

# **FIO FY16/17 Annual Report**

Florida Institute of Oceanography  
*Supporting Excellence in Marine Science, Technology and Education across  
Florida*

***Hosted by the University of South Florida***



Presented by

Philip A. Kramer, Ph.D.

Director, Florida Institute of Oceanography

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Dear Colleagues,

With my one-year anniversary at the helm of Florida Institute of Oceanography (FIO) quickly approaching, I am pleased to present this overview of the FY16/17 fiscal year. Learning the operations of a state-wide academic infrastructure support organization (AISO) that maintains top quality research vessels and facilities safe on-water educational and research activities has taken up much of the year. FIO's administration and operations have been running smoothly for several years now but turnover in crew, storms, and mechanical issues keeps things interesting. My primary focus has been to implement FIO's 2015-2020 Strategic Plan which outlines an ambitious set of goals and objectives in four key areas (see appendix A).

Learning the diversified missions and needs of FIO's 30 member institutions and understanding the differences between perceived value-added facilitation versus competition takes time. I was fortunate to be able to make 22 site visits to FIO's member institutions last year. A third of these visits were in-depth overviews of a given institutions facilities and departments along with meetings with key science and engineering faculty. I am very excited by what I have seen in terms of the caliber of faculty, students, and research and suspect that Florida has more higher education institutions offering undergraduate and graduate degrees in marine science than any other State. Harnessing and aligning all this marine potential remains FIO's biggest challenge. The more I learn about FIO, the more I am humbled by what my predecessor, Bill Hogarth, was able to accomplish over the past 6 years especially in garnering support from the Florida legislature, Governor, and member institutions to revitalize FIO's mission and scope.

For those that witnessed the christening of the R/V Hogarth in Tarpon Springs in late May, you will share my appreciation at the quality of materials and craftsmanship that Duckworth Steel Boats has put into this vessel. Final fitting of the new vessel is still underway with USCG incline and stability tests scheduled for August. We will be conducting sea trials later this fall with the vessel transitioning to full service supporting oceanographic missions by early spring. The R/V Weatherbird II sailed a moderate schedule of 94 days at sea with nearly  $\frac{3}{4}$  of her days at sea being for charter in support of research projects in the Gulf. At 35 years old, she underwent an extensive dry dock for repairs and upgrades to the positioning system. FIO also acquired several smaller vessels this past year which will increase our capabilities out of the home bases in both St. Petersburg and at the Keys Marine Lab.

Educational activities for FIO center around providing students access to safe and well-equipped research vessels (floating laboratories) and state of the art technology. The experience of working alongside scientists and learning how to deploy a CTD or trawl or conduct underwater scientific diving has been transformative for students, driving more to pursue STEM careers. During FY16/17, FIO awarded 75 subsidized ship and lab days at a value of \$390,000 which provided access for 254 undergraduate and 54 graduate students to spend time at sea. Next year, we aim to award more than 80 total days for student educational access at a value of \$416, 000 to our full FIO members. In addition to the subsidized ship program, FIO continued its sponsorship (along with 5 State University System (SUS) institutions) of the summer field studies course for

the 5<sup>th</sup> straight year. During FY16/17, our cohort of 17 undergraduate students were accompanied by evaluators from SmartStart course evaluation team during 2 of the 5 weeks. The evaluation is a detailed independent perspective that will be used to strengthen this unique course and increase marketing across the state to perspective students.

Advancing research and innovation are core to FIO's mission. Providing quality research vessel and field lab space to Florida scientists at reduced rates is one of the ways we contribute to increasing the competitiveness of our members. In FY16/17, FIO supported an extensive 33-day expedition led by Dr. Steve Murawski aboard the R/V WBII to the southern Gulf in August, 2016. Research focused on sampling both fishes and sediments to look for evidence of oil contamination associated with the 2010 *Deepwater Horizon* spill and the 1979 Ixtoc spill off Mexico's Yucatan peninsula. We also successfully undertook our first international expedition to Cuba in May, 2017. Florida academic institutions have one of the highest award rates for funds coming out of the *Deepwater Horizon* Spill. FIO also continued its implementation of the Florida Restore Act Program currently supporting 11 research grants to 8 Florida universities for a total of \$3.65M.

FIO ended the FY16/17 fiscal year in solid financial shape with a small operating surplus- in part a result of chartered use of our assets that will be split into carry forward funds as well as towards building our reserves towards a goal of 10% net assets value. The Florida RESTORE Act Centers of Excellence Program (FLRACEP) was audited late last fiscal year by US Department of Treasury and preliminary findings suggest a few areas where our accounting and reporting can be better aligned to improve controls and accountability. In June, FIO's base funding was reduced by \$1.17 M through a line item veto of one of our recurring system wide Legislative Budget Requests (LBRs) which had been in place since the 2012/13 fiscal year and forecasted into FIO's 2015-2020 approved strategic plan. Unless these funds are restored, this nearly 40% reduction in base funding will hamper our ability to achieve many of the outlined goals. We are responding this year by reducing costs and drawing on carry forward funds to bridge this fiscal year without cutting the SUS subsidized ship program or skipping on critical maintenance. With a new state of the art vessel about to enter our fleet, now is not the time to scale back our activities and goals outlined in the Strategic Plan.

The following report contains a more detailed overview of FIO's operations from the FY2016/17 fiscal year along with highlights from our educational, research and outreach programs. The past year has enriched my understanding of the FIO operations and our members and, despite the legislative challenges ahead, I am energized and enthusiastic about what I believe FIO can accomplish together with our members in the year ahead.

Sincerely,



Philip Kramer, Ph.D.

## Introduction

The Florida Institute of Oceanography 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 2008, FIO became an Academic Infrastructure Support Organization (AISO) hosted by the University of South Florida. In 2015, the State University System Board of Governors renewed FIO's AISO charter through 2020. FIO is chartered to provide infrastructure support to facilitate collaborative research and education related to Florida's coastal and ocean environment, and to serve as a coordinating body across academia, state, and federal agencies, ocean science organizations and the private sector in addressing new opportunities and problems to be solved through research, education, and outreach. FIO is an enabler, a facilitator, and a coordinator.

FIO has 30 members today that include 21 full members (all 12 Florida State University System institutions, 5 private higher education institutions, and several other state and federal institutions involved in marine science and management), 8 non-voting associate members, and one affiliate member. In order to preserve the integrity of FIO as an AISO, SUS members retain a majority (at least 51%) vote representation within the full membership of the FIO Council. Aligning the mission of FIO to that of the mission of the State University System of Florida continues to shape FIO's vision and programs. Supporting the SUS "path to preeminence" such that the SUS system is "internationally recognized as a premier public university system, noted for the distinctive and collective strengths of its member institutions" is front and center. Developing quantitative metrics that measure FIO's contributions towards student success, research and innovation, community engagement, and financial stability and efficiencies is underway and should be fully in place by 2018.

The sheer value of Florida's coastal and ocean economy (\$599.8 billion coming from coastal communities in 2014 alone) is an important justification for an organization like FIO. Building expertise across the marine science community and increasing ocean literacy across Florida's coastal communities is essential towards improving the way we manage and protect the resources that drive coastal tourism and other sectors (marine construction, mineral extraction, boat building, commercial and recreational fishing, seafood processing, coastal aquaculture). FIO also aims to promote a better understanding of Florida's marine and coastal issues and to be a hub of oceanography that informs the public about the work of our members and critical issues such as sea level rise and algal blooms that influence coastal communities.

This annual report covers five of the core aspects of FIO's operation: Infrastructure; Student Success; Research and Innovation, Community Outreach, Financials, and concludes with a Looking Ahead section which outlines priority actions for the next year.

## FIO Infrastructure

At the core of the Florida Institute of Oceanography (FIO) is the shared infrastructure that gives students and scientists from Florida's academic and research institutions access to subsidized research vessels with offshore and deep water capabilities. Other coastal and regional class vessels with similar capabilities do exist in Florida (e.g., R/V Walton Smith at University of Miami) but are part of the federally supported University-National Oceanographic Laboratory System (UNOLS) fleet that are comparatively expensive and reserved for federally funded National Science Foundation (NSF) grants and other federally funded research programs. A few privately owned converted research vessels also exist that may be available for charter, but these generally lack the specialized capabilities (A-frames, cranes, heavy duty towing winches, sea water collection systems, wet and dry labs, etc..) or the safety standards expected by academia. FIO currently manages two coastal to regional class research vessels (R/V's)- the R/V Weatherbird II and the R/V Bellows and a field station in the Florida Keys – the Keys Marine Lab. Ensuring efficient utilization and management of ship and laboratory resources is a key part of our current strategic plan. A detailed summary of the status of FIO's infrastructure assets is provided below.

**New Infrastructure, Technology and Equipment:** Similar to research in outer space, advances in marine science are often driven by technology developments. Keeping FIO on the cutting edge of technology is essential for keeping our members competitive in research and exploration. The FIO 2015-2020 strategic plan specifically calls for replacing the R/V Bellows and incorporating equipment upgrades for the vessels. A summary of several of the new technologies and systems acquired by FIO this past year are provided below.

