement and implement the RFPIII.5 new Centers of Excellence. The COVID-19 pandemic posed some challenges as many of the Centers of Excellence institutions needed to adjust to a remote platform just as the FLRACEP Program office. Even though COVID-19 created some administrative challenges for the Program office, the FLRACEP was still able to hold its All-Hands meeting in late summer through a virtual face-to-face platform.

A new FIO Director was announced in October 2020. Dr. William (Monty) Graham will join and lead FIO effective January 4, 2021.

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 subagreements with the institutions.

The RFP III also included proposals for a unified mapping project; however, the FLRACEP Program Management Team elected did not fund these research proposals as written and submitted under RFP III. The Program Management Team elected to re-issue the RFP later.

The FLRACEP staff issued RFP III.5, which redefined the expectations of the Program Management Team from the previous RFP issuance. The Program Management Team sought proposals that would identify a Center of Excellence that will serve as a collaborative hub for state, federal, academic and other partners. This solicitation was a success with a recruitment from an existing Center of Excellence, the University of Florida to lead the efforts.

Programmatic Elements

Award Recipient

The Florida Institute of Oceanography (FIO) is an Academic Infrastructure Support Organization (AISO) of the State of Florida established 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 was named the Gulf Coast State Entity to administer 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 the Principle Investigator (PI) for the FLRACEP Program. As the PI, the FIO director is responsible for program funds and performance. The FLRACEP's organization includes a Program Director, who reports to the FIO Director and is responsible for programmatic tasks that the Gulf coast state entities must perform. These programmatic responsibilities include coordination of competitive selection process for Florida Center of Excellence grants; developing award terms and conditions and monitoring performance based on required deliverables and metrics; coordination with other Gulf restoration programs as mandated by the guidelines and RESTORE Act; and monitor the success of the Centers of Excellence. The Program Director also represents the Florida Centers of Excellence on regional coordination efforts (e.g., NOAA RESTORE Science Program advisory working group, etc.). The FLRACEP Program Office works directly with the FIO Budget Director to ensure funds appropriately allocated for use.

PROGRAM MANAGEMENT TEAM (PMT): The PMT includes the FIO Director and other senior-level advisors elected by the PMT members. The PMT, were selected based on their knowledge of Florida and Gulf of Mexico regional science, technology, and the FLRACEP program needs. Program Management Team members are not eligible to submit or participate on FLRACEP grants or contracts. The duties of the PMT include developing and approving science concept to solicit FLRACEP Requests for Proposals, review and rank Letters of Intent, determine proposals to receive funding, participate in annual all-hands meetings, and other ad

hoc tasks as determined by the PMT Chair and board members.

SCIENCE REVIEW PANEL (SRP): The SRP is an ad hoc team of science and technology experts not involved in any FLRACEP proposals. The FLRACEP solicits the SRP from various federal, state, academic, public institutions from within and outside Florida and responsible for technical review based on the Request for Proposal (RFP) priorities. The PMT appoints the final SRP panelists.

CENTERS OF EXCELLENCE: FLRACEP establishes Centers of Excellence through a competitive award process to produce outputs and outcomes that address the eligible disciplines. The Requests for Proposals (RFP) and in subsequent award terms and conditions define the Principal Investigator and Grantee institution roles and responsibilities. Each Center of Excellence project must produce at least one peer-reviewed journal article at the conclusion of the project.

Award Subrecipient(s)

Current Award Recipient: The current project was awarded under RFP-2 in July of 2016 and the award was extended in 2019 to address the comprehensive observation, monitoring, and mapping eligible discipline. In addition to the continuance of a Center of Excellence, FLRACEP awarded seven additional research projects under the RFP III and RFP III.5 solicitation. A brief description is listed below:

RFP II -Center of Excellence (Continuance)

- **PI Name:** Dr. Ernst Peebles, University of South Florida
Award Amount: \$749,999 over three 3 years (research project may be renewed upon scientific review and approval by the Program Management Team)
Title: Spawning Habitat and Early-Life Linkages to Fisheries (SHELF, phase II)
Abstract: 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.

