

Florida Institute of Oceanography (FIO)

Academic Infrastructure Support Organization (AISO)

Supporting Excellence in Marine Science, Technology, and Education

Annual Report

July 1, 2014-June 30, 2015

Hosted by the University of South Florida



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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

Our year was once again filled with challenges, hard work and exciting results! The success and challenges highlighted in this report exemplify FIO's valuable physical, intellectual resources and commitment to providing the highest quality support for member institutions, student success, research, and education with the necessary research vessels and marine laboratory enabling Florida to be one of the leading States in oceanographic research and education.

With strong financial support from Florida Legislature, FIO has a clear plan to continue to achieve our goals. The support FIO has received over the years has made it possible to upgrade our research platforms with state-of-the-art instrumentation, increase opportunities for students to utilize vessels through FIO's Subsidized Days program, and continue supporting the multi-institutional 5-week field intensive course designed to expand undergraduates knowledge of Florida's various ecosystems.

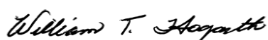
This year marked the fifth year anniversary after the Deepwater Horizon Oil Spill; settlements are funding recovery and efforts to build a stronger Gulf of Mexico environment and economy. FIO as the designated Gulf State Entity for Florida will be hosting the Florida RESTORE Act Centers of Excellence Program. The program supports research and technology developments that promote innovative restoration science. Initial grants to begin this year will focus on fisheries and wildlife research and monitoring projects from the Everglades to the deep sea. Outcomes will include new data and approaches to help managers sustain and grow the natural resources that are the foundation of Florida's economy and heritage.

While FIO was fortunate to received additional legislative operating support from the State for FY 2014-2015, we failed to secure the capital funding (\$6M) to build a replacement for the *R/V Bellows*. The request was supported and identified by the Board of Governors as the No. 1 statewide priority on the PECO funding list for FY 15-16. In 2015, signs of continued metal fatigue further confirmed that we are reaching the end of life expectancy for the *R/V Bellows*. Therefore she will be decommissioned in 2015 due to safety concerns. This will be a tremendous loss to the State, faculty and students. We have resubmitted the request for the FY 16-17.

The lack of funding for the replacement of the R/V Bellows did not stop our support for students and faculty across the State. This year, FIO fully assumed the lease for the Keys Marine Laboratory (KML) located in Layton, Florida. The laboratory has a "state of the art" salt water system that will allow our users to expand research activities in such areas as ocean acidification and water quality. We continue to operate with input from the Fish and Wildlife Research Institute (FWRI), to ensure a seamless transition and to meet the long-term commitments of KML.

I hope that after reading this report, you will be able to visualize FIO's accomplishments and bright future as an AISO. With that said, I am sad to say this will be my last annual report. The search to find my replacement is underway and I know the search committee will do an outstanding job to find the next Director to move FIO onward. I would like take a few minutes to say thank you to the Florida Legislature, Board of Governors, USF Provost Ralph Wilcox on behalf of the Host Institution, the Council members and the FIO staff for your dedication and participation in supporting excellence in marine science, technology and education.

Sincerely,



William T. Hogarth, FIO Director

FIO Strategic Plan 2010-2015

MISSION:

Providing a diverse and collaborative statewide forum addressing problems of concern in coastal oceanographic research and education; leverage and integrate existing physical and intellectual resources within the State University System (SUS) and throughout Florida; anticipates and plans for future infrastructure needs; facilitates, promotes and supports collaborative ocean-related research and education statewide; develops and strengthen networks that enable timely identification of oceanographic research opportunities, distribution of research results and other information to the general public, natural resource management agencies, local, state and national policymakers.

VISION:

The Florida Institute of Oceanography (FIO) will become a global leader in coastal oceanographic research and education. The FIO will facilitate and support Florida's emergence as the preeminent state in the nation for understanding ocean processes and how they control economically essential natural resources and contribute to natural and man-made hazards.

Introduction

Established by the Board of Governors (BOG) in 2009 and supported by the Council of Academic Vice Presidents (CAVP), FIO serves the State University System (SUS)* as an Academic Infrastructure Support Organization (AISO) *Supporting Excellence in Marine Science, Technology, and Education* for the State of Florida. FIO is hosted by the University of South Florida (USF) and co-located with the Florida Fish and Wildlife Research Institute (FWRI) and USF College of Marine Science on the USF-St. Petersburg campus. The SUS's twelve (12) state universities as defined by the Florida Statue Title XLVIII 1000.21 and nine (9) non-state entities, by ratification of the Memorandum of Understanding (MOU), are considered Full Members:

- 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, Rosenstiel School of Marine and Atmospheric Science
- University of North Florida*
- University of South Florida*
- University of West Florida*

Since 2010, FIO's AISO accepted nine (9) Associate and Affiliate Members:

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

However, in order to preserve the integrity of FIO as an AISO, SUS members defined by the membership of the Council of Academic Vice Presidents (CAVP) are designated as Full Members and retain majority (51%) vote of the FIO Council.

Aligning Missions with the State University System as FIO Advances

Board of Governor's Mission 2012-2025:

The mission of the State University System of Florida is to provide undergraduate, graduate and professional education, research, and public service of the highest quality through a coordinated system of institutions of higher learning, each with its own mission and collectively dedicated to serving the needs of a diverse state and global society.

BOG's Vision:

By 2025, the State University System of Florida will be internationally recognized as a premier public university system, noted for the distinctive and collective strengths of its member institutions.

FIO's Strategic Plan and Renewal of the AISO:

The AISO was developed in 2008 and approved in 2009 to describe a unit of the SUS that would provide infrastructure to benefit the academic programs and research activities of the state institutions.

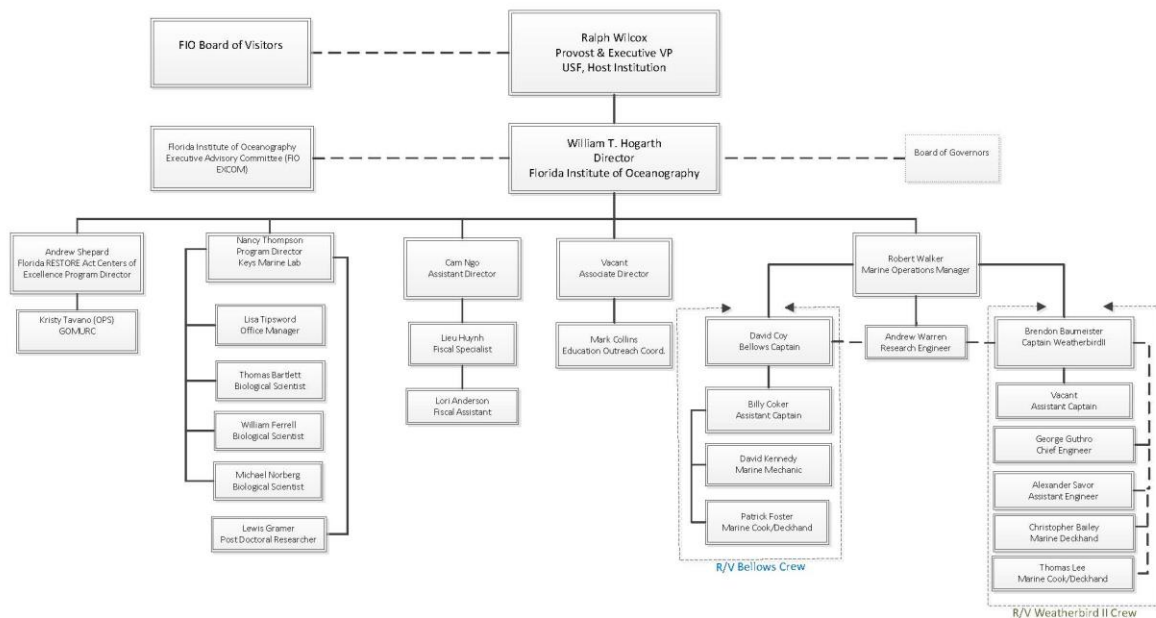
In order to follow the five year renewal process for an AISO as prescribed by the BOG, Dr. Karen Holbrook formerly Senior Vice President for Research and Innovation, and Global Affairs and International Research at USF and currently serving as Senior Advisor to the President Genshaft, was asked to conduct interviews to obtain the views of FIO's internal, external, stakeholders that would serve as a basis for formulating FIO's 5 year strategic plan and as the required five-year programmatic evaluation/review to be conducted by the host institution with advice and input from the FIO Council. The criteria Dr. Holbrook used to evaluate the progress (Appendix A) are specified in the AISO and the MOU that accompanies it.

FIO is grateful for Dr. Holbrook's dedication to assisting with the renewal process of the AISO and for working so closely with the Strategic Planning Committee.

FIO's Organizational Structure

As of 9/23/2015

Florida Institute of Oceanography



Hosted by:



FIO welcomed Mark Collins, Education Outreach Coordinator, and three new employees, William Ferrell, Thomas Bartlett and Michael Norberg to the Keys Marine Laboratory. Currently, the Assistant Captain position on the R/V Weatherbird II is currently vacant. Ryan Healy left FIO in June to advance his career exploring different areas of the oceans with the Military Transporting Agency.

FIO's Marine Resources

FIO's two major sea-going vessels, the *R/V Bellows* and *R/V Weatherbird II*, along with the land based *Keys Marine Laboratory* provide science and education capabilities. Supported research drives economic development while maintaining and improving environmental sustainability of Florida's ocean and coastal resources. As platforms for STEM-discipline degree research, they produce scientists and educators, building a workforce supporting ocean research, and education 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.

Research Vessel Bellows

The *R/V Bellows* is a 46 year old, 71-foot, workhorse, is considered a "floating laboratory" by students have ventured to the Gulf of Mexico, Caribbean, Atlantic Ocean and the Florida Everglades. For more than three decades, the State Subsidized Ship Time Program offered primarily on the *R/V Bellows* has provided students and scientists with opportunities to study Florida's estuaries and coastlines, test new equipment and research ideas while providing an "at sea" education.

Research Vessel Weatherbird II

FIO's 115-foot, 194-ton vessel, flagship vessel the *R/V Weatherbird II*, is one of the nation's most storied research vessels with repeated voyages carrying out scientific missions during the Deepwater Horizon Oil Spill catastrophe. Equipped with advanced laboratories, oceanographic devices and sensor technology, the vessel supports progressive research studies on complex issues that not only impact Florida and the entire Gulf of Mexico.

Platform Land-based 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, interconnected with the Florida Bay, Everglades National Park, Florida Current, and the Florida Keys National Marine Sanctuary. This unique platform 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 and state agencies and academia institutions across the U.S. and internationally to achieve their academic and research objectives.



Financial Summary

A summary of budget and actual expenditures for fiscal year 2014-2015, is below:

FY 2014/15 Financial Summary

Fund	Fund Description	7/1/14 Begin. Bal.	Revenue	Expenditures	Ending Cash Balance (Gain/Loss)
10000	E&G	\$ 2,821,550	\$ -	\$ 1,818,689	\$ 1,002,861
01419*	Weatherbird II Aux	353,837	390,000	490,353	253,484
03000	FIO	1,378	16,203	-	17,581
03001*	Bellows Aux	52,155	138,585	146,471	44,269
03003*	Keys Marine Lab Aux	190,696	253,210	273,114	171,137
Total 2014-2015 All Source Balance		\$ 3,419,616	\$ 797,998	\$ 2,728,627	\$ 1,489,333

FIO was fortunate to receive additional legislative operating support from the State for FY 2014-2015. The funding allowed FIO to continue its position to support systems-wide SUS scientific leadership in the State of Florida. Open and expanded access to at-sea research facilities and the KML with researchers throughout the SUS; enhances the recruitment and retention of talented professors; attracts more talented undergraduate and graduate students resulting in more degrees awarded in high demand disciplines; increases engagement with public and private employers of marine scientists leading to new job creation and economic growth; and fosters cooperation and collaboration that produce more publications, awards, and recognition for the SUS as a national leader in coastal and oceanographic education and research.

Grant Administration

In fiscal year 2014-2015, FIO is administering approximately \$1.8 million in grants:

Award Title	Sponsor	Amt
GOMA Gulf Research Initiative Data Management	Gulf of Mexico Research Initiative	\$306,537
Gulf of Mexico Research University Collaborative	The Walton Family Foundation	\$250,000
Gulf of Mexico University Research Collaborative	Texas A & M University	\$125,000
Improvements to the Keys Marine Laboratory Seawater System	National Science Foundation	\$161,052
The Center for the Integrated Modeling and Analysis (Ship Support)	Consortium for Ocean Leadership (GoMRI)	\$1,000,000
Total Active Award Amount FY 2014-2015		\$1,842,589

Foundation Funds

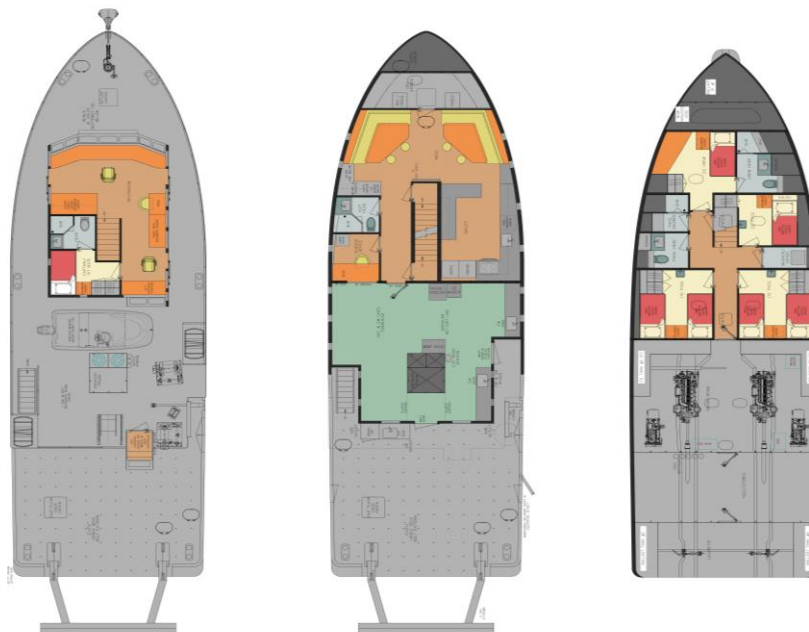
In fiscal year 2014-2015, FIO is has approximately \$50,000 in operating funds.

FUND No.	Fund Description	FYE Balance
260031	Florida Ins Ocean Res Vessel Design	\$18,000
390030	Oceanography Institute of Florida	\$ 4,294
393610	Behrens FIO Award Fund	\$ 9,067
600026	Office of Gulf of Mexico Research Collaboration	\$ 3,577
600033	Florida Institute Oceanography Tech	\$15,571
Total Foundation Funds Available		\$50,509

Capital Request from Legislature

In FY 2014-15, FIO submitted a request for capital funding in the amount of \$6M to replace the aging *R/V Bellows*, the 47-year old “workhorse” of the FIO fleet. The request directly aligned with the Strategic Plans of both the SUS and FIO in meeting the growing demand for scientific and education platforms to conduct oceanographic research in the waters surrounding the State of Florida. The request was supported and identified by the Board of Governors as the No. 1 statewide priority on the PECO funding list for FY 15-16; however, the funding to replace the *R/V Bellows* was vetoed in the Governor’s budget. At a recent visit to the shipyard (June 2015), signs of continued metal fatigue further confirms that the remaining life expectancy for the *R/V Bellows* will not exceed 2015; when she will be decommissioned due to safety concerns.

FIO has since resubmitted a request for capital funding in FY 2015-2016 for \$6M.



Keys Marine Laboratory

USF, the host institution for FIO and the entity with administrative control of FIO pursuant to Florida Statute sec. 1004.33(5)(b), agreed on April 2014 to assume FWRI's existing KML lease terms. FIO and USF entered into an agreement in June 2014, to pay directly, or as applicable, to reimburse USF for all operating costs and expenses associated with FIO's operation of KML buildings, facilities and capital equipment. A reserve of \$250,000 is maintained to hold USF harmless of KML expenditures. FIO and FWRI have been working diligently to transfer inventory from the state to FIO. We expect full transfer to take place by the end of the calendar year 2015.

Operational Audit Outcome

At the request of the FIO Director, FIO's operational processes were audited by the host institution, University of South Florida. Based on the audit, the overall control environment is was deemed adequate. The director emphasized compliance, and staff are experienced and familiar with university and other regulations, policies, processes, and procedures. They have identified opportunities for improvement, for example, additional effort is needed to ensure key business processes are formalized and documented. The findings and recommendations can be found in Appendix B.

In addition to the FIO operational process audit, at the request of the U.S. Inspector General's office, the USF Audit and Compliance conducted a risk assessment on Conflict of Interest to ensure FIO complies with Department of Treasury's RESTORE Act Rulemaking related to the Florida RESTORE Act Centers of Excellence Program (FLRACEP) funding. As a result of this review, FIO formulated a plan to monitor and minimize conflict of interest within FIO. To do so, several Memoranda of Understanding (MOUs) were executed by the FIO Director and USF, as the Host Institution for FLRACEP (Appendix C). These MOU's are to ensure that all RESTORE Act activities are to be handled by the FIO Director, FLRACEP Program Director, FIO Budget Director and the Program Management Team. This plan guarantees that all real and perceived conflict of interests are carefully monitored and minimized, which is necessary to ensure eligibility for all FIO members who wish to apply for and receive funds through the FLRACEP competitive process approved by the U.S. Treasury Department.

Return on Investment: Teaching and Learning

Florida Marine Field Studies Course

Now, in its third year the Marine Field Studies course is led by world class faculty of the SUS, (including FAU, FGCU, UNF, USFSP, and UWF). Two (2) cohorts with 24 students traveled to five field stations during the 5.5 week course. The faculty worked very hard to successfully get the course recognized within the SUS System. Any students within the SUS System may now register for the course utilizing the course number OCB 3108 or BSC 3060. This was the first year FIO was able to provide scholarships to students who needed financial assistance the opportunity to take the course.

Subsidized Ship Time

The 2014-15 legislative funding allowed FIO to extend the State supported ship time program to include the *R/V Weatherbird II* and the *Keys Marine Laboratory*. This popular program provides a STEM-focused opportunity students to gain on-hands skills and experience working aboard a research vessel and at our marine laboratory in Layton, Florida. Since 2007, the program has awarded over 600 ship days on the *R/V Bellows* alone.

This fiscal year, FIO awarded a total of 75 SUS days between all platforms, the *R/V Bellows*, *R/V Weatherbird II* and the *Keys Marine Laboratory* providing 10 different institutions, to teach and allow their students a-one-of-a-kind opportunity to learn and conduct science at sea. Next fiscal year, we will award approximately 68 SUS days for use of the FIO facilities. Subsidized ship time offers faculty the opportunity to give their students a hands-on experience during a teaching and educational research cruise.

Institutions Awarded	Number of Days Requested & Awarded on Bellows	Number of Days Requested & Awarded on WBII
Eckerd College	2	1
Florida Atlantic University	6	0
Florida Gulf Coast University	7	3
Florida Institute of Technology	9	0
Florida International University	4	0
Florida State University*	1	0
University of Florida	3	0
University of North Florida	5	0
University of South Florida	13	9
University of West Florida	12	0
Total Subsidized Days Awarded:	62	13

Education Partnerships

During the BLUE Ocean Film Festival, FIO escorted a class of 12 students, 2 teachers from the Canterbury School of Florida, a NOAA scientist, and USF College of Marine Science professor on an expedition out through Tampa Bay and to the Gulf of Mexico to deploy a buoy. “Message in a Buoy” is part of the National Oceanic and Atmospheric Administration (NOAA) Adopt a Drifter Education Program. NOAA’s ADP coordinator led a drifter discussion and graphing exercise and provided an in-depth overview of the drifter’s role in global observations and providing information via satellite for tracking ocean circulation and ocean temperature.



Advanced Infrastructure

New state-of-the-art Dynamic Positioning System will be installed on the *R/V Weatherbird II* at the next scheduled shipyard. The system will provide high accuracy station-keeping in any weather condition.

At the KML, demand is increasing to conduct controlled experiments with various measurements and species. A state-of-the-art salt water system is finally up and running. The holding tanks can monitor and control temperature, light, water quality, and capacity for water recirculation as needed to conduct research. The upgraded equipment will enhance the faculty and students experience in conducting courses and research in a safe environment.



USF College of Marine Science’s Oceanography Camp for Girls

The Oceanography Camp for Girls was created in the 1990s in response to reports that revealed a tremendous drop in the number of women pursuing mathematics and science degrees. To date, over 900 girls who completing 8th grade have attended the Camp. Between 20-25 percent of the girls have pursued degrees in higher education related to STEM-focused disciplines. This 3-week program provides hands-on, real-world experiences in both laboratory and field environment on the *R/V Weatherbird II* and *R/V Bellows*. Program mentors include current graduate students, research scientists, and undergraduate students in marine sciences.

Teachers, Students and STEM

Since 2012, FIO has successfully been working with *Teacher at Sea* programs aboard the *R/V Weatherbird II* and *Bellows* providing an unparalleled experience for teachers. Objectives include:

- To gain a clearer understanding of Florida’s oceans, increasing their level of environmental literacy by fostering an interdisciplinary research experience and their ability to integrate science lessons, environmental issues, and problem solving into their curriculums;
- To engage and provide certified teachers with marine science teaching techniques that engage them in current and emerging ocean research and technologies; To provide mentoring and experiential learning opportunities; teachers at-sea connected with over

1300 students utilizing a live application broadcasting from ship to shore, and have spent, to date, 40 days at sea and gained over 1,000 hours of practical skill sets working with various program scientists and graduate students.

Beyond Science

FIO not only provides valuable educational experiences to students and faculty, but also facilitates and supports State and Federal collaborations when needed.

On June 22, 2015, while on FIO's subsidized ship time cruise, the *WBII* crew members and a research team led by USF Professor Kristen Buck with six students – two from USF's College of Marine Science, two from Florida State University, one from Old Dominion University in Norfolk, Va., and one visiting from Italy *R/V Weatherbird*-- were thrust into a role beyond marine scientist.

The team was collecting water samples to study the chemistry of metals in seawater and their interaction with phytoplankton when the crew responded to a Coast Guard emergency notice that a man hand jumped into the water from a pleasure boat near Egmont Key. With the ship's searchlights scanning the water on a moonless night, Chelsea Bonnain and Travis Mellett, both students at USF's College of Marine Science, were assigned watch at the bow of the *R/V Weatherbird II* when they heard what they thought was a man yelling. The ship's crew threw a life ring with a strobe and eventually hoisted him aboard.

July 22, 2015, the United States Coast Guard (USCG) Sector Commander Captain Case presented an award to the crew of the *R/V Weatherbird II*. We are proud of the entire crew and students for their bravery and professionalism in an extremely stressful situation.



