UNIVERSITY of SOUTH FLORIDA

November 2, 2020

Chancellor Marshall Criser
State University System of Florida
Board of Governors
325 West Gaines Street
Tallahassee, FL 32399

Dear Chancellor Criser,

In accordance with Board of Governors Regulation 10.014, I am pleased to submit the Annual Report for the *Florida Institute of Oceanography*, for the period of July 1, 2019 – June 30, 2020. This report has been reviewed by members of the SUS Council of Academic Vice Presidents and will be considered in its final form by the USF Board of Trustees on December 8, 2020.

Please do not hesitate to contact me should you have any questions.

Best regards,

Ralph C. Wilcox
Provost & Executive Vice President

cc: Dr. Steve Currall, President, University of South Florida
Dr. James Garey, Acting Executive Director, Florida Institute of Oceanography
Dr. Thomas Frazer, Chair, Executive Committee, Florida Institute of Oceanography
Dr. Christy England, Vice Chancellor for Academic and Student Affairs
Paige Beles Geers, USF System Liaison

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FLORIDA INSTITUTE OF OCEANOGRAPHY

Fiscal Year 2019-2020

Annual Report

Reviewed by the Council of Academic Vice Presidents, October 28, 2020

Pending Approval by the USF Board of Trustees on December 8, 2020

FIO 2019/2020 Annual Report

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FIO Acting Director Foreword

Greetings,

The old adage, “anything can happen” certainly rang true in Fiscal Year 2019-2020. To face the challenges this year brought on by Tropical Storms, needed and extensive vessel repairs, and the COVID-19 pandemic, FIO had to be both dynamic and flexible. We spent the past year restructuring FIO’s safety standards, administrative structure, and visual content, while still supporting the state of Florida’s research needs. It has been a pleasure working with our staff and crew, members, partners, and community to solve the past year’s complex problems as a team.

In order to resume the vital oceanographic research Florida’s institutions undertake, FIO is following the University of South Florida’s (its host institution) phased re-opening plan and was approved for limited operations to resume July 10th. To prepare for the scheduled reopening, we worked with medical experts within USF and externally to integrate and adopt guidance from the CDC, UNOLS, the American Bureau of Shipping, and numerous other organizations into a plan that mitigates COVID-19 risks at all FIO facilities. FIO is committed to providing our staff, ship-users, and science parties with a safe and healthy environment. We continue to stay fluid as the conditions surrounding the pandemic change by the day. Up-to-date, FIO-specific guidelines and FAQ’s for staff, ship and laboratory users can be found on FIO’s website: https://www.fio.usf.edu/about-fio/fio-news/coronavirus-updates/

FIO underwent a number of enhancements and improvements to meet the recommendations of the various safety reviews (which can be found in Appendix D) FIO commissioned. The state’s research vessels, the R/V Hogarth and R/V Weatherbird II, are fully operational after maintenance, repairs, and advancements at the shipyard in the fall and winter. Additionally, we are positioning the organization to be more agile for FIO members- from having vessels accessible at various ports to visiting campuses for open-house style faculty information sessions, FIO is making strides towards introducing the future oceanographers to the state’s research vessels and laboratory.

Best Wishes,

James Garey, Ph.D.
Acting Director

Governance of FIO as an AISO

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

In November 2018, the BOG revised the AISO regulation 10.014 Academic Infrastructure and Support Organizations, which FIO is mandated to follow. A change in the FIO's By-laws now reflect the following: 'The FIO Executive Committee will consist of five (5) full Council members including the Council Chair and four elected members. **State University System institutions must comprise at least fifty-one percent (51%) of the executive committee and** at least one member of the FIO Executive Committee shall be from the host institution.'

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

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

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

*State University System institutions

This year, the annual report is structured to outline the 2015-2020 Strategic Plan in part due to the vacant director position. The next director will be expected to focus on the second AISO renewal process and begin the next Strategic Plan to evaluate where FIO needs to go beyond 2020.

Personnel

- The search for FIO's next director started in January and is still in progress, following a delay due to the COVID-19 pandemic.
- As of July 1st 2020, FIO's vessels are fully staffed to resume operating research cruises. The only open position regarding ship-side personnel is the first mate for the R/V Hogarth.
- In April 2020, William (Bill) Walsh was hired as the Marine Superintendent, a position that was re-established this year. Bill comes to FIO after completing a 30-year career in the U.S. Coast Guard. He has experience with shipboard operations and fleet management. This position will allow FIO's vessel crews to better focus on conducting safe and efficient operations and the implementation of the new Safety Management System which will guide how the organization conducts and supports research vessel operations.
- KML's Director, Nancy Thompson, retired in early 2020. Cynthia Lewis was appointed acting director.

Administrative Reorganization

FIO has been reorganized to solve several issues. The first is that KML had never been properly integrated into the FIO organization, and the second was that FIO needed a Marine Superintendent to manage ship operations. The previous KML director retired in April 2020 around the same time FIO hired a Marine Superintendent. Currently there is a Director and three Assistant Directors. Assistant Director Cam Ngo handles administrative and financial functions, Assistant Director Bill Walsh manages ship operations as Marine Superintendent, and Assistant Director Cynthia Lewis manages the Keys Marine Lab.

Budget Overview

FIO had recurring operating funds of $2.1M at the onset of FY 19/20, which included personnel support and the day-to-day operational costs. Additionally, a total of $1.3M was carrforward to this fiscal year separate from FIO's recurring operating funds. The "carry forward account" supported large expenditures; FIO spent over $700,000 between the KML's roof renovation, shipyard-based maintenance and repairs for the R/V Hogarth and preventative maintenance for the R/V Weatherbird. The carry-forward funds continued to support safety upgrades (per the safety report in Appendix D) and other expenditure activities in order for the research vessels to be "mission-ready". $400,000 was set aside from the carry-forward balance for unforeseen expenditures, however, carry-forward funds have been dwindling and reduced amount is anticipated to be available for operations support in the coming fiscal year. The COVID-19 pandemic has caused a reduction in FIO's revenue stream which normally offsets some of the operational expenses incurred by the auxiliary accounts. The pandemic ultimately halted the busiest season for marine research but staff have seized the opportunity to perform preventative maintenance on both the vessels. At KML, staff have been working diligently on the National Science Foundation (NSF) seawater project highlighted in this report.

Infrastructure & Operations

Vessels Safety Report

To improve FIO's operational efficiencies and ability to provide a safe and reliable marine research platform, USF commissioned four comprehensive reviews- the first of which convened in 2018 and was completed in August, 2019. Each of these reviews focused on safety, material condition and compliance with applicable laws/regulations, as well as policies and best practices regarding safe and compliant operations.

