

# HARBOR BRANCH OCEANOGRAPHIC INSTITUTE

## FOUNDATION

Supporting Meaningful Oceanographic Research at FAU Harbor Branch  
YESTERDAY, TODAY, TOMORROW

## HELPING THE INDIAN RIVER LAGOON!

### Indian River Lagoon Research and Education

The Harbor Branch Oceanographic Institute at FAU, with its scientific and technology expertise, ideal geographical location, and over 40 years of history of research on the Indian River Lagoon, continues to be a strong contributor to finding answers to research questions regarding the many facets of the Lagoon. HBOI researchers collaborate with other research institutions, federal and state agencies, not-for-profits, governmental bodies, and other interested parties to advance this research and education. Projects and other activities related to the Indian River Lagoon include:

***The Indian River Lagoon Observatory (IRLO):  
Biodiversity and Ecosystem Function of an Estuary in Transition***

**PI: Dennis Hanisak, Ph.D.**

IRLO is a long-term, multi-disciplinary, ecosystem-based program that addresses emerging issues of environmental health in the Indian River Lagoon ecosystem (<http://www.fau.edu/hboi/irlo/index.php>). Key components are: 1) long-term ecosystem-based research, including high-frequency water quality and seagrass/macroalgal monitoring along a water quality gradient in the south central Indian River Lagoon that demonstrates both human impacts and climate-related interannual variability in Indian River Lagoon water quality; 2) collaboration among various organizations working in the Indian River Lagoon, best exemplified by the Indian River Lagoon Symposium (see below); and 3) use of advanced technology for observing long-term changes in the Indian River Lagoon, including IRLO's Network of Environmental Sensors (IRLON), a network of Land/Ocean Biogeochemical Observatories (LOBOs) and weather stations that provides continuous real-time, high-accuracy, high-resolution water-quality and weather data through a dedicated interactive website (<http://fau.loboviz.com/>).

Funded by *Save Our Seas* Florida specialty license plate sales granted by the **HBOI Foundation**

\$75,000 – July 1, 2011 to June 30, 2012  
\$122,000 – July 1, 2012 to June 30, 2013  
\$341,892 – July 1, 2013 to June 30, 2014  
\$200,986 – July 1, 2014 to June 30, 2015  
\$300,429 – July 1, 2015 to June 30, 2016  
\$420,079 – July 1, 2016 to June 30, 2017  
\$442,707 – July 1, 2017 to June 30, 2018

***Land/Ocean Biogeochemical Observatories (LOBOs) for Water Quality Sampling  
in the St. Lucie Estuary and Indian River Lagoon***

**PI: Dennis Hanisak, Ph.D.**

This project supports five IRLON real-time water quality and weather stations in the St. Lucie Estuary and nearby Indian River Lagoon. These data provide scientists of various disciplines from many organizations reliable, continuous observatory data to better quantify and model relationships between environmental factors and biological processes in the St. Lucie Estuary and Indian River Lagoon. The data can also be used to follow the outcome of changes related to recovery measures and assist resource and policy managers with decision making. IRLON provides real-time, high-accuracy weather and water quality data. For more information, please visit: <http://fau.loboviz.com>.

Funded by Florida Department of Environmental Protection:

\$2,350,000 – July 1, 2014 to June 30, 2016  
\$350,000 – July 1, 2016 to June 30, 2017  
\$350,000 – July 1, 2017 to June 30, 2018

***Land/Ocean Biogeochemical Observatories (LOBOs)  
for Intensive, Real-time Water Quality Sampling in Indian River Lagoon***

**PI: Dennis Hanisak, Ph.D.**

To increase HBOI's estuarine observation and prediction network in the Indian River Lagoon, this project supported the purchase and one year of operations of land/ocean biogeochemical observatory (LOBO) support at three IRLON sites in Indian River and St. Lucie counties.