Community Engagement

Local and State

St. Petersburg Science Festival: In mid-October, FIO proudly participated in the growing St. Petersburg Science Festival held concurrently with the Florida Fish and Wildlife Marine Quest, USFSP, USF CMS, NOAA, and others. At the festival, FIO's display table included scientific equipment used on the research vessels. Tours of the vessel were offered throughout the day. On board, the Captain and his crew described vessel and oceanographic equipment, how the equipment helps them navigate the oceans, and provide support for scientists. The festival drew in some 12,500 public visitors, including a Sneak Peek Day for 1,500 4th and 5th grade students and teachers.

BLUE Ocean Film Festival: Held for the first time in St. Petersburg, the BLUE Ocean Film Festival was a huge success. The film festival included lectures by leading lights of marine and ocean science education, and seminars for budding environmental filmmakers, photographers and writers. Dr. Hogarth was featured throughout various workshops and FIO was prominently displayed in BLUE Exhibitor's Hall. The highly visible venue provided an exclusive opportunity for leaders in the Industry to connect with FIO. More than 20,000 people attended BLUE. Over 150 films were screened, and some 49 panels and workshops were held. The *R/V Weatherbird II* took 25 students from The Canterbury School out to launch the "Message in a Buoy" drifters along with NOAA and was available for educational tours during the week.

EcoDiscovery Center's Ocean Festival: KML staff interacted with kids all day long educating the youngsters on marine creatures and answering their questions at the Florida Keys National Marine Sanctuary's EcoDiscovery Center in Key West, FL.

Jacksonville Science Festival: Mark Collins attended the Jacksonville Science Festival where hundreds of K-12 students and families turned out. The festival served as a vehicle for educational equity and justice for K-12 students by providing a city-wide event that promoted student driven STEAM (Science, Technology, Engineering, Arts, Math) projects that use strategic collaboration with teachers, experts in STEAM fields, mentors and local businesses, making it a vital force important to Florida culture, education and the economy. FIO helped students see what it means to be a marine scientist on a research vessel and the type of instrumentation that is used.

Vessel Tours: Throughout the year, various public tours were conducted on both the *R/V Bellows* and *Weatherbird II*. Students ranging from homeschoolers to high schools to undergraduate students from local colleges came on board to learn what FIO is doing.

KML Winter Science Seminar Series: KML supports monthly lecture series geared toward the non-scientist public to promote science literacy and focusing on ocean issues relevant to South Florida and the Florida Keys. The series runs from November to April of each year and brings in over 200 local residents to the KML.

FIO Open House: An open house event brought over 200 guests to learn about FIO's research and education capabilities, innovative technologies and productive collaborations among its member institutions. Visitors toured FIO's research vessels, experienced some of the latest ocean technologies, and learned about the wide range of research, teaching and monitoring practices to protect Florida's vital coastal waters.

Guy Harvey Fisheries Symposium: FIO co-sponsored the second Guy Harvey Fisheries Symposium at the University of South Florida – St. Petersburg campus, November 13-15, 2014. The Symposium included two days of presentations, panel discussions and featured the latest research and issues facing marine fisheries from the leaders in marine research, conservation, policy and user groups. A special session was also held for high school students from Wharton High School in Tampa.

Save Our Seas Festival: FIO and the Guy Harvey Ocean Foundation co-sponsored the Save our Seas Festival in conjunction with the Guy Harvey Fisheries Symposium. The event featured dozens of exhibits to highlight Tampa Bay restoration efforts, how to prevent and quickly clean up oceanic oil spills, how technology can combat seafood fraud, and why invasive lionfish are damaging to our environment.

SPOT (The St. Petersburg Ocean Team): The Ocean Team is a consortium and industry cluster for marine science, oceanographic and environmental research agencies, institutions and service organizations in the Southeastern United States. 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.



Regional and National:

GOMURC (Gulf of Mexico University Research Collaborative): FIO is one of the 5 founding members. GOMURC is a consortium of marine research consortia in the five Gulf States that includes over 80 marine research institutions “unified by geography and vision.” GOMURC developed from the need to engage academia in response to and recovery from the Deepwater Horizon Oil Spill. The program is supported by two major grants provided by the Walton Family Foundation and the Harte Support Foundation.

GoMRI (Gulf of Mexico Research Initiative): GoMRI is an independent research organization established with \$500 million from BP over 10 years to investigate the impacts of the oil, dispersed oil, and dispersant on the ecosystems of the Gulf of Mexico and affected coastal States. The goal is to improve society's ability to understand, respond to and mitigate the effects of petroleum pollution and related stressors of marine and coastal ecosystems. The GoMRI Board includes 20 science, public health and research administrative experts. Dr Hogarth and Dr. Richard Dodge (Nova Southeastern University) are two of the academic members. GoMRI has also developed education and education-related materials including: lesson plans and activities for the classroom, science-related materials and stories, and links to GoMRI funded projects with education and outreach efforts.

GOMA (Gulf of Mexico Alliance): 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: coastal resilience; data and monitoring; education and engagement; habitat resources; water resources; and wildlife and fisheries.

FOA (Florida Ocean Alliance): 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 "global leadership in responsible and coastal economic development, conservation, scientific research, and technology innovation." FOA objectives include: to serve as a clearinghouse for information on key ocean and coastal issues facing the state in the public and private sector; to monitor and publicize actions related to the oceans and coasts; to organize conferences and outreach and educational activities for the public and policy makers; to prepare economic studies and issues papers on ocean and coastal policies; and to provide testimony to national or state agencies and commissions concerned with ocean or coastal policy.

NAML (National Association of Marine Laboratories): 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.

SAML (Southern Association of Marine Laboratories): SAML was formed in 1985 to unite marine labs across the southeast, from coastal Maryland through Texas, including Bermuda, in order to promote cooperation and effectiveness in the work of member institutions on 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 resources. It also provides a forum for resolving problems common to marine laboratories in the region.

AMLC (Association of Marine Laboratories of the Caribbean): AMLC is a 501(c)3 corporation and a confederation of 27 marine research, education, and resource management institutions plus 500 individual members. AMLC objectives include: to encourage the production and exchange of research and resource management information in the marine sciences; to advance the cause of marine and environmental education in the region; to, participate in decisions made by national and

international organizations concerning the marine environment; and to facilitate cooperation and mutual assistance among its members. FIO members include the 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. **GCOOS-RA (Gulf of Mexico Coastal Ocean Observing System Regional Association):** GCOOS is one of a series of Regional Coastal Ocean Observing Systems that are part of the U.S. Integrated intergovernmental 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.

SECOORA (Southeastern Coastal Ocean Observing System Regional Association in Florida): SECOORA was established through IOOS 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 and response, ports and homeland security and alternative energy development.

COL (Consortium for Ocean Leadership): 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.

GSI (Gulf Seafood Institute): The Gulf Seafood Institute advocates on behalf of the entire Gulf seafood community and the consumers. GSI brings together every aspect of the Gulf seafood supply chain, from harvesters to processors, retailers, restaurants and the communities they serve. This respected organization leverages its broad base of stakeholders to provide policy makers, from Capitol Hill to state capitals, with solutions on pressing issues facing the Gulf's seafood communities. The organization is dedicated to building a consensus on big-picture issues and to

approach these challenges in a positive manner that elevates the entire supply chain. Dr. Hogarth is a board member.

Ocean Exchange: The Ocean Exchange is the intersection where organizations from around the world advance and promote their cutting edge solutions and innovations in materials, devices, processes, and systems. They have created the knowledge based catalyst for organizations to achieve Corporate Social Responsibility Goals. This group advocates for innovators, collaboration across industry and geography, focusing on sustainable solutions that improve economies, health, and the environment while respecting local cultures.

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' foster activities that enhance technical scientific programs and ensures FIO maintains its fleet standards, promote marine safety, efficiency, and provide quality service to our members.

RESTORE Act

The RESTORE Act established the Gulf Coast Restoration Trust Fund (Trust Fund) within Treasury to provide funds for environmental and economic restoration of the Gulf Coast region that was damaged by the 2010 Deepwater Horizon Oil Spill. Deposits into the Trust Fund will be comprised of 80 percent of all civil and administrative penalties paid after July 6, 2012, under the Federal Water Pollution Control Act. While the total amount that will eventually be deposited into the Trust Fund is unknown at this time, as of February 2015, the Trust Fund had received approximately \$816 million as a result of the government's settlement with the Transocean defendants. BP's civil settlement in July 2015 will result in another \$4 billion for the Trust Fund.

The RESTORE Act allocates money in the Trust Fund to five components, as follows: (1) 35 percent will be made available to the Gulf Coast States (Alabama, Florida, Louisiana, Mississippi, and Texas) in equal shares under the Direct Component; (2) 30 percent plus 50 percent of interest earned on the Trust Fund will be made available for grants under the Comprehensive Plan Component; (3) 30 percent will be made available for grants under the Spill Impact Component; (4) 2.5 percent plus 25 percent of interest earned on the Trust Fund will be made available to the Science Program Component; and (5) 2.5 percent plus 25 percent of interest earned on the Trust Fund will be made available to the Center of Excellence Component. Treasury's Office of the Fiscal Assistant Secretary is responsible for administering the Direct Component and the Center of Excellence Component. The Gulf Coast Ecosystem Restoration Council is responsible for administering the Comprehensive Plan Component and the Spill Impact Component. The National Oceanic and Atmospheric Administration is responsible for administering the Science Program Component.

Under Sections 1603 and 1605 of the RESTORE Act, 2.5 percent of funds plus interest earned on the Trust Fund will be made available to the Gulf Coast States in equal shares to establish Centers of Excellence for the purpose of conducting research in the Gulf Coast region. Each Center of Excellence must focus on science, technology, and monitoring in at least one of the following disciplines: (1) coastal and deltaic sustainability, restoration and protection, including solutions and technology that allow citizens to live in a safe and sustainable manner in a coastal delta in the Gulf Coast region; (2) coastal fisheries and wildlife ecosystem research and monitoring in the Gulf Coast region; (3) offshore energy development, including research and technology to improve the sustainable and safe development of energy resources in the Gulf of Mexico; (4) sustainable and resilient growth, economic and commercial development in the Gulf Coast region; and (5) comprehensive observation, monitoring, and mapping of the Gulf of Mexico.

The duties of each Gulf Coast State must be carried out by the applicable Gulf Coast State entity or task force, as defined in the act. In the case of Florida, FIO is the State entity with this responsibility. Treasury required FIO to formulate a plan to monitor and minimize conflict of interest within FIO. To do so, several Memoranda of Understanding (MOUs) were executed by the FIO Director and USEF, as the Host Institution. These MOU's are to ensure that all RESTORE Act activities are to be handled by the FIO Director, FLRACEP Program Director, FIO Budget Director and the Program Management Team. This plan guarantees that all real and perceived conflict of interests is carefully monitored and minimized, which is necessary to ensure eligibility for all FIO members, who wishes to apply for and receive funds through the FLRACEP competitive process approved by the U.S. Treasury Department.

In April, 2014, a team from the U.S. Treasury Department, Office of Inspector General, who oversee the RESTORE Act programs, conducted a site visit to FIO. The visit included an explanation of the Inspector General's role in the RESTORE Act and evaluation of FIO's process to ensure sound management of funds, control of conflict of interest, fraud, transparency in operations and compliance with the Treasury Regulations. Under the Act, Treasury will administer two grant programs, called the Direct Component and the Centers of Excellence Research Grants Program.

Known as the hub of intellectual resources for ocean and coastal science and education in Florida, FIO was the *only* Gulf Coast State named specifically in the Act. In a subsequent colloquy to Congress, the Act language was clarified, "*U.S. Congress designated FIO as Florida's Gulf Coast State Entity to carry out the Florida Center of Excellence Research Grants Program under the RESTORE Act.*"

On February 2, 2015 FIO announced its Request for Proposals (RFP) for the Florida Center of Excellence Research Grants Program. Proposals were reviewed by the FLRACEP Program Management Team and a Science Review Panel of independent experts. The panel considered proposals based on the strength of proposed activities that demonstrate innovation and excellence, engage stakeholders, and contribute to the Gulf's recovery. At the conclusion of the review process and approval by the Program Management Team on June 28-29, 2015, eight (8) Florida university-based Centers of Excellence will support at least ten science and technology development projects that cover a range of issues (see <http://fio.marine.usf.edu/outreach-flracep/fact-sheets>). Many will address the critical need for better science information required by fish and wildlife managers to restore and sustain living resources off Florida's west coast. On July 20, 2015 FIO submitted its application to the U.S. Treasury to access funding for the Centers of Excellence Research Grants Program. Funding was received in September 2015. The expected period of performance for the Centers of Excellence is September 2015 to November 2017.

During this time, the Office of Inspector General (OIG) visited FIO and issued an audit report to FIO regarding FIO's progress in establishing a Center of Excellence. FIO provided a management response that was included in to the Audit Report issued by OIG. Simultaneously, USF conducted an audit on FIO's process to establish the Centers of Excellence Research Program. A final report was issued to FIO as of this annual report, however, to keep FIO and RESTORE Act activities separate, the audit report will not be included in this annual report. Request to review OIG's report may be made to the FIO Director.

Future Directions

Science and Operations:

Collaborate on Gulf Restoration: The R/V *Weatherbird II* deployed into International waters (Mexico) with Dr. Steven Murawski and the C-IMAGE II consortia, a GOMRI funded consortia based out of USF-College of Marine Science. The purpose of the *Across the Gulf* expedition was to compare the IXTOC-I spill that occurred 35 years ago to the DWH. Create collaborations and develop best possible research and monitoring programs for the utilization of funds received from RESTORE Act Legislation to protect the multi-billion dollar marine industry of Florida. FIO Director and designated staff to support the Florida RESTORE Act Centers of Excellence Program (FLRACEP) and to monitor conflict of interest among FIO members to ensure their eligibility to apply for future funding and guidelines are in compliance under the Act and with the U.S. Treasury terms and conditions.

Subsidize Ship Time: Provide ship timeship time and support for four (4) of the twelve (12) consortia that were established by funding from the Gulf of Mexico Research Initiative and are located in Florida at Nova Southeastern University, University of Miami (2), and University of South Florida. Many of our members are involved in these consortia along with experts from other universities and laboratories, both national and global.

Promote Regional Partnerships: Actively participate in appropriate State-wide and Regional alliances such as Florida Ocean, Alliance and Florida Oceans and Coastal Council. Serve as advisor to the Governor, State University System Board of Governors, State Legislature, and others as requested, providing science-based advice on mitigation, regulation, programs and policy. Continue participation in the Gulf of Mexico University Research Collaborative (GOMURC). The GOMURC is comprised of a team of five university-based collaborative representing the many marine-oriented research organizations within the five Gulf States (Alabama, Florida, Louisiana, Mississippi, and Texas).

Improve Regional Event Response: Participate in planning a coordinated rapid response of FIO members to assess and understand impacts on the Gulf of Mexico and Atlantic ecosystems – and including atmosphere, coast, estuaries, and rivers - of events such as hurricanes, oil spills, red tide and other harmful algal blooms. Maintain and foster the relationship between the USCG and implement the MOU signed in 2012 to better coordinate oceanographic information in response to oil spills and natural hazards and to close existing data gaps.

Improve Operations and Safety: Conduct needs-assessment of education and research capability enhancements for *R/V Weatherbird II*, *R/V Bellows*, and *Keys Marine Lab* and the need for additional shared-use resources. Assess the needs of the research vessels. Secure funding to replace the *R/V Bellows*. Work closely with legislature to maintain funding as necessary to operate and maintain research vessels and provide subsidized days for researchers and students to FIO membership through a competitive process. Continue to follow the current UNOLS Research Vessel Safety Standards Policy wherever possible. Both vessels have USCG Research Vessel designation letters that will be renewed in 2015. The Marine Operations Manager and Research Technician are actively attending UNOLS' RVOC meetings in order to keep current with the new technology and safety standards.

FIO Strategy: Maintain State of Florida designated oceanographic research organization as an AISO. Continuously review FIO's business and marine processes to effectively and efficiently

provide better service for our constituents. Implement a plan for effectively coordinating member intuitions, ships, equipment, marine laboratories and other shared-use facilities and equipment. Future FIO Council meetings will continue to be held at different member institutions, to allow all FIO members first-hand knowledge of activities and resources across Florida and enable visioning.

Education and Engagement:

FIO Curricula: Support, lead, participate and coordinate state-wide collaboration to continue supporting the marine science summer course conferences and other opportunities to provide educational and research opportunities related to the FIO mission and for the marine science community and the general public. Establish additional courses, in addition to hosting the current summer FIO course “*Study Abroad in Florida.*”

Research Forums: Provide, promote, and support a collaborative statewide forum for addressing opportunities to advance the understanding and management of Florida’s coastal oceans. Events include:

- Co-sponsor the Guy Harvey Ocean Foundation Gulf Fisheries Symposium
- Moderate Symposium on the Future of Energy Development off Florida’s Coast with The Center for Integrated Modeling and Analysis of Gulf Ecosystems (C-IMAGE) and the Florida Energy Systems Consortium (FESC).

New Marketing: FIO is launching new marketing tools to better highlight not only FIO but its member institutions. FIO is currently working with the Guy Harvey Magazine to create, publish and produce the first FIO magazine highlighting the member institutions. Explore and implement innovative ways of communicating results of shared-use research platforms, equipment, and facilities.

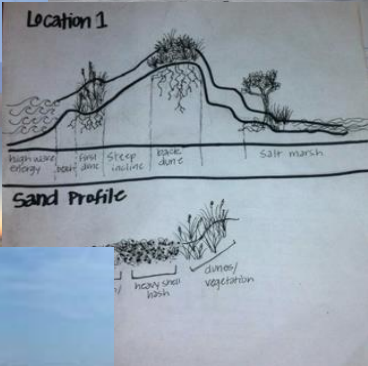


Social Media Engagement & Growth: FIO presence is increasing in social media. Soon, FIO will be a household name. A new YouTube channel has been created and videos are online. They feature the wonderful work of our member institutions. Maintain and expand FIO’s communication role through continual website improvements (staff biographies, documents, membership lists, and a mailing list for all marine biology educational contacts), posting documents of interest to members and stakeholders, increasing its social media presence, monthly newsletter, and maintaining a categorized opportunities page for students and jobseekers. Create, produce and disseminate the newly established FIO Magazine which highlights FIO members, students and research.

Documentary Showing: FIO will host a Film Premiere January 2016 at Mahaffey Theatre in St. Petersburg, produced by Screenscope Films. The event initiated an unprecedented response effort and mobilized the largest, coordinated scientific research endeavor around an ocean-related event in history, orchestrated through the Gulf of Mexico Research Initiative (GoMRI).



DISPATCHES
From the Gulf <http://www.screenscope.com/>



**Appendix A: Five Year Programmatic Review by
Dr. Karen Holbrook**

**FLORIDA INSTITUTE OF
OCEANOGRAPHY**

Five Year Programmatic Review

**Prepared by Dr. Karen A. Holbrook
June, 2015**

OUTLINE
Report Based on FIO Interviews
July, 2015

Introduction and Purpose

Brief History
Renewal of the AISO
Change in Leadership
The Need for a New Strategic Plan

FIO Today

Membership
FIO Partnerships and MOUs
FIO Resources
 Vessels
 Keys Marine Lab
 Members
Administrative Structure of FIO
 Personnel
 FIO Council
 FIO Committees
The Role of GOMURC

Common Themes

The Role of FIO and its Core Mission: Member Views
The Roles and Responsibilities of Members
The Roles and Responsibilities of the Host Institution
Organizations that Support Marine Science in Florida and the Differentiation of FIO Among them
 What Differentiates FIO?
What Do Members Think is the Value/Benefit of FIO?
Perception/Reputation of FIO External to the Membership
 In Florida
 Nationally
 Internationally
 By Business
The Role of FIO in Research
The Role of FIO in Education

Unresolved Issues

The East-West Divide
Membership

Expanded Roles for FIO

Networking within FIO

Policy

Education and Outreach

Research and Development

Connecting with the Private Sector

Fund Raising and Resource Allocation

Information for Members and Beyond

Engaging with Florida Government

Advocacy and Communications

Advocacy

Communications

The Future

Measuring the Impact of FIO: Metrics and Dashboard Criteria

Risks and Challenges for FIO

Priorities for the Future

Conclusion

Comment

Appendices

Appendix I	Sample of Events and Accomplishments of FIO over the Past Five Years Not Mentioned in the Report
Appendix II	FIO AISO Content – Consistent with FIO Operations?
Appendix III	Local or National Organizations that Support Coastal and Ocean Science in Florida: Their Mission, Vision and/or Strategic Goals
Appendix IV	Functions of the FIO Council
Appendix V	Economic Importance of the Coastal and Ocean Environments in Florida
Appendix VI	Observations, Ideas and Questions to Develop the Strategic Plan: Extracted from <i>The Report</i>
Appendix VII	Models for FIO Operations Determine FIO Roles and Responsibilities

Appendix I

Sample of Events and Accomplishments of FIO Over the Past Five Years not Mentioned in the Report

- Established a Board of Visitors
- Created GOMURC with the initial funding from USF and FIO and continued support from the HARTE Foundation of Texas and the Walton Family Foundation, Arkansas.
- The Guy Harvey Foundation provided a grant to fund transmission via satellite from the vessels to classrooms.
- Organized public workshops and panel discussion on:
 - Advanced Computer Modeling to Track Oil Spills –Miami
 - Advanced Fishery Management: Innovation and Evolution (with Ocean Conservancy; published the proceedings)
 - Tomorrow's Ocean Workforce: Bridging the Gap between Industry and Academia (Public workshop and panel discussion at Ocean's Day, 2014)
 - Workshop among FIO members, USCG personnel and FWC/FWRI on achieving better coordination of oceanographic information in response to oil spills and natural hazards and closing existing data gaps.
- FIO and the USF College of Marine Sciences organized a Day at Sea for Young Women to encourage them to pursue STEM fields.
- Public Town Hall meetings with experts post-oil spill.
- State and national legislators are brought to St. Petersburg to connect with FIO and the CMS. A number have also made short excursions on the *R/V WeatherBird II*.
- FIO hosted Fabian Cousteau aboard the Aquarius marking the 50th anniversary of Jacques Cousteau's Conshelf Two mission.
- FIO media open house was held in St. Petersburg in October 2014.
- Met with Florida Delegation in Washington, D.C. and locally to discuss the penalty phase of the DWH Oil Spill.
- Met with the state legislature to discuss oceanographic research and education priorities and funding, especially re: the funding of a new research vessel.
- Co-sponsored the Benthic Ecology Meeting with the University of North Florida (held there), Nova Southeastern University, and the American Association for Underwater Science and COSEE-Florida.