**R/V W.T. Hogarth:** FIO's newest research vessel, the R/V W.T. Hogarth, completed major construction in May- 12 months after the keel was laid down in Tarpon Springs, FL. Duckworth Steel Boats, a third generation Florida boat builder, built the state-of-the-art research vessel on time and on budget. Named after FIO's former director, Dr. Bill Hogarth, the research vessel has room for a crew of 4 and will assume her role as "Florida's floating lab", carrying students and researchers into the Gulf of Mexico and Atlantic by January 2018. The R/V Hogarth is equipped with berths for 10 scientists, wet and dry labs on board, a satellite internet link and numerous advanced sonar and underwater technologies (see technology section below for a more detailed list of equipment). FIO and the University of South Florida (USF) hosted a *Launching and Christening Ceremony* on May 23<sup>rd</sup> at the Duckworth Steel Boats shipyard in Tarpon Springs. The event was attended by more than 100 people, including USF President Judy Genshaft and Provost Ralph Wilcox. ABC Action News, Suncoast News, and Tampa Bay Newswire covered the Christening Event in Tarpon Springs and Florida Trends Magazine featured the R/V Hogarth in their May High-Tech Corridor issue. Funded primarily by The State of Florida, The City of St. Petersburg and many FIO full members gave matching contributions that made the construction of the vessel possible including- USF, UWF, FAU, FGCU, UNF, UF, FIT, Eckerd, FIU, FAMU, Nova Southeastern, UCF, and FSU. FIO will be conducting sea trials of the Hogarth and making port

calls around the state this fall and the vessel will be showcased at the Fort Lauderdale International Boat Show on October 31<sup>st</sup>, 2017

**Remotely Operated Vehicle (ROV):** A new VideoRay Remote Operated Vehicle will be part of the equipment for the R/V Hogarth pending the final evaluation and purchasing process. The small vehicle will operate off 120 volts and is ideal for seafloor exploration, underwater archaeology, and deep water sampling, among many other uses. She has 300 meters of cable and a depth rating of 1,000 meters. Operations for the ROV will be done with the assistance of Dynamic Positioning Systems. The vehicle will be available for use on the new R/V Hogarth as well as the R/V Weatherbird and the R/V Price and will have a dedicated technician to operate it.

**Water Column Sonar System (EK-80):** A Kongsburg/Simrad EK-80, a split transducer sonar array with frequencies ranging from 10 to 500 Khz, has been installed in the hull of the R/V Hogarth. This advanced sonar system collects acoustic backscatter in the water column useful for examining everything from plankton to mackerel. This system is very useful for advanced fisheries stock assessment work.

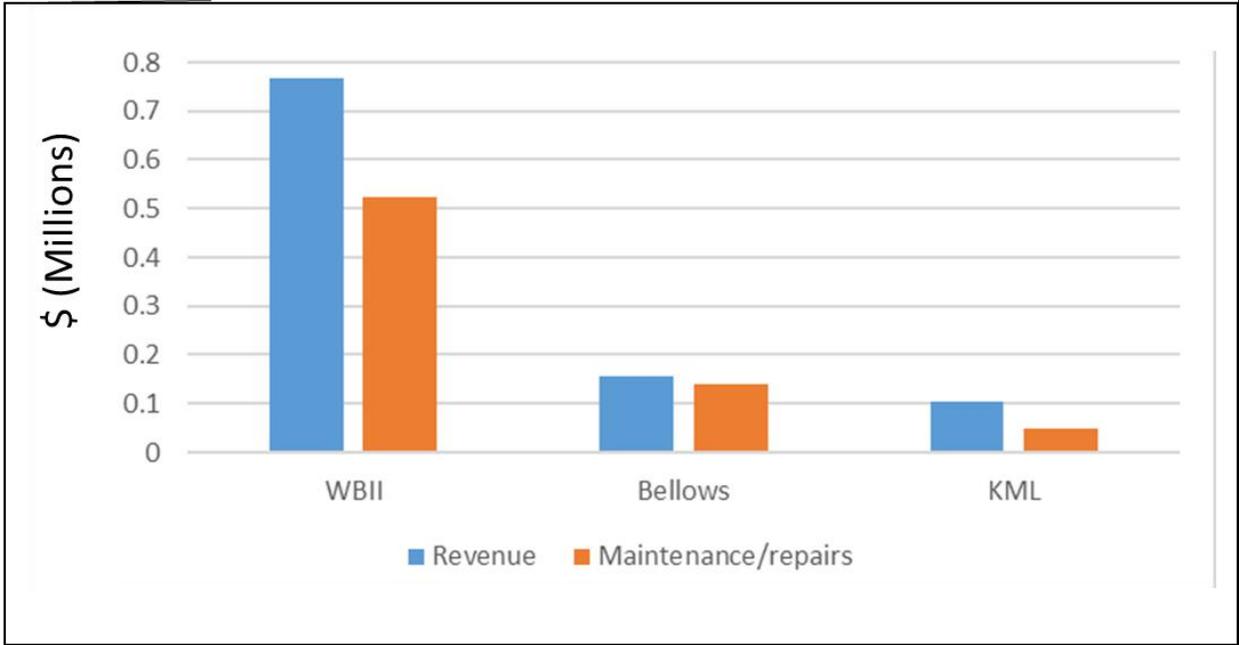
**R/V Price:** FIO has acquired a 25' research vessel, the R/V Price, to add to our fleet in St. Petersburg, FL. The Price was donated to FIO by the USF College of Marine Science through the generosity of her original users- Drs. Al Hine and Stan Locke. She is equipped with a new four stroke 225 HP Suzuki and will be outfitted by FIO to support nearshore research operations, including diving for up to six divers. Other capabilities include shallow draft (12 inch), interior dry computer space, a 3KW 110 V generator, pole-mounts on port and bow, and a crane capable of hoisting up to 500 lbs. Her daily range is approximately 100 miles with no overnight accommodations. The Price will be operated with a dedicated captain and can be trailered to any destination around the state with access to a boat ramp. She will be available to support nearshore marine research and educational needs this fall.



1: 12 month Construction of the R/V W.T. Hogarth



2: Selected images of interior and equipment for R/V W.T. Hogarth



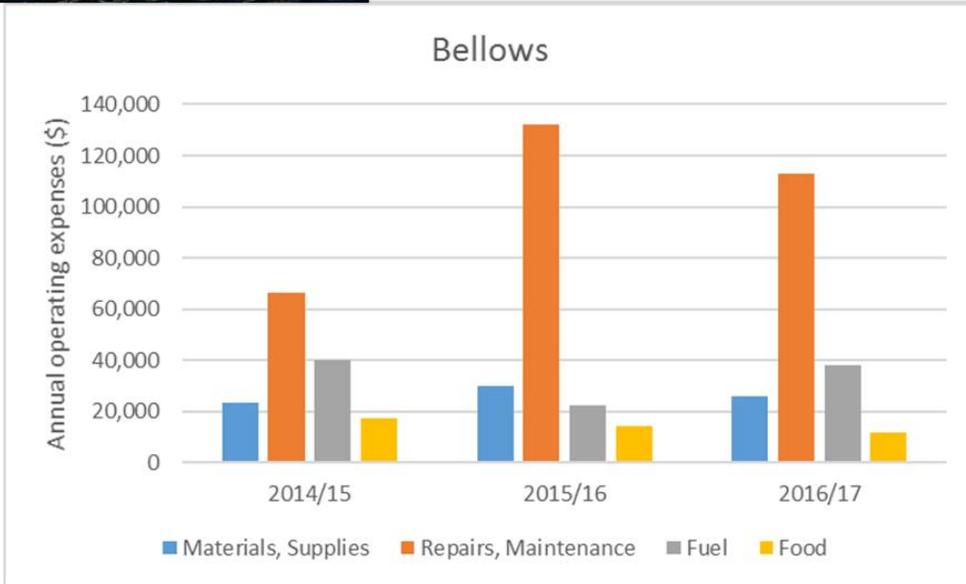
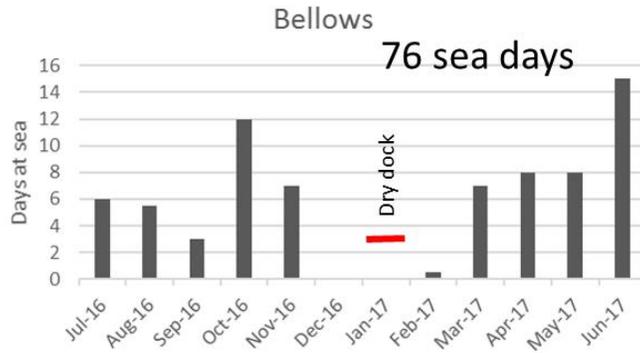
3. top left: R/V Price launching Glider; top right: FIO's new remotely operated vehicle. Bottom: annual revenue vs maintenance for FIO assets

**R/V Weatherbird II:** The R/V Weatherbird II (WBII), joined FIO's fleet in 2009 upon leaving the UNOLS fleet after serving 20 years at the Bermuda Biological Research Station. Built in 1982, she was refurbished in 1993 to accommodate 14 scientists and a crew of 6 (20 total) with an endurance of two weeks (mainly limited by food storage space). She has undergone major refits by FIO including repowering her main engines and replacing or upgrading all of her winches and electronics. This past year she spent 94 days at sea but lost an additional 16 days of charter due to breakdowns and necessary repairs. An extended 2-month dry dock did allow for a thorough maintenance overhaul during January/February which included repainting, renovating the lab space and rebuilding her hydraulic rams. Upgrades included installing dynamic positioning and a new hull-mounted multibeam bracket to improve her mapping capabilities. During her return trip from Cuba in May, 2017 derelict fishing gear in the waters of Cuba caught in her running gear causing the starboard cutlass bearing to fail. She had to be hauled in June to replace the bearing, straighten the shaft, and replace bushings on both rudders. Total yard bills for both haul outs on the WBII were nearly \$500K. Overall, the WBII is in good running condition, but at 35 years old continues to require substantial annual repairs to keep her in good running condition. The major investments by FIO in refitting and upgrading the vessel over the past 8 years have extended her life probably at least another 10 years.