RFP III -Centers of Excellence

- **PI Name:** Dr. Randy Wells, Mote Marine Laboratory
Award Amount: \$364,432 over three (3) years
Title: Health and movements of Florida's Gulf dolphins
Abstract: Research proposal is expected to address important research gaps regarding movement patterns, habitat use, and health for the two dolphin species that regularly inhabit the coastal and/or shelf waters off Florida's west coast, bottlenose (*Tursiops truncatus*) and Atlantic spotted (*Stenella frontalis*). We will conduct capture-release health assessments to establish baselines and serve as the basis for comparison to inshore dolphins to assess health status. Capture will provide opportunities for collection of samples for genetic, environmental contaminant, and diet analyses, as well as for attaching satellite-linked time-depth-recording tags. These tags will provide information on ranging and habitat use patterns, along with dive patterns relative to health. Relationships between dive patterns and health will be investigated as potential behavioral proxies for assessing health of dolphins tagged without capture. Continuation of a long-term collaborative photo-identification matching system and repository, GoMDIS, will facilitate identification of sources of stranded dolphins, and range

shifts in response to environmental changes. Findings will be provided to NMFS's Southeast Fisheries Science Center, Southeast Regional Office, and Marine Mammal Health and Stranding Response Program, for consideration for management action, and for incorporation into their congressionally mandated Marine Mammal Stock Assessment Report

- **PI Name:** Ms. Kelly Sloan, Sanibel Captiva Conservation Foundation
Award Amount: \$233,334.34 over three (3) years
Title: After the Tide: Characterizing the Sublethal Effects of a Catastrophic Red Tide in Nesting Sea Turtles
Abstract: Blooms of toxic algae occur almost annually in the Gulf of Mexico and pose a significant and persistent threat to sea turtles and other marine life. These blooms start naturally in the Gulf but are fed and perpetuated by harmfully high nutrients in the water washing into the Gulf from anthropogenic sources on land. Eutrophication of our waterways is a serious concern and stabilizing the oceanic habitat is critically important in the conservation of many vulnerable species. The bloom that started in October 2017 and ended in early 2019 was so severe that it resulted in the largest number of sea turtle deaths ever attributed to a single red tide event. The mass mortality of sea turtles associated with this event clearly demonstrates the acute impacts of brevetoxicosis. The propose study is to empirically investigate the effects of this bloom on the health and reproductive success of nesting sea turtles. In addition to learning more about the insidious effects of red tide blooms on sea turtles, the data will be used to raise awareness and inform policies that promote heightened water quality standards and healthier oceans.
- **PI Name:** Dr. Hannah Vander Zanden, University Florida
Award Amount: \$364,432 over three (3) years
Title: Health and movements of Florida's Gulf dolphins
Abstract: Loggerhead sea turtles were negatively impacted by the Deepwater Horizon Oil Spill in addition to suffering effects from numerous other anthropogenic stressors, such as fisheries bycatch, climate change, and red tide events in U.S. waters of the Gulf of Mexico (GoM). Population models designed to quantify the effects of these stressors, as well as to evaluate the resultant impacts to coastal ecosystems of declining sea turtle recruitment or population size, require accurate estimates of age, growth, longevity, and mortality. Furthermore, there are vast gaps in our knowledge of marine habitats and environments utilized by different loggerhead life stages and the timing of transition between habitats. The proposal will use novel radio and stable isotope techniques to validate loggerhead sea turtle age and longevity estimates, as well expand the types of long-term trophic records that can be obtained from various loggerhead tissues (e.g., eye lenses, bone, and scutes). Objectives of the study include 1) evaluating eye lenses as a new method to age sea turtles and track lifetime isotopic histories, 2) characterizing scute growth rates, and 3) developing region-specific population models for the GoM using updated parameters estimated with results of this study. Approaches developed and data generated during this study will have direct conservation benefits to loggerhead sea turtles in the GoM. These approaches will be applicable to the conservation of loggerheads in other global regions, as well as for the study of other sea turtle species around the globe.
- **PI Name:** Dr. Matthew Deitch, University Florida
Award Amount: \$499,997 over three (3) years
Title: Predicting benefits in Panhandle Estuary Systems: A partnership to quantify impacts, stressors, and outcomes using Adaptive Management Frameworks.
Abstract: Over the course of the grant, County staff, local conservation groups, and other stakeholder collaborators in the St. Andrew, St. Joseph, Choctawhatchee, Pensacola, and Perdido Bays will work to develop Estuary Programs following the USEPA National Estuary Program model. The goal of each Program is to develop a strategy to protect and restore estuaries through management or restoration