Funded by **HBOI Foundation**  
\$559,295 – July 1, 2014 to June 30, 2015

***Land/Ocean Biogeochemical Observatories LOBOs)  
for Intensive, Real-time Water Quality Sampling in the St. Lucie Estuary***

**PI: Dennis Hanisak, Ph.D.**

This project provides support for one IRLON site, strategically located in the South Fork of the St. Lucie Estuary.

Funded by South Florida Water Management District  
\$138,007 and \$138,007 match from HBOI – June 11, 2015 to June 10, 2018

***Algal Blooms Investigation: Analysis of Submersed Aquatic Vegetation Tissue Nutrient Content  
and the Response of Drift Macroalgae to Extreme Levels of  
Salinity, Temperature and Light***

**PI: Dennis Hanisak, Ph.D.**

This project, part of the St. John's River Water Management District Indian River Lagoon Algal Bloom Investigation, provided a better understanding of macrophyte nutrient cycling in the Indian River Lagoon and how the disruption of this role may have contributed to the development and persistence of the severe phytoplankton blooms in 2011.

Funded by St. John's River Water Management District  
\$447,998 – March 1, 2014 to September 30, 2016

***Development of a Seagrass Nursery for Restoration of Seagrass in the Indian River Lagoon***

**PI: Dennis Hanisak, Ph.D.**

Traditional seagrass restoration efforts depend on transplantation from established beds to other locations, which damages donor beds and contradicts the management practice of no loss of habitat. This project developed an experimental seagrass nursery at the HBOI Aquaculture Development Park. It is estimated that the nursery will yield enough material for a 1-acre test planting effort.

Funded by **HBOI Foundation** through **Love Your Lagoon** Gala proceeds  
\$111,840 – April 20, 2015 to June 30, 2017

***Estuarine Impacts on St. Lucie Reef: Determining Effects of Changing Resource  
Management on Florida's Northernmost Coral Reef***

**PI: Joshua Voss, Ph.D.**

Development of sound management strategies is critical for conserving and protecting vital coral reef communities in South Florida. This project specifically addressed the effects of management activities in the St. Lucie Estuary and the resulting water quality impacts on downstream coral communities located on St. Lucie Reef. This reef is located within St. Lucie Inlet Preserve State Park and represents the known northern limit of many tropical benthic coral reef species. St. Lucie Reef serves as habitat for numerous fish and invertebrate species of both commercial and recreational importance.

Funded by *Save Our Seas* Florida specialty license plate sales granted by the **HBOI Foundation**  
\$100,000 – July 1, 2011 to June 30, 2012  
\$100,000 – July 1, 2012 to June 30, 2013

### **Microbial Source Tracking in the Indian River Lagoon**

**PI: Peter McCarthy, Ph.D.**

This study was designed to generate proof of concept, and to standardize protocols for the detection of source-specific microbial indicators of environmental and human health. Sediment and water samples from six locations in the Indian River Lagoon were tested for *Escherichia coli* and *Enterococcus* using classic chromogenic culture enumeration techniques.

Funded by *Save Our Seas* Florida specialty license plate sales granted by the **HBOI Foundation**  
\$25,000 – July 1, 2014 to June 30, 2015

### **Developing Source Tracking for Indicators of Fecal Contamination**

**PI: Peter McCarthy, Ph.D.**

Measures of fecal indicator bacteria are used routinely to assess Indian River Lagoon water quality but do not identify contamination sources, which can include humans, agriculture, and wildlife. This work analyzed water samples from the central Indian River Lagoon using real-time polymerase chain reaction and markers for human, ruminant, and bird waste to help identify nutrient sources over the course of a year.

Funded by the River Branch Foundation  
\$39,877 – July 1, 2015 to June 30, 2016

### **Ventilation Rates of the Indian River Lagoon through its Inlets**

**PI: Laurent Cherubin, PhD.**

The exchange of water between the ocean and Indian River Lagoon is an important factor influencing the quality of water in the estuary, which in turn helps determine the favorability of conditions for the growth of seagrass, the development of harmful algal blooms, and the health of resident animals. This project employed a selection of underwater, surface, and aerial technologies to shed light on water exchange as well as the influence of precipitation fluctuations due to events and/or seasonal patterns on lagoon water quality.