**R/V Bellows.** Now in her 48th year, The R/V Bellows has already exceeded the normal lifespan of an academic research vessel and should rightfully be classified as "emeritus." It is no longer cost effective for FIO to keep her in operating service as a research vessel for higher education. Annual maintenance and repair costs exceed her total value. For the past two years, we have hauled her every six months for hull inspections to ensure her structural integrity and safety. She sailed for a total of 76 days in FY16/17, mostly in support of SUS subsidized educational days. Numerous breakdowns resulted in the loss of 25 additional sea days that had to be cancelled or rescheduled into the next year. FIO will have the R/V Bellows hauled and valued in late August, and is exploring options for selling or donating her in 2018. She will be commemorated upon retirement for her many years of service in putting Florida oceanography on the map and helping build several generations of marine scientists.

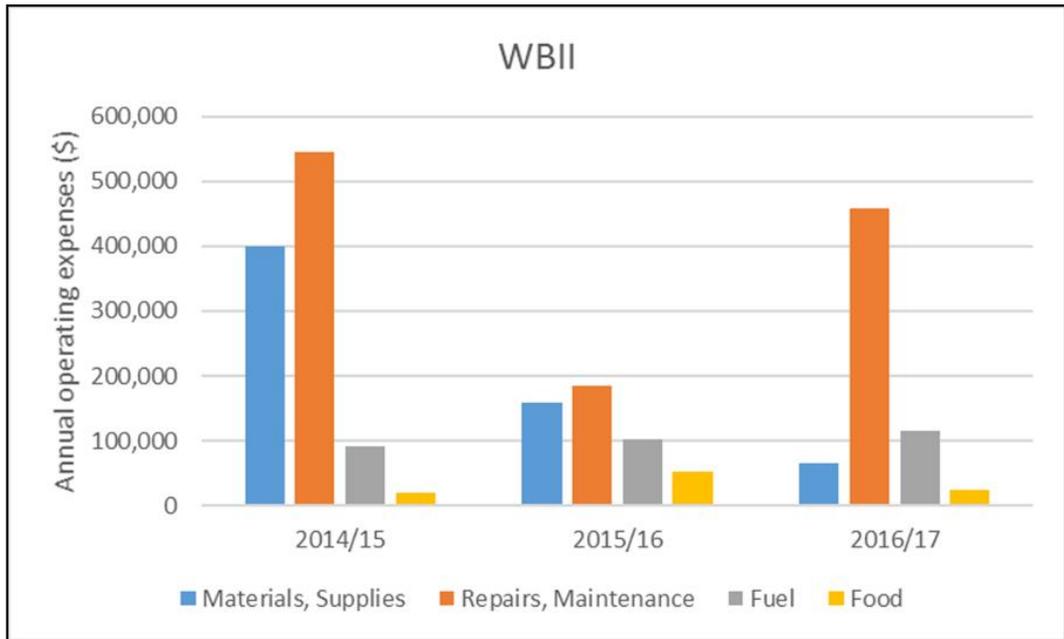
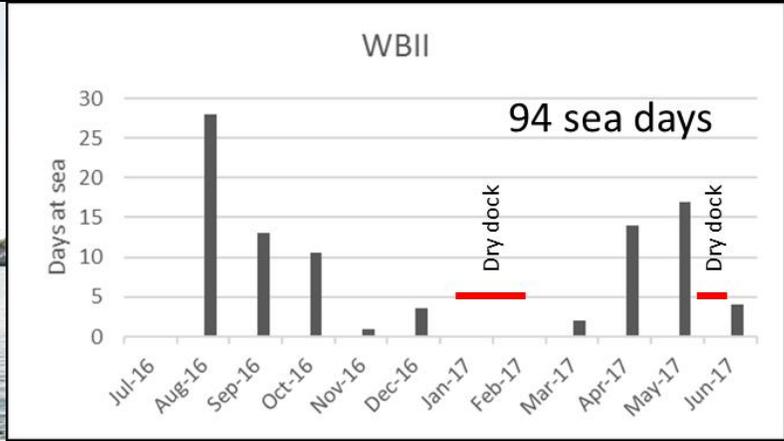
**Keys Marine Lab (KML):** The ownership transition of the Keys Marine Lab from the Florida Fish and Wildlife Research Institute (FWRI) to FIO was completed last year. This was the first year the lab operated under total FIO management and staffing. The corrosive influence of salt spray continues to take its toll on these old concrete buildings. They are near the end of their useful life and require constant repairs. Renovations and repairs kept nearly 20% of the available dorm space out of service for much of the year. Many users of the lab are staying at other accommodations and using KML as a base for laboratory, small boat, and diving support. A total of 50 institutions used KML last year. A little less than half the usage comes from FIO members with the remainder coming from other non-FIO Florida based institutions and Universities from outside of Florida. The flow through sea water system has been a welcome upgrade to the facility and supports a number of projects including coral rescue and mesocosm tank experiments. A

new small boat (25 foot Parker) was also put into service this year which brings all 4 of KML's small research boats into the rare state of being fairly new and in good working condition. A top priority for KML is to replace the dorm room buildings with new modern structures that are elevated to comply with new building codes and reduce potential hurricane flooding impacts.



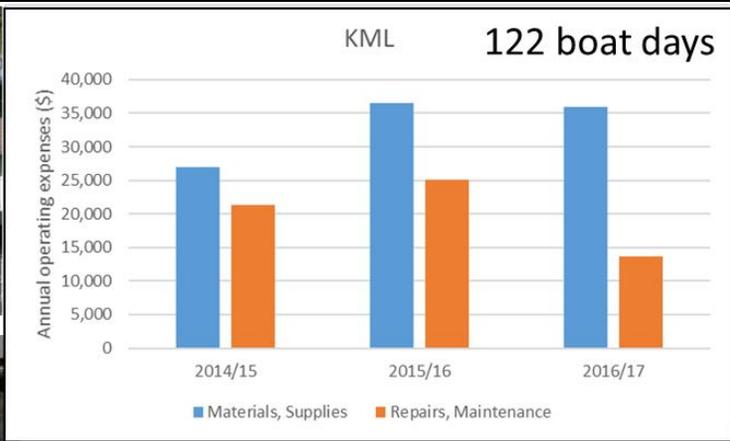
Ship days lost due to Mechanical/Maintenance issues-FY16/17			
RV Bellows			
Date	Business	Days lost	Details
August 2016	Contract	1	Air conditioning failure led to 1 lost day. Four additional days lost due to Hurricane Hermine
September 2016	Contract	1	This cruise originally scheduled as two 8 day legs. First leg was delayed by one day due to problems with science party's sidescan sonar.
September 2016	Contract	1	Lost due to science party equipment failure
September 2016	Contract	7	Four days lost due to weather. After weather delay the first leg was cancelled
October, 2016	Contract	8	Days lost due to 32 v battery charger failure. While repairing charger, salt water damage to breaker panel was identified. Breaker replacement further delayed cruise, causing cancellation.
Sept 2016	Contract	6	Days lost due to fuel oil leak in starboard fuel tank. Fuel was leaking into stbd aft science cabin. Required shipyard repair.
June 2017	Subsidized	2	Days lost due to throttle control board failure
<b>Total:</b>		<b>26</b>	

4: R/V Bellows operational overview for 2016/17



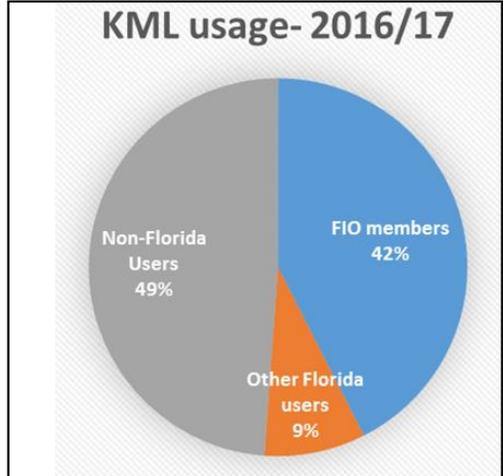
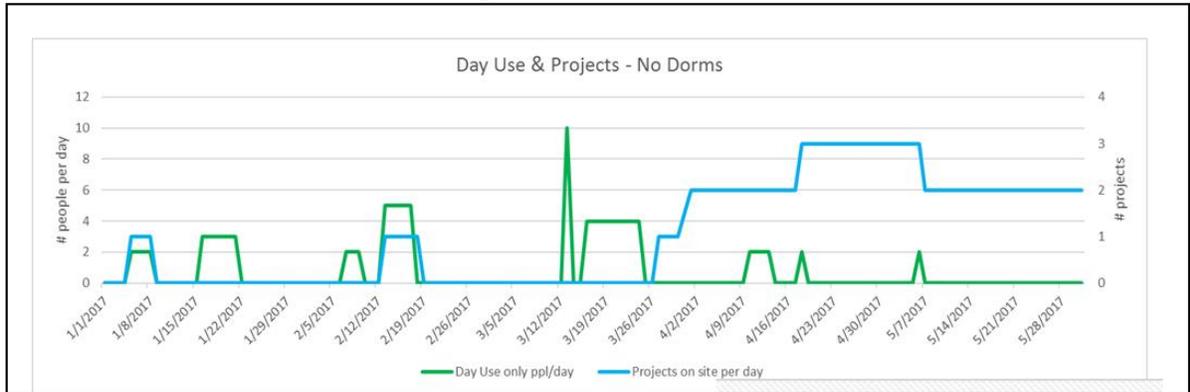
Ship days lost due to Mechanical/Maintenance issues-FY16/17			
RV Weatherbird II			
Date	Business	Days lost	Details
March 2017	Contract	10	Due to delays encountered with installing and testing the Dynamic Positioning system this cruise could not be scheduled. FWRI rescheduled on another vessel.
June 2017	Internal	1	Ship returned early from software demo cruise due to cutlass bearing failure
June 2017	FIO Summe	1	FIO summer course cruise cancelled due to cutlass bearing failure. Repairs required drydocking the vessel to replace bearing.
June 2017	Subsidized	4	Cruise canceled due to cutlass bearing repairs.
<b>Total:</b>		<b>16</b>	