actions that reduce anthropogenic impacts on these systems. This project will enhance and build on existing partnerships between local academic researchers with expertise in watershed science and estuary science and local Estuary Program developers. These partnerships will provide meaningful scientific input and rigor in identifying and implementing methods to assess impacts and stressors in each system. Project outputs include conceptual models and adaptive management frameworks intended for use in Comprehensive Conservation and Management Plans (CCMPs); and collaborative efforts (e.g., outreach materials, grant proposals) to support long-term Estuary Program goals.

- **PI Name:** Dr. Katherine Mansfield, University of Central Florida
Award Amount: \$339,867 over three (3) years
Title: Understanding genomic, behavioral, and microbial drivers of ontogenetic shifts in early sea turtle foraging ecology and habitat use.
Abstract: The research will use novel technology and approaches to understand early sea turtle habitat use, ecology, and underlying drivers by which young turtles recruit from offshore into West Florida coastal waters in the Gulf of Mexico. This group's prior work shows oceanic turtles from the Shelf exhibit plasticity in habitat selection and global gene expression profiles, which likely accompany plasticity in foraging and gut microbiota. Researchers will look to determine what the underlying drivers of these shifts through finer-scale genetic characterizations and by establishing a framework for understanding gene-by-environment interactions to better quantify management needs for these protected species.

- **PI Name:** Dr. Cameron Ainsworth, University of South Florida
Award Amount: \$308,279 over two (2) years
Title: Using ecosystem modeling to understand the impacts of seagrass restoration and red tides on sea turtles, marine mammals and seabirds of the West Florida Shelf.
Abstract: The project will utilize an end-to-end ecosystem model, Atlantis-GOM, to evaluate the ecosystem effects of seagrass coverage under different possible futures of toxic and non-toxic algal bloom frequency and severity in the West Florida Shelf region and the Gulf of Mexico Large Marine Ecosystem. Assessing both the direct and indirect impacts of seagrass coverage as may manifest through changes in the available amount or quality of prey or through changes in predation risks. The Atlantis-GOM ecosystem model permits a spatial analysis of the ecosystem effects of seagrass coverage and algal blooms within the following broad spatial domains: the Big Bend, the Tampa/Charlotte Harbor area, Southeastern Florida, and the Florida Keys. The spatial distributions of the focal marine mammal, seabird and sea turtle species and species groups, as well as those of their prey and competitors, will be critical to represent. The majority of these spatial distributions will be provided by a previous Florida RESTORE Act Centers of Excellence Program (FLRACEP) project, which used statistical models to predict distributions based on environmental variables. The outputs of the proposed project will benefit State and Federal end users who manage protected species and habitats. Outputs can help determine the scale of seagrass restoration required to offset negative impacts of increasing algal blooms on mammals, seabirds, and sea turtle populations.