Funded by *Save Our Seas* Florida specialty license plate sales granted by the **HBOI Foundation**  
\$51,420 – October 1, 2014 to September 30, 2015  
\$102,527 – July 1, 2015 to June 30, 2016

### **The Pathogenic Vibrios in the Indian River Lagoon and their Potential Threat to Human Health**

**PI: Peter McCarthy, Ph.D.**

This project was designed to develop baseline data concerning the incidence of *Vibrio cholera*, *parahaemolyticus*, and *vulnificus* to determine the seasonality of their occurrence and to determine the clinical significance of these pathogens to people who enter the Lagoon environment.

Funded by *Save Our Seas* Florida specialty license plate sales granted by the **HBOI Foundation**  
\$12,500 – July 1, 2014 to June 30, 2015

### **Ecology, Nutrition & Biochemistry of Macroalgal Blooms in the Indian River Lagoon**

**PI: Brian Lapointe, Ph.D.**

Persistent macroalgal blooms can reduce the prevalence and distribution of seagrass. This project studied the composition and seasonal variability of macroalgal blooms and the nutrients fueling them at more than 20 sites throughout the Indian River Lagoon from Jupiter Inlet to the Mosquito Lagoon.

Funded by *Save Our Seas* Florida specialty license plate sales granted by the **HBOI Foundation**  
\$100,000 – July 1, 2011 to June 30, 2012  
\$100,000 – July 1, 2012 to June 30, 2013  
\$200,419 – July 1, 2013 to June 30, 2014  
\$59,014 – July 1, 2014 to June 30, 2015  
\$210,000 – July 1, 2015 to June 30, 2016  
\$195,766 – July 1, 2016 to June 30, 2018

***Analysis of Sediments in the Indian River Lagoon for Potential Herbicides***

**PI: Amy Wright, Ph.D.**

Investigation of Indian River Lagoon seagrass die-offs in recent years have included analyses of sediments, mostly near drainage canals, that have suggested the presence of herbicides. This pilot project worked on determining a more definitive conclusion and analysis of new sediments from 13 sites near canals as well as from healthy and degraded seagrass beds.

Funded by *Save Our Seas* Florida specialty license plate sales granted by the **HBOI Foundation**  
\$25,000 – July 1, 2015 to June 30, 2016

***The Microbiome of the Indian River Lagoon: A Baseline Study***

**PI: Peter McCarthy, Ph.D.**

The microbial community of the Indian River Lagoon remains largely unexplored. This study aimed to fill this knowledge gap by investigating the sediment and water bacterial and archaeal populations present in the Indian River Lagoon and their functions, as well as the effects of natural and anthropogenic stressors on their diversity.

Funded by *Save Our Seas* Florida specialty license plate sales granted by the **HBOI Foundation**  
\$95,654 – July 1, 2016 to December 31, 2017

***Indian River Lagoon Shark and Ray Assessment***

**PI: Matt Ajemian, Ph.D.**

A substantial data gap surrounds the status of the elasmobranchs inhabiting the Indian River Lagoon. This project implemented a pilot-scale fishery-independent survey targeting Indian River Lagoon sharks and rays. This survey will be standardized to protocols established by fisheries monitoring agencies (i.e., NOAA) for abundance comparisons and provide access to individuals for blood sampling to develop important physiological and epidemiological baselines.

Funded by *Save Our Seas* Florida specialty license plate sales granted by the **HBOI Foundation**  
\$34,554 – July 1, 2016 to June 30, 2017

***Water Quality Impacts of St. Lucie River Plume on Northern End of the Florida Reef Tract***

**PI: Mingshun Jiang, Ph.D.**

This work aimed at characterizing St. Lucie River freshwater plumes in terms of water quality (e.g., nutrients, dissolved oxygen, turbidity) and its contributors (i.e., Lake Okeechobee, St. Lucie watershed) created a numerical model of the physical and biogeochemical processes governing this system.