5: R/V Weatherbird II operational overview for 2016/17



### Summary of KML Diving Last 3 Fiscal Years by Quarters

	<u>FY 13 - 14</u>	<u>FY 14 - 15</u>	<u>FY 15 - 16</u>
1 July - 30 Sept	250	229	163
1 Oct - 31 Dec	99	78	49
1 Jan - 31 Mar	56	39	77
1 Apr - Jun 30	<u>323</u>	<u>260</u>	<u>139</u>
<b>Year Total</b>	<b>728</b>	<b>606</b>	<b>428</b>



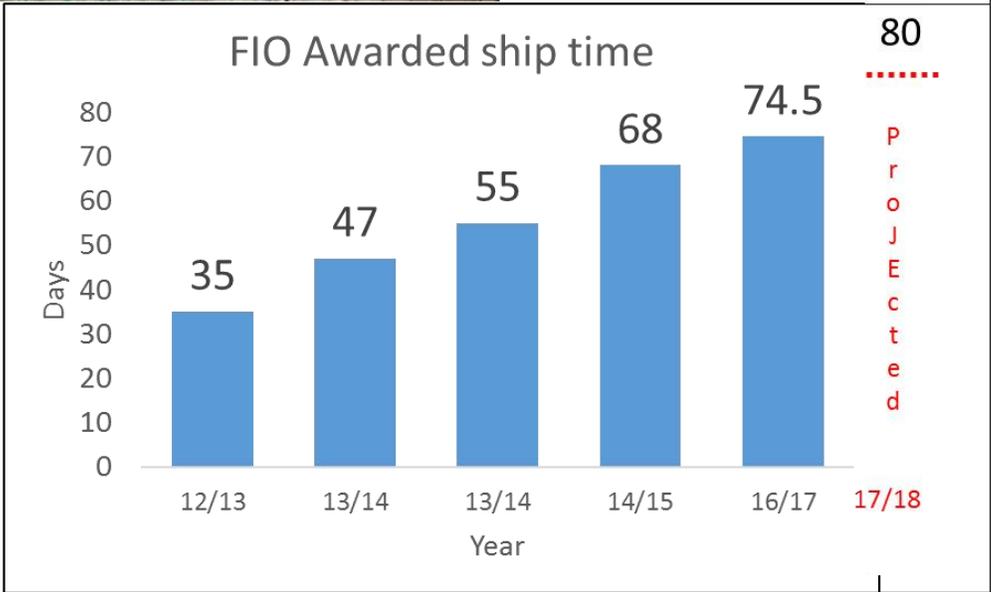
6: Operational overview of Keys Marine Lab for 2016/17

## Student Success

Providing higher education students with research training opportunities on safe and well-equipped research vessels is a vital part of FIO's mission. Hands-on shipboard and field lab experience is an important element to undergraduate and graduate instruction that cannot be replaced with distance learning. Six hundred and seventy four (674) undergraduate students and 94 graduate students either sailed on FIO's vessels or used our facilities in the Florida Keys during FY2016/17. Twenty seven (27) undergraduate and graduate marine science related courses were supported by KML last year. The experience of working along-side scientists and learning how to deploy a CTD or trawl or conduct underwater scientific diving can be transformative, driving more to pursue STEM careers. Ultimately, our goal is to track the placement of students that have used FIO assets as we believe it is an important factor in leading students to pursue STEM related careers. We will continue working with our members to develop metrics and a tracking system to quantify the placement influence on undergraduate and graduate students in the coming year.

**Subsidized Ship/Field lab Program:** The subsidized ship program supported by FIO's recurring State funding offers its members affordable marine educational opportunities that otherwise would be out of reach for most public universities. This program specifically helps with "equitable distribution of assets" objectives outlined in the 2015-2020 FIO Strategic Plan. The subsidized ship program was established after a legislative budget request (LBR) was approved in 2012 and is open to all full FIO members. In 2014, a second LBR to FIO allowed the Keys Marine Lab facility to be included into the program. Proposals that are received by the March deadline are reviewed by the FIO Ships Committee and ranked based on past performance and outcomes towards student achievement. FIO tries to fund as many ship and lab days as possible each year, but it is contingent on our budget. During the FY16/17 year, a total of 74.5 ship days were granted at an estimated value of \$387,400. This is double the 35 days specified in the original request and exceeds the 60 day goal that FIO set back in 2014. Of great concern is that the 2012 LBR that allowed for the subsidized ship program was line-item vetoed this year by the Governor's office. Despite this, FIO will be using carry forward funding to support projected 80 days of ship time next year while working with our members to restore funding for the Program in future years.

**Summer Field Studies Course:** Since 2013, FIO has sponsored a summer field studies course for undergraduate students which is accredited (4 credit hours) by any SUS institution (course number OCB 3108 or BSC 3060). It is one of the only multi-institutional marine science courses in the State. Now in its fifth year, the FIO Field Studies Course is a 5-week, field-intensive experience that immerses students in studying the natural history and coastal/offshore ecological processes across the State of Florida. The course includes a week at Jacksonville (hosted by UNF), Long Key at FIO's Keys Marine Lab (hosted by FAU), St. Petersburg (hosted by USFSP), Fort Myers at the Vester Field Station (hosted by FGCU) and in Pensacola (hosted by UWF). In 2017/18, seventeen



### FIO ship time grants for 2016/17

Cruise Number	Affiliation	Educational/Research Description
BE-1705	University of South Florida	Undergraduate-Graduate paleobiology field research
BE-1706	Eckerd College	Undergraduate teaching, Chemical and Physical Oceanography
BE-1707	Florida Gulf Coast University	Interdisciplinary study of continental shelf environments of SW Florida
BE-1708	Florida Atlantic University	Field Instruction, Fish biology
BE-1709	University of West Florida	Field Instruction, Fish biology
BE-1712	USF-COMPS	Physical oceanography for students; current profiler deployment
BE-1713	Eckerd College	Undergraduate teaching, Chemical and Physical Oceanography
BE-1714	FAU/Harbor Branch	Ocean Discovery for Undergraduates
BE-1715	New College	Large Shark surveys in offshore waters of southwest Florida
		Biodiversity of marine invertebrates in shallow, deep bank communities in
BE-1717	Florida International University	GOM
BE-1718	University of Florida	Algal diversity in the Florida Keys and Dry Tortugas for drug discovery
BE-1719	Florida Institute of Technology	Ocean Engineering underwater robotics design and testing
BE-1720	Florida Institute of Technology	Tarpon and offshore larval fish sampling

7: Overview of FIO's subsidized ship program which provided 254 undergraduate students at sea experience in 2016/17

undergraduate students from 4 SUS Universities participated in the course. A combined 68 credit hours of course work were granted towards their graduation. The students' experiences were detailed on blogs and pictures, on the course's website: <http://marinefieldstudies2017.blogspot.com>.

FIO contracted the SmartStart Evaluation and Research team to conduct an independent review of the course and better determine its impact and effectiveness. As part of the evaluation process, SmartStart contacted past and present course participants to determine if the knowledge and skills they learned influenced their career trajectories. The survey outcomes are still being formulated but preliminary results provided some valuable information. According to past participants, 100% of them have used the knowledge and skills obtained in the FIO Field Studies Course in their academic classes, jobs, or research; 71% of them have continued to conduct research regarding marine science and/or ecosystems and the environment. 60% of past participants are still pursuing their undergraduate degree in a STEM field, 20% of them are currently attending a graduate program in a STEM field, and 17% have completed their bachelor's degree in STEM. Current students, on average, indicated they had increases in the following areas after taking the course: Knowledge, understanding of research, research skills, and preparation to attend graduate school. Eighty five percent (85%) of the current cohort of students indicated that they plan to pursue graduate school and a career in STEM.

**Oceanography Camp for Girls:** The Oceanography Camp for Girls, a 3-week ocean science program for Pinellas County girls in June and hosted by the USF College of Marine Science, provides hands-on experience in order to motivate and enthuse young women entering high school about the marine science field. The annual program, in its 25<sup>th</sup> year, attracts over 30 students with several days of hands on oceanographic training aboard FIO's vessels. However, a recent interpretation of uninspected Oceanographic Research Vessels' (ORV) regulations by the U. S. Coast Guard determined that students under the age of 18 should not sail as scientists aboard FIO's vessels. Fortunately, The Angari Foundation with their 67' converted private research vessel were able to fill in for FIO this year and carry the students out to sea for two days of hands on oceanography in Tampa Bay. FIO is currently appealing the ruling but for the time being can no longer support this activity going forward.

