



2015-2016 Annual Report

Florida Institute of Oceanography
Academic Infrastructure Support Organization

Hosted by the University of South Florida



*Supporting Excellence in Marine Science, Technology
And Education*

Presented by:
William T. Hogarth, Ph.D.
Director



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For more information on the Florida Board of Governors, Florida Institute of Oceanography and its Host Institution, please visit:

Florida Board of Governors, www.flbog.edu

Florida Institute of Oceanography www.fio.usf.edu

The University of South Florida, Host Institution, www.usf.edu

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Dear Colleagues,

This time, it is really true. July 31, 2016 will be my final day as Director of the Florida Institute of Oceanography. Dr. Phil Kramer will transition to Florida Institute of Oceanography (FIO) on August 1, 2016. Dr. Kramer, was a senior marine scientist with The Nature Conservancy's (TNC) Global Oceans Program, overseeing the organization's global coral reef strategy in more than 30 countries around the world. He has held a number of scientific and senior management positions within TNC over the past 13 years including nearly eight years as managing director of the Caribbean region. During his tenure, he helped design and launch the Caribbean Challenge Initiative (CCI) which has dramatically scaled up protection of marine resources in the region and put in place long term sustainable financing for management. Dr. Kramer will bring new initiatives and innovations for FIO's future.

Over the past several years, FIO has faced many challenges, but we have been very fortunate to have the support of the State Legislature, Board of Governors, and USF as the host institution to continue our work as the Florida's Academic Infrastructure Support Organization (AISO). FIO's finances are stable, in fact, we ended the fiscal year with over \$1 million dollar in reserves even after contributing \$1 million to the construction of the R/V Bellows replacement. This would not have happened without the tremendous, lean, efficient and hard-working staff dedicated to serving and providing the support, so that FIO members can continue to be leaders in research and education.

Last summer, the crew of the R/V *Weatherbird II* voyaged on a 22 day mission across the Gulf of Mexico with Dr. Murawski, Principle Investigator of C-IMAGE II, and Professor and Endowed Chair at the College of Marine Science, USF. The mission was to conduct a Gulf-wide expedition to collect sediment core and fish samples from areas affected by both the 1979 Ixtoc-I oil spill in the Bay of Campeche, Mexico and the 2010 Deepwater Horizon blowout. The expedition was a huge success, despite some challenges. This was the first international mission for *R/V Weatherbird II* and will not be the last, as we prepare for a 42 day mission returning to Mexico this coming August and 19 day cruise to Cuba in May, 2017.

We entered into a research relationship with the Harte Research Institute (HRI), through an MOU signed late 2015 with Dr. Larry McKinney, Executive Director for HRI of Texas A&M University-Corpus Christi. The MOU between both organizations support joint research activities in the Gulf of Mexico working closely with the National Oceanic and Atmospheric Administration, the Environmental Protection Agency, the Restore Act Centers of Excellence, the Gulf of Mexico University Research Collaborative, and other governmental agencies and for-profit organizations with an interest in research and educational programs for the Gulf of Mexico region. With this MOU in place, FIO members will be able to establish and facilitate an effective working relationship between FIO and HRI members to address the needs of the Gulf of Mexico research and monitoring efforts with academic, state and federal agencies.

This year, we continued to make upgrades on the R/V *Weatherbird II*, with installation of the Dynamic Position capability, low speed trolling gear, upgraded electronics, new-propellers and the conversion of the cooling systems to copper-nickel piping to address overheating issues.

2016 was a "milestone" year for FIO as funding was secured to replace the R/V Bellows. This vessel has been a main stay for the faculty and students for many years, but the 47 year old vessel has reached the point that parts are not available, operations are unreliable and cost of operations prohibitive. I would like to thank the State Legislature, USF, UWF, FAU, FGCU, UNF, UF, FIT, ECKERD COLLEGE, FIU, FAMU, NOVA, UCF, FSU, FIO and the City of St. Petersburg for making funds available for the

construction of a new research vessel. The vessel is being built in Tarpon Springs, Florida by Duckworth Steel Boats, and completion is expected by July 2017. The official keel laying ceremony was held on June 1, 2016. The vessel will be 78ft long, with a crew of 4 and berthing for 10 scientists. The vessel will have state of the art equipment, including dynamic positioning, Teflon piping for flow through sea water system, synthetic line instead of steel cable to prevent contamination for trace metal analysis.

The final phase of transferring the Keys Marine Lab to FIO was completed with the transfer of equipment and science and operational staff to operate the facility and support the FIO mission. We continue to update the operation of the lab to increase utilization by FIO members as well as outside researchers. The new saltwater system is up and running and is immediately being utilized. Most notably a collaboration with FWRI, Mote and with NOAA is focusing on the rescue and restoration of Pillar corals. Research results are intended to direct restoration efforts locally, regionally and internationally. The main dorm in the Admin Building was renovated and the classroom was upgraded with a new- 80 degree freezer and additional laboratory equipment.

The “Study Abroad in Florida” summer course has really become a success with the students and faculty. In 2016, which was our fourth year of offering the course, five institutions; KML, University of North Florida, University of South Florida-St. Petersburg, Florida Gulf Coast University, University of West Florida, and Florida Atlantic University participated. Students from these institutions and other transient students from Florida State University were enrolled in the 5.5 week course. The intense course covered various ecosystems and habitats as well as blue water experience on the R/V Weatherbird II.

In September 2015, FIO funded 10 projects at the initial eight Centers of Excellence and for a total of \$2.8 million to improve the health of the Gulf and fortify its ecosystems as part of the RESTORE Act funding. The FLRACEP selected projects that focus on providing science for marine resource management, resources as these are critical to Florida’s economy. In fact, the marine resources in the State of Florida provide approximately \$30 billion per year to the State’s economy which is more than double the cattle, space, ranching and citrus industries combined. Florida’s recreational fishing industry (over 40% of the total U.S. recreational fishing); a viable and healthy commercial fishing industry provide over 500,000 jobs. Understanding the ecosystems is extremely important for the proper protection and management measures for these resources.

It is evident that FIO members continue to be the leaders in the Deepwater Horizon oil spill research efforts. Over 200 researchers, 54 Post doctorates, 232 graduate and 171 undergraduates students and technicians have been involved from Florida Institutions. This is more than any other state and Florida is the leading state with research funding from the Gulf of Mexico Research Initiative (GoMRI) receiving 37% of the funds awarded to the five Gulf States. Through a competitive peer review of the proposals submitted in response to the RFP-IV, twelve (12) Research Consortia were awarded to conduct scientific studies of the impacts of oil, dispersed oil and dispersant on the Gulf of Mexico ecosystem and health. Florida was awarded funding for four (4) consortia (NOVA Southeastern University, (2) University of Miami and the University of South Florida. We are very proud of our members and stand by to provide support to these consortia and to the successfully funded Individual Investigators and Small Collaborative teams.

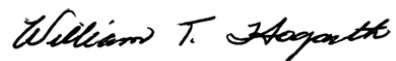
The Documentary “Dispatches from the Gulf” narrated by Matt Damon and funded by GoMRI was completed in 2016 by Screenscope, Inc. The producers Hal and Marilyn Weiner are duo producers of “Journey to the Planet Earth” for PBS and this was episode 13 in the series. The preview was held at the Mahaffey Theater on February 29, 2016 with over 1150 in attendance. The Documentary truly depicts the

important role FIO members played in the DWH Oil Spill research. We are extremely proud of our universities and members and they have been recognized as leaders in the studies on the effects of DWH.

It is the goal of FIO to provide the research and teaching tools so that our members can continue to provide globally recognized research and education. We strive to provide the tools necessary to meet the FIO Vision of “Supporting Excellence in Marine Science, Technology and Education.” I would like to take the opportunity to again thank the Board of Governors, USF Board of Trustees, President Genshaft, Provost Wilcox and all the FIO members for the opportunity to be at the helm of FIO over the last 6 years, it is one I will always cherish.

FIO will reach higher goals with the incoming Director, Dr. Phil Kramer, who has the background, experience and ability to carry FIO through innovations in research and educational opportunities. I wish him the very best as the next Director of the Florida Institute of Oceanography.

Sincerely,

A handwritten signature in cursive script that reads "William T. Hogarth".

William T. Hogarth, Ph.D.

Governance of FIO as an AISO

Established by the Board of Governors (BOG) in 2009 and supported by the SUS Council of Academic Vice Presidents (CAVP), FIO serves the State University System (SUS) by Supporting Excellence in Marine Science, Technology and Education through infrastructure, programs, information and people to its member institutions across Florida.

FIO, hosted by USF is located on the USF-St. Petersburg campus. The twelve (12) state universities* defined by the Florida Statue Title XLVIII 1000.21 and nine (9) non-state entities, ratified the original 2009 Memorandum of Understanding (MOU) which establishes the AISO. These original members must retain majority (51%) vote of the FIO Council, they are:

- Eckerd College
- Florida Atlantic University*
- Florida Department of Environmental Protection
- Florida Agricultural and Mechanical University*
- Florida Fish & Wildlife Conservation Commission, Fish and Wildlife Research Institute
- Florida Gulf Coast University*
- Florida Institute of Technology
- Florida International University*
- Florida Polytechnic University*
- Florida Sea Grant
- Florida State University*
- Mote Marine Laboratory
- New College of Florida*
- Nova Southeastern University
- Smithsonian Marine Station
- University of Central Florida*
- University of Florida*
- University of Miami
- University of North Florida*
- University of South Florida*
- University of West Florida*

Since 2010, FIO's membership has grown to include Associate and Affiliate members whose mission aligns with FIO and the BOG.

- Clearwater Marine Aquarium
- Hubbs-Seaworld Research Institute
- Jacksonville University
- Roffer's Ocean Fishing Forecasting Services, Inc.
- Sanibel-Captiva Conservation Foundation
- SRI St. Petersburg
- St. Petersburg College
- The Florida Aquarium
- University of South Florida-St. Petersburg

Early this fiscal year, in accordance with the Board of Governors Regulation 10.014 Academic Infrastructure and Support Organizations (AISO), a summary of the Florida Institute of Oceanography's (FIO) five year programmatic evaluation was submitted to the USF, as the Host University's Board of Trustees, the Council of Academic Vice Presidents, and the Board of Governors. As a result, FIO was renewed for the next five years to continue in its capacity as the AISO and USF remains as the host institution.

2015-2020 Strategic Plan

Vision

FIO will support excellence in marine science, technology, and education through infrastructure, programs, information and people.

Mission

FIO will ensure the adequacy of infrastructure support to facilitate collaborative research and education related to Florida’s coastal and ocean environment and will serve as a coordinating body across academia, state and federal agencies, ocean science organizations and the private sector in addressing new opportunities and problems to be solved through research and education. **FIO is an enabler, a facilitator and a coordinator.**

With a newly crafted Strategic Plan, FIO will move forward to bring together **Infrastructure, Programs, Information and People** to advance knowledge, innovation and continue to support the marine science, technology and education in Florida, while aligning with the BOG’s mission. This year, the annual report is structured to outline these goals of FIO.

A few short years ago, FIO was struggling to achieve its true mission as an AISO; due to many budgetary, staffing and operational challenges. Progress over the past several years has resulted in a vibrant organization that actively supports its member’s research and educational programs. With the support of the State Legislature, BOG, USF as the host institution, and the members, that enabled FIO to upgrade our research platforms with state-of-the-art instrumentation, increase opportunities for faculty and students through FIO’s Subsidized Shiptime Program; support the first multi-institutional field course; obtain a marine facility, the Keys Marine Laboratory and be financially stable to contribute to the construction of the replacement for the R/V Bellows. The following table is a summary of FIO’s budget ending fiscal year 2015/16. Reserves have been set aside to support unforeseen vessel emergencies or natural disasters that could take place at KML.