Funded by NOAA: \$59,556 plus \$59,930 in match from the **HBOI Foundation**  
July 1, 2015 to December 31, 2016

***Determination of Indian River Lagoon Pathogenic Bacterial Impacts on the East Coast Florida Aquaculture Industry***

**PI: Susan Laramore, Ph.D.**

This pilot-scale project was designed to inform and assist the Florida East Coast aquaculture industry that has been plagued by production problems in recent years related to pathogenic bacteria. The approach was to characterize the bacteria in the areas of the Indian River Lagoon in which aquaculture operations are sited, identifying both endemic and exotic pathogens and determining virulence to characterize bacterial pathogens of concern and appropriate mitigation strategies.

Funded by the *Florida Aquaculture* specialty license plate sales granted by the **HBOI Foundation**  
\$35,000 – July 1, 2016 to June 30, 2017

***Modeling Ecosystem Dynamics in the Indian River Lagoon and Assessing the Potential Impacts of Climate Change***

**PI: Mingshun Jiang, Ph.D.**

This project is improving an existing hydrodynamic and developing an Indian River Lagoon ecosystem model to address climate projection of the Indian River Lagoon residence time, connectivity, and potential occurrences of hypersaline conditions under IPCC climate change scenarios (warming temperature, changing precipitation, and sea level rise).

Funded by the Indian River Lagoon National Estuary Program  
\$34,758 and \$15,977 HBOI cost share  
November 1, 2016 to October 31, 2017

***Microcystis HAB Toxins in East Florida Waters***

**PI: James Sullivan, Ph.D.**

The goal of this project is to determine the presence and/or concentration of known cyanobacteria HAB toxins (e.g., microcystins, BMAA) in water samples taken from the source waters of Lake Okeechobee, Lake Okeechobee discharge canals, and downstream end points within the St. Lucie Estuary, Indian River Lagoon, and associated inlets.

Funded by the Everglades Foundation  
\$14,663 – January 1, 2017 to December 31, 2017

***Photo-identification – Dolphin Census and Spatiotemporal Trends***

**PI: Marilyn Mazzoil**

HBOI has been conducting photo-identification studies of Indian River Lagoon bottlenose dolphins since 1996, and has identified more than 1,700 individual dolphins. Among the findings enabled by this data are identification of a distinct Indian River Lagoon stock now breeding its third generation since the study began and insights into breeding and social behavior. The program is expanding to include remote biopsy sampling to support ongoing research collaborations in the study of contaminant burdens and develop innovative projects to assess health, stress and brevetoxin effects.

Funded by *Protect Wild Dolphins* Florida specialty license plate sales granted by the **HBOI Foundation**  
\$470,000 – January 1, 2014 to December 31, 2014  
\$462,520 – January 1, 2015 to December 31, 2015  
\$572,000 – January 1, 2016 to December 31, 2016  
\$500,000 – January 1, 2017 to December 31, 2017  
\$500,000 – January 1, 2018 to December 31, 2018

***Population Biology and Behavioral Ecology Program, Florida Dolphins***

**PI: Greg O’Corry-Crowe, Ph.D.**

This study investigated dolphin fitness, behavior and ecology in near pristine, compromised and degraded habitats to predict impacts of anthropogenic activities and habitat alteration on trophic cascades and dolphin population.