**Other Educational Programs:** FIO is continually looking for ways to increase involvement of students with our facilities and programs and better measure the impact different FIO programs have on student placement. The 2015-2020 FIO Strategic Plan identified a number of areas to focus on including 1) expanding FIO offered certificate courses; 2) K-12 teacher courses; 3) grant writing with our members for research educational opportunities; 4)and increasing on-line course opportunities for hands-on learning. During FY16/17, FIO did work to expand course offering utilizing our assets including efforts to attract and increase usage of the lab during the low-use winter and spring intersessional periods. A USF marine science field course to be based at KML was developed and listed for winter, 2016 but was cancelled when it fell two students short of the minimum enrollment. The course will be relisted this year. We are also exploring the

development of a multi-institutional FIO graduate level field course. Other FIO programs that benefit students include the establishment of a graduate student poster session at the FLRACEP All Hands Meeting in October, 2016. Awards were given to the top four posters and the event will be expanded this year and incorporated into the Florida Marine Science Symposium.



**420 Undergraduate Students used KML**  
**254 Undergraduate Students sailed on WBII/Bellows**  
**54 Graduate Students sailed on WBII/Bellows**

**Educational courses supported by KML- 2016/17**

Affiliation	Course Description
Augustana University	Biology 397 Introduction to Marine Biology
Ave Maria University	Marine Zoology BIOL400-taxonomy, identification, and community ecology fauna
Ave Maria University	BIOL 106 Environmental Science 2
Benton-Carroll-Salem School District	Oak Harbor Marine Science-Tour and boat trip
Central Christian High School	Boat trip to a local patch reef. Staying at Goshen
Clemson University	Conservation of Marine Resources and Marine Ecology Creative InquiryBIOL4910
Florida Atlantic University	Marine Biology Field Studies Lab at FAU. Shows students sampling techniques
Florida Atlantic University	FIO Summer Course
Florida Gulf Coast University	Marine Ecology OCB 4633C-students develop ability to visually identify orgs.
Florida Master Naturalists Program	Florida Master Naturalist Program Habitat Evaluation
Florida State University	OCB 5264-0001/OCE 4930-0003 REEF Ecology and Ocean
Georgia State University	Topics in Biology: Florida Keys Ecology and Conservation BIOL4930
Goshen College	BIOL 340 Marine Biology: Students studying a variety of marine habitats
Lake Center Christian School	High School marine biology class based at Goshen College's marine biology facility
McGill University	To understand the role of Red Mangroves as a dynamic foundational species.
NEU Environmental & Education LLC	University of Florida IFAS FMNP Habitat Evaluation Course
Nova Southeastern University	Graduate class in Taxonomy of Marine Invertebrates (OCMB-6058)
Palm Beach State College	Student activities, Volunteer program
University of Colorado at Boulder	EBIO2091 Field Studies in Tropical Island Ecology
University of Florida IFAS Office	MMM4 Post-Conference Workshop
University of Louisiana at Lafayette	Marine Botany- Course identifying seaweeds in various habitats around KML
University of Mainz	Field Trip:tropical habitats, marine fauna, collection & ID, simple experiment
University of North Florida	Collection: Algae for Marine Botany class
University of North Florida	Graduate student came down May 16 to drop off algae. Grew it for 5 days and picked up on 21
University of South Florida	EVR 2001 and SLS 2011 Intro to Environmental Sciences and University Experience courses
University of Tampa	BIO 340 Ichthyology; Mar 227 Marine Ecology
Whale Center/USF	One Planet One Ocean class

*8:FIO supported nearly 30 marine science courses in 2016/17- many at the Keys Marine Lab which is ideal for hands on field experiences*



*"Overall this class was such an amazing experience that has taught me so much about the different environments around Florida, organisms within those environments, and techniques to study these organisms and ecosystems. This class also introduced me to the many jobs and opportunities out there that sparked my interest. I am excited to start research within the next year and I think this class has prepared me for some of the classes and research methods to come. Thank you to everyone who made this class possible. This class has made a difference in my life and I am sure many others feel the same way." Emily Williams- UNF*

*"For anyone who is on the fence for this course, 100% give it a shot. This was a once in a lifetime opportunity that I don't think I'll soon forget." Michael Klugman- USF-SP*

"This course has provided me with the chance to see what areas of marine biology I'm passionate about, and what my strengths and weaknesses are, so that I end up in the field that suits me best." Kayli Morgan- UWF

"From pushing a boat off oyster reefs, to swimming with sharks and barracudas, to all of our hair standing straight up during a thunderstorm due to the electricity in the air, I can say this trip has been an amazing adventure I wouldn't trade for anything" Samantha Shaw- UNF

#### Educational courses supported on FIO Research Vessels 2016/17

Affiliation	Course Description
Eckerd College	MS 199 - Honors Marine Science Freshman Research Program
Eckerd College	MS 342 - Chemical and Physical Oceanography
Eckerd College	Elasmobranch Biology
FAU/HBOI	BSC 4930 - Introduction to Ocean Exploration for Undergraduates
Florida Atlantic University	BSC 6936 - Elasmobranch Biology
Florida Gulf Coast University	ZOO 3205C - Invertebrate Zoology, OCB 4633C - Marine Ecology, OCE 3008C - Oceanography
Florida Gulf Coast University	OCE 3008C - Oceanography, OCE 3002C - Physical Oceanography
Florida Institute of Technology	BIO 3610 - Field Methods in Fishery Biology
Florida Institute of Technology	OCE 4911, 4912, 4913 - Marine Field Projects
Florida International University	OCB 4004C - Biological Oceanography at Sea
Mote Marine Laboratory	College Intern Program
New College of Florida	Biology of Sharks, Skates, and Rays
University of South Florida	BSC 4933 - Biology of Sharks and Rays
University of South Florida	GLY 4780, 6739 - Field Paleobiology
University of South Florida	Multiple Courses, Fish Biology
University of West Florida	ZOO 4304/5305 - Marine Vertebrate Zoology

9: Top: FIO 2017 Summer Field Studies Course and excerpts from students blogs. Bottom: Table of University courses supported by FIO vessels during 2016/17

## Research and Innovation

FIO was involved with assisting numerous marine research projects with our vessels and the Keys lab during FY16/17. At KML, 119 researchers used the facility undertaking 47 distinct research projects. Use of the lab for research was up this year, in part because of the recently installed seawater filtration capabilities that allow sophisticated seawater tank experiments on site. Fisheries related science remains a focal area for chartered vessel use of FIO's vessels. The FIO Vessels supported 7 distinct large research projects in the past fiscal year that involved a rotating team of over 80 researchers and graduate students. Both FWRI and USF have multi-year on-going fisheries and habitat mapping projects examining the west Florida Shelf that are funded by the National Fish and Wildlife Foundation (NFWF). Projects funded by the Gulf of Mexico Research Initiative (GOMRI) associated with the BP *Deepwater Horizon* settlement also supported a large amount of chartered vessel sea days. The GOMRI is starting to wind down its funding and will be announcing its final round of research funding in the fall, 2017. Florida Universities have been very competitive during the first two rounds of funding securing nearly 40% of the available funds.

### Research:

**Large International Expeditions:** FIO undertook an extensive Gulf-wide expedition led by Dr. Steve Murawski in August, 2016 that spanned over 4,500 miles over a period of 33 days. The cruise resulted in literally thousands of samples of fish, sediments, water, and plankton and its successful completion represented a major milestone for the CIMAGE project funded by the Gulf of Mexico Research Initiative (GOMRI). In May, the R/V *Weatherbird II* undertook a historic research expedition to Cuba to complete Gulf-wide sampling for examining the impacts of oil on the Gulf ecosystem. USF College of Marine Science professor and CIMAGE lead PI, Dr. Steve Murawski and University of Havana's Dr. Maickel Armenteros served as co-chief scientists on the voyage. Researchers from USF, Eckerd College and Texas A&M were on board and upon arriving at the Cuban shores, welcomed students and researchers from the University of Havana. The research team was able to collect 50 fish-egg and zooplankton samples, 150 water samples, 450 fish, and 1,500 sediment samples on the 18-day expedition along the northwest shores of Cuba. The samples will help scientists create a set of environmental baselines so that they can identify and assess the presence of chemical signatures in future oil spills or related disasters and the potential ecological impacts that occur.