RFP III.5 -Center of Excellence

- **PI Name:** Dr. Vincent Lecours, University Florida
Award Amount: \$349,722.89 over three (3) years
Title: Developing a Standardized Framework for Data Integration and Distribution on the West Florida Shelf.
Abstract: Despite past and ongoing efforts from regional, state, and federal governments to study Florida's marine ecosystems and resources and repeated calls for a standardized approach to map

them, there is currently no general framework for guiding research, management, and conservation of benthic resources in Florida. There is a critical need to have a descriptive, spatially-explicit cyberinfrastructure representing Florida’s seafloor environments at multiple scales that can serve management, conservation, and research efforts, and that aligns with existing national and international efforts. To build such cyberinfrastructure, we need to reach community agreement on a framework to support effective and dynamic aggregation of current and future seafloor mapping data. This Center of Excellence will be expected to manage efforts to (1) review existing and successful frameworks for marine data integration and distribution around the world, (2) review existing standards, protocols, and guidelines for data collection, integration, and distribution, (3) get community agreement on the structure of a framework for data integration and distribution on the West Florida Shelf, and (4) build a cyberinfrastructure to support the chosen framework, i.e., to upload, standardize, visualize, and access benthic data of the West Florida Shelf. Three workshops will be organized to get community input. The cyberinfrastructure will be open-source, compatible with existing national and international frameworks, and adhere to FAIR (Findable, Accessible, Interoperable, Reusable) principles.

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 for 2-year research grant award, 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. The FLRACEP and Treasury office are working together to close out this initial RFPI projects. Final research reports are available upon request.

Financial Elements

Award Recipient

Budget narrative: Treasury initial award in February of 2019 totaling \$1,951,773 for the 2019-2023 performance period to also include the FLRACEP obligated \$750,000 to fund the second phase of the University of South Florida (USF) SHELF Center of Excellence. FLRACEP requested two additional amendments with funds to support the six research projects under RFP III and one project under RFP III.5. The total amount of funds FLRACEP requested from Treasury was \$4,458,072.88 (\$2,156,577 + \$349,722.88 to fund RFP III & III.5).

FLRACEP Program Expenditures (includes Centers of Excellence expenditures)				
Budget Summary January-December 2020				
Categories	Amended Award RCEGR020005-01- 02	Additional Funds Requested	Amended Award RCEGR020005-01- 03	Total Amount Expended
Salaries and Wages	\$487,769.00	\$0.00	\$487,769.00	\$117,331.70
Fringe Benefits	\$160,961.00	\$0.00	\$160,961.00	\$39,221.56
Total Personnel Costs	\$648,730.00	\$0.00	\$648,730.00	\$156,553.26
Equipment	\$0.00	\$0.00	\$0.00	\$0.00
Supplies	\$5,500.00	\$0.00	\$5,500.00	
Travel	\$32,900.00	\$0.00	\$32,900.00	\$10,180.88
Construction	\$0.00	\$0.00	\$0.00	
Other	\$337,210.00	\$0.00	\$337,210.00	\$11,750.00
Contractual (subawards)	\$2,891,576.00	\$321,851.64	\$3,213,427.64	\$372,012.97
Total Direct Costs	\$3,915,916.00	\$321,851.64	\$4,237,767.64	\$550,497.11

Indirect Costs	\$192,434.00	\$27,871.24	\$220,305.24	\$46,286.70
Total Approved Budget	\$4,108,350.00	\$349,722.88	\$4,458,072.88	\$596,783.81

Award Subrecipient(s)

Due to the COVID-19 pandemic, many of the Centers of Excellence did not have the opportunity to start the research project upon receiving the award. In total, the Centers has expended \$372,012.97 in direct costs. The FLRACEP program expects the funds to be expended as these Centers find alternative solutions to ensure safe practices during the COVID-19 pandemic.

The USF-SHELFII Center of Excellence requested an amendment to revise their scope of work and budget reduction. The request was due to the fieldwork and collection of fish-egg surveys off the West Florida Shelf that was impacted by COVID-19. Due to the safety of the science party, the project now eliminates the use of research vessels to collect the samples, which now reduces the award amount. The PI identified an alternative sample source that could be used to represent the missed data/fieldwork. The Program Management Team approved the change in Scope of Work and the reduction of the budget. The new Scope of Work and revised budget were made effective October 2020.

Gulf Coast Ecosystem Restoration Council Element

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. In addition, our CE grantees have leveraged significant non-RESTORE resources in their work, this information is made upon request.

This report is available on www.fio.usf.edu/FLRACEP