FYE 2015/16 Account Summary					
Fund	Fund Description	7/1/15 Begin. Bal.	Revenue	Expenditures	Ending Cash Balance (#:)
10000	E&G	\$ 3,257,191	-	\$ (2,426,840)	\$ 830,351
01419	MS Weatherbird II	267,612	999,304	(1,047,541)	219,375
03000	Subsidized Ops	17,581	52,742	(17,626)	52,697
03001	FIO Bellows	44,269	164,382	(157,972)	50,679
03003	FIO Keys Marine Lab	150,409	175,179	(256,067)	69,521
03004	NEW R/V Construction	1,180,000	-	-	1,180,000
00HOLD	Reserves	277,298	-	-	277,298
10009	Carry Forward	1,087,337	-	(563,674)	523,663
18300/18370	Research F&A	31,600	-	(4,609)	26,991
Est. Total 2015-2016 All Source Balance		\$ 6,313,297	\$ 1,391,607	\$ (4,474,330)	\$ 3,230,574
Obligated Amounts		\$ 2,182,733	-	-	\$ 2,182,733
Est. Available Total All Source Balance with Committed Obligations (CF-FY16/17)					\$ 1,047,841
Estimated ending cash balance, June not yet reported					
Obligations total \$2,182,733 include					
New R/V Const., ROV, Endeavor, FIO R/V Const. commit					

INFRASTRUCTURE

FIO will provide physical and financial assets and coordinate the efficient use of the members' expertise and resources to facilitate and support the research of scientific investigators and students, engage external contractual opportunities, and provide community outreach.

FIO continues to provide affordable vessel platforms, and laboratory support to FIO member organizations, state government and non-governmental entities. We have been able to accomplish this by successfully operating two major sea-going vessels, the R/V Weatherbird II and R/V Bellows along with the land based laboratory-Keys Marine Laboratory (KML). These assets have provided support for STEM-discipline degrees that produce scientists and educators, building a workforce supporting ocean research, and education which drives economic development while maintaining and improving environmental sustainability of Florida's coastal ocean. Combined, these platforms have supported over 10,000 undergraduate and graduate students statewide since 2009, allowing students to connect first-hand with scientific research conducted along Florida's coast. In this way, FIO is enabling the development of the ocean scientists and educators of the future.

i. R/V Weatherbird II



Last summer, the R/V Weatherbird II made its' first research cruise out of US waters since she entered the FIO fleet in 2008. The cruise to Mexico began September 10th after a short delay due to outbound customs clearances. A three day transit to Progreso, Mexico was followed by additional delays in port once the ship arrived in Mexico. The vessel was held in the port of Progreso for two full days until efforts by Captain Baumeister, Chief Scientist Murawski, the US consulate office and Representative Jolly's office were able to reach an agreement with the Mexican Government. The vessel returned to St. Petersburg 23 days later completing the first year of a three year international project.

This August 2, 2016, the R/V Weatherbird II will depart for a 42 day mission making port calls in Ciudad Del Carmen, and Tuxpan Mexico, and the cruise will end in Corpus Christi, Texas on August 29, 2016. The C-IMAGE students and researchers will conduct scientific surveys on finfish communities and collect bottom sediment samples from the southern Gulf of Mexico including Mexican waters.

The vessel was in dry dock for several weeks in January at International Ship Repair in Tampa. The R/V Weatherbird propellers where again re-pitched to achieve acceptable engine RPM's. New propellers were ordered and installation is anticipated late 2016 to early 2017. After continued overheating issues on the main engines the FIO contracted a corrosion expert to evaluate the main engine cooling system. Upon inspection a corrosion problem was identified. The corrosion issue was due to dissimilar metals in the cooling system and lack of proper isolation of the pipes. The issue in the main engine heat exchangers was addressed by replacing the steel raw seawater intake pipes with copper nickel alloy pipes and isolating all the pipes from the hull and sea-chest.

The R/V Weatherbird supported fisheries work with both FWRI and USF, acoustic surveys of sink holes in the Florida Keys for USGS, fisheries stock assessment and Autonomous Underwater Vehicle (AUV) and Remotely Operated Underwater Vehicle (ROV) support. The ship provides the FIO summer course participants with an opportunity to test their sea legs with a full day research cruise into offshore waters.

ii. R/V Bellows

The R/V Bellows continues to operate as a teaching and research platform. The vessel provided support for educational programs, including FIO's Subsidized Ship-time Program for member institutions from The University of North Florida in Jacksonville to the University of West Florida in Pensacola. Mechanically the Bellows held together well this year, with a lot of "tender loving care" from Captain Coy and his crew, however several days were lost due to weather and mechanical issues with the Marine Sanitation Device system (MSD). Ultrasonic testing was conducted at International Ship Repair in January. A six-square foot section of hull plating was replaced and the vessel was fitted with new propellers. We continue to struggle with the repairs to the MSD system. The vessel is now having semi-annual hull inspections conducted in dry dock to insure safe operations of the vessel.



During the 2016 Legislative Session, the Legislature appropriated and Governor Scott approved \$3 million in state funding. FIO and some of its member institutions, including USF, UWF, FAU, FGCU, UNF, UF, FIT, Eckerd College, FIU, FAMU, Nova Southeastern, UCF, FSU and the City of St. Petersburg provided funds from institutional sources to match the \$3 million from the State of Florida to allow the construction of the new vessel.

The 78ft research vessel was designed and engineered by Boksa Marine Design in 2015 from support from Mr. George Lorton and FIO's operating budget. In December 2015, FIO awarded the contract to a Florida based family-owned shipbuilding firm, Duckworth Steel Boats, Inc., to build the R/V Bellows' replacement. Duckworth Steel Boats, Inc., located in Tarpon Springs cut the first piece of steel on the new research vessel during a keel laying ceremony on June 1, 2016. The vessel will be 78ft long, with a crew of 4 and berthing for 10 scientists and will be equipped with state of the art equipment, including dynamic positioning, teflon piping for flow through sea water system, capability of using synthetic line instead of steel cable to prevent rust and contamination for trace metal analysis. Construction is expected to take 12-14 months and the vessel should be in operation sometime next summer.

Representatives from contributing institution were in attendance to celebrate FIO's milestone. Speakers included State Senator Jack Latvala, State Representatives Kathleen Peters and Chris Sprowls, Mayor Chris Alahouzos of Tarpon Springs, St. Petersburg City Councilman Karl Nurse and USF System



President Judy Genshaft. Also in attendance was staff from several Florida Congressional Offices that have supported FIO for years in the federal budget. These included representatives from the offices of U.S. Senator Bill Nelson and U.S. Representatives Gus Bilirakis, David Jolly, Tom Rooney and Dennis Ross.

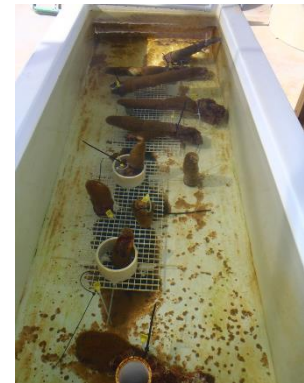
iii. Keys Marine Laboratory (KML)

In the heart of the Florida Keys, students and researchers are able to study the only tropical marine ecosystems in the continental United States and have access to the Florida Bay, the Everglades National Park, the Florida Current, and the Florida Keys National Marine Sanctuary. This unique laboratory offers a state-of-the-art 220,000 gallon seawater system, wet and dry laboratories, classrooms, vessels, and housing on-site. Since 2012, KML has supported over 5,900 individuals from over 800 different federal, state agencies, and academic institutions across the U.S. and internationally to achieve their academia and research objectives.



This fiscal year, KML served 63 user groups classified as 15 educational, 17 research, and 31 both education/research based. The facility had a total of 1326 dorm nights, 33 boat trips, and collected 32 specimens for the users.

A state of the art well based sea water system was completed at KML. This system allows for manipulations of water quality and in particular, simulating thermal and pH changes, as projected to occur in tropical and sub-tropical systems while simulating present and past conditions. Sea water is pumped via the well into a 15ft. tall tower which eliminates hydrogen sulfide and other organic materials that lower pH and oxygenates the water. Secondary water treatment includes the ability to manipulate temperature through the use of heat pumps and chillers and pH via CO₂ injections. There is 24/7 coverage for the system which can be corrected or attended to at any time to insure experimental integrity. The design guarantees that research can be conducted applying the



best practices and protocols providing publishable results that can be compared to similar research completed elsewhere.

The startup of the sea water system created collaborations among KML, Florida International University (FIU), Mote, NOAA and Florida Fish & Wildlife Research Institute (FWRI) users, who documented fewer than 600 live colonies at 95 sites along the entire reef tract. Phase one of the Florida Keys pillar coral rescue project was initiated to create a Living Pillar Coral Genetic Bank at KML in their new state-of-the-art, temperature-controlled seawater system. The broken pillars encountered at regularly monitored sites were transported back to KML and maintained in our saltwater tanks. The goal is to preserve as many different pillar coral genotypes as possible and prevent further loss of genetic diversity in this population. A duplicate Living Genetic Bank will also be established at Mote Marine Lab (Summerland Key). To date, over three dozen pillars representing 12 different genotypes are housed at KML and Mote, with more

collections anticipated in the coming months. These rescued pillars will also allow researchers to test propagation techniques and to establish methods for future restoration efforts to help re-establish pillar coral back to Florida's reefs.

PROGRAMS

FIO will seek and provide resources and value-added opportunities for research and educational programs for students at all levels, sustain and build upon the existing programs, and promote new programs and partnerships that expand FIO's role in marine science throughout Florida and the nation.

i. RESTORE Act, Florida RESTORE Act Centers of Excellence Program (FLRACEP)

In 2013, the RESTORE Act passed with FIO designated as the Florida state entity to receive the funds to establish Florida's Centers of Excellence Research Grants Program in support of science, technology development and education related to the 2010 *Deepwater Horizon* oil spill. The Act highlighted the need to engage institutions of higher education in Gulf-wide recovery. As an original sponsor of the RESTORE Act, Senator Bill Nelson stated, "I am pleased that Florida's natural resources are finally receiving RESTORE Act funding to help restore and build our natural resources. As evidenced by our stated intent to have FIO host the Centers of Excellence program, I am confident that FIO and its university partners will help us learn about the oil spill's environmental and economic impacts, which may go on for many more years."

Five years after the *Deepwater Horizon* oil spill, recovery efforts to build a stronger Gulf of Mexico environment and economy are underway the Department of Treasury regulations for the RESTORE Act were finalized in October 2014 enabling FIO to begin implementing the program using funds from Transocean's settlement in 2012. This began with a public scoping process to identify program priorities, request for proposals, an external science review and selection of the first Centers of Excellence to be funded.

In September 2015, the Florida Institute of Oceanography (FIO) finally received funding to host the Florida RESTORE Act Centers of Excellence Program (FLRACEP). The program will support research and technology developments that promote innovative restoration science. The first Center of Excellence grants began this year and focused on fisheries and wildlife research and monitoring projects from the Everglades to the deep sea. The initial eight Centers of Excellence (see below chart) support ten projects for a total of \$2.8 million to improve our understanding of the Gulf ecosystem. The FLRACEP selected projects that focus on providing science in support of management of the natural resources that are foundational to Florida's economy.

PI Last Name	PI First Name	Title	Center of Excellence
Allen	Mike	<i>Assess management options to mitigate lionfish impacts to reef ecosystems</i>	University of Florida
Ault	Jerald	<i>Optimizing economic value and sustainability of Florida's recreational fisheries.</i>	University of Miami
Babcock	Elizabeth	<i>Better use of directly-observed data in ecosystem simulation models</i>	University of Miami
Boswell	Kevin M	<i>Informing fishery-independent reef fish surveys through advanced survey techniques</i>	Florida International University
Caffrey	Jane M.	<i>Evaluating the role of artificial reefs as hotspots of biological productivity</i>	University of West Florida
Grubbs	Dean	<i>Study to examine long-term effects of DWH spill on large deep-sea fishes</i>	Florida State University
Lembke	Chad	<i>Robotic monitoring of Red Grouper in the Eastern GoM.</i>	University of South Florida
Peebles	Ernst	<i>Egg and larval DNA barcoding support Gulf reef fish stock assessments</i>	University of South Florida
Mansfield	Katherine	<i>Tracking sea turtle "lost years" in the Gulf of Mexico.</i>	University of Central Florida
Walker	Brian	<i>Habitat mapping to inform future survey efficiencies, management strategies, and climate change research.</i>	NOVA Southeastern University

On March 16, 2016 FLRACEP announced its second Request for Proposals (RFP II) focused on comprehensive observation, monitoring and mapping of the Gulf of Mexico. The program expects to fund one (1) Center of Excellence project for an initial two-year period, with the potential to extend the work for 15 additional years in order to contribute substantially to long-term research and monitoring of marine resources found off Florida's Gulf coast. The anticipated period of performance is September 2016 to November 2018.