To date, FIO has invested $405,000 in one-time expenses and $341,000 in recurring costs to properly address organizational and safety issues. Additionally, emphasis was placed on quality training programs necessary to sustain quality and safe marine research infrastructure. The safety reviews continue to influence how FIO operates and maintains its research vessel fleet. Some of the key improvements include:

- Marine Superintendent hired in April 2020. Fully staffing and preparing the research vessels has been challenging due to moderately high turnover; however, the recent hiring of the Marine Superintendent allows for improved oversight of the vessel operations.
- The FIO and vessel crews are Standards of Training, Certification and Watchkeeping (STCW) compliant.
- Ubiquitous maintenance planning: FIO purchased a cloud-based software system to plan, track and maintain oversight of each vessel's current, forecasted, and required maintenance needs.
- Safety Management System: The comprehensive plan is the foundation upon which all FIO operations and research support sit.

FIO is committed to cyclical internal and external reviews. The next review of FIO marine operations is tentatively set for winter of 2020 by the USF's Environmental Health and Safety Office Director. Additionally, FIO will continue to work with the U.S. Coast Guard to conduct courtesy inspections and training exercises. Full details of the Safety Report can be found in Appendix D.

The onset of the COVID-19 pandemic put FIO's research vessel operations on hold for nearly 90 days. Limited operations are scheduled to resume in July 2020. While much of the FIO staff worked remotely, select groups were granted exceptions, such as the vessel crews, shore-side support personnel, and KML staff, who were critical in maintaining research vessel/marine lab readiness to resume research operations. The COVID-19 quarantine also impacted the State University Subsidized (SUS) ship days program, in which 66 days of ship time were awarded for FY 19/20- 57 days on R/V Hogarth and 9 days on R/V Weatherbird. These cruises will need to rescheduled in the 2020-21 fiscal year.

R/V Hogarth

The R/V Hogarth was scheduled for 134.5 days and completed 32.5 days at sea in FY 19/20; of which it supported 4 of 57 SUS ship days from the ship time program and 28 chartered days. Nearly 55 days were lost due to COVID-19 and 23.5 days were lost due to inclement weather and shipyard repairs.

The R/V Hogarth started FY19/20 with educational cruises, supporting coursework for the Florida Institute of Technology (FIT). In late summer and fall, the vessel was busy providing support for fisheries work at both University of South Florida (USF) and University of Florida (UF). After the cancellation of scheduled work in Pensacola due to a late season tropical storm (T.S. Nestor), the vessel steamed to Tarpon Springs for shipyard work at Duckworth Steel Boats to facilitate warranty repairs, modifications, and the various upgrades

recommended in several safety reviews. Additionally, several modifications to improve the layout and configuration of the vessel, based on input from the science community, were completed. These modifications included extending the aft frame by 4 feet, a redesign of the starboard frame, and reconfiguration of the berthing compartments. Other modifications included retrofitting the vessel's rudders to work independently with the dynamic positioning system. FIO began working with USF's General Counsel to renegotiate a contract with the dynamic positioning system vendor. The goal is to have the system ready for sea trials and commissioning as soon as possible.

The R/V Hogarth returned from the yard period in April, soon after the statewide and university COVID-19 pandemic restrictions were implemented. The extended time in the shipyard, coupled with the COVID-19 quarantine, limited the R/V Hogarth's time at sea during the last two quarters of the fiscal year. Fortunately, the shipyard maintenance period resulted in many enhancements and improvements.

There was some crew turnover on the R/V Hogarth. The captain departed in April and Assistant Captain, Chris Casey, was promoted to R/V Hogarth Captain. The first mate position has been advertised and FIO anticipates filling the position this summer. The R/V Hogarth welcomes new marine assistant engineer, Andy Kingsley and Alex Martinez the marine cook/deckhand.

R/V Weatherbird II

The R/V Weatherbird II was scheduled for a total of 68.5 days for FY 19/20; of which the vessel completed 39 days at sea prior to operations ceasing due to COVID-19. The Weatherbird started the fiscal year supporting new vessel users, Harris Corporation, in addition to buoy deployment and recovery projects for USF's Ocean Circulation Group. The vessel was temporarily offline in November due to generator room flooding. Repairs were promptly completed and the vessel was back at sea in early December. January saw the vessel return to the western Gulf of Mexico in support of a multi-institutional effort regarding fisheries assessments. The research group included collaborations between USF, Texas A&M University, Louisiana State University and University of Southern Alabama. The vessel successfully completed the work scheduled, despite challenging weather conditions.

Due to the extended time the R/V Hogarth saw at Duckworth Shipyard for repairs, scheduling needs required transferring subsidized SUS ship days to the R/V Weatherbird II. A total of 32.5 subsidized SUS days were scheduled on R/V Weatherbird II, however, only 8 were executed prior to the COVID-19 shutdown. 33.5 charter days were completed on the Weatherbird in FY 19/20. Like the R/V Hogarth, COVID-19 caused 22 cancellations (all SUS) and 5.5 days were lost due to weather in FY 19/20.

The crew of the R/V Weatherbird II have been implementing the recommendations of the operational surveys FIO commissioned. All of the major safety recommendations and many of the worklist items have been completed. Upon successful completion of the R/V Hogarth dynamic positioning system, FIO and the vendor will determine the feasibility of commissioning a DP system on the Weatherbird.

R/V Price

The R/V Price did not operate in FY 19-20 and is being transferred from the FIO fleet to FIO Member, Florida International University.

Vessel Days at Sea

In FY 19/20, FIO's research vessels were set to support the needs of the organizations in the table below:

Successfully Supported	Scheduled but Cancelled due to COVID-19
Florida International University (1 cruise)	Florida International University (2 cruises)
Florida Institute of Technology	New College of Florida
University of South Florida	University of West Florida
Eckerd College (1 cruise)	Eckerd College (2 cruises)
Louisiana State University	Woods Hole Oceanographic Institution
Texas A&M University	
Harris Corporation	
Florida Gulf Coast University	
University of Florida	
University of Southern Alabama	

Keys Marine Laboratory

The Keys Marine Laboratory (KML) maintains a fleet of four small vessels (18' to 30') for education and research activities. During the eight months prior to the COVID-19 quarantine, KML operated 60 boat trips, two-thirds of which were conducted from the 25' Parkers. The Lab's 30' Island Hopper is the primary vessel for larger educational classes. There were 26 boat trips that involved AAUS scientific diving missions, meeting the needs of six different universities and institutions, including three FIO members. Scientific dive missions were conducted for seven different research projects, including Ph.D. sponge research, coral "out-planting survivorship" (Ph.D. project), restoration pilot studies, "in situ" coral spawning, and monitoring efforts to assist Florida's Reef Resiliency/Disturbance Response Monitoring (FRRP/DRM) Project.