Funded by *Protect Wild Dolphins* Florida specialty license plate sales granted by the **HBOI Foundation**  
\$229,268 – January 1, 2014 to December 31, 2014

***Dolphin Abundance in the Vicinity of the Land/Ocean Biogeochemical Observatories: Relationship to Water Quality***

**PI: Marilyn Mazzoil**

The objective of this pilot study was to test the feasibility of using bottlenose dolphin abundance within the Indian River Lagoon as an indicator of short-term changes in water quality. The study was based on two data sources. The first was the deployment of Land/Ocean Biogeochemical Observatories (LOBOs) at several key locations in the Indian River Lagoon. These units provide real time monitoring of multiple water quality parameters. The second source of data was based on well-established, standardized methods for identifying and counting individual bottlenose dolphins by photo-identification that have been in place for nearly twenty years.

Funded by *Protect Wild Dolphins* Florida specialty license plate sales granted by the **HBOI Foundation**  
\$34,978 – January 1, 2015 to December 31, 2015

**Wild Dolphin Stranding Response, Care & Research**

**PI: Steve Burton, M.S.**

As a member of the NOAA National Marine Fisheries Service Marine Mammal Health and Stranding Response Network, HBOI is responsible for responding to marine mammal stranding incidents in the Indian River Lagoon and near-shore ocean waters between the Sebastian and St. Lucie Inlets. The team also serves as a resource to assist with strandings, transport, disentanglements and rehabilitation of dolphins throughout the Indian River Lagoon and the State of Florida.

Funded by *Protect Wild Dolphins* Florida specialty license plate sales granted by the **HBOI Foundation**

\$295,380 – January 1, 2014 to December 31, 2014

\$150,625 – January 1, 2015 to December 31, 2015

\$150,000 – January 1, 2016 to December 31, 2016

\$170,000 – January 1, 2017 to December 31, 2017

\$197,000 – January 1, 2018 to December 31, 2018

**Epidemiology, Pathology & Population Health Science**

**PI: Adam Schaefer, M.P.H.**

HBOI epidemiology research focuses on the health of Indian River Lagoon bottlenose dolphins as an indicator of the health of the ecosystem and potential implications for human health. Studies include a new approach to identification and characterization of a fungal infection that occurs in dolphins and humans, the use of MRI to investigate the effects of environmental chemicals on dolphin central nervous systems, molecular identification of dolphin viruses, and the study and archiving of tissues from stranded dolphins.

Funded by *Protect Wild Dolphins* Florida specialty license plate sales granted by the **HBOI Foundation**

\$419,859 – January 1, 2013 to December 31, 2013

\$214,526 – January 1, 2014 to December 31, 2014

\$207,787 – January 1, 2015 to December 31, 2015

\$246,000 – January 1, 2016 to December 31, 2016

\$160,000 – January 1, 2017 to December 31, 2017

**CetOMICS: A State-Wide Cetacean OMICS Initiative  
to Investigate the Health, Fitness, Behavior and Ecology of Whales and Dolphins**

**PI: Greg O’Corry-Crowe, Ph.D.**

In 2015, HBOI launched the state-wide CetOMICS Initiative that combined genomics, transcriptomics and proteomics to determine how dolphins are impacted by and respond to threats at a molecular level and to inform management policy. Phase III will: complete many of the lab aspects of the initiative, emphasize the bioinformatic analyses needed to accurately interpret Next Generation Sequencing data and overlay them with population data, expand epigenetic and gene expression studies particularly as they relate to the Indian River Lagoon dolphins and their immunogenetic responses to pathogens including HABs, and will complete the development of the “FastGen” kit.

Funded by *Protect Wild Dolphins* Florida specialty license plate sales granted by the **HBOI Foundation**

Phase I: \$95,618 – January 1, 2015 to December 31, 2015

Phase II: \$175,000 – January 1, 2016 to December 31, 2016

Phase III: \$137,500 – January 1, 2017 to December 31, 2017

**Assessing the Impacts of HAB Toxins on Dolphins**

**PI: James Sullivan, Ph.D.**

This study worked to establish and coordinate a multi-level team of researchers to enhance the detection and quantification of distributions of toxic HAB phytoplankton in the Indian River Lagoon, and to develop routine testing abilities for assessing HAB toxins in local waters and in tissues of target animals.