In April 2016, a federal judge approved a global settlement between BP and the state and federal trustees, making a further \$5.5 billion available for RESTORE Act funding, of which FLRACEP will receive \$22 million over 15 years. Resolution of the many claims stemming from the Deepwater Horizon oil spill gives the program certainty in both duration and annual funding, and future funding opportunities will follow a long-term strategy approved by the Program Management Team.

For details on the RESTORE Act, FLRACEP rules and policies, the Centers of Excellence, and their research projects visit FIO's web site: <http://www.fio.usf.edu/research/flracep>.

ii. Subsidized Ship-time

With dedicated state-supported funds, FIO offers a unique ship-time program to its member institutions. This popular program provides a STEM-focused opportunity for students to gain on-hands skills and experience working aboard a research vessel or at our marine laboratory in Layton, Florida to help SUS member institutions attract and retain highly qualified Bachelors, Masters and PhD degree-seeking students. Since 2007, the program has awarded over 600 ship days across all of FIO's marine facilities, resulting in supporting more degrees awarded in related high demand, highly skilled and high wage targeted areas.

This fiscal year, FIO was pleased to award a total of 65 Subsidized Ship-days. The table below details FIO's infrastructure support to the successful member institutions:

2015-2016 Institutions Awardees	Number of Days Awarded on Bellows	Number of Days Awarded on WBII
Eckerd College	3	0
Florida Agricultural & Mechanical University	0	3
Florida Atlantic University	5	0
Florida Gulf Coast University	4	3
Florida Institute of Technology	9	0
University of Central Florida	2	0
University of North Florida	7	0
University of South Florida	10	6
University of West Florida*	13	0
Total Subsidized Days Awarded:	53	12

*KML (1 day awarded to UWF for use of KML)

iii. UNOLS R/V Endeavor

The R/V Endeavor is a 185ft research vessel, owned by the National Science Foundation (NSF) and is managed by the University of Rhode Island. In the coming fiscal year 2016-17, FIO members will have the opportunity compete through an RFP process supplement funding for 4 days of ship-time provided by FIO. The Endeavor offers research opportunities that do not exist on the R/V Bellows or R/V Weatherbird II. Members should be on the lookout for a release of the RFP in the near future.

FIO is working on an agreement to join the University Of Rhode Island (URI), Graduate School of Oceanography (GSO) as a partner in the East Coast Ocean Research and Exploration Consortium. In the meantime, FIO members will have the opportunity to take advantage of the ocean research and exploration available on the *Endeavor*. The consortium which includes URI the University of Delaware and others will compete for the next regional class vessel for the East Coast.

iv. Multi-Institutional Course: “Field Studies in Marine Biology”

2016 was Fourth year of the Multi-Institutional course offered by five (5) SUS institutions SUS faculties. The highly successful course creates collaborations and garners knowledge among different SUS institutions faculties and students. Florida Gulf Coast University, Florida Atlantic University, University of North Florida, University of West Florida, University of South Florida-St. Petersburg, and FIO’s Keys Marine Laboratory. Over 70 students from across SUS institutions have enrolled since the course was launched in fiscal year 2012-13. Students are exposed to multiple marine and coastal environments state-wide. Just like last summer, the course was divided into two (2) cohorts with 24 students travelling to five field stations during the 5.5 week course. The course provides hands-on experience working on the R/V Weatherbird II, at the Keys Marine Laboratory and other SUS associated marine laboratories.

USFSP: The week at USFSP is spent discovering the open ocean! Students participate in a long-term



biodiversity research cruise where they learn about sampling techniques scientists use while at sea in the Gulf of Mexico. After the 13 hour cruise, students spend time observing, identifying and learning how to quantify plankton samples, as well as examining methods to quantify animal behavior at the Florida Aquarium. Students conclude the week choosing a scientific question they can analyze using past and present

cruise data. They present their preliminary data which is part of a class discussion of successes and challenges in data analysis.

The theme of the **FGCU Marine Station** unit is: Past and Future Ecology of the Southwest Florida Coastline; Geological, Anthropological, and Environmental Science perspectives. The group starts with the geological and anthropological side of things. This year Dr. Michael Savarese introduced students to the geomorphological development of Southwest Florida's estuaries, and how this has influenced estuarine ecology and human cultural evolution. Students went coring to look at the geological history of Estero Bay's oyster reefs and mangrove islands in relation to sea level rise. Students got an opportunity to tour the Mound Key archaeological site to learn about the use of estuarine resources by Native Americans, the Calusa. Dr. Michael Parsons, a plankton ecologist took the students on a plankton collecting tour of the estuary and the nearshore Gulf of Mexico. Dr. Parsons used the plankton data to teach the students about measuring biodiversity and assessing biological community changes along abiotic gradients. Dr. James Douglass is a seagrass community ecologist who taught students about the importance of seagrass and its use as an "ecological indicator" of estuarine health and human impacts. Students learned about the pros and cons of different methods of monitoring seagrass, and collected seagrass data by snorkeling, which they compared to seagrass maps generated by aerial photography. The week ended with a guest speaker Cheryl Clark, the manager of the Estero Bay Aquatic Preserve talked about her work and the challenges of reconciling science-based environmental management with the pressures of politics and development.



The emphasis of the **FAU** week taught at **KML** focuses on coral reefs and related sub-tropical coastal habitats. An important theme throughout the course connecting the different habitats, the relationship of biota to the environment, and marine conservation. Students begin the week exploring Florida Bay and nearshore communities, including seagrass beds, mangrove forests, macrolagal communities, and tidal passes. They then visit a number of coral reefs, including patch reefs and Florida Reef Tract off of the Middle Keys. Students in the course also explored and discussed the classic "spur and groove", coral reef at Looe Key in the Lower Keys and the rocky intertidal at Bahia Honda Key concluding the week at Windley Key, examining its tropical coastal hammocks and fossilized coral reef. This week also allows students to learn about current research at two marine labs in the Keys, KML and Mote Marine Lab, with coral reef restoration efforts a major focus on that research.

The theme of the week in and around **UNF** was "Temporal and Spatial Variation in Coastal Habitats." The students began the week examining the salinity gradient along the St Johns River/estuary (oceanic-fresh) which includes both the aquatic habitat and the use of the shoreline/aquatic habitats by people. Students saw natural marsh edge, residential bulkheads, shipyards, water-dependent industry, dredged channels, and general exploitation of the river to satisfy human needs. By days 2-3 Temporal changes in aquatic habitat, human use, and marsh over a diel cycle (24 ½ hours) at a tidal and non-tidal locations in the Guana National Estuarine Research Reserve. Students spent the entire cycle sampling fish and invertebrates and water quality as the tides fall and rise and day gives rise to night. There is an emphasis on observing patterns of use by animals in the system and by people exploiting these resources. On day 4

and 5) Natural and human managed shoreline habitats with an emphasis on natural change and human engineering and use of the shoreline. The development of natural dune systems, human altered shorelines and how animals and plants use or cope with those changes is emphasized. Management of waterways and inlets and associated natural and human impacts are discussed. Discussion of data collected during the week and how Coastal Science uses data.

The objective of the **UWF** week was to explore the impacts of land management policy/activities on marine resources, species and habitats. Through site visits and field surveys students explored interactions between physical, chemical, and biological processes at sites ranging from upland creeks to near-shore Gulf of Mexico. When possible, students participated in active research programs to provide a more in-depth introduction to current field research tools and methods. This also gave students the opportunity to work side by side with a variety of graduate students and faculty, which led to many impromptu discussions about graduate school and careers in marine science.

The faculty worked very hard to successfully get the course recognized within the SUS System. Any student within the SUS System may now register for the course utilizing the course number OCB 3108 or BSC 3060. With such a short period of time, this course has gain national attention across campuses as students outside of Florida are applying to take this hands-on intensive field course.

v. Oceanography Camp for Girls

The Oceanography Camp for Girls was developed to inspire and motivate young women entering high school to consider career opportunities in science. Oceanography Camp for Girls is an interdisciplinary science that introduces young women, rising freshmen to areas of biology, chemistry, geology, physics, and math to study all aspects of ocean sciences. The camp was created in the 1990s by the USF College of Marine Science in response to reports that revealed a tremendous drop in the number of women pursuing mathematics and science degrees.

This 3-week program provides hands-on, real-world experiences in both laboratory and field environment on the *R/V Weatherbird II* or *R/V Bellows*. To date, over 900 young completing their 8th grade have successfully competed in this competitive Pre-College STEM Program, dedicated to exposing rising high school freshman to STEM disciplines in which women and minorities are most often underrepresented. Between 20-25% of the girls have pursued degrees in higher education related to STEM-focused disciplines. The Program also provides opportunities for current graduate students, research scientists, and undergraduate students in marine sciences mentoring experiences.

vi. Gulf of Mexico University Research Collaborative (GOMURC)

The Gulf Research Collaborative is a team of university-based consortia representing the many marine oriented research organizations within the Gulf States. The Gulf Research Collaborative was established by agreement of its Principal Members (The Alabama Marine Environmental Sciences Consortium, the Florida Institute of Oceanography, the Mississippi Research Consortium, Louisiana State University and the Texas Harte Research Institute) for the purpose of supporting and enhancing the Gulf of Mexico's coastal marine science, oceanography and related management programs through education, research, and public outreach. The startup funds were contributed by USF followed by additional support from HRI and the Walton Family Foundation. The Gulf Research Collaborative supports and facilitates the activities of educators, scientists, and agencies responding to state, regional, national, and international issues.

GOMURC goals and objectives (Table 1) for 2015 and 2016 include: **advocacy** efforts to actively espouse GOMURC mission priorities and capabilities; and **coordination** activities to enable collaboration among Gulf science, management and education communities.

Table 1. GOMURC goals and objectives intended to serve the vision and mission statements.

Goal	Description	Objectives
1- engage members in spill response and restoration	Engage members in Deepwater Horizon oil spill restoration effort, including science, technology, education and regional planning.	Coordinate activities to support science-based restoration programs and integrated information management. Advocate for ecosystem and project-level monitoring and observing program. Advocate for engagement of members in restoration programs.
- prepare for future disasters	Improve members' response readiness for future disasters, including improving access to members' assets and integration with other responsible organizations.	Advocate for members' disaster response capabilities and engagement Advocate for modeling for predicting events and ecosystem impacts and coordination of related activities.
3- develop new initiatives	Identify and engage members in new priority initiatives that promote Gulf environmental and economic health.	Coordinate science education programs for university students. Advocate for initiatives that address priority threats to Gulf ecosystem and economic health
4- network	Improve communication and collaboration among members and with outside partners.	Coordinate communications among members Coordinate activities to convey GOMURC priorities to decision/policy-makers Coordinate regional partnerships to support a healthy Gulf environment.

Highlighted accomplishments in 2015 included:

- Feedback to restoration plans included: RESTORE Act NOAA Science Program's Science Framework; National Academies of Science, Gulf Research Program's Strategic Vision; RESTORE Act Gulf Coast Ecosystem Restoration Council's Science Evaluation process; and Treasury Departments Final Rulemaking for the RESTORE Act.
- Co-sponsored [Gulf Spill and Ecosystem Science Conference](#), led by the Gulf of Mexico Research Initiative (GOMRI), in Jan 2015, and committed to sponsor 2016 conference; GOMURC will have sponsored participation of over 80 university students during 2013, 2014 and 2015 conferences. GOMURC director served on Executive Planning Committee for 2014-2016 conferences. GOMURC also co-sponsored Gulf of Mexico Alliance (GOMA) annual meeting.
- The GOMURC entity enabled us to participate in national level efforts to inform policy, for example, comments were submitted via Senator Vitter for the Senate hearing, "Five Years After Deepwater Horizon: Improvements and Challenges in Prevention and Response" to reinforce our priorities including the need for and value of the academic community as first responders to disasters.
- Development of the Centers of Excellence Network (CENet) to provide improved communication and collaboration among the emerging RESTORE Act Centers of Excellence Research Grant Programs throughout the Gulf of Mexico. This activity was handed off to the FL RESTORE Act Centers of Excellence Program to lead starting in January of 2016.
- Outreach activities included creation of presentations to promote: 1) [value of Gulf ecosystem services and contributions of academe to related science](#); and 2) [Gulf-wide ecosystem monitoring](#)

to support restoration and sustainability via implementation plan offered by the Gulf of Mexico Coastal Ocean Observing System Build-Out Plan (V2.0).