Living Laboratory Project

Since 2009, KML has offered the Living Laboratory, a nearshore benthic monitoring project, to visiting education groups. In FY 19/20, students from FAU's Marine Ecology class and Ivy Tech's Research Methods Capstone course, participated in this hands-on field project. Students experienced some of the challenges of working in the marine environment while learning basic marine assessment techniques and species identification. Following their day on the water, students entered data into the Living Lab database, comparing their observations to results from past groups.

Seawater System Use and Updates

Another important component of the KML field station is the state-of-the-art seawater system, previously funded by NSF and FWC. The system has been operating at near-full capacity, pulling water from a shallow seawater well and distributing temperature-controlled water (60-80 gallons per minute) to a variety of 30 experimental tanks and tables. Researchers from nine universities and institutions, including four FIO members and one international university, utilized the system in FY 19/20. Notable projects have included land-based coral spawning of both endangered staghorn corals and several soft coral species, fish grazing behaviors and coral disease transmission (Ph.D. research), induced spawning in long-spined sea urchins, manipulating water temperatures to assess genotypic differences in thermal tolerance in staghorn coral (Ph.D. research), and holding threatened reef-building corals for NOAA's Coral Rescue project. Additionally, the seawater system supplies water to the tide pool display for educational encounters and outreach events.

In September 2019, KML was awarded $585,000 from the National Science Foundation (*DBI-1929638: 'Repurposing Infrastructure to Advance State-of-the-Art Research Methods, Keys Marine Lab'*). This NSF award will fund upgrades and improvements to the aging Bay Seawater System on the east end of the property and integrate it with our existing temperature-controlled Well Seawater System. The first stage of the NSF project was to repair, deepen, and resurface the large flow-through 165,000-gallon saltwater pool was completed in June. A second degassing tower and concrete holding tanks are currently in production and expected to be installed in 2020-21. The final phases will include installing heater/chillers and pumps, and the build-out of shaded temperature-controlled seawater tables (50-gal to 1000-gal capacity), with anticipated completion in 2021.

IACUC & Permitting

In the Fall of 2019, KML passed AAALAC re-accreditation as a USF satellite facility for Institutional Animal Care and Use Committee (IACUC), necessary for all vertebrate research conducted at the Lab. During the past year, KML hosted two IACUC projects which utilized our seawater systems. A Clemson University Ph.D. student ran trials on butterflyfish feeding behavior and coral disease transmission. Florida Atlantic University researchers, collaborating with Bonefish Tarpon Trust, successfully collected and held fish in KML's large seawater tanks for their Bonefish Genetic Brood Stock project. Additionally, KML reviewed 25 permits for visiting researchers to ensure compliance with state and federal requirements.

Programs

Subsidized Ship Time

In FY 19-20, FIO was proud to award a total of 66 subsidized ship days to its state-wide SUS members. The STEM-focused Subsidized Ship Time program provides students with field-based skills and experience obtained from conducting research aboard a research vessel and at the Keys Marine Laboratory. Additionally, the program helps SUS member institutions attract and retain quality undergraduate, graduate and doctoral students. Since 2007, the program has awarded upwards of 1,000 ship days across all of FIO's marine facilities and is one of our most successful programs. The table below details FIO's infrastructure support to its member institutions during this fiscal year:

Institution	Days Awarded	Days Completed	Notes
Florida Gulf Coast University	4	4	
University of West Florida	14	0	3 cruises, 2 totaling 8 days carry over from 2018-2019
Florida Institute of Technology	14	6	6 days carry over from 2018-2019
Florida International University	14	4	cancelled
University of South Florida	12	4	cancelled
Eckerd College	1	1	cancelled
University of Central Florida	1	1	cancelled
New College	7	0	cancelled
Total	**67**	**20**	

The variance between days awarded and days executed is attributed to the COVID-19 pandemic which caused FIO to cancel 47 of the awarded subsidized cruises. FIO is fully committed to accommodating vessel users' needs- Fiscal Year 19/20 awardees have been given the option to reschedule canceled cruises during FY 20/21. Once all submissions are reviewed by the FIO Ship Committee, the vessel schedule will be circulated across the FIO consortium.

FIO Marine Field Studies Summer Course (Undergraduate course)

Unfortunately, due to COVID-19 quarantine restrictions, the eighth year of the FIO Field Studies summer course was canceled. The twenty students enrolled did not incur any course charges. The FIO Field Studies Course, a 5-week field-intensive marine studies summer course, is a tightly organized joint effort around the state of Florida that's designed to expose students to various iconic marine habitats. The course is hosted by the University of North Florida (UNF), Florida Atlantic University (FAU) at FIO's Keys Marine Lab, Florida Gulf Coast University (FGCU) at their Vester Field Station, University of South Florida (USF) at their St. Pete Campus, and the University of West Florida (UWF) in Pensacola Bay. The course instructors are experts in various facets of marine science at FIO's member institutions and they lead the students in independent and cooperative research methods with habitat analysis, species identification, and fisheries studies.

Graduate Field Studies Course – 1st Annual

In Fall of 2019, FIO, in collaboration with FAU, UF, and USF launched the Graduate Course in Marine Fisheries. Open to graduate studies exclusively, this 3-credit, 3-weekend course is a field-intensive course hosted by FAU's Harbor Branch in Fort Pierce, USF's College of Marine Science in St. Petersburg, and UF's IFAS Nature Coast Biological Station in Cedar Key. The course provided graduate students from the state of Florida with practical field methods and experiences using a wide range of technologies; field evaluation methods of fisheries in estuarine and marine environments; and exposed place-bound professionals to typical field-oriented experiences and methods. Nine university professors, along with various staff from each host institution wrote and administered the lesson plans which placed emphasis on habitat analysis, species identification, and fishery studies. The Graduate Course filled up quickly with 12 students (4 per university) enrolling through the FAU, UF, and USF course catalogs. The FIO Education Committee discussed plans to expand the course in 2021 as the course is currently on a bi-annual schedule.

RESTORE Act

The Florida RESTORE Act Centers of Excellence Program (FLRACEP), established by the Gulf Coast States Act of 2012, is administered by FIO. With funds managed by the US Department of Treasury, the 15-year, $26M+ project awards research grant money to Florida institutions and emphasizes ecosystem monitoring, coastal fisheries analysis, and mapping in the Gulf of Mexico as a result of the civil penalties associated with the BP Deepwater Horizon Spill.