- Dr. Hogarth was an Invited Speaker the State of the Gulf of Mexico Summit in 2014. He presented “Science and RESTORE—Like Oil and Water or will they Mix?”
- FIO staffed an informal display at the USCG Sector 7 Open House in celebration of Armed Forces Appreciation Day.
- FIO hosted an “Input session” with Dr. Robbie Kroger, Science Coordinator RESTORE Act Gulf Ecosystem Restoration Council to discuss Florida’s needs following the DWH Oil Spill.
- Dr. Hogarth is one of two representatives to GoMRI.
- FIO members participated with 1000 attendees from the U.S. and 21 countries at the Gulf of Mexico Oil Spill and Ecosystem Science Conference in Houston, TX.
- FIO participated in the USCG Miami Disaster exercise in August, 2014.
- Dr. Hogarth was featured in National Geographic for his work in the field.
- FIO demonstrated oceanographic instruments at the February 2015 science festival at Jacksonville University for K-12 students in Jacksonville.
- Admiral Richard Behn, retired NOAA Fleet, reviewed FIO’s vessels and business operations.
- FIO vessels adopted UNOLS safety standards.
- Drs Hogarth and Murawski spoke to the Council of 100 about FIO.
- Other external activities in which Drs. Hogarth and Virmani participated include:
 - Board Florida Ocean Alliance (WH)
 - Member, St. Petersburg Ocean Team (WH)
 - FIO representation on Science Festival Steering Committee (WH)
 - Participant in NOAA Fisheries “Managing Our Fisheries” conference (WH)
 - Presented to Pinellas County Commissioners on FIO and the role of the RESTORE Act (WH)
 - Presentations to UFS-CMS, Eckert College (WH)
 - Served on the Environmental Defense Fund workgroup and developed (WH)
National Fisheries Program – collaborations and cooperation win U.S. Fisheries Management (WH)
 - Discussed RESTORE Act and aquaculture with Florida’s Commissioner (WH) of Agriculture Putnam (WH)
 - Board member GOMURC (WH)
 - Several presentations to USCG re: emergency management (JV)
 - Provided information about FIO to Florida Commission on Oil Spill Response coordination (JV)
 - Represents FIO on NAML Public Policy Committee (JV)
 - FIO led SAML meeting in 2014 at Keys Marine Lab (JV)
 - Member, Board of Directors, SECOORA-RA (JV)

- Member, GCOOSA-RA (JV)
- Steering Committee, Ocean Sciences 2014 – international conference (JV)
- Executive Committee Board for Pier Aquarium (JV)
- Guest lecturer CMS (JV)

Appendix II

FIO AISO Content—Consistent with FIO Operations?

Role of an AISO in general:

To provide “underlying technology, equipment, facilities, services, and resources for academic programs and research in the State University System of Florida.

Vision for FIO

The FIO will become a global leader in coastal oceanographic research and education. The FIO will facilitate and support Florida’s emergence as the preeminent state in the nation for understanding ocean processes and how they control economically essential natural resources and contribute to natural and man-made hazards. (Adopted from AISO document, July, 2009)

Mission of FIO

The Florida Institute of Oceanography (FIO) mission is to:

- 1) Provide a diverse and collaborative, statewide forum addressing problems of concern in coastal oceanographic research and education;
- 2) Leverage and integrate existing physical and intellectual resources within the State University System (SUS) and throughout Florida;
- 3) Anticipate and plan for future infrastructure needs;
- 4) Facilitate, promote and support collaborative ocean-related research and education statewide; and
- 5) Develop and strengthen networks that enable timely identification of oceanographic research opportunities and distribution of research results and other information to the general public, natural resource management agencies and local, state and national policymakers.

Role of FIO as Defined in the FIO AISO

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

- The operation of sea-going vessels for coastal ocean research.
- The promotion of research, education, economic development and environmental sustainability of Florida’s coastal ocean(s).
- Enabling of the SUS to provide a virtual intellectual hub for mature and diverse marine science enterprise that exists in Florida.

Collaboration among academia, government and the private sector is expected to:

- Promote research, education and project management.
- Enhance public awareness of ocean sciences affecting all Floridians.
- Maximize the efficient use of the supporting infrastructure produce scientific solutions.
- Leverage public and private sector investments to increase capacity.
- Inform public policy development and decision making

The FIO AISO also indicates that “FIO will have within its scope all research and education aspects of coastal oceanography that affect the State of Florida and should provide statewide leadership in helping Florida’s citizens and policymakers understand the critical issues” related to:

- impact of clean oceans and beaches on state tourism
- risks associated with hurricanes and tropical weather
- red-ride blooms
- the health of living marine resources such as coral reefs
- the health and economic importance of recreational and commercial fisheries and aquaculture
- impact of offshore drilling
- impact of living marine resources, human health and agriculture from fresh water usage, estuarine and coastal water quality
- ocean acidification
- the relationship of coastal ocean currents to effective search and rescue operations
- sea level rise
- impact of climate change

FIO will be concerned with the following three regions:

- The watershed – upland drainage basins that feed into rivers, estuaries and aquifers which begin on land and continue offshore to state water limits.
- The coastal ocean – the continental shelf region between the shoreline and deep water ocean where most commercial and recreational fisheries take place and phenomena such as harmful algal blooms occur.
- The deep ocean – extending beyond the continental shelf break.

Meeting SUS Goals, the FIO will:

- Expand access to at-sea research facilities and ease coordination of peer researchers through the SUS.
- Increase the SUS competitive position in securing higher levels of R&D investment from all sources.
- Elevate SUS status as a global hub for world-class oceanographic education and research.

Five year programmatic evaluation/review is required for each AISO and will be conducted by the host institution with advice and input from the FIO Council and FIO Board of Visitors and will include at least:

- Determination of progress against defined goals and objectives within the mission, the missions of the participating universities and current BOG strategic plan
- Assessment of ROI on state dollars
- Need for continuation of the FIO
- Proposed changes in the mission and/or organizational structure
- Recommendations for budget reduction and/or expansion
- Recommendation for status or location change.

Appendix III

Local or National Organizations that Support Coastal and Ocean Science in Florida: Their Mission, Vision And/or Strategic Goals

GOMURC (Gulf of Mexico University Research Collaborative) -- GOMURC (Gulf of Mexico University Research Collaborative) – GOMURC is a super consortium of marine research consortia in the five Gulf States that includes over 80 research institutions and is “unified by geography and vision.” GOMURC developed from the need to engage academia in response to and recovery from the Deepwater Horizon Oil Spill. GOMURC supports science and education for a healthy Gulf environment and economy, promotes an ecosystem approach to managing Gulf natural resources, and through its university partners promotes literacy and trains the workforce for a sustainability environment. It maintains news activities intended to inform its members. GOMURC focuses on advocacy and coordination. GOMURC tracks legislation that impacts Gulf science and education and coordinates activities with its members and with local, state, federal and international partners and authorities to develop and implement regional initiatives and support outreach activities based on university research results to improve public understanding of the ecosystem values and issues of the Gulf.

GoMRI (Gulf of Mexico Research Initiative) – GoMRI is an independent research organization established with \$500 million from BP over 10 years to investigate the impacts of the oil, dispersed oil, and dispersant on the ecosystems of the Gulf of Mexico and affected coastal States. **The goal is to improve society’s ability to understand, respond to and mitigate the effects of petroleum pollution and related stressors of the marine and coastal ecosystems.** The GoMRI Board includes 20 science, public health and research administrative experts. Dr Hogarth and Dr. Richard Dodge (Nova Southeastern) are two of the academic members. GoMRI has also developed education and education-related materials education including: lesson plans and activities for the classroom, science-related materials and stories, links to GoMRI funded projects with education and outreach efforts.

GOMA (Gulf of Mexico Alliance) – 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. FIO is Florida’s lead entity for GOMA.

COSEE Florida (Centers for Ocean Sciences Education Excellence) – Each COSEE Center develops partnerships among ocean research institutions, formal education organizations, and informal education providers to connect scientists, educators and people of all ages in education and community discussion that increases awareness of the value of scientific knowledge in environmental decision making about the marine ecosystem. COSEE Florida belongs to a consortium of ocean science research institutions, informal science education organizations, and formal education entities. It was launched in 2010 by its four core partner, Indian River State College, The Smithsonian Marine Station, The Ocean Research & Conservation Association, and Florida Institute of Technology. The COSEE program is funded primarily by the National Science Foundation with support from the National Oceanic and Atmospheric Administration.

FOA (Florida Ocean Alliance) – 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.

Priority issues for 2015 are in the categories of:

- Coastal community hazard preparedness
- Water quality and nutrient impairments
- Coastal intelligence –climate change, sea level rise and storm/flooding events.
- Long term impacts from the BP oil spill

With specific action items to include:

1. A comprehensive and strategic ocean and coastal plan for the state of Florida that evaluates social, environmental and economic risks to Florida’s long term strategic goals for global leadership (with DEP and FWC)
2. A long term restoration plan for the GOM that focuses on a strategic science-based approach to maximize and optimize funds from the RESTORE Act and Deep Water Horizon Oil Spill recovery.
3. A better understanding of Florida’s ocean economy, industry clusters and emerging opportunities for technology development in High value sectors (with Enterprise Florida and Workforce Florida).
4. “[service] as the state’s science-driven private- and public-sector partnership ...[to] help the Florida Legislature implement new legislation ...focused on implementation actions to support growth and diversification of Florida’s ocean and coastal industries sector.”
5. Enactment of statewide policies to ensure a portion of annual revenues generated from the Water and Land Constitutional amendment are used to protect, conserve, manage or restore Florida coastland, natural habitats and near shore estuary and ocean waters.

Florida Sea Grant – “Science Serving Florida’s Coasts” - Florida Sea Grant is a university-based program that supports research, education and extension to conserve coastal resources and enhance economic opportunities for the people of Florida through the research expertise of more than 800 coastal and ocean scientists at the state’s 16 major universities and research laboratories. Florida Sea Grant envisions a future where people use coastal and marine resources for economic and social purposes while preserving their quality and abundance for future generations. Extension agents and specialists provide science-based information and lead programs in seafood safety, boating and waterway management, coastal conservation law, aquaculture and fisheries management. Florida Sea Grant is a partnership of the Florida Board of Education, NOAA, and Florida’s citizens and governments. The extension, education and outreach programs are in partnership with UF/IFAS Extension and coastal counties of Florida.

NAML (National Association of Marine Laboratories) – 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. Their tag line is:”Stimulating Research and Promoting Education in Marine Sciences.”

SAML (Southern Association of Marine Laboratories) -- 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.

AMLC (Association of Marine Laboratories of the Caribbean) – AMLC is a 501(c)3 corporation and 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.

GSAA (Governor’s South Atlantic Alliance) –GSAA was founded in 2009 as a collaboration of Florida, Georgia, North Carolina and South Carolina and their partners (8 federal agencies and others) to share ocean and coastal challenges and opportunities promoting environmental sustainability, disaster preparedness, and strong economies.

Issues: healthy ecosystems, working waterfronts, clean ocean and coastal waters, and disaster-resilient communities.

SPOT (The St. Petersburg Ocean Team) – The Ocean Team is a consortium and industry cluster for marine science, oceanographic and environmental research agencies, institutions and service organizations in the Southeastern United States. 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.

IOOS (Integrated Ocean Observing System) – IOOS is a multi-agency, cooperative effort based on a continuously operating network of buoys, ships, satellites, underwater vehicles, and other platforms that collect real-time data and manage historical information needed for rapid detection and timely prediction of changes in our nation's ocean and coastal waters. Scientists, municipalities, governments and industries use this tool to track, predict, manage, and adapt to changes in our ocean, coastal and Great Lakes environment and to inform decision making to improve safety, enhance the economy, and protect the environment. The IOOS system serves national needs for detecting and forecasting oceanic components of climate variability; facilitating safe and efficient marine operations; ensuring national security; managing resources for sustainable use; preserving and restoring healthy marine ecosystems; mitigating natural hazards; and ensuring public health. The U.S. Coast Guard uses U.S. IOOS data for critical life-saving operations that track the probable paths of victims and drifting survivor craft, improving rescue efforts along the U.S. coast.

GOOS (Global Ocean Observing System) – GOOS is a permanent global system for observation, modelling and analysis of marine and ocean variables to support operational ocean services worldwide. It is designed and being implemented to embrace the oceans as a single entity and to provide a global view of the ocean system GOOS provides accurate descriptions of the present state of the oceans, including living resources, continuous forecasts of the future conditions of the sea and is the basis for forecasts of climate change. GOOS is sponsored by the UN and UNESCO assemblies which work to assure international cooperation.

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

SECOORA (Southeastern Coastal Ocean Observing System Regional Association in Florida) – SECOORA was established through ICOOS 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.

FLCOOS (Florida Coastal Observing System) – FLCOOS is a consortium of Florida-based universities, non-profit organizations and private companies that collaborate in monitoring, mapping and modeling efforts (e.g., harmful algal blooms), including coordination of data management systems to make information seamless, easily accessible and more useful. The Regional Advisories (RAs) and FLCOOS work together and coordinate activities for the benefit of the citizens and visitors of Florida and as part of IOOS.

CPRT (Center for Prediction of Red Tides) – The Center for Prediction of Red Tides is a project between the University of South Florida's College of Marine Science and the Florida Fish and Wildlife Conservation Commission that focuses on the development of an automated, coupled physical-biological model able to predict and track *Karenia brevis*, the dominant Florida red tide species, within coastal waters of the southeastern United States. The multifaceted models and quantitative method developed can also be applied to fisheries, search and rescue, hurricane storm surge, and other societal issues. The Center will serve both regionally and nationally as a test bed for intensive agency/university scientific collaboration and a support network for implementation of public policies as

related to matters of economics, natural resources, public safety, and public health. CPR will merge a network of data sets to initialize and force predictions of the onset, duration, and landfall of red tides along Florida coastlines in conjunction with three circulation models at varying spatial resolution and an ecological model of the plankton food web.

COL (Consortium for Ocean Leadership) – 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.

NCRI (National Coral Reef Institute) – NCRI was mandated by The United States Congress in 1998 and established at the Oceanographic Center of Nova Southeastern University. The goal is to assess, monitor and restore minimally impacted, stressed, imminently threatened and endangered coral reefs through basic and applied research, innovative approaches, and education and training in reef biology. NCRI provides scientific synthesis and evaluation criteria of existing programs for use by the research and management communities. Assessing and monitoring biodiversity is also a priority, especially as it affects and interacts with ecological processes, overall reef function, reef recovery, and restoration. NCRI is funded through several programs in NOAA

NOEP (The National Ocean Economics Program) -- NOEP provides the most current policy-relevant economic and demographic information available on changes and trends along the U.S. coast, Great Lakes, and coastal waters. The Center for the Blue Economy (CBE) to "promote ocean and coastal sustainability" expands of the economic work of the Program.

FOCC (Florida Oceans and Coastal Council) – FOCC was created by the Florida Legislature in 2005 through The Oceans and Coastal Resources Act and charged with developing priorities for ocean and coastal research through an annual statewide ocean research plan. The 15 member Council coordinates public and private ocean research for more effective coastal management, holds regular meetings, examines the management needs of the Florida agencies that have coastal and marine resource management responsibilities, and creates an annual report with prioritized research initiatives. The list is sent to the Legislature and Governor for use in constructing the state budget. Voting members of the Council are appointed by the Department of Environmental Protection,

Florida Fish and Wildlife Conservation Commission and Department of Agriculture and Consumer Services.

SUMMARY

Local or National Organizations that Support Coastal and Ocean Science in Florida: Their Mission, Vision and/or Strategic Goals*

<u>Gulf of Mexico Ecosystem Impact Economic & Restoration</u>	<u>Coastal and Marine Science & Education</u>	<u>Outreach and Economics & Development</u>
GOMURC GoMRI GOMA FOA GCOOS-RA FIO	GOMURC GoMRI COSEE FOA Florida Sea Grant SAML SECOORA COL FIO	GOMURC GoMRI FOA Florida Sea Grant SAML AMLC GSAA SECOORA FLCOOS CPRT NOEP FIO
<u>Oceans Observing Systems, Data & Management & Predictions</u>	<u>Conservation of the Marine Environment</u>	<u>Research in the Marine Sciences</u>
IOOS GCOOS-RA SECOORA FLCOOS	GOMURC GOMA FOA Florida Sea Grant NAML SAML GSAA GSAA SECOORA FIO	FOA Florida Sea Grant SAML AMLC CPRT COL NCRI FIO
<u>Legislative Tracking</u>	<u>Providing Legislative Direction</u>	<u>Policy</u>
GOMURC FIO	FOA NAML (Fed) FOCC FIO	CPRT COL FIO

* The information is based on descriptions of these organizations. It is likely that all could be placed in other categories as well as the ones identified.

Appendix IV

Functions of the FIO Council

The primary function of the Council is to advise the FIO Leadership (Provost of the host institution and Director of FIO). The functions of the Council are:

- Develop and maintain an effective state-wide and SUS collaboration that will position FIO as a respected national leader in oceanographic research and education.
- Develop and strengthen networks that facilitate achievement of FIO's mission and goals.
- Develop policies and procedures involving members.
- Assure efficiency and effectiveness involving research.
- Assure the appropriateness and relevance of grant applications; programmatic research and education activities.
- Participate in the development of strategic and operational plans.
- Assure the adequacy of budget requests and identification of potential sources of revenue.
- Contribute to and review the content of the annual report
- Review findings of the programmatic evaluation/review and correction of weaknesses identified in financial audits.

Appendix V

Areas of Economic Importance of the Coastal and Ocean Environments in Florida

The data regarding Florida's coastal and ocean economies are based on three main sources^{1,2,3} from years 2010, 2011, 2012, with the last data set updated in June, 2014. The information may appear confusing unless the data and date are carefully followed.

Florida's coastal counties provided \$599.8 billion to the state in 2014, accounting for 77.2 percent of the state's GDP.⁴ The Atlantic shoreline contributed \$366 billion (65 percent) and the Gulf shoreline counties contributed 218 billion (35 percent) including the Panhandle (based on 2010 data).⁵ Florida ranked #3, after New York and California, among the top five states by employment in ocean sectors and total ocean economy (2010). Florida's direct ocean economy added \$24.5 billion in 2012, accounting for 3.3 percent of the state's GDP.⁶

More than 37,000 companies located along the coastline count 228,000 employees directly related to the state's ocean resources; considering the indirect effects, that number rises to more than 440,000 jobs. Pinellas (St. Petersburg) and Hillsborough (Tampa) counties are among the top nine counties measured by the number of employees in the industry sectors associated with Florida's oceans and coasts. Employment and wages can be calculated for each of the categories listed below and specifically for the clusters identified in Florida: ocean tourism (46 percent), ocean transportation (36 percent), marine industry (10 percent), recreation (6 percent) and fishing/living resources (2 percent).⁷

¹ Florida Ocean Alliance, Florida's oceans and coasts: An economic and cluster analysis, May, 2013.

² National Ocean Economics Program, State of the U.S. Ocean and Coastal Economies, 2014.

³ Center for Blue Economy, National Ocean Economics Program, Florida Ocean and Coastal Economies, March, 2014.

⁴ Center for Blue Economy, National Ocean Economics Program, Florida Ocean and Coastal Economies, March, 2014, pp. 13-14.

⁵ Florida Ocean Alliance, Florida's oceans and coasts: An economic and cluster analysis, May, 2013. Data from the U.S. Bureau of Economic Analysis, 2012 Flash Estimates, p.2.

⁶ Center for Blue Economy, National Ocean Economics Program, Florida Ocean and Coastal Economies, March, 2014, pp. 13-14.

⁷ Florida Ocean Alliance, 2014 Perspective on Florida's Oceans and Coasts: First annual dispatch to Florida Governor Rick Scott and the Florida Legislature.

Income Generating Sectors of the Ocean Economy⁸

(The first six are the industrial sectors of the ocean economy as defined by NOEP)

Marine Construction

Port construction

Marine related buildings

Coastal real estate—75.5 percent of Florida's \$20 M residents live near the coast on land a few feet above sea level.⁹

Living Marine Resources

Commercial fishing—valued at \$199.4 million in 2012

Fish hatcheries and aquaculture

Seafood markets—in 2012, the Atlantic Coast produced 28.6 million pounds of sea food whereas the Gulf Coast contributed 63 million pounds of commercial seafood¹⁰ valued at \$141.7 million.

Seafood processing

Coastal agriculture

Florida marine fisheries industry overall supported 500,000 jobs in 2012 and contributed \$29.7 billion to the Florida economy.¹¹

Mineral Extraction

Sand and gravel

Shell

Oil and gas exploration and production

Ship and Boat Building

Boat building and repair

Ship building and repair

Tourism and Recreation – more than 100 million tourists visit Florida beaches and stay in beach front hotels every year. This sector accounted for 83.9 percent of the jobs (\$10.7 billion in wages) in the ocean economy in 2012 and contributed \$16.4 billion to Florida's ocean GDP.¹²

⁸ Based on Table ES.2 Ocean Economy by Sector 2010, State of the U.S. Ocean and Coastal Economies, National Ocean Economics Program, p. 8, 2014.

⁹ Center for Blue Economy, National Ocean Economics Program, Florida Ocean and Coastal Economies, March, 2014, pp. 13-14.

¹⁰ Ibid. p. 13.

¹¹ 2012 figures from oceaneconomics.org

¹² Ibid. p. 13.

- Amusement and recreation services
- Recreational boating and fishing
- Boat dealers
- Eating and drinking establishments
- Hotels and lodging
- Marinas
- Recreation vehicles and campsites
- Scenic water tours and commercial parks
- International cruise
- Sporting goods retailers
- Zoos and aquaria

Marine Transportation and Shipping—accounts for 20.5 percent of the jobs in the coastal and ocean economies.¹³

- Deep sea freight transportation
- Marine passenger transportation (cruise lines)
- Marine transportation services
- Search and navigation equipment
- Warehousing
- Port cargo data

Other Marine-Related Economic Sectors in Florida

Demographic and Housing

- Part-time second homes
- Commuters
- Retirees
- Home ownership
- Rental units

Marine Science and Education

Economic Investment Events (Expenditures)

(Examples)

- Beach erosion and need for beach re-nourishment
- Restoration of mangroves, estuaries and watersheds
- Red Tide outbreaks
- Sea level rise
 - Impact on canals
 - Damage to homes
 - Stress to coastal infrastructure

¹³ Florida Ocean Alliance, Florida's oceans and coasts: An economic and cluster analysis, May, 2013, p.4.

Appendix VI

Questions to Consider in Developing the Strategic Plan: Based on FIO Interview Report July, 2015

Getting the mission right is critically important for FIO's future. FIO needs to determine its unique niche and build the strategic plan around it and/or to decide that it will "compound" the efforts of other organizations to achieve the strategic goals they all have in common.