**Grants:** Seeking grant funds collaboratively with our members and making competitive grant funds available to our members are two ways FIO can clearly add value to what our members are already doing to advance research and innovation goals. The FLRACEP, administered by FIO since August 2015, is managing \$4.7M in funds, the majority of which is programed as grants to FIO members. During the past fiscal year, FIO also worked with our member institutions to submit \$2.4 M in proposals to federal sources such as National Academies of Science. The last two strategic plans for FIO called for expanding our role in coordinating marine research between our



Cruise Number	Affiliation	Research Description
WB-1701	USF-GOMRI/C-IMAGE	Fisheries, sediment, water quality oil spill. Expedition to Mexico, Northern Gulf
WB-1702	Florida Wildlife Commission/FWRI	Gulf fisheries and habitat studies- Side Scan Sonar, Camera pods
WB-1703	USF CSCAMP	Gulf fisheries and habitat studies- Towed Camera Array, multibeam mapping
WB-1704	Florida Wildlife Commission/FWRI	Gulf fisheries and habitat studies- Side Scan Sonar, Camera pods
WB-1705	Johns Hopkins University	Acoustic technology field tests, CTD, Water quality
WB-1706	Florida Wildlife Commission/FWRI	Gulf fisheries and habitat studies- Side Scan Sonar, Camera pods
WB-1707	USF CSCAMP	Gulf fisheries and habitat studies- Towed Camera Array, multibeam mapping
WB-1708	USF GOMRI/C-IMAGE/FIO	Fisheries, sediment, water quality oil spill. Expedition to Northern Cuba
WB-1709	USF/FIO	Physical Oceanographic studeis of west Florida shelf- offshore buoy maintenance
WB-1710	Florida Wildlife Commission/FWRI	Gulf fisheries and habitat studies- Side Scan Sonar, Camera pods
BE-1701	USF CSCAMP	Fisheries, Benthic habitat mapping
BE-1702	USF CSCAMP	Fisheries, Benthic habitat mapping
BE-1703	Florida Wildlife Commission/FWRI	Gulf fisheries and habitat studies- Side Scan Sonar, Camera pods
BE-1704	USF CSCAMP	Fisheries- acoustic sonar deployment; Benthic habitat mapping
BE-1710	USF SHELF/CSCAMP	Fisheries Benthic habitat mapping
BE-1711	Florida Wildlife Commission/FWRI	Red Tide water sampling
BE-1716	USF-Ocean Technology	Acoustic sensor calibration and glider trials

10: FIO supported over a dozen research projects with our vessels including extended expeditions to Mexico and Cuba

academic members, the state of Florida, and federal management agencies and several new initiatives are underway to address this (see looking forward section).

**FLRACEP:** FIO is the Gulf coast state entity responsible for administering the Florida RESTORE Act Centers of Excellence Program (FLRACEP). This Program was created by the Resources and Ecosystems Sustainability, Tourist Opportunities, and Revived Economies of the Gulf Coast States Act of 2012 (RESTORE Act), and it is managed by the U.S Department of the Treasury. In total, the Centers of Excellence Research Grants Programs split 2.5 percent of the civil penalties associated with the BP *Deepwater Horizon* oil spill across the five Gulf Coast states, as well as to 25 percent of the interest generated by the overall Trust Fund. Over the course of 15-years, these deposits amount to over \$26M for research grants plus and variable amounts of interest deposited annually for the state of Florida. FLRACEP is currently supporting 11 research grants to 8 Florida universities for a total of \$3.65M. These grants emphasize critical science in support of two eligible RESTORE Act disciplines: coastal fisheries and wildlife research and monitoring, and comprehensive ecosystem monitoring and mapping in the Gulf of Mexico region.

#### Coordination and Leadership:

**GOMURC:** The Gulf Of Mexico University Research Collaborative (GOMURC) is a multi-state university-based research consortia that works to promote scientific knowledge, workforce development, and understanding that informs natural resource management decisions at state, regional, national and international levels. GOMURC works to ensure Gulf ecosystem restoration incorporates the best available scientific information and practices, and engage scientists, engineers, and educators. Since it's inception, FIO has been the host of GOMURC with staff co-located in St. Petersburg, FL. In early 2017, FIO hired a part time coordinator for GOMURC- Cara Cooper. In February, 2017, GOMURC partnered with the Gulf of Mexico Alliance (GOMA) and won a competitive contract process to provide the 'best available science review' for new Gulf state and county restoration projects being funded by the RESTORE Council's Bucket 2 and 3 funding streams. GOMURC is working closely with GOMA and the RESTORE Council on this project, and we are currently in the process of setting up an experts database to facilitate running the proposals review process. The best available science review project provides some funding to support the GOMURC operation for the next three years.

**Florida Coastal Mapping Program:** FIO is co-leading a new effort to examine the current state of Florida's coastal seafloor mapping. Geologic and geophysical data of the coastal seafloor are essential for informed decision making of coastal zone management, navigation, and coastal community planning. These include characterizing underwater habitat maps, quantifying rates of coastal erosion, mineral resource distribution, and the impacts of past and future sea-level rise to name a few. A comprehensive analysis of mapping efforts is overdue and necessary to help coordinate planned mapping efforts, reduce redundancy, help set priorities, and catalyze new seafloor mapping efforts to make Florida a national leader. We have pulled together a technical team of 30 representatives from federal and state institutions/universities that have developed

the standards and scope for data compilation. A 2-day workshop will be held in early 2018 to review results and to develop a plan of action to fill priority areas within Florida's coastal waters.



**Research Projects supported by KML- 2016/17**

Affiliation	Project Description
California State University-Northridge	Genetic variation as a driver of host and symbiont response to increase temp on coral reefs
Cardiff University	collect octocorals/ostracods, preserved back to the UK to examine in a special aquarium
Chesapeake Biological Laboratory	Water sampling along FL Keys Shelf & deployment of milk crates with instruments etc.
Chicago State University	Collecting Caulerpa to sample the surface for ongoing Vibrio research
Chicago State University	Collecting Caulerpa to sample the surface for ongoing Vibrio research
Florida Atlantic University	With Bonefish Research Group
Florida Atlantic University	Collecting bonnethead sharks to take back to Gumbo Limbo Nature Center
Florida Fish and Wildlife Commission	The Keys Terrestrial Climate Adaptation Project
Florida International University	Dendrogyra Spawning to support Dendro Restoration Project
Florida International University/SERC	Use of boat ramp to launch boat to sample Sluiceway for Keys wide sampling.
Florida State Coastal and Marine Laboratory	Movements of endangered smalltooth sawfish.
Florida State University	Fire Sponge examination of growth and survival in seagrass beds and mangrove
Florida State University Dept. of Biological Science	Biodiversity in sponge microecologies: mechanisms and processes that affect biodiversity
Florida State University, EOAS	O2 Measurements in the sandy reef flat using eddy covariance
Florida Wildlife Research Institute	Bi-annual site survey (stag party 2 and TN ROA) for A. Cervicornis etc.
FWC	Attending conference in keys
Ichthyological Research LLC	Bonefish Research and restoration program. Collecting Bonefish to establish broodstock at FAU/HBOI
New Mexico State University	Size and Morphological characteristics of King Conch & other marine invertebrates
NOAA	NOAA Corp diver operations to conduct coral tissue, water, and sediment sampling
NOAA Fisheries Southeast Region	Dendro Rescue Project
NOAA/AOML	Dives to support Florida Keys Marine Biodiversity Observation Network for FKNMS
NOAA/AOML	NOAA corps diver operations to conduct visual benthic coral survey at TN Reef.
NOAA/AOML	Coral tissue, water, and sediment sampling for metagenomics analysis
NOAA/AOML	NOAA Corps Diver Operations to conduct coral tissue, water, and sediment samp.
Rutgers University	Collaborative research with FWC examining recruitment of Diadema antillarum on reefs
Smithsonian Marine Station	"Who is taking over our reefs?" Assessing biodiversity of brown algae
Tropical Audubon Society	Monitoring the Migration of birds of prey through the Keys to assess population trends
University of Alabama	Mangrove Rivulus fish-Seasonal variation in timing of reproduction with environmental variability
University of Buffalo	Examining Symbiont density and phylotype of specific octocoral colonies for 1 year
University of Buffalo	With Mary Alice Coffroth-Octocoral symbiont density and phylotype specific colony 1 yr
University of Buffalo	Study growth rates and reproductive output of Antilloporia americana etc.
University of Buffalo	Genetic variation as a driver of host and symbiont response to increase temp on coral reefs
University of Buffalo	Variations in symbiont diversity in octocorals across seasons and predicted bleaching event
University of California Irvine	To determine if Bonnethead sharks can digest seagrass found in their diets.
University of Connecticut	Deploying passive floating equipment to measure water column optical properties for NASA
University of Florida	Impact of PaV1 on spiny lobster fisheries and ecology and life history of sea cuc and turban snails
University of Florida	CollectEpiBenthicJuvenile(diseased) lobsters w/FWC, scope sites in mid. Keys for sponges
University of Maryland	Flatworm RNA-Sequencing data to understand the great variation of species
University of North Carolina, Chapel Hill	Continuing project with Spiny Lobster-COLLECTION
University of North Carolina-Wilmington	Train NASA astronauts and FIU researchers in lab of Rodriguez-Lanetty to use CISME
University of North Florida	Research project collected Bonnetheads then released them.
University of South Florida	Feeding ecology and resulting interactions for Cassiopea sp. And pelagic gel. Zooplankton
University of South Florida	Collect foraminifera in vicinity of KML and by boat at Tennessee Reef
University of Tennessee	Lucinids to be collected and their endosymbiont diversity observed and chemosymbiosis investigated
US Geological Survey	Research/Outplanting for insitu research, Acropora palmata and other frags @ 3 diff sites
Whitney Laboratory	Spiny Lobster COLLECTION. Studying Spiny Lobster Olfaction.
Whitney Laboratory	Upside-down Jellyfish collecting all stages of life. Cnidarian hosts and symbiotic algae