Funded by *Protect Wild Dolphins* Florida specialty license plate sales granted by the **HBOI Foundation**

\$34,447 – January 1, 2016 to December 31, 2016

***Dolphin Abundance Relative to Prey Distribution and Water Quality***

**PI: Marilyn Mazzoil**

This pilot project was intended to shed light on the influences of water quality and the spawning of their preferred prey species of Indian River Lagoon bottlenose dolphins. Water quality data was provided primarily by HBOI's Land-Ocean Biogeochemical Observatory units. The fish assessments included acoustic studies to determine if the dolphins use passive listening or echolocation to find prey.

Funded by *Protect Wild Dolphins* Florida specialty license plate sales granted by the **HBOI Foundation**  
\$34,894 – December 10, 2014 to December 9, 2015

***Utilizing Photo-identification Mark-Recapture Surveys to Estimate the Abundance and Better Understand the Current Distribution in the Indian River Lagoon***

**PI: Marilyn Mazzoil**

This project addressed bycatch reduction of marine mammals using mark-recapture methodology and dorsal fin matching with the archived Indian River Lagoon catalogue to estimate the abundance and distribution of bottlenose dolphins inhabiting the Indian River Lagoon estuarine stock.

Funded by North Carolina Sea Grant, by subcontract from Hubbs-Sea World Research Institution for project.  
\$43,328 – August 1, 2016 to June 30, 2017

***Dolphins as Sentinels for Harmful Algal Bloom Toxins in the Indian River Lagoon: An Interdisciplinary Study***

**PI: James Sullivan, Ph.D.**

This project assessed the distribution and concentration of Harmful Algal Bloom toxins (microcystin, nodularin, BMAA, saxitoxin) in Indian River Lagoon waters, the food chain, prey fish and ultimately in resident dolphin populations. Assessing the concentration of these toxins within an Indian River Lagoon food chain potentially shared by both dolphins and humans i.e., fish) could have significant public health impacts, where dolphins serve as the sentinel species for understanding future health threats to humans.

Funded by *Protect Wild Dolphins* Florida specialty license plate sales granted by the **HBOI Foundation**  
\$90,000 – January 1, 2017 to December 31, 2017  
\$90,000 – January 1, 2018 to December 31, 2018

***Florida Whale Stranding Response, Care & Research***

**PI: Steve Burton, M.S.**

As a member of the NOAA National Marine Fisheries Service Marine Mammal Health and Stranding Response Network, HBOI is responsible for responding to marine mammal stranding incidents in the Indian River Lagoon and near-shore ocean waters between the Sebastian and St. Lucie Inlets. The team also serves as a resource to assist with strandings, transport, disentanglements and rehabilitation of whales throughout the Indian River Lagoon and the State of Florida.

Funded by *Protect Florida Whales* Florida specialty license plate sales granted by the **HBOI Foundation**  
\$159,311 – January 1, 2014 to December 31, 2014  
\$111,596 – January 1, 2015 to December 31, 2015  
\$110,000 – January 1, 2016 to December 31, 2016  
\$194,415 – January 1, 2017 to December 31, 2017  
\$221,415 – January 1, 2018 to December 31, 2018

***CetOMICS: A State-Wide Cetacean OMICS Initiative  
to Investigate the Health, Fitness, Behavior and Ecology of Whales and Dolphin***

**PI: Greg O’Corry-Crowe, Ph.D.**

In 2015, HBOI launched the state-wide CetOMICS initiative that combined genomics, transcriptomics and proteomics to determine how dolphins are impacted by and respond to threats at a molecular level and to inform management policy. By Phase III the project will complete many of the lab aspects of the initiative, emphasize the bioinformatic analyses needed to accurately interpret Next Generation Sequencing data and overlay them with population data, expand epigenetic and gene expression studies particularly as they relate to the Indian River Lagoon dolphins and their immunogenetic responses to pathogens including HABS, and will complete the development of the “FastGen” kit.