What is FIO? (Some member thoughts):

A university-based consortium, an umbrella organization and a collaborative hub of marine scientists that has a broad-based mission to facilitate education and research focused on Florida's coastal and ocean environment; a clearinghouse, a coordinating body and a network of investigators who are seeking infrastructure support and are willing to share resources; a steward of the oceans and a catalyst for ocean research, education and policy.

What does FIO do? (Some member thoughts):

FIO provides training and the resources to do so; an opportunity to network and form cooperative and collaborative research among people with like minds; a forum for the development of ocean sciences in the State of Florida and an opportunity to promote the value of the oceans and estuaries to Florida's economy. FIO was chartered as a service organization.

What Should FIO do? (Some member thoughts)

FIO should be an organization that promotes better understanding of Florida's marine and coastal issues; a vehicle that provides access to the state's resources; the face of oceanography to inform the public about marine science; the "spokesperson" for ocean issues on behalf of the SUS and the organization that provides leadership and a hub for marine science research in Florida. It should become more engaged with the business community and provide more regional impact, document the benefits it already brings, and will bring in the future, to the coastal and marine economies. It should continue moving forward to make the organization better for the next generation.

Administrative and Operations

FIO Personnel

What is the appropriate size of the FIO administration (programmatic and vessel leadership) and budget to meet the current needs and to expand its activities as suggested by the members? What new positions are essential and how can they be supported?

Council

Should Council meetings be increased in number and how can the activities of the meetings become more valuable to the membership?

Advisory Groups

Should FIO institute a “higher level” advisory group that could be influential in Tallahassee?

Membership

Are the roles and responsibilities of FIO membership clear? Should membership in FIO be refocused with more defined criteria for each member category? What are the advantages/liabilities to a large and stratified membership?

How much time and effort are FIO members willing to invest in expanding the activities of FIO?

Should FIO enact a membership fee in the manner of other marine science organizations?

Member Committees

What are the important tasks of the existing committees and should new committees be considered to meet other needs? Some ideas include:

- KML committee
- Business relations and development committee for enhancing public-private partnerships
- Government relations committee
- Communications, branding and marketing committee
- Information, database and data management committee
- Development committee

Host Institution

How can the relationship between FIO and the Host Institution be better understood and appreciated? Would the perception of an imbalance favoring a host institution exist no matter which institution held that responsibility?

Infrastructure

Does FIO’s mix of vessels accommodate the majority of the research needs of its members?

How can Keys Marine Lab capitalize on its potential to become a world leader among marine laboratories? Enhance its collaboration with other marine stations in the Keys? Generate the resources for necessary capital improvements and expand its education capabilities?

What are the strategies and opportunities for FIO to raise money? What might be the potential sources? What can FIO “sell” that would make fund raising compelling to various constituencies?

Information

Can FIO develop a comprehensive database with profiles of the members and other investigators working in the environmental and marine sciences in the members' institutions and organizations?

Should FIO initiate an activity for data management, synthesis and integration that would be Florida-centric?

Should FIO develop a document (or capitalize on those which have already been developed) about the funding for coastal and ocean science in the state of Florida comparing the dollars spent on research (normalized) with the amount allocated for same activities of another coastal state such as New York, California, Delaware and Rhode Island and explaining the value of the investment?.

What should be the elements of a new communications strategy for engaging with the media, public, business community, academia and Tallahassee?

Could FIO organize a network of marine labs in Florida in order to coordinate activities and to inventory and highlight the opportunities and advantages of each?

Should FIO organize a group of vessel providers to better coordinate their use and accessibility across the state?

How can the inventory of FIO's infrastructure support (facilities, vessels, equipment) and that of other member institutions (especially vessels) be enhanced to become more valuable to members and others?

Programs

What is FIO's role in research? In generating research grants? Should FIO be writing the research agenda related to the marine and coast environment for the state? How might it position itself to do so?

What is FIO's role in education? At what levels and by what means? Does FIO's role in education augment what is presently accomplished elsewhere, fulfill its own niche, and not duplicate the successful efforts of others?

Can FIO brand or co-brand courses beyond the summer "Florida Study Abroad" course develop virtual courses, university exchanges, and an academic curriculum that capitalizes on the unique facilities and strengths of each institution/organization? Organize mini-courses to coincide with spring break, winterim, maymester, and summer at the Keys Marine Laboratory, perhaps in collaboration other Keys research and education facilities? Develop certificate programs?

Could FIO could develop an inventory of all the marine science courses in the member institutions and find ways to help students take courses outside their own institutions?

How can FIO help students prepare for careers in the marine sciences beyond offering them research experience on board the FIO vessels?

People

FIO “unites more marine horsepower for Florida than any other organization.”

Can FIO members who have connections with the private sector link these relationships to FIO for the benefit of fund raising, collaboration, opportunities for students, sharing of equipment, leasing of vessels, securing travel funds, establishing a small grants program benefitting industry, etc.?

How can students who access FIO resources be engaged in an advocacy capacity?

Could FIO apply its expertise, and that of its members, to establish a “consulting organization” similar to those established by AAAS and ORAU?

Could FIO connect members with opportunities to engage in practical and applied work for hire?

Outreach Activities

How can/should FIO become known to the more than 37,000 companies located along Florida’s coast?

Should FIO become more connected internationally – either physically or virtually?

What is FIO’s unique niche among the many Florida organizations focused on the understanding and management of the coastal and marine environment? Is there a hierarchy of marine organizations that are influential in state policy and politics?

How can FIO build its reputation? Become a model for the rest of the country?

How can FIO develop a cohesive government relations strategy?

What steps should FIO and its members take to assure regional politicians understand FIO’s value and needs?

Can FIO use its expertise and data, and that of its members, to advise the Governor, State legislature, SUS, BOG and others on science-based issues such as natural resource management, environmental mitigation, regulations, programs and policy? How can FIO become the “go-to” organization for government issues relating to the marine environment?

Can/should FIO take a leadership role in connecting with organizations, industry, NGOs, NPO's and research labs, and if so, what is needed to allow this to occur?

How can/should FIO use/market its expertise, resources, connections and leadership for the economic benefit of Florida?

Additional Topics

Competition. Are there elements of FIO's activities that compete with universities...and vice versa?

How can FIO resolve the East Coast-West Coast dilemma?

What risks does FIO face for the future?

Should FIO design new and/or additional metrics that assure alignment with its stated goals and to document its ROI?

Appendix VII

Models: FIO Roles and Responsibilities

Model 1 – Infrastructure and Research and Education Support at Current Levels

Model 2 – Infrastructure and Research and Education Support at Enhanced Levels adding Niche Programs

Model 3 – Infrastructure and Research and Education Support at Enhanced Levels and Expanded Ocean and Marine Science Leadership

Model 4 – Expanded Program (and funding) to Match FIO AISO Directives

Report Based on FIO Interviews

July, 2015

Prepared by Dr. Karen A. Holbrook

This document was prepared from the information obtained through 31 individual, personal interviews with the Director, USF Provost and every member of the Council between January and April, 2015. Most of the members were visited at their home institutions. Prior to the meetings, a document was drafted describing the process that would be followed to set the stage for a new strategic plan. It was reviewed by the Director and shared with the Council members. The AISO, AISO MOU, all of the Council minutes, newsletters and annual reports were read. Other information from news releases, brochures, inventories and websites relating to FIO was screened and additional information suggested by the members during the course of the interviews was also obtained. A series of questions was developed for the interviews so that all members could provide the same information, but the conversations often took other directions that led to additional findings. The members were aware of the topics to be discussed in advance of the meetings, but not the specific questions. The opinions expressed in this report are solely those of the members unless otherwise indicated.

Introduction and Purpose of the Review

Brief History

FIO was established in 1967 by the Florida Board of Regents to place scientists at the forefront of efforts to understand and protect the oceans. In the mid-70s, the Gulf of Mexico was added as a focus in consideration of the oil drilling that was being contemplated. FIO maintained a low profile in the mid-80's and later, but in 2008, it became an Academic Infrastructure Support Organization (AISO)¹⁴ of the State University System (SUS). In 2009 the University of South Florida was designated as the host institution. The first FIO Advisory Council meeting was held in December, 2009.

Under Dr. Hogarth's leadership and the Council's guidance, FIO has been transformed. It has expanded in membership, retired one vessel (*R/V Suncoaster*), added a new vessel (*R/V Weatherbird II, 2008*) and has plans to replace the *R/V Bellows* which is beginning to outlive its useful life.¹⁵ The fate of the request for a new vessel to replace the Bellows is in the hands of the Florida Legislature and, while strongly supported by the SUS Board of Governors for funding, it was vetoed by the Governor. There is still a "wait and see" situation regarding funding for this year or whether the request will have to be put forth again in 2016 (the third year it has been requested). FIO has gained visibility with national agencies (e.g., NOAA, Treasury Department), retired its

¹⁴ The AISO is a new construct of the Board of Governors for a facility/program intended to involve all institutions equally.

¹⁵ The Bellows has been in the system since the late 1960s.

debt, obtained a three-fold increase in the continuing budget provided by the state, and has aggressively pursued research in the aftermath of the Deep Water Horizon Oil Spill off the coast of Louisiana. Ten million dollars of funding was obtained in 2010 to support 27 projects from 30 institutions for research by FIO members and their collaborators.

FIO Director Dr. Hogarth and FIO Council member Dr. Dick Dodge were invited to serve on the Research Board that would make decisions for an additional \$150M of funding from BP for The Gulf of Mexico Research Initiative. Florida universities received funds to establish three consortia (FSU, USF and the University of Miami) for a total of \$55 million. Florida, in fact, received 42 percent of the last round of BP money that was distributed. Additional funds from the Gulf Coast Restoration Trust Fund through the RESTORE Act will be allocated shortly to the Gulf States; FIO, on behalf of the State of Florida, will receive a significant amount of funding to manage and competitively distribute to the Restore Act Centers of Excellence Program (RACEP), one of five such programs designated by the Trust. The proposals have been evaluated by outside reviewers and decisions will be transmitted late this summer or fall. A recent settlement with BP has indicated that the payment for damages will be \$18.7 billion over 15-18 years with \$22 million to be awarded to Florida to support the RACEP over 15 years.¹⁶

Countless other advances have also been made by FIO during the last five years (See Appendix I).

Renewal of the AISO

The AISO (in general) was developed in 2008 to describe a unit of the SUS that would provide infrastructure¹⁷ to benefit the academic programs and research activities of the state institutions. The specific FIO AISO was drafted by a group of FIO Council members in 2009 (the July 1, 2009 document). It is coming up upon the required five-year programmatic evaluation/review this year (2015) that will be conducted by the host institution with advice and input from the FIO Council and the FIO Board of Visitors. The criteria used to evaluate the progress (Appendix II) are specified in the AISO and the MOU that accompanies it:

Progress will be measured against the defined goals and objectives within the FIO mission statement, the missions of the participating SUS universities and the current BOG strategic plan. The three SUS goals consistent with the BOG Strategic Plan are:

1. Access to and production of degrees.
2. Meeting statewide professional and workforce needs.

¹⁶ BP agrees to pay \$18.7 billion in Deepwater Horizon Oil Spill suit. nytdirect@New York Times.com. July 2, 2015

¹⁷ Shared infrastructure for FIO as described in the FIO AISO document (July 1, 2009, p. 6) “consists of assets owned by either FIO or consortium members, with management or facilitation of their use...”

3. Building world-class academic programs and research capacity.

FIO will assist in facilitating the SUS goals by helping to:¹⁸

1. Enhance recruitment and retention of talented faculty by providing expanded at-sea research facilities and coordination among peer researchers throughout the SUS.
2. Attract high ability students at all levels resulting in more graduates who will be in high demand for highly skilled, high wage jobs.
3. Interface with public and private employers of marine scientists leading to new job creation and economic growth.
4. Foster collaboration to increase publications, awards, and recognition for the SUS as a national leader in coastal oceanographic research and education.
5. Strengthen SUS's competitive position in securing higher levels of R&D investment from all sources.
6. Elevate the status of SUS as a global hub of world-class oceanographic education and research.

The evaluation will also take into consideration:

- Assessment of ROI on state dollars
- Need for continuation of the FIO
- Proposed changes in the mission and/or organizational structure
- Recommendations for budget reduction and/or expansion
- Recommendation for status or location change.

Renewal/reconsideration of the FIO AISO host institution is also on the agenda for 2015.

Change in Leadership

The Director of FIO is appointed by and reports to the Provost of the host institution in consultation with the FIO Executive Committee. FIO is anticipating new leadership in 2015 upon the retirement of the current Director. A search committee has been appointed by the USF Provost following the guidelines for appointment, funding, supervising and evaluating the Director in the FIO AISO and MOU. A job description has been posted and distributed (May, 2015). A new director is expected to be on board early in 2016.

Members of the FIO Advisory Council have addressed this change in leadership as a “risk” for FIO. The current Director is extremely well qualified and though his expertise, reputation and national connections, has been highly successful in positioning FIO to obtain, manage and design the competition for BP funding and the RESTORE Act Center of Excellence Program.

¹⁸ Information abstracted from the July 1, 2009 AISO Proposal, pp. 5-6.

Council members have suggested the following desired qualifications for a new leader:

Someone who is a relationship builder, energetic, approachable and gregarious, selfless and service-oriented; widely respected and able to raise the profile of FIO, and who can express FIO's mission convincingly; has soft skills, social skills and credibility, able to delegate; a broad and strategic thinker with the appropriate scientific background, experience in off shore work and in the management of vessels; is excited about progress in marine science in Florida; a proven manager who understands money; familiar with state and university politics and is effective in policy arena; has networks and can make relevant connections; a risk taker,

It is important that the Associate Director position (which has been vacant for a year) is filled after the new director is hired. The previous Associate Director, a Ph.D. scientist in the area of ocean observing, was highly effective in connecting with Council members and in external communications, preparing inventories, writing reports, developing a robust agenda of action items, and sharing responsibilities with the Director in attending meetings of organizations, visiting member institutions, and, generally, raising the visibility and productivity of FIO. In considering the two positions, it has been suggested that the Associate Director might be the chief scientist for FIO while the Director engages in developing partnerships, advocacy, fund raising, etc. If this becomes the operational plan, then the characteristics (above) would be parsed appropriately between the two positions.

In order to recommend the selection of the appropriate individual, it will be an advantage to have a firm idea of where FIO is headed over the next several years (See **Unresolved Issues** below).

The Need for a New Strategic Plan

FIO needs to determine its unique niche and build the strategic plan around it and/or to determine that it will “compound” the efforts of other organizations to achieve their strategic goals in common. (Appendix III)

All of the material in the subsequent sections (**Common Themes**, **Unresolved Issues** and **The Future**) is to be considered in selecting the model (Appendix VII) for FIO as an organization in the future and in developing a new, Florida-centric strategic plan to advance education, research and the economy of the State.

FIO Today

Membership

FIO has 30 members including 21 full members, eight associate members and one affiliate member. Members work collegially with open mindedness, professionalism, and respect. In recent years the membership has stratified into the categories of full members and associate and affiliate members (specified in the AISO with responsibilities well defined in the FIO Bylaws). Associate and affiliate members are voted upon by the full members of the Council. There has been recent

discussion about the size of the membership and the roles and privileges of those in each category that requires resolution (See Unresolved Issues below).

FIO Partnerships and MOUs

- FWC and FIO MOU – to provide operational support for the Keys Marine Lab. FIO owns KML.
- Coast Guard –FIO MOU – the MOU between FIO and USCG Sector 7 was signed in June, 2012 to improve emergency response by integrating non-federal and non-state entities in the Gulf and Southeast Atlantic plans to handle a natural or human-induced emergency.
- FIO and FDEP MOU re: GOMA. Part of the agreement is that GOMA is self-funding.

FIO Resources

Vessels: FIO has two vessels (*R/V Weatherbird II*; *R/V Bellows*) that are equipped for research and able to accommodate (23; 14) crew members, investigators, students and others for up to (10; 8) days at sea. The two vessels serve different purposes. Only the Bellows can work close to shore and in rivers, and while it has served many research teams, including students, over the years, operation of the sewage system is of concern, the house is metal and wood and subject to corrosion, and the area where students work with burners could be damaged by fire. A new vessel has been designed to replace the Bellows. It is wider and more stable and has five times the capacity for fuel, food and water. It would most likely be constructed in Florida. One individual in ship operations stated that there is a “big time future for FIO with the new boat.” Some council members have questioned whether FIO has the right mix of vessels to accommodate the research needs of its members. The *R/V Weatherbird* is a deep water vessel that has been used for research to investigate complex issues affecting coastal and global oceans, life in the sea and has been especially value for research to assess the damage following the Deepwater Horizon Oil Spill in 2010.

Keys Marine Lab (KML): KML, located on Long Key, Layton Florida, was established in 1987. It is thought of as a “land-based *R/V Weatherbird II*” where inshore and coastal marine biology fieldwork can be conducted on a short-term or long term basis. KML provides access to the only tropical and subtropical marine ecosystems in the continental U.S.—Florida Bay, the Everglades National Park, the Florida current and the Florida Keys, and the National Marine Sanctuary. Ownership of KML has been transferred from FWRI to FIO.

The vision of KML is to “develop marine scientists of tomorrow based on a foundation of field science recognized for excellence in the state of Florida, the region, the U.S., and world-wide.” It serves faculty, undergraduate and graduate students from the partner universities and welcomes overseas visitors who come for a research experience. Many types of work are ongoing at the same time. KML has housing, laboratories, and classroom buildings, vessels and some state-of-the-art resources that generate excitement about marine science and provide an advantage for obtaining grant funding. USF has developed a video of students working at KML

KML is also an asset to state agencies dealing with fisheries and ecosystems, and is an ideal site for marine education. KML hosts a 5-week summer “Field Studies in Marine Sciences” course sponsored by FIO member universities.¹⁹ There are two sessions of the course in the summer of 2015. The USF College of Marine Science and FIO presented a one week inter-sessional, marine ecology field course in December, 2014 for upper level undergraduate and graduate students at USF and a second inter-sessional course open to students across the nation. Staff scientists, a postdoctoral fellow, a FWC/FWRI biologist and a visiting scientist presented a series of winter Science Seminars at KML. Dive training also occurs on site. There is, however, no indigenous course offered at present but a recently developed (2015) “science team” of three biological scientists from FWRI and a postdoctoral fellow, offers the potential that an upper level semester at KML with online lectures and local labs, and other short term courses could be offered during various breaks in the academic year.

Recent renovations have been made to the roof and a state-of-the art sea water system that accommodates research on ocean acidification. Support from FWC was leveraged to obtain NSF funding for this system. Pilot studies are being carried out at present to determine the sensitivity with which corals respond to sea water quality. Once the system is fully validated, the media will be invited to the lab for a demonstration. The KLM still needs additional capital improvements to increase multipurpose space and to upgrade and expand residence halls. There is no evident source of funding for these changes at present; a request for legislative support may be made next year.

KML has huge potential and, with the appropriate resources, could be a world leader among marine laboratories. Council members have indicated that KML is underutilized and undervalued and not widely recognized among marine labs, although it is a member of NAML, SAML, and AMLC (See Appendix III). KML can bring visibility and credibility to FIO and Florida, but it needs better marketing. It has been suggested that an affiliation with a university (or universities) could give it more visibility and prominence in the academic and other sectors.

KML could do more collaborative work with the three other marine stations in the Florida Keys if all member organizations had the equivalent level of enthusiasm as the KML leadership for such collaboration.

¹⁹ UNF, UWF, FAU, FGCU, USFSP; UF is now also involved.

- Members: The members of FIO are the lifeblood of the organization. Their expertise spans every discipline within the marine sciences and their colleagues at their own institutions and across the nation—even the world—underpin and enhance the activities for which FIO gains recognition. It would be highly desirable to have a more complete, on-line database of the members, their research foci and their scientific accomplishments and successes. The value of such a resource will be mentioned throughout this document. Such an inventory was initiated some time ago under the leadership of the Associate Director.

Administrative Structure of FIO

A Director and very small staff manage the leadership and non-equipment-related operations of FIO; other staff members manage and operate the vessels. KML also has a part-time Director.

FIO cannot be a leading organization with the size of the administration and current budget. The structure of FIO, as it exists today, will only support the status quo. It is not sustainable for the long term and would have difficulty taking the organization to the next level. Recommendations for changes in the administrative structure and personnel will depend entirely, however, upon FIO's goals and aspirations for the future.

Personnel: There is a need to expand the core personnel related to leadership and management of the organization *per se* and for vessel support and management. Other staff members and occasional consultants could be added to meet critical needs—e.g., marketing, advocacy, an expanded education agenda and fund raising. Vessel Operations needs a shop person to manage the marine warehouse – currently added onto the role of Marine Operations Manager.

Even if FIO remains relatively unchanged in its roles and responsibilities there is a definite need for more staff. The responsibility for the RESTORE Act (RACEP) funding and management have expanded the operations significantly.

It was suggested that the personnel could be increased with “borrowed” or “visiting” expertise from the universities in the same manner as NSF IPA program. Perhaps an “FIO Fellows Program” could be developed to obtain talent on a temporary basis. Postdocs and graduate student assistants could also be added to fill specific gaps.

FIO Council: The FIO AISO MOU prescribes the functions of the Council (Appendix IV). There is general agreement among members that the Council, as an advisory body, is an effective, well run and important venue for updating information, reviewing activities, priorities and progress, exchanging ideas, interacting with the vessel operations team, discussing short-term and long-term strategies for the organization and, especially, for networking. The members thought that one to two meetings per year is adequate whereas the Director would prefer that Council members gather either three or four times a year. Meetings need to be set a year in advance, preferably at a regular time, (e.g., first Monday of the quarter or every three months) so that those who need to attend can schedule it as a priority. Council meetings held at different sites among the member

institutions are valuable for members to gain greater knowledge of their colleague's programs. The Council praised the administration for its follow-through on recommendations.

Others (a small minority) suggested that the Council is not really active and the meetings are little more than "reporting out." The administrative detail should be limited. A suggestion was made that the Council form subgroups based on the type, size and interests of the members and clusters that are disciplinary or interdisciplinary. This sorting out occurs naturally, however, as institutions with like programs and needs— e.g., the smaller schools, associate members—get together on their own. The expected advantage of group differentiation might be that FIO could target initiatives, policy directives and development more precisely.

Some members suggested that there could be more input from Council members in setting the agenda and adding some different elements to the meeting, for example:

- Members could bring posters to the Council meeting. There could be one or two themes at every meeting that would generate discussion and help Council members learn what others are doing. This might also promote the development of new committees or subcommittees.
- Regular features for the meetings could include:
 - An update from the GOMURC leadership
 - RESTORE Act update
 - Relevant legislative updates
 - Board of Visitors report
 - otherResponsibility could be assigned to specific individuals.
- A researcher who is not a member of the Council could be invited to speak.