Funding from previous awards all end in 2016. Winding down includes reduction of staff support to one part-time (0.25 FTE) coordinator (A. Shepard) as of May 2016. A new strategy for determining the collaborative funding and priorities in 2017 and beyond will be developed by September 2016.

vii. Gulf of Mexico Research Initiative (GoMRI)

Gulf of Mexico Research Initiative ([GoMRI](#)) is an independent research program consists of 20 Research Board (RB) members who are experts in science, public health and research administration representing each of the five (5) Gulf States (10 appointees) and ten (10) appointed by British Petroleum (BP) who have been identified as experts in their field throughout the world. The goal of this initiative is to investigate the impacts of the oil, dispersed oil, and dispersant on the ecosystems of the Gulf of Mexico and affected coastal States. Dr. William Hogarth, Director for the Florida Institute of Oceanography was appointed to represent Florida on the Gulf of Mexico Research Initiative Research Board for his expertise in science and research administration. Dr. Richard Dodge, Dean of, and professor at the, Nova Southeastern University (NOVA) Oceanographic Center. NOVA also a member of the FIO AISO.

In 2011, the RB announced eight consortia RFP-I consortia awards for GoMRI funding based on a competitive peer review. Awards were made to lead institutions in the states of Florida (3), Mississippi (1), Louisiana (2), and Texas (2) for a total of \$112.5 million for a 3-year period. These research investments focused on generating fundamental advances in understanding the interactions that occurred and continue to occur among the marine ecosystem, oil, and oil dispersants as a result of the Macondo well blowout. Collectively, the research proposed by RFP-I consortia covers four of GoMRI's research themes.

The three (3) Florida consortia awarded in 2011 are:

1. [Center for the Integrated Modeling and Analysis of the Gulf Ecosystem \(C-IMAGE II\)](#)

Dr. Steven Murawski at the University of South Florida led the GoMRI Center for the Integrated Modeling and Analysis of Gulf Ecosystems (C-IMAGE II) that consisted of 12 collaborative institutions. The goal of C-IMAGE was to develop and integrate empirically validated models of oil plume fate and ecotoxicology to more accurately predict contaminant distribution, composition, and ecosystem impacts from the DWH and any future oil-well blowouts. C-IMAGE specifically focused on 1) the impacts on pelagic food webs and phyto- and zooplankton ecology; 2) benthic microbial ecology and impacts of oiled sediments on benthic communities; 3) fisheries and fish population dynamics, including early life history impacts and potential for ecotoxicological effects in adult fishes and their communities; and 4) the impacts on marine mammal distribution, vocalization, and toxicological effects. Additional information about C-IMAGE research, including the project overview provided by Dr. Murawski at the 2015 Gulf of Mexico Oil Spill and Ecosystem Science Conference, can be found [online](#).

2. [Consortium for Advanced Research on Transport of Hydrocarbon in the Environment \(CARTHE\)](#)

Dr. Tamay Özgökmen at the University of Miami led the GoMRI Consortium for Advanced Research on Transport of Hydrocarbon in the Environment (CARTHE) that consisted of 14 collaborative institutions. The goal of CARTHE was to accurately predict the fate of hydrocarbons released into the environment. CARTHE's scientific work focused on the physical distribution, dispersion, and dilution of petroleum, its constituents, and associated contaminants under the action of physical oceanographic processes, air-sea interactions, and tropical storms. The aim was to better predict where the oil goes and how fast it spreads so that emergency responders can better allocate limited resources to minimize the

immediate impact from surface oil on beaches and to minimize impacts on society, the economy, and health. Additional information about CARTHE research, including the project overview provided by Dr. Özgökmen at the 2015 Gulf of Mexico Oil Spill and Ecosystem Science Conference, can be found [online](#)

3. [Deep Sea to Coast Connectivity in the Eastern Gulf of Mexico \(DEEP-C\)](#)

Dr. Eric Chassignet at Florida State University led the GoMRI Deep Sea to Coast Connectivity in the Eastern Gulf of Mexico Consortium (DEEP-C) that consisted of 14 collaborative institutions. The goals of DEEP-C were to 1) generate quantitative data on the physical, chemical, and biological systems of the northeastern Gulf of Mexico, including regions affected by the DWH oil spill; and 2) integrate these data in both earth system and food web models that will improve prediction of the path, fate, and consequences of crude oil and gas released from the northeastern deep Gulf through natural or anthropogenic causes. The resulting data of DEEP-C work will be used for model studies that support improved responses to possible future incidents. Additional information about DEEP-C research, including the project overview provided by Dr. Chassignet at the 2015 Gulf of Mexico Oil Spill and Ecosystem Science Conference, can be found [online](#).

In 2014, the [GoMRI](#) RB received 72 preliminary proposals from RFP-IV Research Consortia solicitation for the 2015-2017. Lead institutions from 12 states (AL, AZ, FL, GA, LA, MA, MN, MS, NJ, NY, TN, and TX) submitted full proposals. By November 2014, the RB announced the 12 RFP-IV consortia awards selected by the GoMRI RB based on a competitive, merit review process based on National Science Board standards. Awards were made to lead institutions in the states of Alabama (1), Florida (4), Georgia (1), Mississippi (1), Louisiana (3), and Texas (2) for a total of \$140 million over a 3-year period. These research investments focused on improving the fundamental understanding of the implications of events, such as the Macondo well blowout, and on developing improved spill mitigation, oil and gas detection, characterization, and remediation technologies. Collectively, the research proposed by the awarded RFP-IV consortia covers all five GoMRI Research Themes (Table 3).

Florida was awarded a total of 4 consortia, with two consortia from the 2011 RFP receiving renewal funding, and two new consortia awarded funds for the 2015-2017 period. Florida consortia awarded in RFP-IV include work from:

1. [Center for the Integrated Modeling and Analysis of Gulf Ecosystems II \(C-IMAGE II\)](#)

Dr. Steven Murawski at the University of South Florida leads the GoMRI Center for the Integrated Modeling and Analysis of Gulf Ecosystems II (C-IMAGE II) that consists of 17 collaborative institutions. The overarching objective of C-IMAGE II is to advance the understanding of the processes and mechanisms involved in marine blowouts and their environmental consequences. Work is focused along three new initiatives: 1) field work at the IXTOC-I blowout site (in Mexico), 2) establishment of a marine exposure facility for fishes, and 3) a Gulf-wide assessment of fish and sediment contamination to better understand and predict oil fate and impacts of DWH and other spills. Additional information about C-IMAGE II research, including the project overview provided by Dr. Murawski at the 2015 Gulf of Mexico Oil Spill and Ecosystem Science Conference, can be found [online](#).

2. [Consortium for Advanced Research on Transport of Hydrocarbon in the Environment II \(CARTHE II\)](#)

Dr. Tamay Özgökmen at the University of Miami leads the GoMRI Consortium for Advanced Research on Transport of Hydrocarbon in the Environment II (CARTHE II) that consists of 26 collaborative institutions. CARTHE II is focused on advancing the fundamental understanding and modeling of the

diverse physical mechanisms responsible for hydrocarbon transport in the Gulf of Mexico environment. The overall goal of CARTHE II is accurate predictive modeling of pollutant transport from ocean-bottom release to landfall on the beach. The team focuses on two topics: 1) the dynamics of transport in the near-surface ocean and lower atmosphere, and 2) transport in deep-ocean plumes. Additional information about CARTHE II research, including the project overview provided by Dr. Özgökmen at the 2015 Gulf of Mexico Oil Spill and Ecosystem Science Conference, can be found [online](#).

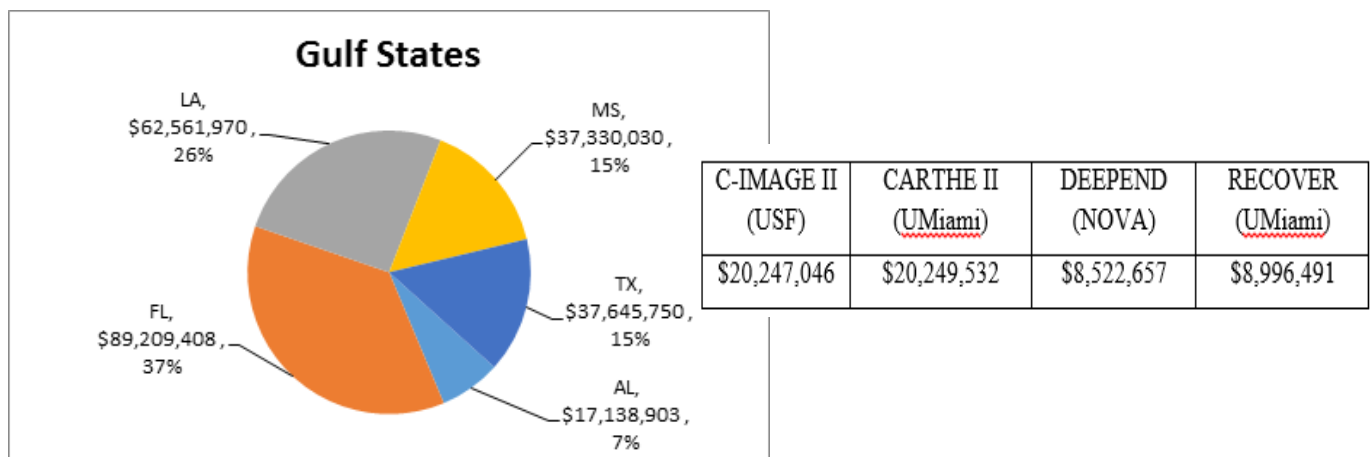
3. [Deep-Pelagic Nekton Dynamics of the Gulf of Mexico \(DEEPEND\)](#)

Dr. Tracey Sutton at Nova Southeastern University leads the GoMRI Consortium on Deep-Pelagic Nekton Dynamics of the Gulf of Mexico (DEEPEND) that consists of 8 collaborative institutions. DEEPEND investigates deep-pelagic communities on short- and long-term timescales to appraise extant recovery and potential future recovery of these communities. The consortium’s main objectives are to 1) define community structure, abundance, and distribution of deep-water column fauna; 2) document biophysical drivers of ecosystem structure; 3) determine genetic diversity among representative pelagic taxa; and 4) predict potential consequences of the DWH oil spill on the Gulf of Mexico pelagic fauna and microbial flora. Additional information about DEEPEND research, including the project overview provided by Dr. Sutton at the 2015 Gulf of Mexico Oil Spill and Ecosystem Science Conference, can be found [online](#).

4. [Relationship of Effects of Cardiac Outcomes in Fish for Validation of Ecological Risk \(RECOVER\)](#)

Dr. Martin Grosell at the University of Miami leads the GoMRI Consortium on the Relationship of Effects of Cardiac Outcomes in Fish for Validation of Ecological Risk (RECOVER) that consists of 4 collaborative institutions. RECOVER focuses on two important Gulf of Mexico predatory fishes, with the goal to provide a near complete mechanistic understanding of physiological effects of exposure to crude oil and PAHs. The team also plans to 1) provide insight into best practices for managing future spills involving other species and different physical-chemical environmental parameters; 2) determine to what extent individual organisms are able to recover from damage induced by exposure to crude oil/PAHs; and 3) inform population ecologists and thus assist with ecosystem effect predictions. Additional information about RECOVER research, including the project overview provided by Dr. Grosell at the 2015 Gulf of Mexico Oil Spill and Ecosystem Science Conference, can be found [online](#).