11: Research projects supported by the Keys Marine Lab during FY16/17



Florida RESTORE Act Centers of Excellence Awards to Date				
Institution	PI	Title	Award	Duration
University of Florida	Dr. Mike Allen	Examining fisheries impacts of invasive lionfish with an ecopath with ecosim model	\$294,006	2015-2017
University of Miami	Dr. Jerry Ault	Biological and economic indicators for assessing recreational fisheries	\$294,000	2015-2017
University of Miami	Dr. Elizabeth Babcock	Improving the use of products derived from monitoring data in ecosystem models in the Gulf of Mexico	\$285,119	2015-2017
Florida International University	Dr. Kevin Boswell	Fishery-independent surveys of reef fish community, size, and age structure off northwest Florida	\$290,742	2015-2017
University of West Florida	Dr. Jane Caffrey	Evaluating fish production and ecosystem impacts of artificial reefs	\$293,991	2015-2017
Florida State University	Dr. Dean Grubbs	Monitoring oil spill effects and recovery in large deep-sea fishes	\$293,960	2015-2017
University of South Florida	Mr. Chad Lembke	Demonstration of fisheries assessment applications for underwater gliders	\$293,555	2015-2017
University of Central Florida	Dr. Kate Mansfield	Ontogenic shifts in sea turtle habitat use and foraging ecology	\$290,803	2015-2017
University of South Florida	Dr. Ernst Peebles	Egg and larval barcoding for Gulf DEPM stock assessments	\$129,265	2015-2017
Nova Southeastern University	Dr. Brian Walker	Hardbottom mapping and community characterization of the west-central Florida Gulf coast	\$293,202	2015-2017
University of South Florida	Dr. Ernst Peebles	Spawning habitat and early-life linkages to fisheries	\$887,200	2016-2019

**12:** List of grant awards to Florida institutions supported by the Florida Centers of Excellence Program at FIO. First 10 grants are from RFP I and last grant is from RFP II.

## Community Outreach

Over the past six years, FIO has grown its community outreach efforts building on the visibility it achieved during the 2010 *Deepwater Horizon* spill. FIO is currently a member of over 24 local and state organizations or outreach programs related to marine science and education. FIO staff attended 99 public or partner/member meetings or events last year, nearly a third of which were led and hosted by FIO at its St. Petersburg offices. We regularly offer vessel tours to K-12 students and the public when they are in port. In the past, FIO's outreach efforts to K-12 organizations was grouped under the educational programs. However, non-higher academic educational activities are now being considered part of general community outreach. Due to our proximity, FIO remains active within the growing state and federal marine science community based in the innovation district of St. Petersburg. Over the past year, these local events have included the St. Petersburg Science Festival, Blue Ocean Film Festival, Eco-discovery Center, St. Pete Ocean Team, and the St. Petersburg Downtown Partnership. However, FIO is also spending considerable effort in growing its digital outreach efforts through various on-line platforms. A summary of some of FIO's outreach efforts are outlined below.

**Events:** FIO staff attended, presented at and/or contributed to a large number of professional meetings, conferences, workshops, plenaries, and events in the oceanographic and marine science industries in FY 16/17. FIO leadership and staff either hosted, presented at, or participated in 35 professional events in the past fiscal year. Additionally, full-time FIO employees attended 16 industry events and meetings outside the state of Florida, 26 events in Florida but outside of the Tampa Bay region, and 22 events within the local Tampa Bay market.

**Florida Oceans Day:** Florida's Economy Built on Land & Sea took place on March 16th at the Florida Capitol in Tallahassee. Thirteen of our member institutions took part in the annual event which included exhibits set up on the second floor of the Capital Building.

**KML Winter Science Seminar Series:** A monthly seminar open to the public which promotes ocean literacy by featuring speakers discussing scientific projects or covering larger topics of interest. Over 200 participants attended these seminars in 2016/17.

### Digital outreach:

In order to stay competitive and up to date in today's evolving technology world, FIO completed an IT infrastructure overhaul last year. We completed a competitive review, analysis and design that led us to implement several upgrades and improvements. FIO's server was fully upgraded to support the department's databases and content management software (CMS) improvements; the database now is an object relational database which has additional SQL analytical functions and capabilities, and the CMS went from the "outdated" Joomla system to Drupal 8.

**Newsletter:** The FIO newsletter was reissued in June, 2017 and will continue to be produced on a quarterly basis and sent out to our members and roughly 300 users of the FIO general listserv. The newsletter format is designed to highlight projects and programs while also compiling upcoming meeting and funding opportunities.

**Website:** Once the upgrades were completed, FIO worked on updating the fio.usf.edu website from a static site to a responsive, database driven site. The layout was redesigned and essentially reconfigured three aggregate websites into one under Drupal with the main advantage being that the webmaster only needs to update content in one page and all views of this content will be automatically updated. The FIO website saw over 15,600 visitors over the past year, with our highest month seeing 1,833 site visits. The site's most popular page is the "Vessel Tracker" page which shows where FIO's research vessels are positioned via GPS. Internet users spent an average of 2 minutes and 53 seconds on our page and we had more than 10,500 "unique visitors" (first-time visitors) to our website this year.

**Twitter:** FIO continues to have an active social media including twitter. FIO picked up 81 new followers on twitter this past year and increased our monthly profile visits from an average of 105 a month to 358 a month. Social media has a fairly low cost when you are not generating original content and while the reach can be quiet large, the overall impact on FIO's (and our members) visibility remains less clear.

**YouTube Channel:** Digital content in the form of videos has been an area of growth for FIO for the past three years. Views of videos posted on the FIO Youtube channel exceeded 2,500 this past year. Watchtime has also continued to climb and exceeded 3,500 minutes. We plan to record videos of presentations made during the Florida Marine Science Symposium to scale up the range and amount of FIO video content in the coming year.

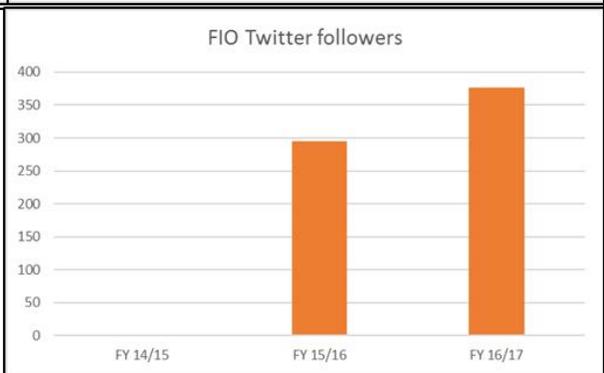
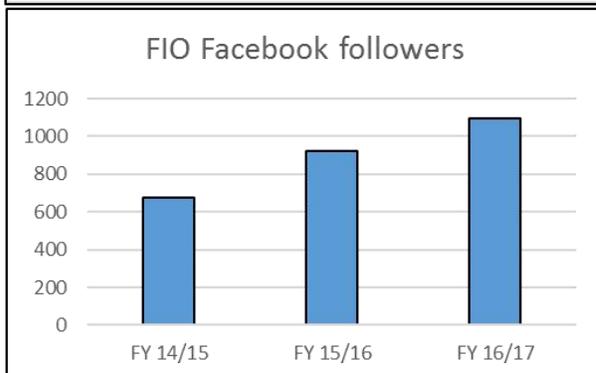
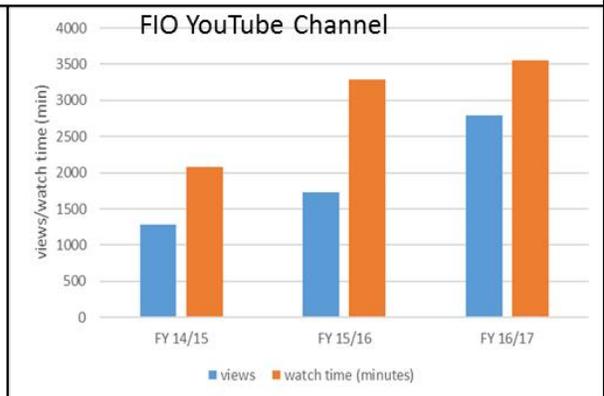
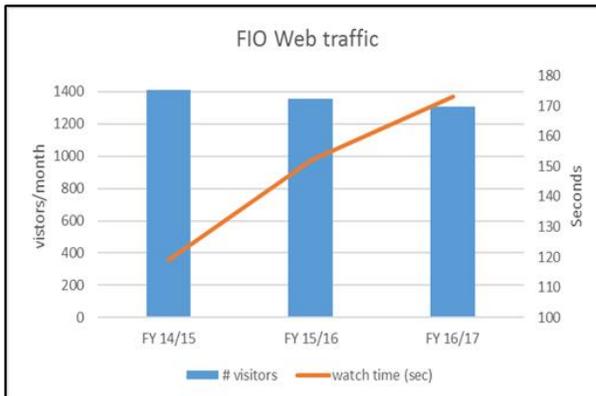
**Facebook:** At the end of FY15/16, FIO had 925 Facebook Likes (followers) with an average of 243 daily engagements (times our followers interacted with our posted content) and a total of 2,184 unique visitors. At the end of FY16/17, FIO had 1,096 Likes (an increase of 171 users) and an average of 512 daily engagements with a total of 4,806 unique visitors.