In June 2019, FLRACEP's Program Management Team awarded six new established Centers of Excellence grants though FLRACEP's Request for Proposals (RFP) III and one new Center of Excellence in May 2020

through RFP III.5. Three were awarded to the University of Florida (UF), one to Mote Marine Laboratory, one to USF, one to Sanibel Captiva Conservation Foundation (SCCF), and one to the University of Central Florida (UCF). These seven new projects are 2-3 year awards. Under RFPII, Dr. Ernst Peebles' SHELF project underwent a scientific review and the monitoring project was approved by the Program Management Team for renewal.

FLRACEP Centers of Excellence	
Ernst Peebles, Ph.D. RFPII CE: University of South Florida (renewal CE)	"Spawning Habitat and Early-Life Linkages to Fisheries"
Matthew Deitch, Ph.D. RFPIII CE: University of Florida	"Predicting benefits in Panhandle Estuary Systems: A partnership to quantify impacts, stressors, and outcomes using Adaptive Management Frameworks."
Katherine Mansfield, Ph.D. RFPIII CE: University of Central Florida	"Understanding genomic, behavioral, and microbial drivers of ontogenetic shifts in early sea turtle foraging ecology and habitat use."
Kelly Sloan RFPIII CE: Sanibel Captiva Conservation Foundation	"After the Tide: Characterizing the Sublethal Effects of a Catastrophic Red Tide on Nesting Sea Turtles."
Hannah Vander Zanden, Ph.D. RFPIII CE: University of Florida	"Tissue clocks: new methods for aging and decoding sea turtle life histories."
Randy Wells, Ph.D. RFPIII CE: Mote Marine Laboratory	"Health and movements of Florida's Gulf Dolphins"
Vincent Lecours, Ph.D. RFPIII.5 CE: University of Florida	"Developing a Standardized Framework for Data Integration and Distribution on the West Florida Shelf"

Outreach

Oceans Day 2020

Florida Oceans Day 2020 – *Saving Florida's Oceans and Coasts* took place on February 25th at the Florida State Capitol on the 2nd floor rotunda. Nineteen Florida institutions participated in the annual event with interactive displays and exhibits. Oceans Day, a collaboration between FIO, the Florida Ocean Alliance (FOA), and Mote Marine Laboratory, is a great opportunity for marine organizations and universities to showcase their research endeavors to state legislators. FIO had two first-time participants this year- the University of Florida's Whitney Laboratory and Florida State University's Department of Biological Science.

FIO is working with FOA, Mote, and the state capitol administration to determine a date for Florida Oceans Day 2021.

Member Institution Open House Outreach Tours

In an effort to establish relationships with newly hired faculty and staff within the FIO Consortium, the organization has been giving hour-long presentations and Q&A sessions for its members. FIO's Marine Operations Manager and Communications & Marketing Officer visited three member institutions- FGCU, FSU and FAMU to inform their faculty and staff on the research platforms that FIO provides. Additionally, FIO is offering members who have not utilized the R/V Hogarth or the R/V Weatherbird II, the opportunity to go on a "Sample Cruise". The Sample Cruise is a 2-day, 1-night cruise from Tampa Bay that will showcase the technological and sea-going features the vessels have to offer.

The ultimate goal is to visit all of FIO's member institutions but the initiative was put on hold due to COVID-19 quarantine restrictions. When state universities resume normal operations, FIO will work with its members' council representatives to schedule open house style presentations to newly hired, research focused faculty and staff throughout the state.

GOMOSES Conference

The Gulf of Mexico Oil Spill and Ecosystem Science Conference took place February 3-6 in Tampa at the downtown-based Waterside Marriott. The conference marked the 10-year anniversary of the Deepwater Horizon Oil Spill and highlighted the culmination of research studies conducted and commissioned regarding the impact of the spill.

FIO was a proud sponsor and exhibitor at the conference, offering sample cruises and furnishing researchers with updated vessel specification and rate sheets along with FIO "swag". The GOMOSES Conference was a great opportunity for FIO to introduce conference-going researchers to FIO's services and infrastructure (or research platforms).

R/V Bellows Bon Voyage Event

In late August, 2019, FIO held a ceremony and reception for the R/V Bellows, which was purchased by shipwreck explorers in South Carolina. After 40+ years of service in the FIO fleet for the state of Florida, the R/V Bellows was given a deserving send-off which featured remarks and anecdotes from current and former Bellows crew, leadership, and ship-users.

St. Petersburg Science Festival

The annual St. Petersburg Science Festival, scheduled in October, was cancelled in 2019 due to hurricane warnings. FIO is an annual sponsor and exhibitor, providing ship tours and hands-on learning experiences for the regional celebration's participants which can see upwards of 20,000 people. Held concurrently with Florida Fish and Wildlife's MarineQuest, FIO was prepared to do a Remote Operated Vehicle (ROV) demonstration along with 30-minute tours of the R/V Weatherbird II. The organization looks forward to partnering with Florida Fish and Wildlife Commission and the University of South Florida (USF) to provide the public with STEAM-based learning activities, exhibits, and tours in 2020.

KML Open House

The annual KML Open House drew a crowd of nearly 75 enthusiastic guests who listened to talks on coral and sponge restoration projects, presentations by Superintendent Sarah Fangman on the Florida Keys National Marine Sanctuary Restoration Blueprint, displays of stony coral tissue loss disease (SCTLD) treatments, and viewed some of the holdings in KML's seawater system for the Coral Rescue Project.

Florida STEMCONNECT

In early 2019, FIO registered as a course instructor for virtual livestream presentations to K-12 classrooms across the state of Florida. In the fall, FIO conducted numerous livestream sessions focused on "careers in oceanography" and "life at sea" to hundreds of students who were classroom-based throughout the state. In the spring of 2020, with COVID-19 quarantine restrictions, FIO continued its outreach to STEAM-focused students virtually via the STEMConnect platform. The livestreams focused on vessel technology, day-to-day research activities, and employment opportunities/career tracks and they run for about 30 minutes with a proceeding open forum Q&A session with students.

Multimedia

New Website

In February, FIO rolled out its brand new website, which features high-resolution photos, enhanced infrastructure pages, metric spotlights, and more. Hosted by USF servers, the site has received praise from FIO members looking for information. The new site also features an upgraded staff bio section, a mailing list signup function, vessel calendars, sliders of topical information, FIO's new online cruise plan, and 360-degree, interactive, virtual tours of the two research vessels and KML. FIO continues to make additions and improvements to the site as the organization aims to be at the forefront of web trends and technologies.