Presentations of the nature described have been a component of the agenda, for example, in September, 2014, Larry Langbrake of SRI discussed "Collaborative Science, Data and Information: To Share? Or not to Share? Richard Knudsen presented his work on "Florida Atlases to Coastal Habitats and Wildlife at Risk from Spilled Oil: A Paper History and Digital Future" and Barbara Kirkpatrick, Executive Director of GCOOS-RA (and Mote Staff Scientist) presented an overview of GCOOS activities.

The question was also raised as to whether the current Council members are the "right" people to support and advance the organization. Clearly the scientific input of the user group (the current scientific Council membership) is essential to FIO, but to gain more influence in Tallahassee and within the institutions, and wider recognition of FIO among the public, a "higher level" Florida group composed of, for example, a port director, a mayor and individuals engaged in the tourism and restaurant industries, leading a power company, active with the High Tech Corridor, *Florida Trend*, along with representative Academic Affairs and Research VPs from the partner institutions could be assembled.

FIO Committees: The committees currently designated within FIO are the:

- Executive Committee
- Ship Scheduling and Coordination Committee
- Membership Committee
- Bylaws Committee
- Education Committee

There was consistency in thought about the FIO Committees. Most members are not active participants on committees. The Executive Committee, which is more or less valuable depending upon the leadership and/or the issues of the day, the Ship Scheduling and Coordination Committee and the Education Committee are the most active committees. The first two committees are the only two that have prescribed functions in the AISO MOU. The FIO bylaws include a nominating committee and describe its functions. Both documents identify an FIO Board of visitors appointed by the President of the host institution.

It was pointed out that the committees need to have important tasks in order to become functional and that they might be able to do more if/when there are more staff. At that point they could function like government or agency committees whereby the members provide the thinking and discussion and staff members develop the write-ups and reports.

There was also discussion as to whether FIO has the right committees to support the organization and whether they should be policy-based, strategy-based and/or solutions oriented. Development of the following additional committees was suggested:

- KML committee
- Business relations and development committee for enhancing public-private partnerships
- Government relations committee
- Communications, branding and marketing committee
- Information, database and data management committee
- Development committee
- Science steering committee(s) focused on the so-called “critical issues.” The Council does not have the manpower to do this, but this could be accomplished by expanding membership of the committee(s) with other talent from the member institutions. It would need to be clear, however, that there is a purpose and a useful outcome for the committee(s) to exist. The group(s) could simply be assembled and marketed to the legislature/governor as resource groups to be called upon as needed.

If the personnel were expanded, these new potential committees could be advisory committees to various staff members. It is also possible that a number of these activities could fall under the purview of the executive committee.

The Role of GOMURC

GOMURC, the Gulf of Mexico University Research Collaborative, is a super consortium, an advocacy organization, to enhance coastal marine science, oceanography and related ecosystem management programs through communications, education and research, and public outreach (see also Appendix III). It was designed to promote the activities of educators, scientists and agencies in responding to state, regional, national and international issues and to become advocates for gulf science and education with policy makers. Collectively, this organization represents 80 public and private universities assembled in the following member consortia:

- FIO
- The Alabama Marine Environmental Sciences Consortium
- The Louisiana Universities Research Consortium
- The Mississippi Research Consortium
- The Texas Research Consortium

USF and FIO jointly invested the initial funding for GOMURC, but to sustain it, the funding has come from the Harte Foundation and the Walton Family Foundation. The GOMURC Director places monthly phone calls with NOAA, NFWF and others to keep them abreast of science in the Gulf. GOMURC is located in St. Petersburg, FL near the offices of FIO.

FIO Council members were largely unfamiliar with GOMURC and its activities and value. Some were not even aware of the organization by name. Others thought it had been valuable at the beginning of a response to the oil spill, but has not achieved the unity among the states' university consortia that was envisioned, perhaps because state politics does not recognize its role and other similar organizations such as GOMA (Gulf of Mexico Alliance) already exist. GOMA and GOMURC could be, and perhaps are, synergistic. Still other members indicated that GOMURC had great potential and could be extremely valuable as an effective model for the kind of multi-state entities that are the wave of the future.

GOMURC could be accessed as a vehicle for FIO members to develop multi-state research and education programs, especially as related to the Gulf.

Common Themes

The Role of FIO and its Core Mission: Member Views

FIO is the State of Florida designated oceanographic organization for education and research in the marine and coastal environments and as such will develop a platform for research that provides ship time, shared resources and connections among faculty. The language of the FIO AISO (as mentioned previously) is broad in scope and far reaching with ambitious goals and presumed responsibilities for action and accomplishment by FIO and FIO in partnership with government, the private sector, and the many and varied coastal and marine organizations in Florida, and the public. It implies that FIO will serve many masters.

In addition to education and research on behalf of SUS institutions, FIO will also engage in policy development, decision-making and economic development. If FIO, as described, is “an intellectual hub for mature and diverse marine science...in Florida,” then it must have the visibility, recognition and support within the state to meet these goals.

One is left with these questions: Are the goals for FIO over reaching and is the language more aspirational than operational? Could FIO expand its operations to take on the responsibilities listed in the AISO or should the goals be scaled back, focused and become more selective to match the resources? What can realistically be accomplished? Resolution of these issues is critical in preparing for renewal of the AISO and development of a new strategic plan.

Council members have described FIO in the following ways: FIO is a university-based consortium, a collaborative hub of marine scientists and their respective organizations, an umbrella organization that has a broad-based mission to facilitate education and research focused on Florida’s coastal and ocean environments. FIO promotes stewardship of the oceans and provides training and resources to do so; it provides a forum for the development of ocean sciences in the State of Florida and is a catalyst for ocean research, education and policy. FIO is also a clearinghouse, a coordinating body and a network for investigators who are seeking infrastructure support and are willing to share resources. It provides an opportunity to network and form cooperative and collaborative research arrangements among people with like minds. FIO provides its members with an opportunity to promote the value of the oceans and estuaries to Florida’s economy. “FIO unites more marine horsepower for Florida than any other organization.”²⁰

FIO’s roles dovetail with the BOG priorities in that there is a focus on interdisciplinary research and collaboration among members of SUS institutions (and with others). The summer course provides an excellent example of sharing expertise, facilities and resources. If FIO obtained more funded, collaborative research, it is possible that there might be a greater likelihood of increased state support.

²⁰ The quote is from an academic Council member.

Others added the proviso that FIO was chartered as a service organization, not a leadership organization or to become a competitive force. It is an enabler, facilitator and coordinator. It has only recently become more engaged in activities beyond service, largely in response to the Deepwater Horizon Oil Spill.

One member recommended that FIO compare its activities with those of the North Pacific Research Board (NPRB), an organization that supports peer-reviewed scientific research in the Gulf of Alaska, Bering Sea/Aleutian Islands and Chukchi/Beaufort Seas, to improve the understanding of these regions and inform effective management and sustainable use of the marine resources. Like FIO, NPRB is committed to cooperative project development and to its stakeholders. The Department of Commerce has funded long term monitoring projects. All projects funded by the NPRB must include a budget and a plan for communicating research results and/or processes to non-science audiences, for example, resource management agencies, commercial and subsistence users, teachers and students, and the general public. Some of the practices of NPRB could be adopted by FIO

There were also several, sometimes contrasting, opinions expressed about what FIO should be. Some members think FIO is already what others think it should become.

FIO should be an organization to promote better understanding of Florida's marine and coastal issues and a vehicle that provides access to the state's resources. It should be the face of oceanography to inform the public about marine science, the "spokesperson" for ocean issues on behalf of the SUS and the organization that provides leadership and a hub for marine science research in the state.

FIO should be more engaged with the business community to provide more regional impact, especially if is expected to have a role in economic development. An aquaculture investor, for example, should be able to come to FIO to find a solution to a problem or a new project...and the individual should bring money! Better connections with business, however, requires FIO to have an extensive database and knowledge of the expertise and talents within the FIO membership

FIO should trumpet the benefits it already brings and will bring in the future to the coastal and marine economies. The various economic sectors (Appendix V) could be correlated with FIO activities and their value in terms of income earned or lost for the state could be enumerated. How FIO provides benefit could be explained in rhetorical terms or in dollar figures (if known or able to be estimated). For example:

- sport fishing \$ earned for Florida -- describe FIO's impact or possible impact
- \$ lost as a consequence of red tide – explain how FIO could rectify or has been engaged in resolving
- \$ impact on tourism of the oil spill– document FIO's role in resolution

This would also be of considerable value in demonstrating FIO's ROI to the state.

One member suggested that, in contrast to expanding its roles, FIO should focus; another member suggested that if FIO is not moving forward, its reputation could become stagnant.

Different cohorts within FIO have different goals for the organization. All members need to determine how the services and strategic relations of FIO benefit them. These are likely to be different among the various groups of members. A strategic plan needs to recognize that not all members will have the same vision for FIO. Alternatively, there could be common agreement among members about the mission of FIO and individuals can selectively adhere to those component(s) that meet their needs and goals.

The Roles and Responsibilities of Members

Many members were somewhat surprised at the question about their responsibility as a member and had not thought about their relationship with FIO as bidirectional. Institutions, organizations and individuals are members of FIO because of the opportunity to participate in the network of investigators and information exchange, and to access research resources for their students and their own work.²¹ FIO is a source of competitive funding and membership "looks good on the CV." There is a general sense of "what do I get out of FIO" rather than "what can I contribute" to FIO on the part of some members. Nonetheless, several useful responses about roles as members were offered.

Members should attend meetings as active participants, serve on committees, bring issues to the table for information and/or discussion, share expertise and "tools"²² that may be advantageous to other members, provide oversight of the organization's activities, support and contribute to the research goals of FIO and serve as a conduit to disseminate information about FIO's work and activities within their institutions. It is important for university leadership, deans and faculty of the colleges that are engaged, at some level, in coastal and marine research, to understand and support FIO.

Members should contribute to the development of annual plans, FIO's long term mission and suggest boundaries on the extent of change within the organization. One member used the phrase "membership conveys an expectation of work, wealth and wisdom"—work to channel money into FIO to gain greater self-sufficiency and become more independently recognized. Current members should make the organization even better for the next generation.

²¹ Many join primarily to take advantage of subsidized ship time and have little involvement otherwise—except when a source of targeted funding becomes available.

²² Vessels, equipment, data, databases, partnerships, etc.

All members need to believe in FIO, participate in advocacy for FIO and for coastal and oceanographic science, and make contacts on FIO's behalf, for example, getting local government relations personnel concerned with FIO's interests in Tallahassee. It would be advantageous for every university to be more involved and supportive of FIO in the legislature, even though the host institution, in particular (as per the AISO MOU), is expected to be the foremost lobbyist for FIO and does play this role. Members should mention FIO when promoting their own programs and their universities. FIO is often mentioned last... if at all.

Members must support the activities of FIO as well as those of their own institutions, especially in the domain of marine infrastructure. FIO cannot continue to support members and institutions with resources if equipment added at institutions replaces the equipment FIO provides through the SUS. Members are anxious that FIO does not compete with universities or FIO member organizations, but the reciprocal is equally important. It would be valuable for an FIO member institution planning to acquire or develop a new vessel, for example, to coordinate this plan with FIO.

There was general agreement, however, that the expectations of members could be better defined. A clear understanding of what they can do to support FIO would be advantageous. They respond when requests are made and things need to be done, but they don't necessarily reach out with ideas etc.

The Roles and Responsibilities of the Host Institution

FIO as an AISO is intended "to involve all institutions equally" and thus FIO should do for all what one institution alone cannot do. But, there is a perception that FIO is not the glue for the state institutions, as designed, because of USF dominance. Some members believe that FIO "belongs to" USF and USF is the principle recipient of the benefits. FIO equipment is seen as FIO/USF—one in the same. The infrastructure for which FIO is responsible is geographically limited and USF-centric. The green color of the *R/V Weatherbird II* and the USF logo on the vessel, for example, give the impression that it is a USF vessel. Some complained that the LBR was completed by USF without giving the FIO Council a chance to provide input as stipulated in the MOU.

FIO is not a unit of USF but of the SUS and similar to a stand-alone operation, but it does not receive the benefits of a stand-alone institution in terms of receiving dollars for credit hours of instruction or a portion of tuition, etc.. The nature of its engagement with the host institution affects FIO's interactions with Sponsored Research, HR, Travel and Purchasing in a manner somewhat different than stated within the MOU (see below).

The AISO and MOU spell out the roles and responsibilities of the host institution. A review of these is important for members to gain a better understanding of the FIO-host institution connection:

- The host institution will “...provide administrative and logistical support including office space and support services – utilities, insurance, personnel, purchasing, financial, legal, government relations/advocacy. Budgetary and financial services will conform to those of the host institution.”
- “Contracts and grants proposed and submitted by FIO to external sponsors will be processed through the host institution’s Division of Sponsored Research and charged the appropriate F&A rate with balances earned by FIO to be distributed in accord the institutions RIA practice of that year.”

Because FIO does not use USF resources for research, but rather those of FIO and other member institutions, the F&A for administrative assistance is the only relevant expense of USF Sponsored Research. An agreement has been negotiated recently with USF Office of Sponsored Research such that the F&A to USF will be capped at 10 percent. This needs to be revised in the AISO MOU and codified as policy for the present and future.

Some of the regulations related to purchasing within SUS institutions (and FIO included) are cumbersome when related to needs at sea. For example, it is not possible to “drop ship” when a part is required for continued operation during a research cruise, but has to be sent to the home base (FIO) and then transported to the ship by some means. This is costly not only in terms of the item, but also in terms of the lost time at sea for tight research schedules. Other examples could be cited where the regulations are not sensible for a research environment on board a vessel.

There is limited awareness of the numerous connections FIO has with the other institutional and organizational members. FIO, for example, assisted FSU with the business and personnel setup of the *R/V Apalachee*. It co-sponsors numerous conferences, meetings and educational programs with other member institutions and scientific organizations.

At some point, Council members may benefit from an open discussion about host institution oversight. Would the perceived imbalance favoring the host institution exist no matter which institution holds that responsibility and houses FIO and its resources?

Organizations that Support Marine Science in Florida and the Differentiation of FIO Among them

There are many organizations in Florida (Appendix III) focused on the education, research, management and advocacy of and for the coastal and marine environment. These range from state agencies, to research organizations, to member organizations, NPO’s and NGOs. Some of them have overlapping missions and FIO is a partner with many of them. In 2014 alone, Dr. Hogarth attended policy and planning meetings and reviews of GOMURC, SECOORA, NAML/SAML, NAS, UNOLS and many others requested by FIO members. FIO, for example, provided data and assisted the Florida Ocean Alliance in preparing the draft report on the

economics of Florida's assets, "Florida's Oceans and Coasts: An Economic and Cluster Analysis" in May, 2013. Are all of these organizations valuable? Is there an hierarchy of marine organizations that the state pays attention to? Could some of them be consolidated under FIO as an umbrella organization?

What Differentiates FIO? FIO is comprised of academic institutions and various other organizations that bring together research and education through the power of the state. It is a system, a community. FIO offers resources that are valued by its members and draws upon their broad expertise in problem-solving. While it is clear that FIO's activities overlap with those of other organizations, agencies and NGOs in Florida that support the marine sciences (Appendix III and Summary) all of the following distinguish it from them:

- FIO manages resources for marine research for its members. Subsidized ship time and shared use of vessels differentiate FIO.
- FIO provides venues and an unparalleled resource for students training in the field, e.g., KML.
- FIO manages the bulk of BP money for the state to further research related to the Deepwater Horizon Oil Spill.
- FIO's has no regionalism in its responsibilities. Its domain of activity includes the deep water, coastal and watershed areas.
- FIO coordinates and facilitates a collective of investigators who have broad expertise. Its members can address issues for the State of Florida and show how they relate to regional and national issues whereas other organizations are more often specific in their activities, policies and practices.
- FIO membership is active and capable of a quick and cost effective response to opportunity.

What Do Members think is the Value/Benefit of FIO?

Access to safe and well maintained ships and equipment is a "huge" benefit FIO brings to its members and their students. Without this resource, and the subsidized ship time, investigators would have to rely almost entirely on more costly UNOLS vessels and would not be able to access or schedule a vessel with the same degree of ease that FIO affords. The importance of FIO in this respect cannot be overemphasized if one reviews "Sea Change 2015-2025 Decadal Survey of Ocean Sciences"²³ which includes a series of recommendations to reduce federal dollars invested in major infrastructure in order to increase the funding for the research portfolio. FIO's primary role in providing infrastructure is critical.

²³ National Research Council of the National Academies, National Academies Press, Washington, D.C. 2015.

Some members have suggested, however, that the vessels are valuable primarily for routine work and could be more turnkey and fitted with higher technology. There has been discussion about “modernization” of the *Weatherbird II*. The Ship Scheduling and Coordination Committee could address potential upgrades. Would more modernized ships bring more business outside of FIO membership?

FIO presents an opportunity to expose students to hands-on work in the field. The chance to go to sea provides extraordinary experience that is very important to their future careers. The results of the work they accomplish need to be showcased as much as possible.

Perception/Reputation of FIO External to the Membership

“FIO will elevate SUS status as a global hub for world-class oceanographic education and research.” (AISO Vision Statement)

“The FIO will facilitate and support Florida’s emergence as the preeminent state in the nation for understanding ocean processes and how they control economically essential natural resources and contribute to natural and man-made hazards.” (AISO Vision Statement)

FIO is struggling to build its reputation. “What is FIO?” is frequently asked. There is “broad strokes” recognition of FIO, but people don’t necessarily know what it is nor does, especially those who are not located in the Tampa Bay region. The name of FIO implies to some that there is a physical structure and presence and not simply a virtual collaborative. There was a strong sentiment among the members that the reputation overall—as far as it extends—is because of the leader and his recognition across the state, nationally and internationally, and because of his leadership and the work of FIO members following the Deepwater Horizon Oil Spill. The vessels and many of the Council members are well known for their work but not necessarily for their connection with FIO. Members choose to identify with their institutions more often than with FIO.

In Florida: Little is known about FIO outside the state and the region although most agree that FIO should be a model for the rest of the country. “Other states have indicated they wish that had an organization like FIO.”

FIO is not widely known in Tallahassee other than by a few legislators from regions such as St. Pete/Tampa Bay and other locations where FIO Council members are active. FIO is known statewide, however, through its role in the aftermath of the Deepwater Horizon Oil Spill and its prominence in managing Florida’s RESTORE Act funding.

Nationally: FIO has been thrust into the limelight largely because of the Deepwater Horizon Oil Spill, but it needs to engage in ventures beyond service to Florida to become nationally prominent. Some members suggested that it is not FIO’s role to become known nationally (see above quotes from the AISO vision statement for a differing opinion) or to have

national advocacy positions. A number of FIO Council members are national players and could promote FIO nationally and the Director has had a very significant role in securing national attention to FIO.

Internationally: For FIO to become more connected internationally it would need to be a benefit to Florida. FIO is poised geographically with Caribbean, South America and Cuba and has the expertise to make a greater impact in these regions—especially now because of the oil spill and the continued drilling. There are already connections among FIO members in these regions and there are others who would like to see this kind of outreach expand. Others, however, find this activity for FIO to be competitive with member institutions. FIO could also establish virtual partnerships with consortia of marine scientists abroad in the area mentioned and in others, e.g. the Interuniversity Institute for Marine Sciences (IUI), situated near Eilat in the Gulf of Eilat/Aqaba, Israel.

By Business: There are more than 37,000 companies along Florida’s coast²⁴ that employ 228,000 individuals, yet FIO is not well known by business for its work or facilities. Companies may not be aware of the opportunity to charter FIO vessels, but they also often have their own infrastructure tailored to their needs and available at a moment’s notice. Nonetheless, FIO could advertise the opportunity to access their vessels in *Ocean News*, *Sea Technology*, etc. FIO members, as university faculty, have the dominant percentage of their research funded by organizations other than federal and state agencies, thus the connections with the private sector are already there. The challenge is to find the means to bring them to the benefit of FIO.

It has been suggested that FIO’s reputation might be more accurately assessed by individuals outside of the FIO Council and Visiting Committee. For example, it could be useful to talk with those at the High Tech Corridor to gain an unbiased view of the economic impact of the research sponsored by the members on the key industries on the coast. The utilities companies, such as Progress Energy place importance on the coast and ocean, and there are a multitude of organizations and businesses that are coastal drivers of the economy—fisheries, tourism, cruise industry, port directors, commercial shipping, etc. who could be contacted (Appendix V).

The Role of FIO in Research

There is some ambiguity about FIO’s role in research. What, exactly, should be FIO’s mission in research? Should FIO have a research agenda? Should it be a direct player or a facilitator, or does it simply have a role in research by providing the resources for the research conducted by its members?

²⁴ Florida Ocean Alliance, 2014 Perspective on Florida’s oceans and coasts. First annual dispatch to Florida Governor Rick Scott and the Florida Legislature.

The AISO lists numerous “critical issues” in Florida that FIO could address to enhance the economic well-being of the state. It is specifically stated that FIO should “provide statewide leadership in helping Florida’s citizens and policy makers understand these issues.” **FIO, per se, however, does not really have a research mission beyond facilitating research through supportive infrastructure.** Conducting research is the purview of FIO members and member institutions, therefore FIO needs to determine how/if this AISO directive can be accomplished. FIO could bring investigators together to serve these issues, whether through the development of white papers, conferences or actual research, but to do so, there would need to be an extensive database with profiles of the members and other investigators working in the environmental and marine sciences in the members’ institutions and organizations to identify the appropriate individuals.

It was suggested that the list of “critical issues” within the FIO AISO might be transformed into objectives, matched to the *Decadal Survey of Ocean Sciences* from the NRC and aligned with Florida’s goals. Alignment of Florida and national goals would have advantages at the congressional level as well.

Oil, climate and ocean acidification and restoration of the gulf were mentioned as prominent agenda items at present, but other than the work related to the Deepwater Horizon Oil Spill, these topics seem to be the focus of university-based research. Nonetheless, opportunities for FIO to support research could grow with the changing environmental aspects of the climate and ocean—fisheries, ocean drilling opportunities, long term persistent monitoring, brokering environmental data on Florida oceans, etc. A number of ideas were discussed by the Council as potential research thrusts that FIO could develop and promote through white papers, workshops or conferences (e.g., aquaculture, storm water and irrigation runoff, etc.) but have languished because limitations on members’ time and lack of support.

One member of FIO stated “science is making FIO strong” and there is no question that this is an accurate statement considering its very important role in managing the RESTORE Act funds for research. It would also be useful for FIO to track the external dollars coming into Florida for research in the marine sciences and to determine how much of that is awarded to FIO members and how much of the work has relied upon FIO infrastructure.

The Role of FIO in Education

The FIO AISO indicates that “collaboration among academia, government and the private sector is expected to...promote research, education and project management.”