As you can see from table below, it is evident that FIO members continue to be the leaders in the Deepwater Horizon oil spill research efforts.



INFORMATION

FIO will provide a leadership role in communicating scientific information about coastal and marine environments produced by members and member institutions to benefit the citizens of Florida.

FIO staff and its members are actively involved with many agencies throughout the world to better understand marine issues. These involvements keep FIO abreast of the development of new technologies and issues while at the same time it allows our members to be actively involved in research issues and solutions that affect the marine environment and train scientists for the next generation. Throughout the year, FIO and its members are represented on various boards and committees such as:

- i. Florida Institute of Oceanography (FIO) & United States Coast Guard (USCG) Memorandum of Understanding (MOU)

Lessons from the Deepwater Horizon Oil Spill led to the first MOU in the country of its kind between the FIO and District 7, USCG which took effect June 29, 2012. The agreement authorizes the U.S. Coast Guard to coordinate and cooperate with other government agencies, and private entities, in research and development activities relating to the performance of any Coast Guard function.

The MOU created a pathway collaboration between federal agencies and FIO member institutions in the Gulf of Mexico and Southeast Atlantic to assist the USCG in future responses to natural or anthropogenic emergencies. FIO provides a centralized hub of Florida expertise in areas of concerns through various workshops.

FIO has reached out to enter agreements with other institution in order to provide additional resources and training opportunities in the Gulf of Mexico including Mexico.

- ii. Memorandum of Agreement between FIO and Harte Research Institute (HRI)

In November 2015, FIO and Harte Research Institute (HRI) signed a Memorandum of Agreement to support joint research activities in the Gulf of Mexico working closely with the National Oceanic and Atmospheric Administration, the Environmental Protection Agency, the Restore Act Centers of Excellence, the Gulf of Mexico University Research Collaborative, and other governmental agencies and for-profit organizations with an interest in research and educational programs for the Gulf of Mexico region. This Memorandum of Understanding is to establish and facilitate an effective working relationship between FIO and HRI in order to address the needs of the Gulf of Mexico research and monitoring efforts with academic, state and federal agencies. Specifically, projects will be developed within the following general themes: water quality; habitat conservation and restoration; ecosystem integration and assessment; fisheries and stock assessments; nutrients and nutrient impacts; coastal community resilience; and environmental education.

- iii. Draft Memorandum of Understanding between FIO, HRI and the University of Havana, Cuba

We are presently working with the U.S. Department to enter into a three way memorandum of understanding between FIO, HRI and the University of Havana in Cuba to further enhance and build on the recently signed “*Joint Statement between the United States of America and the Republic of Cuba on Cooperation on Environmental Protection*” by President Obama, which emphasizes the importance of collaboration on environmental issues. The MOU would support joint academic and scientific activities in the Gulf of Mexico region working closely with but not limited to the National Oceanic and Atmospheric Administration (NOAA), the United States Coast Guard (USCG), the Environmental Protection Agency (EPA), the Gulf of Mexico Research Collaborative (GOMURC), and other agencies and for-profit organizations and entities with interest in research and education programs.

This collaboration would establish a mutual beneficial relationship to build on academic and scientific cooperation to exchange valuable information including lead joint proposals between faculty, researchers and students; facilitates access to research opportunities, provide marine training to undergraduate, graduate and post-doctoral in all areas of marine disciplines; exchange scientific publications and any data and information of common interests.

iv. University-National Oceanographic Laboratory System (UNOLS)

University-National Oceanographic Laboratory System (UNOLS) is an organization of 62 academic institutions and National Laboratories involved in oceanographic research and joined for the purpose of coordinating oceanographic ships' schedules and research facilities. While FIO is not a UNOLS designated operator, FIO does actively participate in the Research Vessel Technical Enhancement Committee (RVTEC) and the Research Vessel Operators Committee (ROVC). FIO's participation in these committees promotes the scientific productivity of our member institution's research programs that utilizes the research vessels and marine facilities. The focus of these committees' is to foster activities that enhance technical scientific programs and ensures FIO maintains its fleet standards, provide quality service to our members and promotes marine safety and efficiency.

v. The St. Petersburg Ocean Team (SPOT)

The Ocean Team is a consortium and industry cluster for marine science, oceanographic and environmental research agencies, institutions and service organizations in the City of St. Petersburg. The Ocean Team and its related cluster agencies and businesses employ over 1,600 people who generate an estimated \$143 million in annual household earnings and contribute \$251 million to Pinellas County's Gross County Product. St. Petersburg's Bayboro Harbor's Scientific Research District is the largest marine research community in the Southeastern United States. The Ocean Team seeks to capitalize on technology development and economic return for the region. Meetings are held quarterly. Dr. Hogarth served as the Chair for the SPOT.

vi. Florida Ocean Alliance (FOA)

FOA was founded in 1999 as a nonpartisan organization dedicated to bringing together the private sector, academia, and nonprofit research organizations in Florida to provide "(g)lobal leadership in responsible and coastal economic development, conservation, scientific research, and technology innovation." FOA serves as a clearinghouse for information on key ocean and coastal issues facing the state in the public and private sector, monitors and publicizes actions related to the oceans and coasts, organizes conferences and outreach and educational activities for the public and policy makers, prepares economic studies and issues papers on ocean and coastal policies, and provide testimony to national or state agencies and commissions concerned with ocean or coastal policy. Dr. Hogarth currently serves on the Executive Board.

vii. Southeastern Coastal Ocean Observing System Regional Association in Florida (SECOORA)

SECOORA was established through ICOOS (The Integrated Coastal and Ocean Observation System Act) to integrate and augment coastal and ocean observing data and information. It supports a multi-scale, multi-resolution modeling framework that includes shelf and estuarine circulation, estuarine and surge/inundation prediction and uses observing subsystem for verification, assimilation, and operation, provide data management and educational assets (education and outreach) in the Southeast United States. Real-time, or near real-time, marine information on coastal and ocean conditions protects people through health advisories, coastal and marine situational awareness and allows for safer and more efficient marine

operations and emergency response, the environment and the economy and supports better-informed decision-making regarding commercial and recreational fisheries, and shoreline and climate change impacts. SECOORA supports conservation and sustainability, Florida's tourism, emergency preparedness & response, ports and homeland security and alternative energy. Dr. Hogarth currently serves on the Executive Board.

viii. National Association of Marine Laboratories (NAML)

NAML encourages the wise use and conservation of marine and coastal resources and provides a forum for the resolution of problems common to non-profit marine laboratories in the United States. The organization lobbies to support activities such as NSF's budget for the FSML program (Facilities, Communications, and Equipment at Biological Field Stations and Marine Laboratories) and provides outreach to the public through monthly policy meetings.

ix. Southern Association of Marine Laboratories (SAML)

SAML was formed in 1985 to unite marine labs across the southeast, from coastal Maryland through Texas, including Bermuda, to promote cooperation and effectiveness in the work of member institutions on marine and coastal resources. It stimulates cooperative effort among its members, promotes the wise use and conservation of marine and coastal resources. SAML also promotes the importance of marine research and education to the economy and to society and research initiatives related to marine and estuarine resource. It also provides a forum for resolving problems common to marine laboratories in the region.

x. Association of Marine Laboratories of the Caribbean (AMLC)

AMLC is a confederation of 27 marine research, education, and resource management institutions plus 500 individual members. AMLC encourages the production and exchange of research and resource management information in the marine sciences, advances the cause of marine and environmental education in the region, participates in decisions made by national and international organizations concerning the marine environment and facilitates cooperation and mutual assistance among its members. Keys Marine Lab, Mote Marine Lab, the USF Department of Integrative Biology and the Southeast Environmental Research Center, and Department of Marine Sciences at FIU are members.

xi. Consortium for Ocean Leadership (COL)

The Consortium for Ocean Leadership is a Washington, DC-based nonprofit organization that represents more than 100 leading public and private ocean research and education institutions, aquaria and industry with the mission to advance research, education and sound ocean policy. COL is a global society that views its own well-being as intimately connected to the ocean. COL shapes the future of ocean science and technology through discovery, understanding and action by applying expertise in managing, coordinating, and facilitating scientific programs and partnerships; influencing sound ocean policy; and educating the next generation of ocean leaders.

xii. Gulf of Mexico Coastal Ocean Observing System Regional Association (GCOOS-RA)

GCOOS is one of a series of Regional Coastal Ocean Observing Systems which are part of IOOS, which is part of the intergovernmental Global Ocean Observing System and a significant national contribution to the Global Earth Observing System of Systems. GCOOS provides timely information about

the environment of the United States portion of the Gulf of Mexico and its estuaries for use by decision-makers, including researchers, government managers, industry, the military, educators, emergency responders, and the general public. GCOOS is important for detecting and predicting climate variability and consequences, preserving and restoring healthy marine ecosystems, ensuring human health, managing resources, facilitating safe and efficient marine transportation, enhancing national security, and predicting and mitigating against coastal hazards. GCOOS posts data, models, and products via the internet for the common benefit of all participants, including industry, NGOs, academia, and federal, state, regional, and local government agencies. GCOOS seeks collaborations with other nations and regional observing systems that border the Gulf to design and carry out a Gulf-wide system.

xiii. Gulf of Mexico Alliance (GOMA)

GOMA is a 501c3 non-profit organization founded in 2004 by the five Gulf State Governors in response to the President's Ocean Action Plan. It is one of six Regional Ocean Partnerships (Florida is a member of two), this one working to sustain the resources of the Gulf of Mexico. GOMA's 900 members from State and Federal agencies (13), NGOs, academia and businesses seek to increase regional collaboration to enhance environmental and economic health of the Gulf of Mexico. Six priority areas are long term goals for action: water quality, ecosystem integration and assessment, nutrient priority, coastal resiliency, habitat conservation and restoration, and environmental education.

xiv. Outreach Activities

i. Ocean's Day

A celebration for Florida Oceans Day held in Tallahassee each year to recognize the importance of Florida's coastal and ocean resources. FIO members and collaborators such as the Florida Ocean Alliance and Mote Marine Laboratory come together to promote public awareness of the need to protect, enhance, and manage these ocean resources for future generations.

ii. St. Petersburg Science Festival & Marine Quest

A regional celebration, where over 20,000 families come to explore the wonders of hands-on science, technology, engineering, art, and math (STEAM).

FIO over the years have participated in the growing St. Petersburg Science Festival held concurrently with Florida Fish and Wildlife MarineQuest, USFSP, USF CMS, NOAA, and others. At the festival, FIO's display table included scientific equipment used on the research vessels, demonstrate how equipment are used for and how they it helps them navigate the oceans and provide support for scientists, offering the public opportunity to tour and learn more about FIO's research vessels, marine laboratory and mission. During MarineQuest, an FWC program that provide hands-on demonstrations to explain their research projects to all K-12 students, students are afforded the opportunity to tour both research vessels. This program attracts more than 10,000 students each year to their annual open house event.



iii. KML Winter Science Seminar Series

Monthly lectured series geared toward the non-scientist public to promote science literacy and focusing on ocean issues relevant to South Florida and the Florida Keys. Lecture series run November-April of each year and brings in over 200 local residents to the KML.

iv. Dispatches from the Gulf

In 2015, the GMT continued to provide support to Screenscope, Inc., in their development of the “Dispatches from the Gulf” documentary. A trailer for the documentary was released in March 2015 and [can be viewed online](#). The documentary was completed in December 2015, initially screened by the Florida Institute of Oceanography at the Mahaffey Theater in St. Petersburg, FL, in February 2016, and premiered at the Environmental Film Festival in Washington, DC, in March 2016. It was also shown at several screenings throughout the Gulf States in February and March 2016 and at the 2016 Gulf Oil Spill and Ecosystem Science conference in February. In addition to the documentary film, a [series of short videos](#) were generated and released in 2015 to serve as outreach and legacy products for GoMRI. The GMT has assisted, and will continue to assist, Screenscope in advertising the film, sharing information about the screenings, and providing information and resources to the Screenscope team when needed.

v. Guy Harvey Fisheries Symposium

Co-Sponsor with the Guy Harvey Ocean Foundation, the Guy Harvey Fisheries Symposium is held bi-annually in St. Petersburg. The symposium brings fishery stakeholders together to discuss current fisheries issues such as recreational catch data, aquaculture and stock assessments.