Online Cruise Plan

Developed in conjunction with USF's Information Technology Web Services department, FIO has a new online-based cruise planning system. The system allows ship-users in the FIO Consortium to submit cruise plans directly to FIO via the World Wide Web as opposed to scanning PDF documents and sending Excel spreadsheets via email. The user can input all their requested research cruise specifications, including latitude/longitude, student rosters, courses and grants supported, dietary restrictions, desired equipment and technology and more. The cruise plan allows the data to be centralized in one location which is ideal for metrics reporting regarding the number of students and faculty using the research vessels, the courses and grants the research supports, and geolocations. Included in the cruise plan is a notification process that alerts FIO's administration when plans are submitted, prompting efficient review processes.

360-degree ship tours

Live on the new FIO website, each vessel page contains a 360-degree virtual tour. Clickable with a mouse or viewable in VR goggles, the tours include informational pop-ups that detail the features, technology, and advanced machinery on-board the respective vessels. Ideal for potential ship-users and K-12 school groups

using VR goggles, FIO now allows the public to see inside the engine room which is typically closed off during in-person vessel tours.

Social Media

At the end of FY 18/19, FIO had 1577 followers and a total of 5,006 unique visitors to the organization's Facebook page; at the end of FY 19/20, FIO had 1636 (an increase of 59 users) and a total of 6,148 unique visitors. FIO's Twitter presence was increased, as well- over the past year, @FIOTweet picked up 37 new followers and increased our monthly profile visits.

Regular KML social media postings, such as visiting groups and projects, 'Coral Friday,' and historical vignettes of Long Key and KML, have boosted interest by 50% in the last year with over 750 followers as of this report's publishing.

KML In the News

KML has figured prominently in several high-profile coral-related projects in the news. South Florida's PBS Changing Seas episode "Corals in Crisis" included initial work done on coral disease treatments at KML and was aired in June 2019. KML staff later participated in local premiere viewings and question and answer sessions for the public. "Corals in Crisis" is one of two episodes recently selected for the 2020 Wildlife Conservation Film Festival. After two seasons of successful land-based staghorn coral spawning at KML, the Florida Aquarium (FLAQ) team returned to outplant their new coral recruits on the Florida Reef Tract. Members of the team continue to regularly to monitor survival of these new corals. In August 2019, Florida Aquarium made a major breakthrough, shifting and inducing spawning in pillar coral at their facility in Apollo Beach. These pillar coral brood stock are part of a multi-agency effort to create a living genetic bank for this species and were originally housed and cared for in KML's seawater system. USF's Newsroom: Research and Innovation (Fall 2019 edition) featured an article on KML's supporting role contributing to research saving our oceans. KML has been a base of operations for Dr. Cliff Merz (USF) deploying a new high frequency radar tower and monitoring station in the Middle Keys.

- PBS Changing Seas series: "Corals in Crisis" (June 2019) (https://www.pbs.org/show/changing-seas/episodes/
- Florida Aquarium: Scientists induce spawning of Atlantic coral in lab for first time (Aug 2019) https://news.cgtn.com/news/2019-08-23/Scientists-induce-spawning-of-Atlantic-coral-in-lab-for-first-time-JosLQY4vEQ/index.html
- USF Newsroom: Research & Innovation (Fall 2019) Supporting Research that's Helping Save Our Oceans https://www.usf.edu/news/2019/supporting-research-thats-helping-save-our-oceans.aspx
- SECOORA: New high frequency radar in Marathon Florida deployed by University of Florida (April 2020) https://secoora.org/new-high-frequency-radar-in-marathon-florida-deployed-by-university-of-south-florida/

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 (SUS[1]) Council of Academic Vice Presidents (CAVP), ratified by the Presidents and Chairs of the Boards of Trustees of the member organizations and approved by the Florida Board of Governors (BOG). Under a Memorandum of Understanding (MOU) ratified by the member organizations and approved by the BOG, the University of South Florida (USF) assumes the role of host university, with the support of participating universities, for the operation of FIO. FIO administrative offices are housed on the campus of the College of Marine Science in St Petersburg, Florida and fiscal accounting functions are administered by USF and will be overseen by the USF Board of Trustees (BOT).

II. Purpose and Duties of the FIO

Role of FIO

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

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

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

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

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

III. Membership and Governance

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

A. Membership. The FIO consists of 30 institutions including the state universities as defined by the Florida 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. **State University System institutions must comprise at least fifty-one percent (51%) of the executive committee and** at least one member of the FIO Executive Committee shall be from the host institution. The executive committee chair shall be a representative of an SUS institution. The FIO Executive Committee will meet at least 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 nonvoting, 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 Advisory 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 and KML Advisory Committee. The Ship and KML 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. One member from the KML facility will also serve on this committee as an ex-officio member. 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 Superintendent with efficient long-term planning to ensure that FIO members will have equitable access to these vessels from Jacksonville to Pensacola. The SAC is also responsible

for reviewing and awarding subsidized shiptime/KML support through a "request for proposal" process. The SAC will meet at least once annually, in conjunction with the FIO Council meeting or as needed during the RFP review period.

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.

