The Florida Institute of Oceanography

Quarterly Report

FIO: Facilitating Marine Science Education and Research for Florida

Spring 2018

Issue 2

Expanded content and additional pictures can be found at http://fio.usf.edu and on FIO's Social Media.

From FIO

Note from FIO Director

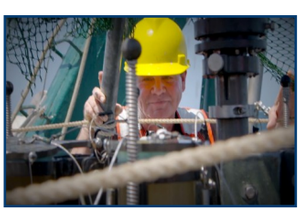
FIO's newest research vessel, the R/V W.T. Hogarth, just returned from 3 weeks of sea trials conducted as part of East Coast Ports Tour that saw stops in Jacksonville, Canaveral, Fort Pierce, Fort Lauderdale, and Miami (see highlights at the end of the newsletter). The Hogarth performed very well and set a new FIO record from St. Pete to Harbor Branch in under 50 hours, averaging a roaring 10 knots. Even when forced to venture out after a cold front in 8-10 foot seas, she impressed with her seaworthiness and roominess. We will be completing installation of the remaining shipboard computer and science systems over the coming months with sea trials and port stops planned for Fort Myers, Pensacola, Carrabelle, and Cedar Key. By April, she will be assuming full-time duties supporting the awarded subsidized ship time and marine research grants, with a busy schedule through October. I am also pleased to report that the Keys Marine Lab (KML) is once again operational after nearly four months of repairs to buildings damaged by storm surge flooding and winds associated with Hurricane Irma. Even though our KML staff are 'Keys Strong', they could not have recovered so quickly without the support of many volunteers and the University of South Florida facilities management team. Last fall's devastating hurricanes were felt far beyond Florida and FIO is working with the Gulf of Mexico University Research Collaborative (GOMURC) to assist with on-going recovery efforts at the University of the Virgin Islands and University of Puerto Rico. Stay tuned for a "list of needs" that will be circulated to FIO members with the hope of generating additional support. Finally, Ocean's Day this year featured a forum on Florida's Ocean Economy along with 13 displays in the Capitol Building, but the event is in need of freshening so please let me know if you would like to be on the organizing committee for next year.

Infrastructure

Keys Marine Lab Re-opening

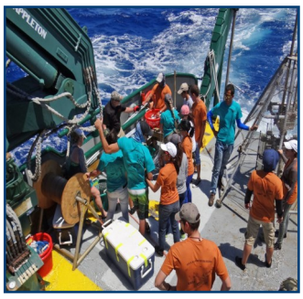
On September 10, 2017, Hurricane Irma made landfall as a Category 4 storm in the lower Florida Keys, causing considerable damage to the Keys Marine Lab (KML). Up to 2 feet of storm surge flooded the science office building and classroom/wet lab building. Driving rain damaged the marina dormitory, marine shop and the administration building. Strong winds removed portions of the roof on the bay house and toppled the fence and other outdoor structures. Surprisingly, the seawater well system only sustained minor damage to the shade structure, however, all of the live corals kept in the seawater tanks were lost. A safety inspection was conducted as soon as staff were able to return the lab in mid-September and mitigation of storm surge damage was completed within two weeks. KML staff hit the ground running with the clean-up process, including the removal of damaged building contents, muck from buildings, and debris from the storm surge. Lab structures, including the fence, were repaired and replaced. Volunteers from Clemson University and the Florida Institute of Oceanography (FIO) assisted with clean-up, including the tide pool, shallows, and debris removal and distribution of new gravel. During the rebuilding, visiting groups were accommodated on a limited basis, beginning in October, based on the preliminary safety inspection. Most scheduled users were able to reschedule their visit within the calendar year and those unable to reschedule were able to complete their class or research at Mote Marine Lab in Summerland Key. A final inspection of the lab on January 18th determined that all the buildings and facilities are fully operational and safe for staff, students and faculty to occupy. Please take advantage of this full-service facility which supports field research and field courses for up to 30 students. See www.kml.org for more information.