PEOPLE

FIO members are leaders in marine science programs, organizations and commercial enterprise. The synergy of the member’s interests, engagement and expertise will be capitalized upon to support the mission.

i. Member Highlights

FIO members are recognized throughout as being excellent in their fields of expertise. Many have received National recognition for their research. The following are examples of how our Members excel and bring recognition to the State of Florida which translate into attracting the best faculty, students and research funding. FIO is extremely proud of the accomplishments of our members.

Florida Atlantic University (FAU):

Dr. Shirley Pomponi, Executive Director of the Cooperative Institute for Ocean Exploration, Research and Technology (CIOERT) and Associate Director **Dr. Deborah Glickson** recently participated as science leads on the 2016 Deepwater Exploration of the Marianas aboard the NOAA Ship Okeanos Explorer, exploring hydrothermal vents, seamounts, and deepwater fauna and broadcasting their investigations live on the internet. In addition, **Dr. Pomponi**, and **Research Professor John Reed** at FAU Harbor Branch co-authored chapters in a recently published report, Mesophotic Coral Ecosystems -- *A Lifeboat for Coral Reefs?* Read more here: <http://1.usa.gov/1U8MXow>.

Eckerd College:

Dr. David Hastings received the Lloyd W. Chapin Award for Excellence in Scholarship and the Arts at Eckerd College. The award honors individual faculty members whose scholarship or creative art have made a significant contribution to the field in which they work. Hastings was honored for, among

other things, his research of the aftermath of the BP oil disaster, his public advocacy of issues related to climate change and “for bringing to your scientific study of our world’s difficult challenges a generous spirit of collaboration, a cheerfully optimistic belief in the human capacity for learning and changing, and a passion that inspires those around you.”

Florida Institute of Technology (FIT):

The Link Foundation selected **Jeff Colvin** to receive a Link Foundation Ocean Engineering and Instrumentation Fellowship in the amount of \$28,500 for the 2016–2017 academic year. He is a Meteorology Research Assistant & PhD Student at Florida Tech. Jeff will be using a system consisting of video cameras and anemometers to determine wave properties on the lagoon based on wind speed, fetch, and depth. The wave properties will then be used to parameterize roughness lengths over the water to improve the physics of the Weather Research and Forecasting (WRF) model for high resolution runs over coastal estuaries.

Dr. George Maul, Florida Institute of Technology’s distinguished professor of oceanography and the longtime head of the Department of Marine and Environmental Systems, was named 2016 Medalist by the Florida Academy of Sciences. The Florida Academy of Sciences awards one medal annually to a Florida resident who has “contributed in an outstanding manner to the promotion of scientific research, to the stimulation of interest in the sciences, or to the diffusion of scientific knowledge.”

Florida State University (FSU):

Two FSU oceanographers—**Drs. Jeffery Chanton** and **Allan Clarke**--were elected as Fellows in the American Geophysical Union. Only 0.1% of the members achieve this honor. Being elected to a Union Fellow is a tribute to those AGU members who have made exceptional contributions to Earth and space sciences as valued by their peers and vetted by section and focus group committees. Dr. Chanton led a study that found 6 million to 10 million gallons of oil from the BP oil spill are buried in the sediment on the Gulf floor, about 62 miles southeast of the Mississippi Delta.

University of Central Florida (UCF):

Dr. Kate Mansfield from the University of Central Florida’s Marine Turtle Research Group gave a presentation about the lost years of sea turtle hatchlings at the National Marine Educators Association 2016 Annual Conference. She spoke to hundreds of teachers about her FLRACP funded research looking at where turtles go after leaving the nest and how they behave. She is using satellite tracking to monitor the transition to offshore oceanic waters and study their floating communities in the Sargassum.

University of Miami (UM):

The Richard H. Hagemeyer Award was presented to **Dr. Lynn “Nick” Shay** of UM’s Rosenstiel School of Marine and Atmospheric Science. He is researching hurricane intensity prediction and received the award for the techniques used to evaluate ocean heat content. He combines aircraft coupled ocean-atmosphere measurements in hurricanes with satellite altimetry measurements to develop an ocean heat content product that is used in hurricane forecasting models of intensity at the National Hurricane Center and the National Centers for Environmental Prediction. Dr. Shay joins a prestigious list of previous awardees from the Office of the Federal Coordinator of Meteorology.

Sanibel-Captiva Conservation Foundation (SCCF):

The **Sanibel-Captiva Conservation Foundation** restored 3 acres of tape grass in the Caloosahatchee Estuary. The native Florida water plant provides a habitat and food source for estuarine fish and wildlife. The amount of tape grass has died off from high salinity events caused by destructive geoengineering. SCCF used a FDEP award of \$100k to add tape grass transplants and enclosures to restore tape grass coverage. In just three months the plants have been expanding rapidly and producing seeds and reaching the high biomass levels needed to support grazing demand and withstand bioturbation from large rays.

University of South Florida (USF):

Dr. Kendra Daly, was elected by the American Association for the Advancement of Science (AAAS) as Fellow “For distinguished contributions to the field of ocean science, particularly for advancing knowledge of Antarctic marine food webs and ecosystem dynamics in ice covered seas.” **Dr. Jacqueline Dixon**, “For distinguished contributions to the fields of marine science and geology.” **and Dr. Steven Murawski** “For distinguished contributions to the fields of fisheries and marine ecosystem science, particularly for theoretical and empirical contributions to understanding the dynamics of exploited ecosystems.” This summer the C-IMAGE “One Gulf” Expedition will return to the coastal waters of Mexico to sample areas near the Ixtoc oil spill in the Bay of Campeche with Mexican students onboard the R/V Weatherbird II.

University of South Florida-St. Petersburg (USFSP):

Through grant support through JP Morgan Chase, **The Florida Aquarium** invited 12 Florida teachers (grades 6-12) to participate in a one-week workshop, Science Education at Sea II, held at the Keys Marine Lab on Long Key, Florida June 26-June 30, 2016. Teachers spent the days snorkeling various habitats such as seagrasses, mangroves, hard bottom, patch and spur and groove corals to learn about biodiversity and changes in water quality that may occur in these areas. The evenings are spent in the classroom incorporating what they observed during the day into inquiry-based learning activities they can bring back to their classrooms. Topics included primary production, energy transfer, human impacts, and conservation. Due to wonderful weather, teachers, instructors, and KML staff, the week was a success!

FUTURE, Statement from Dr. Kramer

I am thrilled and honored to be joining FIO as the next director and would like to thank the FIO selection committee, President Genshaft, and Provost Wilcox for this opportunity. It is clear that I am joining at a time when FIO is on a roll with construction already underway for a new coastal research vessel and several emerging programs and collaborations across the Gulf of Mexico that are broadening FIO’s influence well beyond Florida.

Although I have much to learn in the coming months, my intension is to keep FIO focused on implementing its existing 5 year strategic plan (2015-2020) to support marine research and educational programs across the State of Florida. This will include 1) Ensuring reliable and affordable vessel operations and lab infrastructure; 2) Facilitating marine research funding opportunities to FIO members through the FLRACEP and GOMURC; 3) Coordinating between the FIO council members, state and federal agencies, ocean science organizations and the private sector; 4) Seeking new resources and value-added opportunities for new marine research and educational programs; 5) Providing leadership in representing and communicating scientific information from member institutions to the public.

I also intend work with the FIO council to continue to prioritize marine science and marine education needs and opportunities across the state of Florida. The recent algae blooms impacting the east

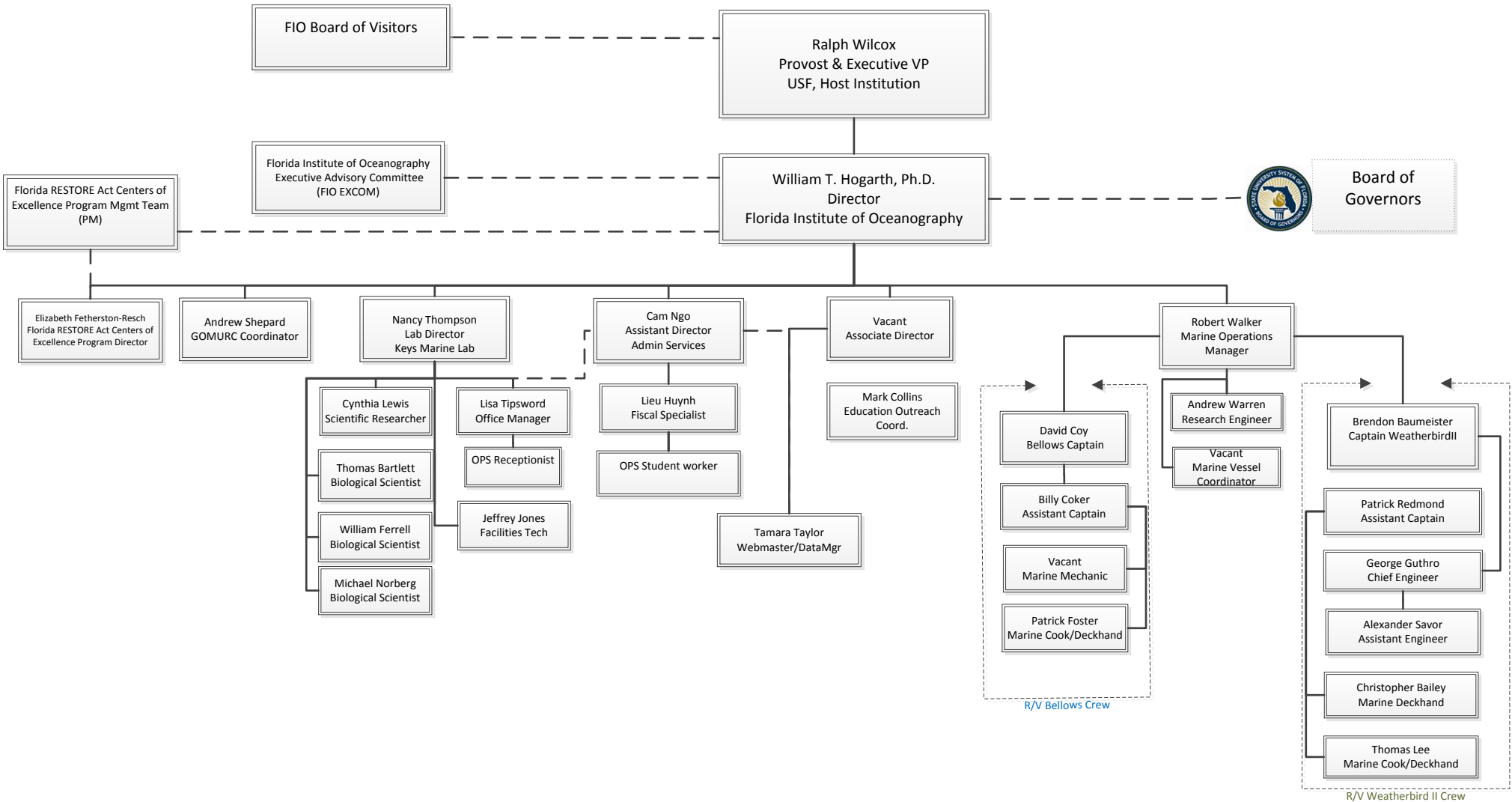
coast of Florida is just one example of the need to bring science and education together to better understand and manage our coastal waters. I strongly believe that FIO has the mission and expertise within its membership to help address these and other problems to benefit Florida's citizens and economy.

I would also like to thank Dr. Bill Hogarth for his extraordinary leadership of FIO over the past six years. The transformation he has imprinted on FIO have stabilized its financed and broaden its mission and scope to a new level. These are big shoes to fill and I am pleased that Bill will continue to serve as an advisor during my transition and remain involved in overseeing the construction of our new vessel. I look forward to formally joining the FIO team in August and working directly with the FIO council, the USF Board of Trustees and Board of Governors to advance FIO's mission.