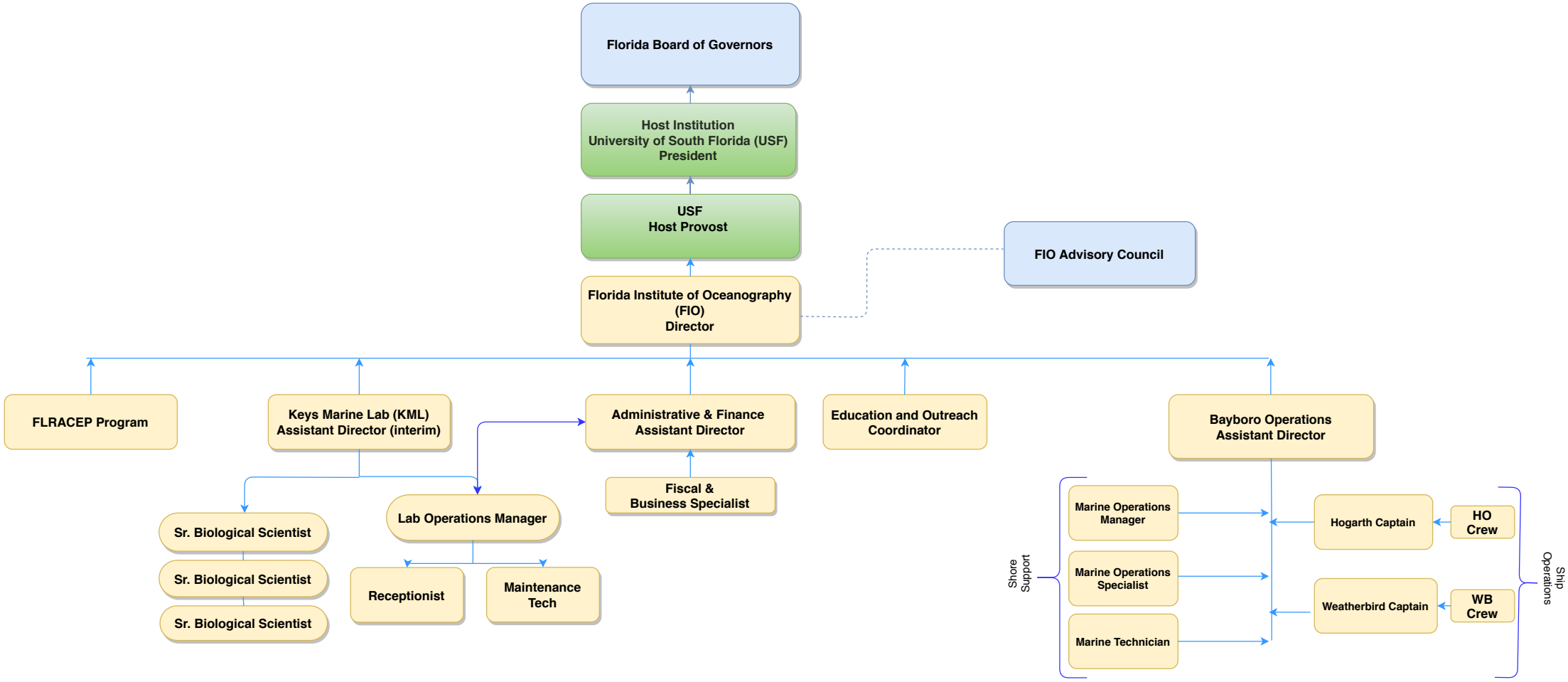
Board of Visitors. The FIO Board of Visitors will have five (5) to nine (9) members appointed by the host institution President, in consultation with the FIO Council and the Council of Academic Vice Presidents (CAVP), for a three (3) year term, to provide broad oversight to the FIO. Members may be reappointed, 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.

Florida Institute of Oceanography



APPENDIX C: FIO Operating Budget Summary

FIO 19/20 EOY Projections

E&G and Carry Forward Summary

As of June 30, 2020

	E&G			CarryForward			Total Projected E&G and Carry Forward Balances		
Estimated Projections	Authorized Budget	Actual Expenditures	Projected EOY Operating 6/30/2020	Authorized Budget	Actual Expenditures	Projected EOY Operating 6/30/2020	Total Authorized Budget	Total Actual Expenditures	Total Projected EOY Operating 6/30/2020
88021- STAFF	$1,178,878	$1,051,006	$80,973	$0	$0	$0	$1,178,878	$1,051,006	$80,973
88022- FACULTY	$295,167	$139,244	$151,622	$0	$0	$0	$295,167	$139,244	$151,622
88027- FRINGE - MATCHING	$497,965	$409,025	$69,637	$0	$0	$0	$497,965	$409,025	$69,637
88029- OTHER BENEFITS	$500	$0	$500	$0	$0	$0	$500	$0	$500
88032- OPS - OTHER	$60,045	$29,093	$30,952	$30,000	$0	$30,000	$90,045	$29,093	$60,952
88100- TRAVEL	$15,000	$11,623	$3,276	$25,000	$6,616	$18,329	$40,000	$18,239	$21,605
88200- TELEPHONE & TELECOMMUNICATIONS	$2,500	$2,068	$432	$28,224	$0	$28,224	$30,724	$2,068	$28,656
88250- CONTRACTUAL SERVICES	$5,000	$10,756	-$5,756	$80,000	$30,097	$49,903	$85,000	$40,853	$44,147
88400- COMPUTER RELATED - MATERIAL, S	$20,000	$12,457	$7,543	$20,000	$2,105	$17,895	$40,000	$14,562	$25,438
88420- MATERIAL, SUPPLIES & EQUIP OTH	$30,000	$27,164	$2,611	$350,000	$15,829	$326,216	$380,000	$42,993	$328,827
88500- UTILITIES, WASTE & FUEL	$500	$3,176	-$2,676	$0	$0	$0	$500	$3,176	-$2,676
88510- REPAIRS/MAINTENANCE/RENOVATION	$25,000	$16,885	$8,115	$305,000	$613,738	-$350,861	$330,000	$630,623	-$342,746
88700- RISK MANAGEMENT INSURANCE	$10,000	$92,479	-$82,479	$0	$0	$0	$10,000	$92,479	-$82,479
88800- OTHER OPERATING EXPENSES	$34,500	$22,500	$12,000	$120,000	$5,895	$114,105	$154,500	$28,395	$126,105
88900- OCO PURCHASES	$5,000	$0	$5,000	$0	$0	$0	$5,000	$0	$5,000
88997- BUDGET REDUCTION RESERVES*	$0	$0	$0	$400,000	$0	$400,000	$400,000	$0	$400,000
(blank)	$0	$0	$0	$0	$0	$0	$0	$0	$0
Grand Total	**$2,180,055**	**$1,827,476**	**$281,750**	**$1,358,224**	**$674,280**	**$633,811**	**$3,538,279**	**$2,501,756**	**$915,561**

*Required reserves

MEMORANDUM

TO: Dr. James Garey, Ph.D.
FIO Acting Director

FROM: William Walsh
Marine Superintendent

SUBJECT: Florida Institute of Oceanography (FIO) Safety Review FINAL Report

DATE: July 01, 2020

I. FIO RESEARCH VESSEL OPERATIONS OVERVIEW

a. In response to several safety incidents, operational inefficiencies, and the desire to improve FIO's ability to provide safety and reliable marine research availability, FIO with the full support of The University of South Florida convened four safety reviews. These reviews began in 2018 and the final review was conducted in August 2019. Each of these reviews focused on safety, material condition and compliance with applicable laws/regulations as well as policies and practices regarding the safe and compliant operation.

b. From the 2019 USF report – "the creation of organizational, operational, and administrative processes and procedures as well as training will be vital in enabling a paradigm shift to a "safety first" way of thinking throughout FIO marine operations."

c. The above statement summarizes the way forward for FIO. Embracing and making positive change is key to the safety and success of the marine research program. FIO has responded to many of the recommendations, beginning with high priority safety concerns, which has required an investment of $405,000 in one-time expenses and $341,000 in recurring costs. These investments addressed organizational and safety issues and provided training and improved support for crew and staff of FIO.