FIO Members Shared Asset Inventory



One aspect of FIO's mission is to facilitate identification and usage of infrastructure assets across our 30 institute membership towards increasing efficiency's for the State of Florida. Several efforts have been made over the past decade to compile a list of vessels and boats. However, short shelf lives of assets and changes to risk-management leasing or lending policies has left the 2012/13 inventory badly out of date. As such, FIO has embarked on an ambitious effort to collate detailed specifications from all our members on their vessels (>30'), small boats (<30'), field labs, shipboard equipment (>$1,000), and field lab equipment (>$1,000). Thus far, efforts have focused on gleaning data from member web-sites and reports yielding information on 26 vessels, over 100 small boats, and 6 field stations. We hope to have the inventory completed by the end of June, 2018. FIO will also be working with the FIO Council to examine current shared used policies and determine if a more formalized 'FIO member shared asset program" to facilitate access and provide discounted rates for FIO members may be possible. If you are interested in reviewing or providing input to the asset inventory efforts, please contact Bonnie DiPaolo at bdipaolo@mail.usf.edu.

Future of Collaborative Marine Research in Cuba



Co-chief scientist Dr. Steve Murawksi of USF (black shirt, left center) demonstrates fish sampling techniques with Cuban students. (Credit– C-Image)

The island of Cuba contains an astonishing diversity of marine habitats and species and a growing coastal tourism industry that can have a profound influence on Florida's fisheries and marine wildlife. Despite its close proximity to Florida, undertaking joint marine research in Cuba has never been easy. Over the past couple of years, a thaw in Cuba-US relations eased restrictions for travel and scientific exchanges to the point where last year saw several historic research expeditions to Cuba. FIO's research vessel, the R/V Weatherbird II (WBII), lead a crew of researchers to the northwest portion of Cuba to examine evidence for oil impacts on Cuba's coastal areas and fisheries. USF College of Marine Science professor and C-Image lead PI, Steve Murawski, and University of Havana's Maickel Armenteros, served as co-chief scientists on the voyage. Researchers from USF, Eckerd College and Texas A&M were on board along with students and researchers from the University of Havana. Overall, the WBII expedition to Cuba was highly successful and provided invaluable experience necessary to navigate the permitting and logistics of oceanographic expeditions. However, the recent closure of the US embassy in Havana and the reversal of travel and other restrictions (including which Cuban ports may be used for fueling/provisioning) will make it more difficult for US vessels to travel to Cuba for research. Collaborative projects are still possible but getting visas is now much more difficult. Additional time and resources will be needed to obtain all of the necessary licenses and permissions. A collaborative effort involving FAU Harbor Branch, University of Miami's RSMAS and UNC Wilmington, using remotely operated vehicles to examine the deep-water mesophotic reefs around Cuba plans to return to Cuba aboard the Walton Smith this year (after completing a successful mission last summer – http://www.fau.edu/newsdesk/articles/cuba-ocean-mission.php). There are on-going efforts underway to foster greater marine science collaborations including the recent Florida Straits Conference at Nova South-eastern University in Ft. Lauderdale on March 5-6th and the decade-old Tri-national Initiative will hold a workshop in Merida, Mexico April 26-28th.. Funding for expeditions and marine science collaborations between US and Cuban academic institutes remains tantalizingly within grasp but will remain mired by the political climate for the foreseeable future.

Coral Diseases Ravage Florida's Coral Reefs

Diseased coral

Coral diseases are nothing new to the marine ecosystems and are often identified as one of the primary causes of declining live coral cover on Florida's reefs over the past forty years. Following the first of two consecutive hyperthermal bleaching events in 2014 along the Florida Reef Tract, a new coral disease outbreak appeared in the Miami area and spread northward to St. Martins County and southward into the Keys, with devastating effects on several species of reef-building stony corals. Funded by the Environmental Protection Agency (EPA) and the state of Florida Legislature in 2017, Florida Department of Environmental Protection (DEP) took the lead in organizing a Coral Disease working group, which focused on assessing and tracking this new disease outbreak. Causes for the disease outbreak, pathogens responsible, and mode of transmission still remain poorly understood. On-going disease surveys suggest the active disease line is currently located on the reefs off Marathon in the Middle Keys. FIO has provided logistical support through the Keys Marine Lab (KML), for on-going coral disease treatment trials to help identify potential disease mitigation techniques, using KML's seawater system. It is hoped that these studies will provide viable solutions for treating diseased corals on the reef and stop the progression of this outbreak. The unique and iconic pillar coral (*Dendrogyra cylindrus*), federally listed as 'threatened' due to its declining population, has suffered alarming losses on Florida's reefs since 2014. These losses prompted a multi-agency response in 2016, organized by NOAA's Protected Resources Division, to create a Living Genetic Bank for pillar coral, thereby preserving genotypes for future restoration. FIO's Keys Marine Laboratory, offered the use of their temperature-controlled seawater system as the initial holding and quarantine facility. As a result, more than 250 pillar coral fragments, representing 59 genotypes, have been collected in a coordinated 'blitz' of the entire reef tract. These genotypes, many of which are now extinct on the reefs due to continued losses, have been distributed to our on-shore nursery partners, Florida Aquarium and Mote Marine lab on Summerland Key, as well as off-shore nurseries (Coral Restoration Foundation and Mote). Collaborating with our FIO members, including DEP, Mote, Florida Aquarium, FWC FWRI, Nova Southeastern University, and other entities (Florida Keys Community College, Coral Restoration Foundation, Biscayne Bay National Park Service, and NOAA's NOS Coral Disease Facility), we will continue to support efforts to expand the Living Genetic Bank, develop and test disease treatments, and monitor this critically threatened species.