Appendices

Appendix A: FIO Organizational Chart

Florida Institute of Oceanography



Appendix B: FIO Strategic Plan 2015-2020



Florida Institute of Oceanography Strategic Plan 2015-2020

July 1, 2015

“Supporting Excellence in Marine Science, Technology and Education”
Through infrastructure, programs, information and people.

Introduction

The Florida Institute of Oceanography (FIO) strategic plan of 2010-2015 focused on education, research and outreach, emphasizing communication, networking and collaboration among members and member organizations and their expectations of the FIO. The goals were largely fulfilled. During this period FIO has expanded its role as an infrastructure support organization³, taken on new responsibilities and activities, expanded its membership to include associate and affiliate member organizations, assumed primary responsibility for allocation and management of RESTORE ACT funding to develop the Florida RESTORE ACT Centers of Excellence Program (FLRACEP) and assumed the operation of the Keys Marine Laboratory.

A comprehensive report (**Florida Institute of Oceanography: Member Survey and Recommendations, 2015**) on the current and prospective status of FIO was prepared based on input from every FIO member and others who hold oversight and leadership positions for FIO. The report was distributed to the Strategic Planning Steering Committee which met in July, August and September, 2015 to discuss the information in the document, review the ambitious nature of the FIO Academic Infrastructure Support Organization (AISO)⁴ and to design the goals, objectives and metrics for an updated strategic plan. All members agreed that the AISO needed to reflect a more realistic and feasible guide for FIO, scaling back the aspirations to a more realistic agenda that can be accomplished within a 5-10 year time frame with the appropriate resources and a reasonable level of participation by the members.

In developing the strategic plan, the following statements guided the committee members' thinking:

³ FIO was chartered by the SUS as a service organization.

⁴ Prepared for the first time in 2009.

- 1) FIO is basically a volunteer organization that has substantial member benefits. FIO is poised to expand its activities. To do so requires an increase in staff and member engagement.
- 2) FIO is a collaborative organization. Goals should complement, not compete with activities of the members and their affiliated organizations.
- 3) FIO should create a mechanism to incentivize members to become more deeply engaged in activities that match their expertise and their organizations' capabilities.
- 4) FIO should marry needs of the state with the expertise of its members.

Mission, Vision and Values

The 2010-2015 mission and vision were reviewed and presented more succinctly. A statement of values has been added.

Mission: FIO is chartered to provide infrastructure support to facilitate collaborative research and education related to Florida's coastal and ocean environment, and to serve as a coordinating body across academia, state and federal agencies, ocean science organizations and the private sector in addressing new opportunities and problems to be solved through research, education and outreach. FIO is an enabler, a facilitator and a coordinator.

Vision: To support excellence in marine science, technology and education through infrastructure, programs, information and people.

"Supporting excellence in marine science, technology and education" will serve as a tagline. Four subcategories are mirrored in the four strategic goals for FIO.

Values:

- **Cooperation, collaboration, coordination and participation** – of members to solve problems related to the coast and oceans, to facilitate the education and training of future marine scientists and to provide research results to others to make science-based decisions.
- **Communication** – among members to leverage the collective vast and deep expertise to benefit Florida.
- **Transparency and accountability** – in all interactions that support the members, member institutions and the SUS.

It is difficult to project goals for five years in this rapidly changing environment, and taking into consideration the role of FIO to enable the research and education of its members, many of the objectives projected in the plan will depend upon the efforts of the members and are not the primary responsibilities of FIO. As FIO has done each year, the Annual Report will include a work plan for the upcoming year with specific objectives to be accomplished. The metrics for these objectives will be developed with more specific targets at that time. Some of the objectives will extend over the entire five years, others may be completed in one or a few of the years. The Annual Report also includes progress and accomplishments for the previous year.

Strategic Goals, Objectives and Metrics

1. INFRASTRUCTURE: FIO will provide physical and financial assets and coordinate the efficient use of the members' expertise and resources to facilitate and support the research of scientific investigators and students, engage external contractual opportunities, and provide community outreach. FIO responsibility in working with members.

The FIO vessels and equipment and the Keys Marine Laboratory are the primary physical assets available through FIO. Member institutions also have a wide array of facilities and equipment that can be shared to strengthen the mission of FIO. An updated inventory of field marine resources will be developed and FIO will take an active role in the management of other shared resources identified by and in the possession of its members.

Objectives:

- Develop methods to ensure equitable distribution of subsidized ship time to SUS members regardless of geographical location.
- Continue to work for the *R/V Bellows* replacement.
- Expand operation of the vessels to include nonmember contracts. For example, the ships could become "field labs" for national maritime manufacturers to test new devices/equipment.
- Ensure efficient utilization and management of ship and laboratory resources to the fullest extent possible.

- Plan and identify funding to update and upgrade facilities at Keys Marine Lab multi-purpose buildings and residence halls in order to increase use by students and other researchers.
- Recommend important equipment upgrades for the vessels by way of the Ship Scheduling and Coordination Committee.
- Develop an inventory of accessible FIO and member assets and identify gaps in resources that need to be filled.
- Develop an FIO curriculum that engages all SUS members.

FIO Metrics:

1. Amount of external funding to increase the total use rate at KML by 25 percent over five years including housing, classroom, dry lab and wet lab space.
2. Number of ship days at sea separated into subsidized and non-subsidized.
3. Number of ship days paid by nonmembers.

Member Metrics:

4. Number of classes taught with FIO resources.
 5. Number of grants awarded to FIO members that include the use of FIO resources.
 6. Number of publications, theses, dissertations and degrees from FIO members and their students that have used FIO resources.
- 2. PROGRAMS:** FIO will seek and provide resources and value-added opportunities for research and educational programs for students at all levels, sustain and build upon the existing programs, and promote new programs and partnerships that expand FIO's role in marine science throughout Florida and the nation. FIO support for member initiatives.

Objectives:

- FIO will coordinate highly specialized courses and training among member institutions in order to have an adequate number of students to assure that offering the program is financially viable, e.g., scientific diving.
- Develop certificate programs for continuing education in disciplines such as marine technology.

- Identify FIO facilities such as KML, aquaria and institutional marine resources as sites for hands-on work to coordinate with on-line courses.
- Initiate more programs for K-12 teachers by providing training and educational materials and seek grant money to support them to engage in these programs.
- FIO will work with members to obtain grants that provide funding for infrastructure and for marine science education.
- Organize an effort to gather and market internships for students in the marine sciences.
- Hold a jobs/informational fair for students to interact with members of the marine industry in Florida.
- Continue to provide leadership for the recovery of the Gulf of Mexico. (e.g., continue to support the Gulf of Mexico University Research Collaborative (GOMURC))

Member Responsibilities:

- Grow and expand the Florida Summer Abroad course and develop other field-oriented courses at KML and other member facilities.
- Organize FIO branded mini-courses to various constituencies to be taught during breaks in the academic year and the summer.

Member Metrics:

1. Number of certificate programs advanced.
2. Number of students completing FIO facilitated courses and training, and the student credit hours (SCH) accumulated.
3. Number of teachers participating in FIO courses.
4. Amount of funding obtained to support teachers in continuing education courses.
5. Amount of new external funding for research infrastructure and marine science education.

3. INFORMATION: FIO will provide a leadership role in communicating scientific information about coastal and marine environments produced by members and

member institutions to benefit the citizens of Florida. FIO and member responsibilities.

Advocacy as a role for FIO is a cross cutting theme which promotes the importance of marine science to Florida as well as the value of FIO as an organization that can synthesize and integrate data into information products. FIO members can provide information, educational opportunities, data and expertise in the marine sciences to investigators, students, businesses, agencies, government, the media and the public, which will benefit from the knowledge in advancing Florida's economy and in making science-based decisions.

Objectives:

- Develop a communications and marketing strategy that promotes the value of FIO as a collective of its members and their broad and deep range of scientific expertise and cost effective research and education resources. It should include, for example, branding FIO via a tagline, new uses for the listserv, developing the newsletter as a mini-magazine, rethinking FIO's role at Ocean's Day in Tallahassee, and preparing economic impact reports, a "sponsored report" or article in *Florida Trend* and a series of fact sheets and multipurpose flyers. The strategy will vary according to the constituency targeted.
- FIO will communicate data on external research dollars FIO members have obtained and the number of jobs this funding supports.
- FIO leadership will communicate personally with legislative and SUS staff about the work and capabilities of FIO.
- FIO will seek an opportunity to report to a BOG committee in order to increase the BOG's familiarity with the work of FIO that the SUS supports.
- FIO will convene workshops that connect people with the expertise to approach unmet needs for research and education and to probe emergent problems in which they can collaborate to develop solutions.
- FIO will prepare comprehensive inventories of talent (member expertise), facilities and equipment and marine stations (see also **People**, "FIO Professionals").
- FIO will maintain a record of interactions it has with all member organizations.

- FIO will attend scientific conferences and present displays of its activities and distribute handouts of its assets and capabilities.

FIO and Member Metrics:

1. Number of visits made to the FIO web site.
 2. Number of conferences FIO attends and delivers presentations.
 3. Number of workshops organized and number of attendees in various categories (e.g., academic, business, government, public).
 4. Amount of external funding (research expenditures) received by FIO members and correlated increase in the number of jobs.
 5. Number of visits to member institutions and purpose for the interaction.
- 4. PEOPLE: FIO members are leaders in marine science programs, organizations and commercial enterprise. The synergy of the member's interests, engagement and expertise will be capitalized upon to support the mission.**

Members of FIO are the lifeblood of the organization. Their expertise spans every discipline within the marine sciences. Members and colleagues at their institutions underpin and enhance the activities for which FIO gains recognition across the state, nation—even the world.

FIO and Member Responsibilities:

- Develop the “FIO Professionals” as a collective of scientists who are working in the field of coastal and ocean science, including members and others within their departments, related disciplines and other organizations. Membership in this group requires only the submission of name, academic rank or title, institution, contact information and a one to two line statement of the research area of interest. FIO members will designate categories and FIO Professionals will check one or two appropriate categories for their entry. The document will be maintained on-line and made available to anyone in the state who would benefit from this information. An alert will be sent to, for example, businesses, governments, universities, agencies and a hard copy made available if requested.
- Develop partnerships with members of consortia of other states to increase student and faculty exchanges in the coastal and ocean sciences.

FIO Responsibilities

- Establish new, regular or *ad hoc* committees such as a field lab committee, business relations and development committee, as needed.
- Expand the existing Board of Visitors by adding SUS Academic Vice Presidents and Research Vice Presidents, and others such as a mayor, a port director, an individual engaged in the tourism and restaurant industries, the High Tech Corridor and a power company.

FIO Metrics:

1. Number of individuals enrolled as FIO Professionals.
2. Number of new partnerships and MOUs illustrating the expanding network of FIO influence.
3. New relationships with other state-wide consortia and Florida coastal and ocean organizations.
4. Expand the membership of the Board of Visitors with new Key Opinion Leaders (KOL) members.
5. Number of requests from state and community governments and organizations for information and advice regarding coastal and marine issues and problems.

The **Florida Institute of Oceanography: Member Survey and Recommendations** report lists four possible models to capture the roles and responsibilities for FIO into the future. The Strategic Planning Group settled on a modification of the third suggested model as the most appropriate:

FIO is an organization that will provide infrastructure and broad support for marine research and education, at enhanced levels compared with the present, and promote its leadership in marine science to multiple constituencies within the state and nation.

Appendix C: FIO Council Membership List



FIO Advisory Council Membership List 2016

The Institute is governed by the FIO Advisory Council. Council members are appointed by the head of their respective institutions.

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Appendix D: FIO By-Laws



Florida Institute of Oceanography

Council Bylaws

I. Creation and Administrative Assignment of the Florida Institute of Oceanography

The Florida Institute of Oceanography (FIO) is an Academic Infrastructure Support Organization (AISO) of the State of Florida approved by the State University System (SUS¹) Council of Academic Vice Presidents (CAVP), 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 (MOU) ratified by the member organizations and approved by the BOG, the University of South Florida (USF) assumes the role of host university, with the support of participating universities, for the operation of FIO. FIO administrative offices are housed on the campus of the College of Marine Science in St Petersburg, Florida and fiscal accounting functions are administered by USF and will be overseen by the USF Board of Trustees (BOT).