Education is a very important aspect of FIO’s activities. Many members stated that education is FIO’s job and sets it apart from the other coastal and marine organizations. FIO could become more proactive, and play a much more aggressive role in K-12, post-secondary, teacher and community education by providing more conferences and workshops for these groups, the public (adult audiences) and members of FIO. The open forum could bring out new ideas and potential linkages between organizations and individuals. FIO could apply for education and outreach grants

without the risk of competing with institutional members. It should continue to serve students through the resources of FIO and by helping those who are seeking internships, planning for graduate school or careers in marine sciences research or the industry.

FIO also has the ability to deliver certificate programs and is considering the development of a program on vessel operations and another on marine technologies. These could provide a source of revenue, engage a different sector of FIO personnel and expose FIO expertise to another group of learners.

Education is consistent with a service orientation. It is a common thread among the members and a good venue for collaboration. The “Florida Study Abroad” course is an excellent example of the kind of collaboration that the FIO Council members initiated. Other educational experiences aboard FIO vessels, e.g., Eckerd research cruises as a component of a senior capstone course are also organized, and UCF, FIT, UNF, UWF, FGCU, USFSP, FAU and GOMURC have all arranged educational opportunities involving FIO infrastructure.

Unresolved Issues

The East-West Divide

FIO members on the East Coast believe that FIO’s efforts focus primarily on work along the West Coast, the Gulf of Mexico, and that resources are assigned disproportionately. Inasmuch as all FIO personnel and resources—other than KML—are located in St. Petersburg, the perception is there whether or not it is accurate. The vessels are docked in St. Pete and the cost of transit time²⁵ around the tip of Florida limits the use of their use by East Coast investigators unless they travel across the state to embark. And, because of the oil spill, funds are largely tracked to western locations, even though there is a high potential for currents to transport oil spills from the West Coast through the Florida Straits around to the East Coast of the state.

Problems on the shelf such as the health of inter-coastal waterways, the super bloom in the Indian River Lagoon (valued at a \$3.7 billion impact), and other research issues affecting the East Coast are very important to Florida’s economy. The East Coast is also home to a larger population than the West Coast, and its ocean industries account for 65 percent of the economic return from this sector compared with 30 percent on the west coast and 5 percent in the Panhandle.²⁶

It would seem to be an advantage, especially politically, to locate people and resources on the eastern side of the state. With additional funding, the opportunity to create a satellite office could be a high priority. FIO Council members could arrange a forum to address East Coast research and needs and to develop a plan to resolve this issue. The Director recognizes the need for an

²⁵ In June, 2015 Dr. Hogarth reduced the cost of transit time to the investigators.

²⁶ Florida’s Oceans and Coasts: An Economic and Cluster Analysis” in May, 2013, p.4.

East Coast presence and has included this topic within the “Need for Improvement” section of FIO’s annual report each year.

Membership

Members work collegially with open mindedness, professionalism and respect, but it was cautioned that this could change if FIO gets much larger and more diverse in composition. The guidelines and criteria for membership outlined in the AISO MOU and FIO bylaws should be reviewed to determine whether they adequately define the responsibilities and benefits for full, associate and affiliate members. The Council also needs to consider whether there are advantages and/or liabilities to a large and stratified membership. Specific questions to be considered by Council members are:

- How big should FIO become? Is there an advantage to a larger/broader group? Will the interests of FIO become too diffuse if the size of the organization expands? Does size focus or dilute the mission?
- How are expectations managed when diverse organizations are involved?
- Is there better political leverage with more diverse membership?
- Has the group gotten too far away from the body which was designed in the AISO?
- What is the added value of each member category?
- Should criteria for membership require the organization to have an educational mission? A research thrust? Degree-granting status and/or marine science infrastructure?

There are differing views on membership as it exists presently. One view is that FIO is too inclusive and not all members are engaged. It was commented that the membership consists of “big players and dabblers” and should be refocused with founding members and better criteria for membership overall, but especially for associate members. “There needs to be more interaction among members not duplication of members”. This contingent of members has opined that associate members “show no value and lower the bar for the organization.”

The alternative view is that associate members add value and strengthen the organization, but there is limited agreement on what associate membership means to either the member or the organization (beyond what is stated in the bylaws). For some associate members, FIO provides the opportunity to network with colleagues, the potential to join in collaborative research that allows them to take advantage of the vessels; they see it as a positive credential to add to their organization or to their own résumé. They believe that FIO should not close doors to new members but instead should determine how each member can both contribute and benefit. The aquaria members, for example, provide important connections and contacts that help place students and another venue for FIO to become visible to the public.

An associate member offered the following benefits his institution can—and is willing—to provide to others in FIO:

- We invite applications for post-baccalaureate internships and offer an opportunity for recently graduating SUS marine science majors to obtain experience and a way to build their résumés either for a career in marine science or to enter graduate school.
- We have offered to be guest lecturers/instructors in FIO's marine field experiences and science course and help in career counseling. Field course students can be taken to an associate member's nature center or aquarium when the weather is uncooperative.
- Our organization was awarded the Conservation Organization of the Year by the Florida Wildlife Federation in 2014. This could be leveraged by FIO during legislative requests or when talking to the media or potential donors.
- The intellectual capital of associate members is valuable to the Director and FIO staff during Council discussions.

Expanded Roles for FIO

Although there is little question about the potential of FIO to add greater value in the domains it serves, there is also tremendous untapped collaborative potential. FIO can take a leadership role in connecting with organizations, industry, NPO's, NGOs, labs and academic institutions through workshops, seed funding, developing courses, expanding its infrastructure, drafting proposals, and providing the expertise of FIO members to benefit the people of Florida. FIO cannot expand its roles significantly, however, without expanding the staff support, professional services and financial resources.

These represent a few of the ideas offered to expand FIO's reach.

Networking within FIO: FIO Council members would benefit from knowing more about the research of their colleagues. This could be the outcome of developing an expert net database. Such a resource would be valuable not only internally to facilitate collaborative responses to various RFPs, but perhaps it could be even more useful with external partners and groups.

Policy Development:

The FIO AISO indicated that "collaboration among academia, government and the private sector is expected to... inform public policy development and decision making."

FIO facilitates a great deal of science (post-oil spill, through RESTORE Act funding, etc.) that informs public policy. FIO could prepare white papers on various topics in the National Research Council's *Decadal Study on Sea Change*, comparing the issues presented with those in Florida and preparing short but useful documents to inform the legislature, targeting, especially, those areas most relevant to our state.

It was stated that FIO should be writing the research agenda related to the marine and coast environment for the state. It should make clear the issues beyond oil cleanup and environmental restoration that are (or should be) on Florida's agenda. It would appear that several agencies or organizations currently provide this advice (see Appendix III). Which of these actually set Florida's agenda is uncertain, perhaps all of them in some ways, but could/should FIO be more involved?

FIO could develop a document (or capitalize on those which have already been developed) about the funding for coastal and ocean science in the state of Florida comparing the dollars spent on research for the amount allocated (normalized to population or some other relevant criterion) for same activities for another coastal state such as New York, California, Delaware and Rhode Island and explaining the value of the investment.

Education and Outreach: A few members believe FIO's role in education should focus only on higher education to facilitate other FIO-branded courses like the summer field course "Florida Study Abroad"²⁷, develop virtual courses, university exchanges, and an academic curriculum that capitalizes on the unique facilities and strengths of each institution/organization. FIO could prepare an inventory of all the marine science courses in the member institutions and find ways to help students take courses outside their own institutions.

FIO could organize mini-courses to coincide with spring break, winterim, maymester, and summer at the Keys Marine Laboratory, perhaps in collaboration with Mote, Aquarius and any other Keys research and education facilities. Courses at the universities in which FIO resources are accessed could be co-branded.

FIO could become a broker for internships, by actively soliciting opportunities from companies, agencies and organizations in Florida then making them known to members, and FIO could hold a job fair for organizations and companies who are seeking talent.

A bold idea was presented a number of times during the interviews—that FIO could work with its members to spearhead the development of a maritime college. The two closest maritime colleges are in Texas and New York, and neither is contemporary. A new school in Florida could be located in ports and could have part of the curriculum online. It would be an asset for economic growth and would benefit the cruise lines, shipping and transportation, logistics, and port engineering. It would be advantageous with the Panama Call expansion coming on line. There are some ongoing serious discussions among a group of Key Opinion Leaders about such a venture and land has been donated for this purpose. One member of the FIO Council has developed a white paper on the topic.

²⁷ FIO provides the financial support for summer courses, vessel use and student fellowships.

An enhanced agenda for education could be undertaken by the education coordinator within FIO and is now a focus of the recently hired Education Outreach Officer.

Higher education activities might also take advantage of the marine programs with global partners. Mote Marine Lab, for example has a research partnership with Cuba and Mexico and a number of universities in the SUS are well connected in the Caribbean. These could be highlighted in a global connections inventory, e.g., Mote in Jordan; USFCMS at King Abdulaziz University in Saudi Arabia. It is important, however, to document how international engagement in the marine sciences helps Florida.

Some of these proposed activities are far from simple to accomplish. The education committee or the Council as a whole could engage in discussion about the kinds of issues that arise when different schools are involved in a collaborative program—who gets the tuition, who gets the course credit, etc. Members cautioned that FIO consider carefully how its role in education augments what is presently accomplished elsewhere, find its own niche, and not duplicate the successful efforts of others.

Several members felt strongly that FIO could do more to facilitate education in the K-12 arena. Teachers need more assistance and they are the ones to ensure there will be a sufficient number of young students in the pipeline. FIO's resources provide unique opportunities for teachers. The "Teachers at Sea" program could be continued and expanded upon and FIO could expand its engagement with the consortium of Florida marine teachers. FIO members could assist in curriculum development and provide school presentations about opportunities in this field. Most members visit schools to talk about marine science and could do this on behalf of their institutions and FIO. Again, financial resources need to be available to underpin such activities.

Other programs such as the "Girl's Camp" – one day trips for 12-15 girls and their faculty sponsors and mentors are organized on the Bellows. These could very well continue on the new Bellows, but there is an uncertain future for the program on the existing Bellows because of the classification of the vessel by the Coast Guard as an "Uninspected Oceanographic Research Vessel".

FIO could develop an ongoing research program for young scientists at KML or any one (or several) of the member institutions. A project might include data collection to provide the student with real hands-on learning and a stimulus to promote a STEM career. FIO can hold more programs and open houses for youngsters, especially when the vessels are in port. KML held an open house for two hours on a Saturday afternoon in February, 2015. Planning for such activities would involve the FIO Education Outreach officer.

It is important to emphasize that K-12 education also garners attention at the legislative level.

Research and Development:

The FIO AISO specifies that "collaboration among academia, government and the private sector is expected to...produce scientific solutions."

FIO could monitor RFPs for relevant programs and facilitate the efforts of members in preparing research grants, and FIO administrators, with Council members, could write grants for infrastructure—instrumentation, education and education policy, and STEM programs. FIO could connect members with opportunities to engage in practical and applied work for hire to mitigate problems or to anticipate problems before they become more serious. These are also agenda items on Dr. Hogarth's goals for 2015.

One member suggested that FIO might develop a fleet of gliders as part of their research infrastructure.

With the appropriate support of personnel within FIO, there could be an effort to spearhead an activity for data management, synthesis and integration that would be Florida-centric. This would need considerable planning by a group of interested Council members and it would need to be clear what it adds to the databases already developed by all of the COOS organizations, Sea Grant, the Center for the Prediction of Red Tides (see Appendix III) and NOAA. It should be noted that in 2014, a workshop was held on St. Petersburg with FIO, USCG and FWRI members to better coordinate oceanographic information and close existing gaps in the data.

FIO could develop an inventory/document about the marine stations and labs and National Estuary Reserves (NOAA) in Florida, citing the resources and advantages of each (if this is not already available through NAML, SAML or AMLC). It could organize a network of marine labs and serve to coordinate activities without assuming any ownership or oversight of these labs. This is especially important for the marine stations in the Keys, at a minimum.

FIO could also organize a group of vessel providers to better coordinate the use and accessibility of these resources across the state. This would also be helpful in planning the collaborative application to NSF for a new regional ship. FIO is a member of such a consortium of Florida member universities that is already in dialog with partners in other states to obtain one of these new vessels

Connecting with the Private Sector: Better connections with the private section would be a benefit for fund raising, collaboration, and opportunities for students, sharing of equipment, leasing of vessels, securing travel funds, and establishing a small grants program that benefits industry, etc. To be successful, FIO needs intelligence about how the oceans and estuaries link with the critical industries in Florida, what issues are important to business, and how FIO and its members' activities in policy and research can help them address business issues that would increase interactions and revenue. FIO needs to have "something to sell that is needed" to make the relationship compelling and it needs to identify its most important connections and constituencies.

Annual workshops that should be appealing to the private sector as well as FIO members have been envisioned. Topics such as Energy²⁸ and Global Warming and Ocean Dynamics have been suggested. A recent plan is being developed for FIO to host a symposium on the “Future of Oil and Gas Development off Florida’s Coasts.”

FIO could post displays at trade shows and slant each presentation to meet the interests of the companies attending the meeting. FIO could visit companies related to the marine science disciplines to inform them about the vessels, members and partner institutions and opportunities they might access and/or support. FIO might also serve as a “field lab” for national maritime manufacturers to try out their new innovations on FIO vessels and other resources.

Fund Raising and Resource Acquisition:

The FIO AISO suggests that “collaboration among academia, government and the private sector is expected to... leverage public and private sector investments to increase capacity.”

FIO needs more private sector funding but such an effort must be carefully planned. It was stated that “it is hard to envision a donor base for FIO.” People are sympathetic to the need for funds for their college and university, but they are less interested in giving to an organization like FIO which is more similar to a graduate school. Nobody has a degree from FIO or a graduate school and! It is not out of the question, but some expertise is needed to assist with this task. It has been noted, however, that other oceanographic research organizations garner significant funding every year from the private sector to support their activities. Moreover, the intellect available through FIO benefits the entire marine community and thus should be supported. For example, the money from BP through the RACEP benefits the fishing industry and other organizations beyond FIO and their member institutions.

FIO Council members and leadership could arrange a special session to discuss different venues and targets for raising money (including grants) to augment state support. The targets must be compelling (students are generally a good starting point). Are there any naming opportunities? Can private donors be identified? Would regional activities promote more revenue? FIO could establish a “Friends of FIO” organization, but would need to determine what benefit the members will receive for their donations.

²⁸ The program could perhaps be organized in partnership with FESC (Florida Energy System Consortium, a collaborative of SUS institutions).

A membership fee might be reconsidered, even at a modest level, to supplement the state budget. Fees could be assessed at tiered levels for regular, associate and affiliate members, or based on the size of the institution. The use of such fees must add unmet significant value to enhance FIO's activities and success, for example to engage a dedicated FIO lobbyist, pay for transit ship time,²⁹ invest in the start-up for developing courses, or for marketing FIO (see below). The uses would need to benefit the majority of the members.

Information for Members and Beyond: Recognizing that FIO may not be a household word among most sectors of the Florida population, there should be a concerted effort to make FIO and the data from work accomplished at FIO readily available to academe, government, industry and the public.

An inventory of FIO's infrastructure support (facilities, vessels, equipment) and that of other member institutions (especially vessels) should be on line with detailed information about the vessels, their equipment and availability and contact numbers. There is an excellent start to vessel and large marine equipment inventories but this need to be expanded and regularly updated.

The expert net has been mentioned several times and if it were to become a priority for FIO, the Council, or a committee of the Council could determine its context, design and how and to whom it would be made available. Bringing this on board with relative ease is also possible through a professional connection³⁰ or the work could be done by a part-time or temporary employee of FIO, or an outside contractor.

Engaging with Florida Government: As a state-wide organization, FIO can provide science-based advice on natural resource management, disaster mitigation, regulations, programs and policy to the Governor, the State legislature, SUS, BOG and to others. The AISO suggests that FIO could become the "go-to" organization for government issues relating to the marine environment.

"FIO will have within its scope all research and education aspects of coastal oceanography that affect the State of Florida and should provide statewide leadership in helping Florida's citizens and policymakers understand the critical issues"

²⁹ This is an important issue that could be resolved with enhanced funding from the legislature. A supplement of even \$200K to subsidize this travel time would have a significant impact on the East-West relationships within FIO.

³⁰ KAH has a Washington DC contact who can/and will easily do this at no cost.

But, FIO needs better engagement with “Florida” for this to become a reality. FIO has the expertise to provide the consulting that is needed on topics of the coastal and marine environment, thus avoiding the cost of contracting with highly paid consulting companies. A “consulting organization” within FIO could be assembled and marketed (similar to those developed by AAAS and ORAU).

Data from the labs could be used to formulate action or to develop policy for the state, but FIO is rarely involved in the majority of such conversations. Other organizations engage with government on several of the relevant topics (Appendix III). FIO, its leadership and members have clout and credibility earned from managing funds from the Deepwater Horizon Oil Spill and conducting important research. It needs to be used.

Where does FIO fit as a “player” in the state’s strategy for the oceans and coastal health? Or, are the questions...IS FIO a player? CAN FIO be a player? SHOULD FIO be a player? And should it have a comprehensive role or a niche role, and if the later what is its specific niche?

“All politics are local (regional)” and FIO needs to capitalize on this by knowing who (in the legislature) is where, what needs to get done in that region and what FIO member is available for consultation. FIO could serve as an advisor in managing certain state coastal and marine assets. A permanent east coast presence of FIO would be valuable in promoting a broader reach for FIO in the legislature.

Advocacy and Communications:

Advocacy: FIO needs to ensure that it has the ear of government officials and to accomplish this, a cohesive government relations strategy is needed. As an organization of the SUS, more advocacy for FIO’s needs through the SUS as well as the host institution would be valuable:

“The host institution through the College of Marine Science shall provide administrative and logistical support for the Institute including...government relations/advocacy...”

FIO members can also play a role in promoting the value of FIO. Many are effective at gaining political capital for their institutions, programs and themselves but work for FIO only on Oceans Day and even then the visibility for FIO is said to be less than for the DEP and Florida Oceans Alliance, and Mote Marine Lab, although FIO is one of the sponsors. Students who have had experience on an FIO vessel are ideal advocates. The leader of FIO, however, is also very important and must be effective in promoting the visibility of FIO in Tallahassee.

Advocacy for FIO needs to be balanced so that the value of the research on both coasts is appreciated, not focused only on the Gulf of Mexico and post-oil spill restoration.

Assistance from the legislature in providing enhanced funding to develop an East Coast satellite office would go a long way in promoting FIO's statewide benefit and influence.

Communications: There is consensus that communications within FIO is effective. Members believe they are well informed and current with respect to activities and issues. In general, it was felt that the website, newsletters and emails also serve them well, although some indicated that the web site could be stronger and the newsletter was too sporadic and thus of only limited value to the members. The Director indicated that the newsletter will be published quarterly, will highlight a member institution in each issue, and be developed as "mini-magazines."

The primary need to bolster communications is to inform outsiders (legislature, business and the public) about the importance of coastal and marine sciences in the state and the value of FIO in this context. If FIO is more visible, it becomes more credible. There were many suggestions about the means and vehicles to convey these messages and for marketing and branding FIO, but in reviewing past efforts, there already seems to be an impressive body of information about FIO delivered to the public through many different venues and outlets (editorial comment). The FIO Education Outreach Officer has also outlined an agenda of "products" for bringing attention to FIO.

The website features a social media stream of up-to-the minute feeds from FIO member institutions with information related or relevant to FIO. Information about job announcements, scientific wonders and other opportunities are posted on Twitter and Facebook. Marketing for FIO has been effective in promoting the summer course through flyers, mail notices and social websites. Transmitted video from vessels to the classrooms via satellite has also been effective in bringing recognition to FIO and its vessels and investigators. FIO manages listservs and databases, publications and conference presentation and inside and outdoor displays of FIO's capabilities at Ocean's Day and beyond.

Nonetheless, the annual reports cite the need to upgrade communications in the "Need to Improve" section.

A new communications strategy should focus specifically on FIO. FIO is known through its members and they must be the ones to tell the story of the importance of their research, the need for funding and the value of the role played by FIO in their success. In promoting FIO and their research there must be an appropriate balance between who gets visibility and credit. It is reasonable that both can receive attention. Delegations of members could work together to market FIO. Members need direction about effective ways get to

communicate about FIO. A workshop could be held for FIO members from a communications professional.

It would be useful for FIO to learn what nonscience-based people think of FIO, of oceanography—how much they know about Florida’s marine industries, economy and value to the state and if they know that FIO has a purview to work for anything coastal and on shore, anything oceanic, anything deep water and anything fisheries, aquaculture, etc.

FIO and FIO members can be (and have been) a valuable resource for the media, hosting media day and assuring the media covers the visitors, events and research success. Many FIO members were featured after the Deepwater Horizon Oil Spill in 2010, via a special report on the first anniversary in 2011, and thereafter when special awards were made to investigators who received significant sums of BP money for the large consortia. More recently, the fifth anniversary of the oil spill events was commemorated by USF College of Marine Science and FIO with a discussion summarizing the research since the disaster in 2010, at the present, and into the future. The event was publicized extensively in the press and on TV. FIO members were also called upon as experts to comment on the kinds of ocean science tools could be used to find Malaysia 370.

Most members indicated that FIO needs to work on raising its stature, become more active in marketing and branding, and think about creating a slogan or tag line that gives some indication of its roles. Branding can be successful. UCF, for example, has branded itself as “The partnership university,” and Florida Tech (FIT) has developed the “Indian River Lagoon Research Center” and staked out this territory. It is a center that has been around for a long time but has been renamed and is becoming the source for advice for restoring the Lagoon.

Many organizations have effective slogans or tag lines. Sea Grant uses the slogan “Science serving Florida’s coasts,” GOMURC’s tag line is “Unified by geography and vision,” NAML uses “Stimulating research and promoting education in marine sciences” and USGS has the tag line of “Science for a changing world.” These short phrases are effective in explaining the mission of the organization.

The strategy going forward depends upon to whom FIO is marketing, what a brand would look like, and what it is expected to accomplish. Messages should target specific audiences—government, business, general public, prospective college and university students. A communications expert would of great value; communications and PR students might also take this on as a project.

There could be more use of the FIO logo by members. An FIO sticker should be affixed to every poster where the investigators took advantage of FIO infrastructure and/or other support.

It was also pointed out that many universities and organizations advertise via large displays at regional airports with more visuals than words. This would make FIO more visible; however, what would be the message and the impact of such promotion and would it justify the cost of such a display?