FLRACEP Research and Monitoring Grants

The Florida Institute of Oceanography is the Gulf Coast State Entity responsible for administering the Florida RESTORE Act Centers of Excellence Program (FLRACEP). This program is responsible for establishing Centers of Excellence in the state of Florida to produce outputs and outcomes related to coastal fisheries, wildlife, and ecosystem research/monitoring in the Gulf Coast Region; and comprehensive observation, monitoring, and mapping of the Gulf of Mexico. The Department of the U.S. Treasury administers Centers of Excellence funding as a federal grants program, whereby only the eligible state entity (FIO, in the case of Florida) may apply to access their allocation of the trust fund to establish Centers of Excellence in their state. Annual trust fund deposits resulting from the *BP Deepwater Horizon* oil spill settlement agreement began in 2017 and will run through 2031. The approximate annual deposit available for FLRACEP to establish Centers of Excellence is $1.4 million plus an interest deposit that is expected to vary widely from year to year (this deposit was around $600,000 in 2017). The first FLRACEP Centers of Excellence were established in 2015 to conduct coastal fish and wildlife research and were awarded ten two-year research projects expected to be completed by May, 2018. In early 2017, a second round of funding was awarded to a research team of academics and fishery stakeholders investigating new stock assessment approaches for long-term fisheries monitoring in Florida's gulf region (SHELF project). External science review of the SHELF project and a meeting of the FLRACEP Project Management Team top discuss future funding directions of the program are scheduled for July 2018. A third call for proposals from the FLRACEP program will likely occur sometime in the first half of 2019.

Community

Florida Ocean Economy Forum

Florida Oceans Day was held on February 12th in the Tallahassee capitol building and featured an evening Florida Ocean Economy Forum event designed to highlight the important role oceans play in driving the coastal economy in Florida (the second largest coastal economy in the nation at over 800 billion dollars per year). This year's forum centered on algae (micro and macro) and featured four panelists – innovations, scientific insights and relevance for food, energy, and water quality in Florida. We look forward to collaborating with a newly created Oceans Day Implementation Team to explore, discuss, and spotlight issues impacting Florida's economy on future Oceans Days

Florida Marine Science Symposium

The Inaugural Florida Marine Science Symposium was a success. Held at Florida Fish & Wildlife Research Institute (100 8th Ave. SE St. Pete, FL 33701), the event featured expert presentations on the current state of Florida's unique habitats, coastal ecosystem dynamics, and fish and wildlife populations, as well as panel discussions for cross-disciplinary synthesis of session topics. Florida Fish and Wildlife Research Institute (FWRI) and the Florida Coastal Office of the Department of Environmental Protection (FDEP) helped us put the event together. We had over 120 researchers, scientists, students, and professionals in attendance; we aim to be the flagship symposium on oceanography and marine science in the state of Florida. To see the presentations and talks, click here. The 2018 FMSS event will take place at FWRI again on November 15th and 16th and will continue the format of expert plenary talks and student lightning presentations. Check the FIO FMSS page for updates on the 2018 event.