II. SUMMARY OF REVIEWS CONDUCTED

a. December 2018 – The Oceans 360 Group, LLC, (Enclosure 2)
b. March 2019 - JMS Naval Architect report. Provided a representation of the way FIO Marine Operations are being conducted. (Enclosure 1)
c. March 2019 – JMS Naval Architects on R/V Hogarth and R/V Weatherbird (Enclosure 3 and 4)
d. August 2019 – University of South Florida, Director of Environmental Health and Safety. This report was focused on compliance with applicable laws/regulations as well as policies and practices (culture of) regarding the safe/compliant operation of FIO's vessels and supportive shore side operations. (Enclosure 5)
e. Consolidate list of all findings. (Enclosure 6)

III. OVERALL SCOPE and CLASSIFICATION OF REVIEW FINDINGS

a. Over the course of the past year the recommendations to the extent possible have been developed and implemented. Overall, great strides have been made to improve safety of vessels and their crews and the ability to maintain the vessels. Some of the key changes made thus far, includes.

i. Marine Superintendent hired in April 2020. The manning of these vessels has in recent past been challenging due to turnover; however, the recent hiring of the Marine Superintendent will allow higher level oversight of the entire program, which in turn will allow the Marine Ops Manager (Rob Walker) to focus on items within his position description.
ii. FIO and vessel crews are Standards of Training, Certification and Watchkeeping (STCW) compliant.
iii. Ubiquitous Maintenance Planning - FIO purchased a cloud-based software system to plan, track and maintain oversight of each vessels current, forecasted and required maintenance needs.
iv. Safety Management Plan – This comprehensive living document is the foundation upon which all FIO vessel operations and support will be placed upon. Most of the emphasis centers on chapters 7, 8, and 9 as these sections contain and will fulfill most of the recommendations contained in each of the reviews.

Draft Safety Management Plan Contents	General Content Description
Chapter 1: General Objectives	General objectives.
Chapter 2: safety and environmental protection policy	Drugs/Alcohol, Tobacco, Sexual HR, vehicle use, risk management, etc.
Chapter 3: company responsibilities and authority	FIO overview and designated positions.
Chapter 4: Designated Person(s)	Responsibilities and authority of DP and security officer.
Chapter 5: Master's Responsibility and Authority	Master's responsibilities and procedures
Chapter 6: Resources and personnel	Manning and general overview of FIO organization, training, and familiarization.
**Chapter 7: Plans for Shipboard Operations	Shipboard operations
**Chapter 8: Emergency Preparedness	Ship emergency and security procedures
Chapter 9: Non-Conformities, Accidents, Hazardous Occurrence	Non-conformity and accident action policy
Chapter 10: Maintenance of Ship and Equipment	Vessel and ship maintenance program
Chapter 11: Safety Management System Documents	Document control
Chapter 12: Company Verification, Review and Evaluation	Internal audit and management/review procedures

IV. OPERATIONAL REVIEWS

a. The four comprehensive reviews generated nearly 400 findings, many of which were duplicative in nature as the review groups were tasked with similar objectives and in many cases the issues were common across both the R/V Hogarth and R/V Weatherbird. The reviews identified the following findings sorted by the following broad categories.

i. Safety – impacts the safety of crew and/or scientist
ii. Worklist – routine in nature

iii. Equipment – significant impact to R/V operations
iv. Organizational – denotes the review of practices and procedures that impact how efficiently FIO can conduct and maintain R/V operations.

	Safety	Worklist	Equipment	Organizational
JMS	4	337	0	3
Ocean 360	7	0	10	9
Great American	20	0	1	4

b. The review findings were further refined by assigning the below priorities.
   i. Immediate – Address immediately
   ii. High – Requires prompt attention, impact to safety/mission
   iii. Medium – Nominal impact to safety/mission
   iv. Low – Routine, no impact to safety/mission

	Immediate	High	Medium	Low
JMS	0	4	56	282
Ocean 360	1	13	8	7
Great American	0	16	3	6

a. USF Environmental Health and Safety recommendations. Many of the findings in the USF report were also identified in other reviews and have been the subject of ongoing discussions between USF and FIO staff to include;
   i. Develop standard operating procedures – all plans are in the final review process and are codified in the new Safety Management System manual.
   ii. Research Vessel Program Administration – being evaluated by the new Marine Superintendent.
   iii. Onboarding process – being evaluated by the new Marine Superintendent.
   iv. Organizational structure - being evaluated by the new Marine Superintendent.
   v. Paperwork management/ documentation – being evaluated by the new Marine Superintendent.
   vi. Support process (budgeting, shoreside and staff) – being evaluated by the new Marine Superintendent.

V. FIO'S INITIAL FOCUS

a. FIO immediately focused on the findings that were deemed to be immediate, or a high priority. In addition, FIO also realized that many of the findings could be easily implemented with little effort or cost. Most of the remaining findings are routine in nature and each are being or will be reviewed and acted upon if considered feasible and our insurer, the Great American Insurance Company has been updated on the status of their findings and recommendations.

b. Below is a summary of the immediate or high priority items that were vigorously addressed.

Report Origin	Category	Priority	Status	Description
Ocean 360	Safety	Immediate	Complete	ALL - Address the procedure for raising and lowering the permanent gangway to incorporate mechanical advantage: lifting and lowering by hand has caused injury. Crews trained on new procedure for lowering and raising permanent gangway.
Ocean 360	Safety	High	Complete	ALL - Ensure safety drills are conducted as required (fire and abandon ship within 24 hrs of departure if more than 25% of crew have not participated on board that particular vessel in the previous month) and each crew member participation in at least one abandon-ship drill and one fire drill every month. Drills were conducted, but their frequency and documentation of completion are now standard across both vessels.
Ocean 360	Safety	High	Complete	ALL- In concert with USF Risk Office, develop safety policies and reporting procedures. The policies should reference the USCG requirements for marine casualties and investigations but should also exceed these reporting requirements to include near-miss reporting, FIO specific reporting, and USF mandated accident reporting procedures. Guidance promulgated 9/2020.
Ocean 361	Safety	High	Complete	ALL - Commit to STCW - 4A. Ensure adequate rest period for watch-keeping personnel. STCW compliant crew rest procedures in place.
Ocean 362	Safety	High	Complete	ALL - Commit to STCW - 4B. Complete Basic Safety (BST) for all crew-including the marine tech, include Bridge Resource Management (BRM) for watchstanders meeting the Officer in Charge of Navigational Watch (OICNW) standards. STCW compliant training requirement is being met.
Ocean 360	Safety	High	Complete	ALL - Commit to STCW - Review practice of late-night departures. Departures and arrivals are now within normal working hours and have been standardized by FIO memo dated 7/1/2029.
Ocean 360	Safety	High	Complete	R/V Hogarth - The straight bore fire nozzles are not practical and there were reports of no firefighting turnout gear aboard. Vari-nozzles were purchased and firefighting ensembles are budgeted for but pend purchase.
Ocean 360	Org	High	Complete	Define clear lines of authority within FIO for ship management (budget/scheduling/performance). New Marine Superintendent is responsible for these areas.
Ocean 360	Org	High	Complete	Add a position of Director, Marine Operations a direct report to Director, FIO with budget authority and supervision responsibility over all marine operations at FIO. Marine Superintendent hired 4/20.