Specific documents could be developed that promote the roles and successes of FIO³¹:

- Fact sheets. One page documents about the activities and benefits (impacts) of FIO, flyers (one has been developed already), handbills about FIO could be distributed or left behind in many venues and at events. A one page document was prepared previously for Oceans Day. Does it need to be updated? GCOOS has developed a series of one page documents on several topics.
- Economic impact reports with data on how the activities of FIO lead to economic gain and job creation, and a sustainable coastal and marine environment. Such reports have been prepared by many organizations that support work related to the Florida oceans and coast, thus any such document developed by FIO would need to consider FIO's unique niche.
- A document to commemorate the Bellows when it is retired highlighting what has been learned about the oceans and coastal environment as a result of

³¹ There are several plans in various stages of development to publicize FIO, locally and nationally, that have only recently been revealed:

- The "Journey to the Plant Earth" series of PBS will add a 13th episode about FIO's work on the oil spill. It will be sponsored by FIO and developed by Screenscape Studios. Matt Damon is expected to moderate. The premier will be at the Mahaffey Theater in St. Petersburg followed by a panel discussion. The event will be free of charge for the public, but a donation will be requested to support a scholarship or fellowship.
- The Guy Harvey magazine for teachers will run an article on FIO. The organization is also sponsoring the Second Annual Education Workshop for teachers of marine science. The magazine, a resource guide for teachers, will be distributed to every school in Florida and the Bahamas.
- FIO will develop a magazine this fall sponsored by Guy Harvey. Each member institution has been invited to prepare a 1-2 page description of their work in the marine environment. An introduction will be written by the Chancellor and the Provost of the Host Institution will also provide a letter. There will be articles about the vessels and the Keys Marine Laboratory; the three consortia from the first BP oil spill money will be featured, and some of the members who have made unusually significant contributions will be highlighted.

work carried out on the ship.

- An annual report/magazine or a quarterly “sponsored report” in *Florida Trend* (similar to what Sea Grant is doing).
- Online posting of critical white papers or short opinion papers drafted by FIO members.

It is important to determine, realistically, how much time FIO members are willing to invest in a broadened agenda for FIO.

The Future

Measuring the Impact of FIO: Metrics and Dashboard Criteria

It is important for FIO to consider what success would look like and to determine how important it is. One could ask what would be missing if FIO were not there. Another way to measure success is through designing and applying the right metrics.

The metrics collected at present are aligned with the stated goals of the AISO but should be re-examined, especially with respect to the categories of effort displayed on the dashboard. Could there be metrics to demonstrate ROI more strategically than those which, in some cases reflect standard “academic” metrics, to reveal the true benefit of FIO to the state?

FIO’s impact can also be measured in terms of the research dollars awarded to FIO members for work that includes FIO resources and for ongoing projects related to research under FIO’s purview (significantly, work that relates to the mitigation of the environment after the Deepwater Horizon Oil Spill).

Risks and Challenges for FIO

It was generally believed that there are more opportunities than risks for FIO. There are, nonetheless, risks which include:

- Assurance of sustained funding. Without clear evidence for a return on investment and value, there could be a risk of losing support.
- Relevance—proving FIO’s worth. The vessels have been a great advantage, but does this sustain an organization?
- Remaining status quo. It could be overtaken by organizations which are more ambitious and active unless it continues to advance and demonstrate its value.
- Potential decline in the interest of the group.
- Competition with member institutions and others for resources, e.g., the Pointe Sur vessel coming to Louisiana could be accessed more readily by FIO members in the Panhandle.
- Keeping the knowledge of FIO fresh within the legislature. With a constantly changing composition of members there needs to be continual education about FIO.

- Finding a new director (see p. 3).

Priorities for the Future

Getting the mission right is the most important aspect for the future. Other priorities will be determined when the model for FIO (existing or emerging) in the future is designed (Appendix VII). Most members agree that there should be more forward thinking for the future and this should be a priority for the Council with the new Director when he/she is hired. There is a general sense that FIO can do more that is relevant to the State of Florida from the perspective of economic impact and job creation. It is important to envision what FIO can do without a crisis.

Conclusion

The numerous observations/recommendations/ idea and questions that have been inserted throughout this report have been extracted and appear in Appendix VI for ease of consideration to start discussion towards a new strategic plan. It is likely that many of these topics and ideas are not new to the Council members and can be sorted through rather quickly to select those most relevant for discussion and to provide guidance for FIO's future.

Taking into account all the information derived from the interviews, the Council and FIO leadership need to determine which of the four proposed models for FIO (Appendix VII) as an organization makes the most sense and brings the most value to its members and the other constituencies in the State of Florida that FIO is intended to serve. These models are presented as a straw man and can be reconfigured through discussion. When a decision is reached, the model selected can be elaborated and a new strategic plan can be easily designed.

The most important message revealed from the work to this point is to resolve the following questions:

Are the goals for FIO over reaching and is the language more aspirational than operational? Could FIO expand its operations to take on the responsibilities listed in the AISO or should the goals be scaled back, focused and become more selective to match the resources? What can realistically be accomplished? Resolution of these issues is critical in preparing for renewal of the AISO and development of a new strategic plan.

Comment:

This report might be read as somewhat negative about the roles and accomplishments of FIO. This is exactly opposite of the spirit of the remarks offered by the members. Every member is strongly supportive of FIO – positive about the strides it has made to support members and member institutions, and grateful that this AISO exists to serve investigators and students who, through their work, are committed to learning about and protecting and improving the marine and coastal environments in Florida. This more optimistic context is the one in which members offered their opinions with the objective of their criticism being to help guide the future of FIO in continuing

to provide its current level of support and to do even more in the future. It is also important, in this time of leadership transition, to emphasize the unanimous and enthusiastic appreciation of Dr. William Hogarth, Director of FIO, for his dedicated work in serving FIO.

Appendix B: FIO Operational Audit



MEMORANDUM

TO: Dr. William Hogarth, Director, Florida Institute of Oceanography

FROM: Debra S. Gula, CPA
Executive Director

DATE: May 15, 2015

SUBJECT: 15-018 Audit of Florida Institute of Oceanography Business Operations

University Audit & Compliance (UAC) performed an audit of the Florida Institute of Oceanography (FIO) Business Operations as part of the UAC 2014-15 Work Plan. Our project included a risk assessment and an internal controls evaluation of the administrative and financial controls environment in place as of November 30, 2014. The primary objective was to provide management with an objective assessment of whether systems and controls, if functioning as described and consistently applied, were adequate to reduce risk to an acceptable level.

The scope and objectives of our audit appear on page three of this report as [Appendix A](#). Background information about FIO begins on page five as [Appendix B](#).

Based on our audit, the overall control environment appears to be adequate. The director emphasizes compliance, and staff are experienced and familiar with university and other regulations, policies, processes, and procedures. We have identified opportunities for improvement where additional effort is needed to ensure key business processes are formalized and documented.

While no high impact, high probability (HH) risks were identified during our audit, urgent management attention will be required within 60 days to address the five recommendations communicated in [Appendix C](#) related to medium risks (MM and LH). See [Exhibit A](#) for a detailed listing of these risks, controls, and control gaps identified within the core areas.

Although not required by UAC for medium risks, FIO has chosen to submit written responses to our recommendations. Management's responses are attached to this report. Resolution of these recommendations will be tracked within the Team Central Follow-Up System.

We received outstanding cooperation throughout this audit. Please contact us at 974-2705 if you have any questions.

UNIVERSITY AUDIT AND COMPLIANCE
3702 Spectrum Blvd. Suite 180 • Tampa, FL 33612-9444
(813) 974-2705 • FAX (813) 974-3735

cc: Dr. Ralph Wilcox, Provost and Executive Vice President
John Long, Chief Operating Officer and Sr. Vice President, Business and Finance
Dr. Theresa Chisolm, Vice Provost for Strategic Planning, Performance & Accountability
Nick Setteducato, Associate Vice President, Resource Management and Analysis
Cam Ngo, Assistant Director, Florida Institute of Oceanography

APPENDIX A

OBJECTIVE

The primary objective is to provide management with an objective assessment of the internal control environment and to assist management in implementing improvements where weaknesses are identified.

SCOPE & METHODOLOGY

Our audit included a risk assessment and an internal controls evaluation of the administrative and financial controls environment in place as of November 30, 2014. The results of our audit were based on procedural and system walkthroughs and analytical review procedures. While representative transactions were reviewed to obtain an understanding of the control processes in place, we did not perform detailed transactional testing to determine if the controls were functioning as designed. We relied heavily on management's representation.

Following a standard program designed by UAC for use in evaluating all USF colleges and independent centers and institutes, we reviewed the following core areas and key functions/processes as applicable to FIO, to assist with the identification of risks, mitigating strategies, and control gaps:

- Organizational Structure
 - Delegation of Contractual Authority
 - Academic Agreements
 - Budget Oversight
 - Fiscal Oversight
 - Florida Code of Ethics Disclosures
- Revenues
 - Outside Bank Accounts
 - Auxiliary Operations
 - External Billings
 - Collections
 - Working Fund
 - Interdepartmental Billings
 - Training
- Expenditures
 - Purchase Orders

- Contracts
- Travel ▪ PCard
- Payment Requests
- Petty Cash
- Journal Entries
- Property
 - Capitalized Assets
 - Non-Capital and Attractive Assets
- Payroll
 - Citizens and Non-Citizens
- Research
 - Research Administration
 - Research Incentives
 - RIA Accounts
 - Research Centers
- USF Foundation Activity
 - Due To or From USF
 - Revenues
 - Expenditures
 - Travel
- USF Research Foundation Activity
 - Due To or From USF
 - Revenues
 - Expenditures
 - Travel
 - USFRF Research Incentives

Our audit focused on those controls performed by FIO and did not include control procedures performed by central administrative units such as Purchasing, Accounts Payable, Travel, Human Resources, Payroll, or Research Financial Management. Controls performed directly by the USF Foundation and USF Research Foundation were also excluded.

We followed a disciplined, systematic approach using the *International Standards for the Professional Practice of Internal Auditing*. The COSO Framework was used to assess control structure effectiveness.

APPENDIX B

BACKGROUND

[The Florida Institute of Oceanography](#) (FIO) has been in operation since 1967, with the purpose to unite scientists with a common interest in the coastal oceans to share limited labs and vessels.

FIO's mission is to:

- Provide a diverse and collaborative statewide forum addressing problems of concern in coastal oceanographic research and education;
- Leverage and integrate existing physical and intellectual resources within the State University System (SUS) and throughout Florida;
- Anticipate and plan for future infrastructure needs;
- Facilitate, promote and support collaborative ocean related research and education statewide; and
- Develop and strengthen networks that enable timely identification of oceanographic research opportunities and distribution of research results and other information to the general public, natural resource management agencies and local, state and national policymakers.

Governance

In 2009, FIO was designated as one of Florida's Academic Infrastructure Support Organizations (AISO). In accordance with [Board of Governors Regulation 10.014](#), AISOs provide underlying technology, equipment, facilities, services, and resources for academic programs and research in the SUS.

In accordance with its bylaws, FIO consists of the Membership, the FIO Council (with an executive committee), the FIO director and staff, standing and ad hoc committees and a Board of Visitors. The Membership includes all 12 state universities within the SUS, as well as nine (9) other entities that were grandfathered in (through FIO's membership), which includes: Florida Fish & Wildlife Conservation Commission/Florida Fish & Wildlife Research Institute; Florida Department of Environmental Protection; Eckerd College; Florida Sea Grant College; University of Miami, Rosenstiel School of Marine and Atmospheric Science; Florida Institute of Technology; Mote Marine Laboratory; Nova Southeastern University, and the Smithsonian Institute Marine Laboratory. The FIO Council is comprised of one representative from each member institution and two from the host institution. The FIO Executive Committee consists of five FIO Council members. Various standing committees have been formed, including the Board of Visitors for

example, who provide advice on best practices for optimizing the resources of FIO and its member institutions, and interface with potential funding sources.

Under the establishment of FIO as an AISO, USF serves as the host institution for FIO, which requires USF to provide administrative control and support to FIO. As a result, FIO follows USF policies and procedures and its financial operations are recorded in the university's FAST system. FIO has its own department ID under the Tampa operating unit. FIO's administrative offices are housed at the USF College of Marine Science on the USF St. Petersburg campus.

Operations

FIO operates two research vessels. The R/V Weatherbird II (purchased in 2009), is a 115-foot, 194ton vessel that can navigate the depths of the Gulf of Mexico. The R/V Bellows is a 46 year-old, 71-foot vessel that is more suited for shallow waters. FIO is seeking legislative funding to replace the R/V Bellows.

Funds from the state legislatures are used to support the FIO subsidized ship days program. The program awards a certain number of subsidized days to researchers of the member institutions for teaching and research purposes. The recipients of the subsidy are required to pay a ten percent match of the daily rate for use of the research vessel(s) or marine facility.

FIO has been operating the Keys Marine Laboratory (KML) jointly with the Fish and Wildlife Research Institute (FWRI). Staffed by both FWRI and FIO employees, KML is a full service marine research and education center serving undergraduate and graduate students, faculty and researchers from the state, and national and international scientific communities. FWRI provides supplemental funding of \$92,000 a year for FIO to administer the daily activities/operations. In June 2014, USF, on behalf of FIO, assumed the KML lease from the State of Florida Department of Natural Resources, Division of Marine Resources. As a result of this arrangement, FIO now manages the KML independently from FWRI. FIO is in the process of transitioning the FWRI employees to FIO employees. Continued funding from FWRI is under review by both FIO and FWRI administration.

Grant Administration

In FY 2013-2014, FIO administered approximately \$3.2 million in grant funding from various sources, with one new and twelve continuing grants.

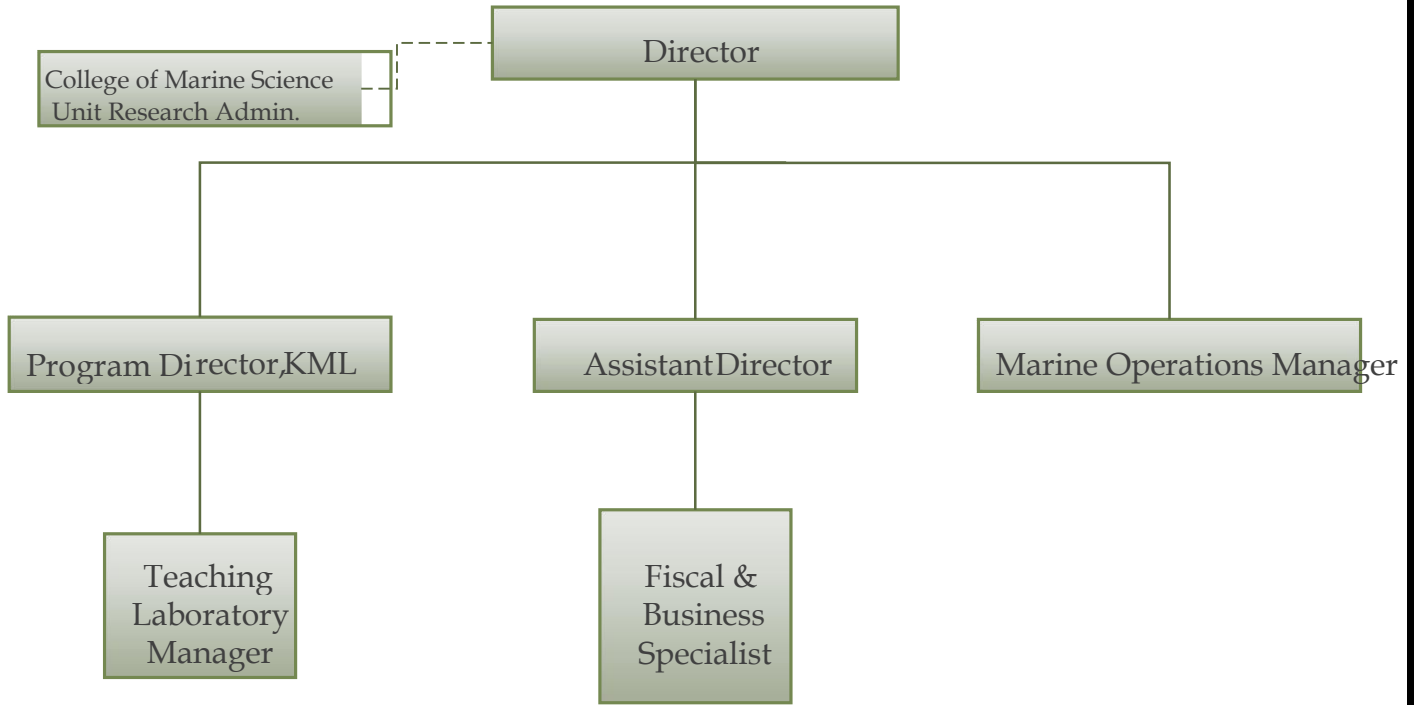
FIO is currently in the process of applying for RESTORE Act funding established by the U.S. Treasury Department from civil penalties paid in connection with the Deepwater Horizon oil spill. FIO was named as the Gulf Coast State entity in the Interim Final Rule (31 CFR Part 34) to carry out the duties for the State of Florida as defined in the RESTORE Act Centers of Excellence Research Grants Program Guidelines. FIO will be coordinating a competitive selection process through which it will subaward funding to the grantees of the Centers of Excellence Research Grants Program.

Organizational Structure

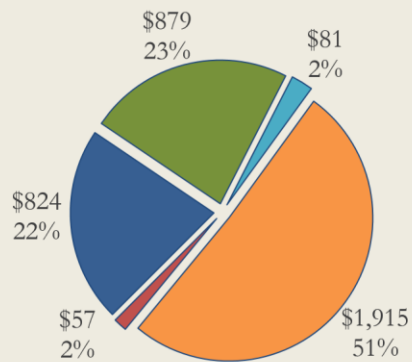
The Florida Institute of Oceanography's financial and administrative controls are primarily centralized within the director's office. The assistant director and the fiscal & business specialist provide processing and oversight of financial activities and sponsored research activities. FIO is in the process of recruiting a fiscal & business assistant to provide additional monitoring of FIO's financial activities. There are two FIO employees onsite at KML to assist with revenue and expenditures processing; however, final reconciliations and reviews are performed by the director's office.

FIO also relies on the USF College of Marine Science's unit research administrator to coordinate and oversee proposals, project reporting, and project close-outs.

**FLORIDA INSTITUTE OF OCEANOGRAPHY
FINANCIAL OVERSIGHT STRUCTURE**

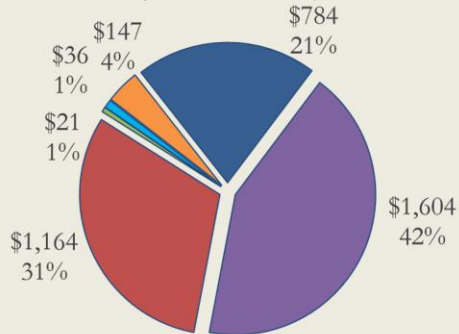


**FY 2014 EXPENDITURES
BY FUND SOURCE¹
(In Thousands)**



Expenditure	Amount	% of Total
E&G/Carry-Forward	\$1,915	51%
Federal Research	\$57	2%
Non-Federal Research	\$824	22%
Auxiliary	\$879	23%
Other ²	\$81	2%
Total	\$3,756	100%

**FY 2014 EXPENDITURES
BY PROCESS¹
(In Thousands)**



Expenditure	Amount	% of Total
Payroll	\$1,604	42%
Purchase Reqs/Direct Pay	\$1,164	31%
Interdepartmental	\$21	1%
Travel Module	\$36	1%
PCard Module	\$147	4%
Journal Entries ³	\$784	21%
Total	\$3,756	100%

¹Excludes expenditures paid directly by the USFF and USFRF.

²Includes funds transferred to USF from USFF and USFRF to pay payroll and other costs.

³Includes \$686,000 of interdepartmental charges for ship-time expense.

- | | |
|---|--|
| <ol style="list-style-type: none">2. Obtain a separate operating unit chartfield in FAST.3. Monitor requested role changes to ensure they are processed accurately and timely. | |
|---|--|

MEDIUM PRIORITY RISKS	RESOLVED
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<p style="text-align: center;">4. Establish written procedures for all critical activities and monitor for compliance.</p> <p>Management Attention Required: <input type="checkbox"/> Immediate <input checked="" type="checkbox"/> Urgent <input type="checkbox"/> Timely</p> <p>Resources/Effort Required: <input type="checkbox"/> Significant <input checked="" type="checkbox"/> Moderate <input type="checkbox"/> Minimal</p>	
<p>2. Auxiliary revenues were not properly authorized and monitored.</p> <p>Auxiliary funds are for approved Educational Business Activities (EBA), which are designed to generate sufficient revenues to cover costs. A separate auxiliary fund is set up for each type of activity. Receivables from these auxiliaries should be monitored to ensure revenues are collected timely.</p> <p>The following opportunities for improvement were noted:</p> <ul style="list-style-type: none"> • Three of FIO's four auxiliaries require the following updates to their EBAs: <ul style="list-style-type: none"> - The R/V Weatherbird II needs to reassign authority to FIO. - Both the R/V Bellows and Keys Marine Lab need updates to reflect current practices. • Rate change calculations and related support, including review and approval, were not formally documented. • Formal monthly reviews of aged accounts receivables were not performed. Receivables greater than 90 days as of 12/31/14, totaled \$16,693. There were also credits or potential refund balances greater than 90 days totaling \$11,143, some of which were several years old. <p>General Counsel has also identified the need for FIO to utilize their own contract templates when executing revenue-generating contracts to ensure compliance with Florida maritime law.</p> <p>Without adequate safeguards to place, collection and generation of revenues may not be sufficient to recover the costs incurred by the auxiliary, resulting in an increased reliance on state appropriations.</p> <p>Recommendation 2 has been implemented. Procedures are now in place to ensure any rate changes are documented and approved in a formal memo.</p>	<p>No</p>

Recommendations:

1. Update EBAs to reflect current procedures and to properly reflect FIO as the accountable entity.
2. Formally document rate change calculations and supporting

MEDIUM PRIORITY RISKS

RESOLVED

<p style="text-align: center;">documentation, including reviews and approvals.</p> <p>3. Formally monitor accounts receivables.</p> <p>4. Complete efforts with General Counsel to develop revenue-generating contract templates in compliance with Florida maritime law.</p> <p>Management Attention Required: <input type="checkbox"/> Immediate <input checked="" type="checkbox"/> Urgent <input type="checkbox"/> Timely</p> <p>Resources/Effort Required: <input type="checkbox"/> Significant <input checked="" type="checkbox"/> Moderate <input type="checkbox"/> Minimal</p>	
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3. Incompatible roles were combined.

No

Opportunities for errors and irregularities are greatest when individual staff members are given the ability to perform incompatible functions. FIO is a small operation, and the staff may have roles considered to be incompatible if mitigating controls are not in place.