II. Purpose and Duties of the FIO

Role of FIO

To facilitate access to major marine research and higher educational capabilities and facilities throughout the state, including:

- The provision and operation of sea-going vessels, marine laboratories and other scientific infrastructure not otherwise available from member institutions.
- Enabling the recognition of the Florida SUS and the private marine research and higher education Member Institutions of FIO as an intellectual and infrastructure resource for marine science and technology.
- Maximizing the efficient use of FIO Member Institutions' diverse marine research infrastructure to produce scientific solutions for the benefit of the citizens of Florida.

¹ The State University System Consists of the following institutions: Florida Agricultural and Mechanical University, Florida Atlantic University, Florida Gulf Coast University, Florida International University, Florida State University, New College of Florida, University of Central Florida, University of Florida, University of North Florida, University of South Florida, and University of West Florida

To facilitate collaboration among FIO Member Institutions, government and the private sector to:

- Promote marine research and education to establish a pool of future leaders and scientists available to academia, government and the private sector.
- Enhance public awareness of ocean sciences and its role in ocean resource management.
- Promote the importance of the coastal ocean to Florida.
- Leverage public and private investments to increase FIO Member Institutions' capabilities.
- Inform public policy development and decision-making.

III. Membership and Governance

The FIO shall consist of the Membership, the FIO Council, the FIO Director and staff, standing and ad hoc committees of the Membership, and a Board of Visitors.

A. Membership. The FIO consists of 30 institutions including the state universities as defined by the Florida Statute Title XLVIII 1000.21 sec (6) and other entities which include faculty, staff, and scientists conducting research and teaching and who may wish to utilize ships, facilities, and other services provided by FIO.

1. Full Members: All SUS members are Full Members of FIO. As an AISO, FIO serves the needs of the SUS. To retain integrity as an AISO, the majority of Full Members needs to be from the SUS, therefore, at least 51% of the Full Membership needs to be SUS institutions. The non-state university full members of FIO are: Eckerd College, Florida Sea Grant College; University of Miami, Rosenstiel School of Marine and Atmospheric Science; Florida Department of Environmental Protection; Florida Fish & Wildlife Conservation Commission, Fish and Wildlife Research Institute; Florida Institute of Technology; Mote Marine Laboratory; Nova Southeastern University; and the Smithsonian Marine Station at Fort Pierce.

If there is a vacancy on the Council for a new non-SUS Full Member, acceptance of the new non-SUS Full Member to the Council will be by a vote of the entire FIO Council at an in-person Council meeting. A 3/4 majority vote is required to accept a non-SUS member as a Full Member.

2. Associate Members: Associate Membership is established for additional non-profit non-SUS organizations with a marine science focus. These include all non-profit entities, such as, but not limited to, colleges, museums, aquariums, and other organizations that fit the Criteria for New Member Applications. Associate Members will promote FIO and provide FIO and its members with access to ships, laboratory facilities, and other ocean and coastal research and education assets (for a fee, if appropriate). Other branch campuses of existing SUS Council Members may become Associate Members, but there can only be one voting (Full) member from any one SUS institution other than the Host University, which has two voting members. All SUS faculty, regardless of whether on a

main campus or on a branch campus, remain eligible to apply for SUS-subsidized ship time.

3. Affiliate Members: Affiliate Membership is established for for-profit non-SUS organizations with a marine science focus. Affiliate Members will provide FIO and its members financial or in-kind support, use or access to ships, laboratory facilities, and other ocean and coastal research and education assets (at a fee, if appropriate).

Election of New Members. The FIO Council may elect to membership other institutions in the Florida ocean science education and research community that meet the criteria for membership approved by the FIO Council (“New Members”). Criteria for membership will address commitment to the support of shared use facilities; agreement to support legislative budget requests of the FIO as required to maintain and operate these facilities in a safe, efficient and cost-effective manner; commitment to attend all scheduled meetings of the FIO Council and FIO Executive Committee, if appropriate; and completion of assignments in a timely manner as agreed to by the FIO Council or FIO Executive Committee. The FIO Council will evaluate each New Member request individually. All SUS (as defined by the membership of the CAVP) New Members are eligible to be Full Members and will automatically be awarded a seat at the FIO Council. A simple majority vote of Full Members will be required to accept any non-SUS Members as a New Associate or Affiliate Member onto the FIO Council.

Criteria for New Member Applications:

1. Significant presence in Florida, such as an operating facility in the State of Florida.
2. Primary focus is marine science technology, education and/or research.
3. Provide a proposal (written), including documentation of the extent of presence in the State of Florida. Orally present to the FIO Council how the institution will support FIO Council activities.
4. Demonstrate ability to bring tangible support to FIO.

Privileges of FIO Membership

	Full Members	Associate Members	Affiliate Members
Attendance and participation at FIO Council Meetings	Yes	Yes	Yes
Voting privileges on the FIO Council	Yes	No	No
Participate in specific FIO project funding opportunities	Yes	Yes	Yes
Access to subsidized ship time on FIO vessels.	Yes	No	No
Access to at-cost ship time on FIO vessels.	Yes	Yes	No
Access to commercial rates of ship time on FIO vessels.	No	No	Yes

B. FIO Council. The primary function of the FIO Council is advisory to the FIO leadership, including the FIO Director and the Provost of the host institution. The FIO Council will consist of one (1) representative from each member organization and two (2) from the host institution who are active members of the Florida coastal ocean research and education community and who are appointed by its President or CEO or his/her designee. The President or CEO (or his/her designee) of each member organization may also appoint one (1) alternate who may serve in the representative's stead at meetings of the Council, but each institutional member may be represented by only one (1) individual in the deliberations of the Council. Member representatives may be reappointed, but shall not serve more than three (3) consecutive terms unless requested in writing by the appointing official. The foregoing notwithstanding, the second member appointed by the host institution may serve unlimited terms. The FIO Council shall elect a Chair biennially from the membership. The FIO Director together with a representative of the BOG will serve as non-voting, *ex-officio* members. Council members shall have the authority to participate in all activities on behalf of the member organization and Full Members of the Council shall also have authority to cast votes as required. Each institutional member can change a delegate at any time by notifying the FIO Director by written communication.

C. FIO Director and staff. The FIO Director shall be appointed by the Provost of the host institution in consultation with the FIO Executive Committee. The FIO Director reports to the Provost of the host institution. The FIO Director or Director designated FIO staff will maintain active contact with FIO member institutions by visiting campuses, scheduling and conducting workshops, conducting needs assessments resulting in priority actions and providing advance knowledge of FIO activities to achieve the goals of the AISO. The FIO Director shall complete an annual report no later than September 1 of each year covering the previous fiscal year (July 1- June 30). The report shall include a summary of activities and accomplishments, provide actual expenditure and position data, and include a work plan for the current fiscal year. Prior to its submission to the Chancellor, no later than October 31 of each year, the report will be distributed to members of the FIO Council for review and comment and will be approved by the Provost of the host institution. Under the FIO Director's guidance, the FIO staff has the primary responsibility for operation and maintenance of the FIO vessels and the Keys Marine Laboratory implementation of the ship schedule, and support for PIs to achieve the research goals; coordination of the education components to achieve the education goals; maintenance of the FIO website; and support for grants and other services provided to member institutions. In the event of a vacancy in the FIO Director position, the FIO Executive Committee shall serve as the search committee, reporting to the Provost and following the customary search process of the host institution.

IV. FIO Council Meetings

The FIO Council will meet at least once in person each year and by telephone conference as needed. Agendas for the meetings will be set by the Chair of the FIO Council in consultation with the FIO Director and approved by the Provost of the host institution. A quorum must be present for the Council to take action. A quorum shall consist of no less than half of the full member institutions plus one. All meetings will be conducted according to Roberts Rules of Order.

Voting. Each Full Member of the FIO Council has one vote. Voting will be decided by a simple majority of Full Member representatives (or designated alternates) present in person, by phone, or by e-mail unless otherwise specified in these by-laws. New Full Member institutions elected to the FIO secure voting privileges upon the appointment of an FIO Council representative as specified in the bylaws, but not before adjournment of the meeting at which they were elected.

Meetings of the FIO Council are open to the public. The President or CEO of each Member of the FIO Council may designate an individual to attend the meetings as an observer and to comment on agenda items but the observer will not have voting privileges.

Minutes of the Meetings. Minutes shall be kept for all regular meetings of the Council and shall be made available by email to the membership within two weeks of each regularly scheduled meeting. Following a period of two weeks for comment and amendment, the minutes shall be approved by email vote of the members and posted on the Council web site.

Staffing of the Council. FIO staff will act as support staff for the Council, organizing meeting logistics, taking minutes and handling communications with the members.

V. Standing Committees and Workgroups

Executive Committee. The FIO Executive Committee will consist of five (5) full Council members including the Council Chair and four elected members. At least one member of the FIO Executive Committee shall be from the host institution. The FIO Executive Committee will meet three times per year and provide administrative oversight of the FIO in cooperation with the FIO Council and the Provost of the host institution. The FIO Director will serve as a non-voting, *ex officio* member. The past Chair will serve as a non-voting, *ex officio* member for one year following the election of the new Chair of the Council. The Board of Governor's representative on the FIO Council will serve as a non-voting, *ex officio* member. Written reports of the items discussed and actions taken at meetings will be sent to the FIO Council via email and posted on the FIO website for the benefit of the FIO Council and interested parties. Membership on the Executive Committee will be evaluated biennially. In the event of a vacancy on the Executive Committee, the FIO Council will elect a member to fill the vacancy.

Ship Advisory Committee. The Ship Advisory Committee (SAC) will be elected by the FIO Council and will consist of at least three (3) Council members (with at least one from the host institution) reflecting the geographical diversity of Florida. The SAC will provide oversight and advice to assure the efficient deployment of FIO research vessels in all of Florida's coastal ocean and adjacent waters, including the Gulf of Mexico, the Straits of Florida, Florida's coastal Atlantic, the Bahamas, and the Caribbean. The SAC will assist the FIO Marine Operations Manager with efficient long-term planning to ensure that FIO members will have equitable access to these vessels from Jacksonville to Pensacola. The SAC will meet at least once annually, in conjunction with the FIO Council meeting.

Nominating Committee. A Nominating Committee will consist of three (3) non-Executive Committee Full Members appointed by the Executive Committee. The Nominating Committee

will recommend candidates to the FIO Council to serve on the standing and ad hoc committees. The Nominating Committee will meet on an as-needed basis to fill vacancies on the standing and ad hoc committees.

Board of Visitors. The FIO Board of Visitors will have five (5) to nine (9) members appointed by the host institution President, in consultation with the FIO Council and the Council of Academic Vice Presidents (CAVP), for a three (3) year term, to provide broad oversight to the FIO. Members may be reappointed, but shall serve no more than three (3) consecutive terms. Members will represent the overarching oceanographic research and education interests of global, national and Florida-focused entities. The FIO Board of Visitors shall include representatives from the private sector, higher education, government scientific laboratories and agencies, and others as deemed appropriate by the host institution President. The Board of Visitors will report to the Provost of the host institution and the FIO Executive Committee, and will serve as a valued resource to FIO by providing advice on best practices for optimizing the resources of the FIO and member institutions; identifying strategic directions for potential cooperative programming; interfacing with potential funding sources; and representing FIO and the vital importance of oceanographic research to the broader community.

Additional *ad hoc* or special committees may be formed by the Executive Committee with the cooperation of the Council to address particular issues.

VI. By-Law Revisions

The bylaws and any proposed revisions shall be reviewed yearly. Council members shall submit any proposed revisions to the Chair of the By-Laws Committee at least 30 days in advance of the FIO Council meeting. The Executive Committee and the Provost of the host institution shall review the proposed revisions prior to a full vote of the Council. Amendment of the bylaws requires a two-thirds vote of the Council.