Ocean 360	Org	High	Ongoing	R/V Hogarth - fill permanent shipboard positions with permanent crew. Only use temporary/seasonal (OPS) or contract employees on infrequent basis. Use marine tech/deckhand to complement or as a member of the marine tech pool. Hiring of 1st mate pends and we are establishing a relief pool but the priority will be to transfer crew between the R/Vs as needed before seeking relief help.
Ocean 360	Org	High	Complete	ALL - Repair vessel personnel management practice (policy-by email) which prohibits the crew from sleeping aboard the vessels when in home port (at FIO); it is recommended to allow crew to sleep aboard for the night of arrival when returning after normal working hours or sleep aboard the night before departure. This is permitted on a case by case basis, also time of cruise departures will limit the need to do this.
Ocean 360	Equip	High	Complete	R/V Hogarth - make critical vessel systems operable: Bowthruster control from aft station. System purchased and installed in 10/2018.
Ocean 360	Equip	High	Complete	R/V Hogarth – make critical vessel systems operable: Engine room cooling issue. Faulty sensor replacement corrected issue.
Ocean 360	Equip	High	Complete	R/V Hogarth-make critical vessel systems operable: Restore the crane weight handling safety device. It was disabled (bypassed) in order to keep crane operational. 11/2018 crane system restored.
Great American (WB)	Safety	High	Complete	MOB/Lifeboat/Fire safety drills – there does not appear to be any drills being carried out by the command board. Drills were conducted, but their frequency and documentation of completion are now standard across both vessels.
Great American (WB)	Safety	High	Dismissed	Galley – did not have a fixed fire suppression system. Inspector also noted this requirement was met by fire extinguishers in/ near the galley area. Installation of a fire suppression system will require extensive modifications.
Great American (WB)	Safety	High	Complete	Bosun locker – found paint and solvents stored in this locker. Vessel needs to have a proper paint locker.
Great American (WB)	Safety	High	Complete	Electrical wiring – found rigging in the same area of electrical wiring. Can be easily entangled and cause a problem. Rigging needs to be cleared on the area and electrical wiring secured. All wiring has been properly routed and configured.
Great American (HG)	Safety	High	Complete	MOB/Lifeboat/Fire safety drills – there does not appear to be any drills being carried out by the command board. Drills were conducted, but their frequency and documentation of

				completion are now standard across both vessels.
Great American (HG)	Safety	High	Complete	Bosun Locker – found with flammable material in the locker which is also located next to the exhaust stack. Items removed and direction to not store flammable store in this area disseminated.
Great American (HG)	Safety	High	Complete	Forepeak/Bow – emergency escape hatch not clearly marked. Completed in 2020 shipyard period.
Great American (HG)	Safety	High	Pends	Crane – no visible certification on the crane. Completed.
Great American (HG)	Safety	High	Complete	Main galley/Salon Emergency Escape – needs to be clearly marked. Completed in 2020 shipyard period.
Great American (HG)	Safety	High	Complete	Bow thruster hatch – locking latch to prevent accidental closing on user. Completed in 2020 shipyard period.
Great American (HG)	Safety	High	Pends	Aft Crane – no visible certification. Complete.
Great American (HG)	Safety	High	Complete	Lazarette Hatch – requires safety chains to prevent hatch from falling. Completed in 2020 shipyard period.
Great American (HG)	Safety	High	Complete	When open there should be safety chains to prevent someone from falling into the open hatch. Completed in 2020 shipyard period.
Great American (HG)	Safety	High	Complete	Open hatch does not a have latch to prevent accidental closing when in use. Completed in 2020 shipyard period.
Great American (HG)	Safety	High	Complete	The hatch does not have a proper gutter drain system and allows water leakage below. Completed in 2020 shipyard period.
Great American (HG)	Equip	High	Complete	Rudder Posts – leaking seal repaired by shipyard.

VI. OVERVIEW OF REMAINING ITEMS

a. Over 364 items were deemed minor maintenance and their implementation is being discussed, budgeted for, prioritized and tracked when appropriate. All tasks deemed a high priority have been completed.

b. The two R/V Hogarth findings below were not implemented as it was deemed that no further action was required.

Category	Priority	Status	
Safety	Low	No action	The RV does not have survival suits - not required per 46 CFT Subchapter U + W. Suits are not required for historical and planned area of operations; however, we are prepared to purchase should the need arise.
Worklist	Low	Deferred	Verify the propeller pitch and maximum propulsion engine RPM required to reach maximum RPM - Verified by Caterpillar and architect as satisfactory.

VII. HOGARTH

In October 2019, the RV Hogarth went to the yard at Duckworth Steel Boats for 5 month yard period to facilitate warranty repairs, complete modifications, as well as various upgrades recommended in several safety reviews. These improvements included the extension of the aft frame by 4 feet, a redesign of the starboard frame, reconfiguration of the berthing compartments, and outfitting the vessel with a reliable A/C system capable of efficiently cooling the vessel. Other modifications included retrofitting the vessel's rudders to work independently for a planned dynamic positioning system and the repair of the bow thruster which was not working as designed due to a hydraulic valve that prevented the system from operating at full power. The R/V Hogarth returned to FIO in April, and due to the decline in cruise commitments, the crew thoroughly reviewed and exercised all of the RV Hogarth's critical research systems.

VIII. FINAL

The findings of the various reviews are perishable in nature and the snapshot taken in 2019 is due in part to a lot of hard work and persistence not the same snapshot you would see today. While we have sought to vigorously correct and address each of the issues and recommendations, FIO is committed to cyclical internal and external reviews to ensure we operate, train, and maintain the vessels and people we are entrusted with. The next review of FIO marine operations is tentatively due to take place in the winter of 2020 by the Director of USF Environmental Health and Safety Office or his designee. In addition, we will continue to work with the U.S. Coast Guard Captain of the Port to conduct courtesy inspections and training exercises. FIO is committed to strengthening how we support and administer our marine research team and each of our research vessels. Many of the findings refer to the need for a Marine Superintendent, which is complete, and this supervisory position will play a central role in how we formalize the aforementioned partnerships and establish the internal controls necessary to ensure the money spent, thought given to, and many gains made are not forgotten or de-prioritized as time wanes.

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