**FIO in the News:** FIO's presence in the news spiked this year thanks to the R/V Hogarth Christening Ceremony on May 23<sup>rd</sup> and the coverage for the historic Cuba cruise aboard the R/V Weatherbird II where FIO was prominently mentioned. The following news outlets mentioned or featured FIO in articles or reports: ABC Action News; Fox 13 News; Tampa Bay Times; Sarasota Herald-Tribune; WUSF; Tampa Bay Business Journal; The Patch; The Maritime Executive; Florida Trend; Suncoast News; St. Augustine Record; Tampa Bay Newswire; TBO.com; news-press.com; and 83degreesmedia.



### FY2016/17 meetings/events attended by FIO

FIO Hosted	35
Within Florida	26
Tampa region	22
Outside FL	16
Total	99



13:FIO community outreach and digital communication overview for 2016/17

## Financial Summary

FIO started FY2016/17 year with an operating budget of \$5.14 M that included \$3.1M in recurring funding and carry forward funding from previous year. A mandated reserve for the Keys Marine Lab stands at 277K. Operating expenses reached \$4.32M last year which included covering all of FIO's remaining match funding obligations toward the construction of the new research vessel as well as major repairs on both the R/V WBII and R/V Bellows. While final fiscal closing from last year is still underway, FIO is expected to end the year with \$2.71M in funds, a portion of which will be carried forward into next fiscal year and added to mandated reserves to cover hurricane and other major problems with our infrastructure. While FIO is in a good financial position and can afford to continue its activities (subsidized ship program) and other programs for the upcoming year by drawing on these carry forward funds, restoring recurring funds will be essential if these programs are to continue beyond 2017/18.

**Florida Institute of Oceanography  
Financial Summary  
June 30, 2017**

Beginning of Year	
Operating *E&G/CF	\$ 5,147,642
Reserve (KML)	277,298
Operating Auxiliary Revenue	1,615,242
Less, Operating Expenses	4,321,100
Net, End of Year	<u>\$ 2,719,082</u>

Note: \*Begin FY17/18-Operating E&G- less recurring amount of \$1,174,500 due to LBR reduction

The total university book value of FIO's depreciable assets (not including land) stands at \$3.1M at the end of the 2016/17 fiscal year. This number should grow in excess of \$9M once FIO takes possession of the R/V Hogarth in 2017/18. A reserve goal is to have a minimum of 10% of FIO's depreciable assets in mandated reserves going forward to reduce the risks associated with hurricanes or major breakdowns on the vessels.

**Grant administration:** FIO continues to administer a number of grants for the benefit of our members. We have approximately \$4.6M of grant funding (primarily associated with the FLRACEP program) under management as well as smaller grants that are supporting GOMURC and some ship time. During the past year, FIO applied for an additional \$2.4M in grant funds (with our members) from federal sources that will be announced later this year. FIO will continue to seek grant funding in conjunction with our members to increase paid ship time and grow research and education programs for our members.

**Legislative initiatives:** An LBR to improve the Keys Marine Lab facility and expand its capabilities was submitted for the FY 2016/17 Legislative session. The \$1.8M request was approved by the Board of Governor but ultimately was not introduced or advanced in the Florida legislature. With FIO's large vessels in good shape, the Keys Marine Lab infrastructure remains one of the outstanding issues that will continue to be a high priority until the buildings are replaced.

**Private fundraising:** Through the USF Foundation, FIO is able to accept private donations that support our mission. In 2016/17, FIO set up two new funds- an Education Fund that will be used to support an onsite intern program integrating undergraduate and graduate students from member institutions with the operations and research activities of the Keys Marine Laboratory or aboard FIO research vessels. A second fund, The FIO Innovation fund was also set up to create, sustain or grow innovative projects in marine research and technology. In the coming year, FIO will work to grow these funds and expand its private fundraising efforts with our members.

## Looking Forward

The year ahead will be a busy one as we move towards implementing more components of the strategic plan. Nearly all of the activities already underway or planned for next year can be traced back to the approved 2015-2020 FIO strategic plan (see appendix A). Providing greater leadership in setting and advancing statewide marine science priorities through the establishment of working groups composed by experts from our membership. The recently launched Florida Coastal Mapping Program is an example of what the kind of leadership that FIO can offer. This Program is being co-led by FIO and USGS and now consists of both a Steering Committee (composed of 4 federal and 3 state agencies) and a Technical Working Group (composed federal and state agencies, and FIO member academic experts) that are compiling existing data and analyzing gaps. Other state-wide working groups being considered for development during the next year include habitat monitoring standards, building state-wide ecosystem models to support decision making, advancing deep water animal tracking efforts, and coastal engineering for sea level rise.

Another area of strategic emphasis is outreach and keeping our members and the citizens of Florida informed about our activities. The breadth of academic and marine specialty expertise within FIO's membership is immense and growing yearly. Yet, quantifying and harnessing our intellectual capital remains challenging as there is no up-to-date marine experts database for the state of Florida. We will be addressing this by hiring a part time student this summer to conduct in detail inventory of FL institutions and the principal investigator expertise currently within the State. FIO also relaunched the FIO quarterly newsletter and will be producing a new external annual report this fall. We plan to use the new R/V Hogarth to increase outreach and visibility. The vessel will be on display at the Ft. Lauderdale International Boat Show Oct 31-Nov 4<sup>th</sup> this year. With over 1,000 boats, 900 exhibitors, and thousands of attendees, the International Boat Show will provide invaluable exposure for the R/V Hogarth and our participating member institutions, FAU, FIU, Nova Southeastern, Mote, and the University of Miami. The International Boat Show will be one of the stops for FIO's 2017 Ports Tour in which the R/V Hogarth and its crew will be circumnavigating the state of Florida. With planned stops in the ports of Pensacola, Ft. Myers, Naples, the Keys, Miami, Ft. Lauderdale, St. Augustine and Jacksonville. In the coming year, FIO will continue the move towards becoming a hub of information related to marine science and education across the state.

Refining our metric-based framework that quantifies FIO's annual contributions towards student success, research and innovation, outreach, and state-wide efficiencies is already underway and will be a core part of our annual reporting by 2017/18. With the R/V Hogarth coming on line and several other upgraded vessels now in the fleet, we will be looking to develop and expand marketing efforts within the US and abroad to increase contractual usage of assets. FIO will also be holding the first Florida Marine Science Symposium that will bring together scientists, managers, and students from across the state to St. Petersburg, FL. This year's inaugural event will feature 24 scientists that will cover four topical areas of high relevance to resource managers

and should set the foundation for what is expected to become a flagship annual event for FIO. We hope to unveil a new Florida marine experts database next year that will improve our ability to identify experts for working groups and as spokespersons. Expanding the summer field studies course through improved marketing and reach, and the development of other educational programs such as certified short courses (non-credit) in areas of marine technology or specialized field trips is also a goal. Reestablishing the “FIO Board of Visitors” is also planned for next year as this group can serve to connect and increase FIO’s visibility within and outside the state. Even though the current funding environment is challenging, FIO has a number of activities already underway that will be rolled out in the coming year to add value to our FIO membership and increase efficiency and the return on investment to the citizens of Florida.

Priority areas that FIO will focus on during the next year will include:

1. Restore FIO’s vetoed Legislative Budget Request funding that supported core operations and the subsidized ship program.
2. Promote FIO’s new research vessel (and other assets) in a new marketing campaign within and outside the state of Florida.
3. Complete a detailed review of FIO member institutions towards developing an experts database and inventory of existing infrastructure that might be part of a new sharing program coordinated by FIO. The development of an “FIO Professionals” database was Identified as a major goal in 2015-2020 FIO SP (Objective 3-6).
4. Complete new metric based performance accountability framework for FIO.
5. Hold the first Marine Science Symposium and grow sponsorship to make this an annual event. Addresses 2015-2020 Strategic Plan (SP) objective of FIO convening workshops to connect experts with managers.
6. Undertake a planning process to develop a design and business plan for renovating and replacing the 80 year old buildings of the Keys Marine Lab. Addresses 2015-2020 SP objective to upgrade or replace KML aging infrastructure.
7. Retire the R/V Bellows and commemorate her 40+ years of service to science and education. Potentially use any proceeds from sale to create an FIO education research fellowship program.
8. Hold the Florida Coastal Mapping Program workshop to develop a multi-year comprehensive plan for mapping all of the shelf areas to a high resolution.
9. Continue to seek new grant funds to expand research and research educational opportunities for FIO members as outlined under 2015-2020 FIO SP 1-5 objective.
10. Put in place a new reserve plan that covers at least 10% of FIO’s depreciable assets.
11. Reestablish the FIO Board of Visitors- a volunteer board of influential figures from academia and business. Addresses 2015-2020 FIO Strategic Plan People Objective (4-2).
12. Expand digital content development and seek new opportunities to incorporate telepresence technology onto our vessels and growing digital on-line presence under Florida marine science and education.

13. Review FIO's membership structure and vessel pricing to increase competitiveness and adapt to current needs and opportunities to improve efficiency and increase use of assets.
14. Establish 4 FIO geographic working groups (Panhandle, West coast, East coast, South Florida) with a goal of increasing coordination and setting priorities for research, research education, and infrastructure usage.
15. Continue leadership and academic coordination efforts to create "working groups" around key coastal issues across Florida.
16. Publish a short public facing FIO annual report that includes the institutions, people and stories behind the FIO operations. This is intended to help with private fundraising and public visibility. One of the ways FIO can increase member visibility as outlined in Objective 3-1 in the 2015-2020 FIO Strategic Plan.

## Appendixes

FIO 2015-2020 strategic plan

FIO Members List

FIO Organizational Chart