The fiscal & business specialist who initiates purchase orders also:

- Receives goods and services in FAST on behalf of others who physically receive those goods and services. Purchasers are not required to sign packing slips or professional services invoices as evidence of their receipt.
- Receives invoices directly from the vendor, then forwards the invoice to accounts payable. Per USF Online Business Processes-Invoice Approval, "Invoices should only be sent to the ordering department if there is a special need." While FIO was approved to receive invoices for "amount only" purchase orders, this increases fraud risk and should be minimized.
- Obtains W-8 and W-9s, which are required for new vendor setup, directly from the vendor.
 - Note that the responsibility for obtaining these forms is in the process of moving from the departments centrally to UCO for proper separation of duties.
- Reconciles their own work. These reconciliations are reviewed and approved by the assistant director; however, this approval is not documented, providing evidence it occurred.
 - FIO is in the process of hiring a fiscal assistant who will be crosstrained to provide backup to the reconciler position and provide for adequate separation of duties.

In addition, the assistant director had the ability to initiate, approve, and receive purchases, due to their assignment of both the purchase order

MEDIUM PRIORITY RISKS

RESOLVED

approver role (USF_PO_REQAPPR), which also allows initiation of a purchase, and the receiver role (USF_PO_RECVRTV).

Because incompatible functions were not separated, employees were in a position to commit an error or irregularity and prevent the error or irregularity from being detected.

Recommendations 1, 4, and 5 have been implemented.

Recommendations:

1. Require signatures from purchasers to document receipt of goods and services.
2. Instruct all vendors to send invoices directly to Accounts Payable, unless there is a special need.
3. Comply with the upcoming UCO vendor processing change which will require vendors to send W-8 and W-9 information directly to UCO.
4. Formally document review and approval of reconciliations.
5. Eliminate the USF_PO_RECVRTV role for the individual in charge of approving.

Management Attention Required: Immediate Urgent Timely

Resources/Effort Required: Significant Moderate Minimal

<p>4. Property was not adequately tracked and monitored.</p> <p>USF System Policy 5-014 Asset/Property Management states, "All USF System property must be physically inventoried annually. Property must also be inventoried upon change of accountable officer and/or physical location. It is the accountable officer's responsibility to maintain definitive control over all equipment listed on his/her inventory."</p> <p>UCO Asset Management Services Procedures and Forms Section V, subparagraph D, states the accountable officer is responsible for submitting the proper forms associated with unscanned assets. At the end of the yearly inventory cycle, all unresolved property will be reported to USF administration and state/federal auditors if requested. This data is also considered public record in the State of Florida.</p> <p>The following opportunities for improvement were noted:</p>	<p>No</p>
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<p>MEDIUM PRIORITY RISKS</p>	<p>RESOLVED</p>
<ul style="list-style-type: none"> • The university's Property Review Board considers assets that have not been scanned in two years to be at risk. As of March 2015, the college's assets unscanned for two or more years had a net book value of \$57,900. • FIO's property records included several assets without adequate descriptions. • The Weatherbird R/V and its related assets recorded in FAST to the College of Marine Science's department ID under the previous organizational assignment had not been reassigned to FIO. • FIO may loan equipment to member institutions, which is logged with the Offsite Equipment Loan Form. However, the form was lacking adequate tracking attributes that would assist with identifying the asset if it were to become lost or stolen: serial number, tag number, signatures of accountable officer and custodian. <p>Unscanned, unidentified, or improperly assigned assets could result in errors or irregularities remaining undetected.</p> <p>Recommendations 3 and 4 have been implemented.</p>	

<p>5. Petty cash funds on hand exceeded business requirements.</p> <p>Per UCO, petty cash funds are established when an ongoing business process dictates their use is warranted, and they are to be used only in those situations where there are nominal/small charges that cannot be processed in a timely</p>	<p>No</p>
<p>MEDIUM PRIORITY RISKS</p>	
<p>manner through the normal purchasing processes. FIO has been assigned a \$4,250 petty cash fund to be utilized by the ship captains when they are out at sea in international waters. Since the petty cash fund was last used in 2013, the assigned amount at present exceeded their business needs, and thereby increased their risk of losses.</p> <p>When circumstances can justify additional funds on-hand, temporary increases can be requested from UCO within a few days.</p> <p>UAC performed a surprise cash count of this fund on February 20, 2015, and found the fund intact. However, previous UAC recommendations had not been resolved:</p> <ul style="list-style-type: none"> • The accountable officer should know the safe combination as a backup. • The accountable officer and the custodian should obtain cash collection and petty cash training. • A procedure change should be made to ensure both the returning and receiving parties sign when unused cash is returned. <p>Recommendation 2 has been implemented. FIO has begun work with UCO to reduce their petty cash fund to \$1,000.</p> <p>Recommendations:</p> <ol style="list-style-type: none"> 1. Work with UCO to reduce the level of assigned petty cash funds consistent with business needs. 2. Ensure petty cash controls are in place, including maintaining a backup combination holder, obtaining the cash collection and petty cash trainings, and ensuring both returning and receiving parties sign when unused cash is returned. <p>Management Attention Required:</p>	<p>RESOLVED</p>

Immediate Urgent Timely

Resources/Effort Required:

Significant Moderate Minimal

FLORIDA INSTITUTE OF OCEANOGRAPHY RISK ASSESSMENT

Core Area	Function/ Process	Risk Description	Control/Procedure	Objective/ Risk Type ¹	Overall Risk	Recommended Additional Control
Organizational Structure	Fiscal Oversight	Policies and procedures for fiscal oversight are insufficient.	The assistant director and fiscal & business specialist are responsible for monitoring financial activities. Monitoring is done using Finance Mart reports. RSAs are monitored for low balances. Financial results are presented to the FIO Council three times a year. This is done in person during Fall and Spring and over the phone in the Summer.	Compliance, Operations, Financial	LH-due to small size of unit.	Formally document review and approval for all critical activities. Establish written procedures for all critical activities and monitor for compliance.
Organizational Structure	Fiscal Oversight	Financial details are not reviewed and reconciled regularly.	All accounts are reconciled monthly.	Compliance, Operations, Financial	MM	Formally document review and approvals for all critical activities. Establish written procedures for all critical activities and monitor for compliance. Obtain a separate operating unit chartfield in FAST.

Organizational Structure	Fiscal Oversight	FAST roles are not appropriately assigned.	The accountable officer must approve FAST role selection (university control).	Compliance, Operations, Financial	MM	Monitor requested role changes to ensure they are processed accurately and timely.
Revenues	General	Revenue is being collected from unauthorized sources which are outside the standard monitoring	Revenue collections are through auxiliaries set up through the EBA approval process. There are four approved FIO auxiliaries.	Compliance, Operations, Financial, Reputational	MM	Update EBAs to reflect current procedures and to properly reflect FIO as the accountable entity.

Core Area	Function/ Process	Risk Description	Control/Procedure	Objective/ Risk Type¹	Overall Risk	Recommended Additional Control
		procedures. This creates a higher risk of loss and the potential for unapproved activities.				

<p>Revenues</p>	<p>Accounts Receivable</p>	<p>Accounts receivable are not safeguarded from error or theft.</p>	<p>All billings are processed through FAST accounts receivable module.</p> <p>For the research vessels, billings are generally created based on the auxiliary's internal billing form, which contains cruise dates certified by the PI or chief scientist. The amount due is calculated by the fiscal & business specialist based on the total billable rate times the number of days. The ship's captain will also provide a cruise summary and plan that includes the dates, a ship log and the crew in attendance.</p> <p>For KML, a standard rate schedule is used.</p> <p>The fiscal & business specialist maintains an excel spreadsheet tracking billings and collections.</p> <p>Collections are monitored in FAST for open items.</p> <p>The fiscal & business specialist reconciles all billing activity for the research vessels and KML.</p> <p>The assistant director authorizes/approves billing adjustments or corrections.</p>	<p>Compliance, Operations, Financial</p>	<p>MM</p>	<p>Establish written procedures for all critical activities and monitor for compliance.</p> <p>Formally document review and approval of reconciliations.</p> <p>Formally monitor accounts receivables.</p>
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Core Area	Function/ Process	Risk Description	Control/Procedure	Objective/ Risk Type ¹	Overall Risk	Recommended Additional Control
			Accounts receivable write-off preparation and approval duties are appropriately separated. Buyers would complain if errors or overages/shortages in billings/collections.			
Revenues	Auxiliary Billing	Auxiliary billings are not covering all costs.	Rates to use the FIO vessels are reviewed by the director and assistant director periodically as needed. Research vessel rates were last formally documented and approved in the AISO Proposal in 2009. The KML rates are reviewed by the director, assistant director, the FWRI director, and program administrator and compared to similar facilities.	Compliance, Operations, Financial	MM	Formally document rate change calculations and supporting documentation, including review and approvals.
Revenues	RevenueGenerating Contracts	Unauthorized revenue-generating contracts (excluding research contracts or grants).	Contracts are signed by the director, and reviewed by general counsel (for legal format only). Use of the new central contract module has begun.	Compliance, Operations, Financial	MM	Complete efforts with General Counsel to develop revenuegenerating contract templates in compliance with Florida maritime law.

Expenditures	Purchase Orders	Purchasing duties are not adequately separated enabling invalid purchases to occur and increasing the risk of loss of funds.	FIO is a small operation and the staff may have roles considered to be incompatible if mitigating controls are not in place. For example, the fiscal & business specialist initiates requisitions, receives purchased items, and reconciles all chartfields. The assistant director is responsible for all aspects of the budget, approves requisitions, reviews and approves reconciliations and transactions prepared by the fiscal & business specialist.	Compliance, Operations, Financial	MM	Eliminate the USF-PO_RECVRTV role for the individual in charge of approving. Require signatures from purchasers to document receipt of goods and services. Instruct all vendors to send invoices directly to Accounts Payable, unless there is a special need.
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Core Area	Function/ Process	Risk Description	Control/Procedure	Objective/ Risk Type¹	Overall Risk	Recommended Additional Control
			<p>As a mitigating procedure, the assistant director will view the request and supporting documents before approving a requisition.</p> <p>The director also has role of requisition approver and will generally approve in assistant director's absence.</p> <p>Many items are delivered directly to the fiscal & business specialist who then notifies the requester that their purchase has arrived and can be picked up from her office. The larger items are delivered to the warehouse.</p>			<p>Comply with the upcoming UCO vendor processing change which will require vendors to send W-8 and W-9 information directly to UCO.</p> <p>Formally document review and approval of reconciliations.</p>

Expenditures	Purchase Orders	Expenditures are not properly accounted for in FAST.	Reconciliations are performed by the fiscal & business specialist. Reconciliations are reviewed by assistant director.	Compliance, Operations, Financial	MM	Formally document review and approval of reconciliations. Obtain a separate operating unit chartfield in FAST.
Expenditures	Purchase Orders	Foreign vendors are not identified to allow central monitoring. Foreign vendor forms handled by the purchaser enables invalid vendor set up to occur and increases the risk of loss of funds.	The fiscal & business specialist in charge of purchasing will attach a completed form W-8 to the requisition.	Compliance, Operations, Financial	MM	Comply with the upcoming UCO vendor processing change which will require vendors to send W-8 and W-9 information directly to UCO.
Expenditures	Contracts	Receipt of deliverables or services are not verified prior to payment.	Assistant director, or marine operations manager reviews/approves the deliverables before payment is rendered.	Compliance, Operations, Financial	MM	Require signatures from purchasers to document receipt of goods and services.

Core Area	Function/ Process	Risk Description	Control/Procedure	Objective/ Risk Type¹	Overall Risk	Recommended Additional Control
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Expenditures	Petty Cash	Petty cash on hand is not intact or secured.	<p>Marine operations manager maintains the cash in a locked safe, which is bolted to the wall in a storage room. The safe combination was changed in January 2015.</p> <p>There is a safe on each vessel where the captain stores the cash. Both the marine operations manager and the captain will sign, acknowledging how much cash was disbursed.</p>	Compliance, Operations, Financial	MM	<p>Ensure petty cash controls are in place, including, maintaining a backup combination holder, obtaining the cash collection and petty cash trainings, and ensuring both returning and receiving parties sign when unused cash is returned.</p> <p>Work with UCO to reduce the level of assigned petty cash funds consistent with business needs.</p>
Property	Capitalized Assets	Improper safeguarding of capital assets results in loss.	<p>Write-off and disposal procedures (when writeoffs occur) are in accordance with university procedures.</p> <p>Security cameras have recently been installed in the storage yard.</p>	Compliance, Operations, Financial	MM	<p>Work with UCO Property Services to resolve unscanned assets.</p> <p>Work with UCO Property Services to properly identify and cross reference assets that do not have adequate descriptions.</p> <p>Ensure all assets are properly described in the asset management system upon acquisition going forward.</p>

Property	Capitalized Assets	Assets are improperly removed from campus, resulting in a loss.	Inventory is rarely taken off campus by employees but if they were, the internal Offsite Equipment Loan Forms would be used. Inventory is occasionally taken off campus by outside party researchers (FIO members) and is tracked internally.	Compliance, Operations, Financial	MM	Include asset serial number, tag number, and signatures of the accountable officer and custodian on the Offsite Equipment Loan form.
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Core Area	Function/ Process	Risk Description	Control/Procedure	Objective/ Risk Type¹	Overall Risk	Recommended Additional Control
Property	Capitalized Assets	Capitalized assets are not accurately captured in the general ledger.	FIO does not manufacture assets. FWRI will be donating items to KML. FIO is working with Asset Management Services to ensure proper accounting of these assets.	Compliance, Operations, Financial	MM	Reassign the Weatherbird R/V and its related assets to the FIO.

Payroll	Roles and Responsibilities	GEMS roles related to payroll are not assigned consistent with authority/responsibilities resulting in the risk of unauthorized payments.	<p>GEMS roles are initially approved by an accountable officer as required by GEMS role request forms (university system control). While two employees have the ability to both prepare and certify, the CERTS system prevents this from occurring for the same employee in the same pay period. One person enters payroll actions and the other reviews for accuracy before approving/certifying.</p> <p>Assistant director and fiscal & business specialist have the payroll preparer, certifier, and Dept Pay Distributor Roles (GEMS3). Assistant director is responsible for monitoring accuracy of pay distributions and approving CERTS. Assistant director can also approve Payroll Certification Adjustment Forms.</p> <p>Currently in process of training the fiscal & business specialist as a back-up distributor.</p> <p>However, if the assistant director has to fill a role, approval moves up to the director.</p>	Compliance, Operations, Financial	MM	Monitor requested role changes to ensure they are processed accurately and timely.
Core Area	Function/ Process	Risk Description	Control/Procedure	Objective/ Risk Type ¹	Overall Risk	Recommended Additional Control

<p>Research</p>	<p>Research Administration</p>	<p>Unauthorized or inappropriate use of grant funding.</p>	<p>The administrative employees with research specific duties and responsibilities have received some research specific training.</p> <p>The assistant director reviews payroll distribution on the grants to ensure accuracy.</p> <p>Unit research administrator verifies budgets and fund codes in Finance Mart against the GBR to ensure accuracy and completeness. The assistant director and PI also review.</p> <p>The assistant director ensures accounts are established timely and that underwrites are obtained when necessary. The assistant director reviews charges to ensure activities are within the project award period and allowable.</p> <p>Assistant director approves all POs and appears knowledgeable of appropriate grant expenditures. PIs have to initiate requisitions or sign requests if an assistant initiates on their behalf.</p> <p>On an as-needed basis, project activity is reviewed with the PI when projects get close to the end date.</p>	<p>Compliance, Operations, Financial</p>	<p>MM</p>	<p>Formally document review and approvals for all critical activities.</p>
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Research	Research Administration	Grant expenditures are not properly accounted for in FAST. Miscoding results in inappropriate billing.	Reconciliations are performed monthly by the fiscal & business specialist and reviewed by the assistant director. The assistant director reviews for coding accuracy and appropriateness.	Compliance, Operations, Financial	MM	Formally document review and approval of reconciliations.
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¹Objective 1 – Compliance: To determine whether the FIO’s organizational structure & governance procedures comply with laws, regulations, and university policies.

Objective 2 – Operations:

- a) To determine if the internal control structure related to the FIO’s organizational structure & governance function is adequate, and whether controls are functioning as designed, including whether users are properly trained, provided with sufficient guidance, and their activities are appropriately monitored.
- b) To ensure that a proper infrastructure is in place to meet objectives.

Objective 3 – Financial: To determine that processes and controls are adequate to assure that financial resources are safeguarded.

Objective 4 – Reputational: To determine that processes and controls are adequate in order to assure the reputation of the entity is protected.

Objective 5 – Strategic: To determine that processes and controls are adequate in order to assure that operations are supporting USF System strategic goal.

Appendix C: MOU between USF and FIO Regarding Roles and Responsibilities for Centers of Excellence Research Grant Program



Memorandum Of Understanding Between The University Of South Florida Board Of Trustees And The Florida Institute Of Oceanography Regarding Roles and Responsibilities for Centers of Excellence Research Grant Program

The University of South Florida Board of Trustees ("USF"), a Public Body Corporate of the State of Florida, and the Florida Institute of Oceanography ("FIO"), a State University System Academic Infrastructure Support Organization for the State of Florida currently hosted by USF and established by Florida Board of Governors Regulation 10.014, hereby enter into this Memorandum of Understanding ("MOU") to clarify their respective roles and responsibilities under the Resources and Ecosystems Sustainability, Tourist Opportunities, and Revived Economies of the Gulf Coast States Act of 2012 ("RESTORE Act").¹ As evidenced by the signatures below, the following paragraphs are understood and agreed to by USF and FIO.

1. The RESTORE Act establishes a Gulf Coast Restoration Trust Fund in the Treasury of the United States, which is funded by civil penalties arising from the 2010 *Deepwater Horizon* oil spill. RESTORE Act funds collected by the Department of the Treasury ("Treasury") will be paid out in several defined areas, including the establishment of Centers of Excellence Research Grant Programs ("CERGP") in the five Gulf Coast states affected by the oil spill. The RESTORE Act designates FIO as Florida's Gulf Coast State Entity to carry out the CERGP for the State of Florida.
2. FIO is hosted by USF pursuant to sec. 1004.33 (5) (b), Florida Statutes, which requires USF, as FIO's host institution, to provide administrative services to FIO, including but not limited to, support for accounting, legal, banking, audit, payroll and general grants

¹ Academic Infrastructure and Support Organizations (AISOs) provide underlying technology, equipment, facilities, services, and resources for academic programs and research in the State University System of Florida. Such organizations must be approved by the Board of Governors (BOG) and may use "Institute" or "Center" in their names. Although each AISO's operational budget shall remain in the base of its host institution, the BOG may consider additional budget requests accompanied by recommendations, positive or negative, from the State University System Council of Academic Vice Presidents (CAVP).

10.014 (1): Academic Infrastructure and Support Organizations
http://www.flbog.edu/documents_regulations/regulations/10_014_Academic_Infrastructure_and_Suupport_Org.pdf

administration. Pursuant to Florida Board of Governors Regulation 10.014, FIO's purpose is to provide scientific expertise in support of Florida's state-wide ocean science education and research programs. Neither the Florida Board of Governors nor the Florida Legislature intended for FIO to have an extensive administrative infrastructure, but instead to obtain needed services from its host institution. This structure has been in place for decades and was in place at the time the RESTORE Act was enacted and Treasury regulations regarding the RESTORE ACT were finalized.

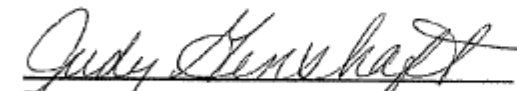
3. This MOU shall serve as an internal delegation that will permit FIO to become the Authorizing Official to submit CERGP applications utilizing its unique Dun and Bradstreet D-U-N-S Number. The delegation will also permit FIO to accept awards under the CERGP. CERGP funds will be deposited in a unique USF account and segregated from other USF funds and only accessible by FIO, absent good faith allegations by USF of incompetence or misconduct on the part of FIO. All decisions regarding the disbursement of CERGP funds shall reside exclusively with FIO and shall be made pursuant to FIO's established processes for carrying out its functions as the Gulf Coast Entity for the State of Florida under the RESTORE Act.
4. USF and FIO shall cosign all required certifications and assurances, and agree to the terms and conditions, that are required of Treasury's RESTORE Act grant recipients as a condition of receiving a grant. These certifications, assurances, and terms and conditions shall be reviewed according to USF's standard processes, which includes review by USF's Office of the General Counsel and USF-ORI.
5. USF will not participate in the execution of external scientific review of prospective subawards. Rather, FIO's CERGP Management Team will make the final award of CERGP subawards following external scientific review. USF will not review, revise or restrict FIO's decisions regarding the award and disbursement of RESTORE Act funds provided that USF, in its reasonable discretion, determines that funds are not subject to abuse or mismanagement by FIO. Consistent with its long established practice, USF will not direct FIO's day-to-day operations and decision-making, including but not limited to, all programmatic decisions regarding CERGP, absent documented misconduct or incompetence on behalf of FIO.
6. FIO agrees to assume primary responsibility for compliance with the RESTORE Act and funds received. FIO also agrees to be the primary point of contact with Treasury regarding CERGP, but FIO may designate or refer matters to appropriate administrative divisions within USF in response to requests from Treasury or from Treasury's Office of Inspector General for RESTORE Act award information or documentation.

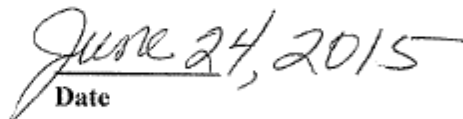
Notwithstanding the foregoing, FIO and USF shall be jointly and severally liable for compliance with CERGP requirements.

7. FIO and USF understand that Treasury will rely upon this MOU in evaluating FIO's application for an award under Section 1605 of the RESTORE Act.

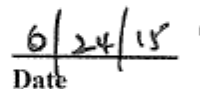
**BY THEIR DULY AUTHORIZED SIGNATURES BELOW, THE PARTIES
HEREBY ENTER INTO THIS MOU:**


**For the UNIVERSITY OF SOUTH FLORIDA
BOARD OF TRUSTEES:**


By: **Dr. Judy Genshaft**
Position: **President, USF System**


Date

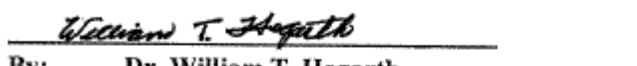

By: **Dr. Ralph Wilcox**
Position: **Provost & Executive Vice President
of Academic Affairs**

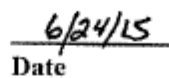

Date

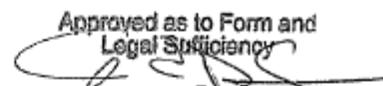

By: **Dr. Paul R. Sanberg**
Position: **Senior Vice President for Research,
Innovation & Economic Development**


Date

For the FLORIDA INSTITUTE OF OCEANOGRAPHY:


By: **Dr. William T. Hogarth**
Position: **Director, Florida Institute of Oceanography**


Date

Approved as to Form and
Legal Sufficiency

Attorney, USF

Appendix D: FIO By-Laws (Revised 9/17/2015)



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 (SUS³²) 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.

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.
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³² 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

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 Statue 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.