Florida Coastal Mapping Workshop

We partnered with the FL Department of Environmental Protection (FDEP), Fish & Wildlife Commission (FWC), National Oceanic and Atmospheric Administration (NOAA), US Army Corps of Engineers (USACE), US Geological Survey (USGS), Bureau of Ocean Energy Management (BOEM), and the Marine Exploration Center (MEC) on a 3-day workshop to evaluate the state of coastal mapping in Florida, assess and prioritize gaps in coverage, and develop a ten-year strategy to complete high-resolution mapping of Florida coastlines and waters. There have been a number of new benthic mapping efforts undertaken in Florida by federal, state, and academic institutions. In addition, there have been ongoing improvements in seafloor mapping technologies, infrastructure, and mapping server capabilities, all of which can increase options and bring costs down. A revitalized effort to examine the current state of Florida's coastal seafloor mapping is overdue and needed to help coordinate planned mapping efforts, reduce redundancy, help set priorities, and catalyze new seafloor mapping efforts to make Florida a national leader.

Events & Opportunities

SECOORA Data Challenge & Scholar Award Opportunity

- Southeast Coastal Ocean Observing Regional Association (SECOORA) is seeking proposal submissions for new data visualizations, mobile applications, data synthesis tools, or other creative ways to use open coastal and ocean data. Proposals due 4/13/18. www.secoora.org/data-challenge
- In remembrance of Vembu Subramanian, SECOORA is establishing an award for the next generation of ocean experts. Proposals due 3/15/18. www.secoora.org/vembu-subramanian-ocean-scholars-award/

Upcoming Events

- R/V Hogarth West Coast Ports Tour:

  ∗Pensacola with UWF on 3/16

  ∗Carrabelle with FSU and FAMU on 3/27

  ∗Cedar Key with UF on 3/30
- FIO Spring Council Meeting: 5/18 in Jacksonville with UNF
- FLRACEP Science Review Workshop: July, 2018 (exact date TBD) in St. Petersburg
- FIO Fall Council Meeting: 11/15 in St. Petersburg
- Florida Marine Science Symposium: 11/15—11/16 at Florida Wildlife Research Institute in St. Petersburg, FL.
- Southern Association of Marine Laboratories (SAML) Spring Meeting: 4/8—4/10 at Eckerd College

Expanded content and additional pictures can be found at http://fio.usf.edu and on FIO's Social Media.

Highlights & Stats from R/V Hogarth East Coast Ports Tour

Fort Pierce

Hosted by Florida Atlantic University, Harbor Branch Oceanographic Institute.

1/19/18: docked at Harbor Branch

Vessel Tours: 57 high school students, 22 undergraduates, 9 graduates, 24 faculty/staff

Media Coverage: (Print) Front page of TCPalm in Martin and St. Lucie Counties.

Cape Canaveral

Hosted by Florida Institute of Technology

1/22/18: docked at Port Canaveral

Vessel Tours: 19 undergraduates, 18 graduates, 29 faculty/staff; 200 public FIT community.

Science Verification Cruise: 22 faculty and graduate students

Media Coverage: http://floridatoday.fl.newsmemory.com/publink.php?shareid=272738514

Jacksonville

Hosted by University of North Florida and Jacksonville University

1/25/18: docked at Jacksonville Riverwalk

Vessel Tours: 21 undergraduates, 10 graduates, 11 faculty/staff from UNF. 5 graduates and 4 faculty/staff from JU.

Media Coverage: http://actionnewsjax.com/news/local/university-of-north-florida-to-research-marine-life-from-78-foot-boat/689414092 http://www.firstcoastnews.com/video/news/unf-improving-marine-life-on-the-first-coast/77-2897955

http://jacksonville.com/news/metro/2018-01-25/unf-marine-science-students-check-out-state-s-brand-new-ocean-research-vessel

http://news.wjct.org/post/1232018-wt-hogarth-teen-suicide-prevention-generous-pours-mapping-our-past

Fort Lauderdale

Hosted by Nova Southeastern University

1/29/18: docked at Bahia Mar Marina

Vessel Tours: 29 high school students, 47 undergraduates, 7 graduates, 11 faculty/staff; 24 VIPs from Marina, NSU, and community.

Media Coverage: https://wsvn.com/news/local/new-ship-for-local-marine-research-sets-sail-from-fort-lauderdale/

http://www.sun-sentinel.com/local/broward/fort-lauderdale/fl-reg-marine-research-vehicle-

Miami

Hosted by Florida International University

1/31/18: docked at Miami Beach Marina

Vessel Tours: 69 high school students, 4 undergraduates, 9 graduates, 11 faculty/staff from FIU, 4 from Miami/RSMAS; 3 VIPs from National Park Service.