Funded by *Protect Florida Whales* Florida specialty license plate sales granted by the **HBOI Foundation**  
Phase I: \$137,068 – January 1, 2015 to December 31, 2015  
Phase II: \$150,000 – January 1, 2016 to December 31, 2016  
Phase III: \$137,500 – January 1, 2017 to December 31, 2017

***Indian River Lagoon Graduate Research Fellowships***

**PI: Peter McCarthy, Ph.D.**

Proceeds from four of the Harbor Branch Oceanographic Institute Foundation’s ***Love Your Lagoon*** fundraising gala have and will be supporting competitively awarded graduate student fellowships supporting Indian River Lagoon research projects being conducted by 5 Ph.D. and 9 M.S. students at FAU. The fellowships are being used for research assistantships, tuition, travel related to experimental work and presentation of research at scientific conferences, and purchase of necessary equipment and supplies related to these student research projects.

Funded by the **HBOI Foundation** with proceeds from the ***Love Your Lagoon*** Gala:  
\$80,996 – July 1, 2014 to June 30, 2015  
\$111,350 – July 1, 2016 to June 30, 2017  
\$89,826 – May 15, 2017 to May 4, 2018  
TBD – Proceeds from the 2018 event

***Marine Mammal Reserve Funds***

**PI: Steve Burton, M.S.**

The Marine Mammal Reserve Funds have and will be used in cases where there are increased stranding response activities beyond what has already been allocated to FAU-HBOI to respond to stranding events. For example, the unit serves as a resource to assist with strandings, mass strandings, necropsies, interventions, transports and rehabilitation assistance for whales throughout the state. These activities are authorized through the U.S. National Marine Fisheries Service. Internally, response activities will serve an integral role in supporting multiple labs, which conduct marine mammal research at FAU-HBOI.

A dedicated amount of funds as projected to be needed from the  
*Protect Wild Dolphins* and *Protect Florida Whales* specialty license plate sales  
granted by the **HBOI Foundation**:

**Marine Mammal Reserve Protect Wild Dolphins**  
FY16 \$140,000  
FY17 \$92,500  
FY18 \$65,500

**Marine Mammal Reserve Protect Florida Whales**  
FY16 \$60,000  
FY17 \$60,000  
FY18 \$33,000

## The Annual Indian River Lagoon Symposium

PI: Dennis Hanisak, Ph.D.

In addition to the above, HBOI works to foster Indian River Lagoon research via the annual **Indian River Lagoon Symposium** which it hosts and organizes as part of a multi-institution steering committee. The event attracts over 300 scientists, resource managers, and students, and provides a forum for all researchers and agencies working in the INDIAN RIVER LAGOON to share research findings and discuss challenges and opportunities. The program and abstracts for all of these symposia (2012-2017) are available at: <http://indianriverlagoon.org/symposium.html>.

Funded by the **HBOI Foundation** with net proceeds from the *Love Your Lagoon* Gala:

\$11,836 – 2012  
\$9,294 – 2013  
\$10,017 – 2014  
\$10,259 – 2015  
\$2,053 – 2016  
\$4,016 – 2017  
TBD – 2018

The breadth of HBOI Indian River Lagoon research is reflected in its **Mission: Ocean Discovery** public outreach program, which includes the **Ocean Science Lecture Series**, a forum for HBOI researchers and guest speakers to inform the public about their work; the Immersion Tour program, which offers visitors an up-close look at the HBOI site and its laboratories; the **Ocean Explorers Children's Camp**, a day camp providing introductions to marine ecosystems; and the **Ocean Discovery Visitor's Center**, a museum-style visitor center that features interpretations of HBOI research and nearby marine environments including the Indian River Lagoon via a continually evolving array of interactive exhibits, small live animal tanks, video, and other displays. The HBOI **Indian River Lagoon video** ([www.youtube.com/watch?v=1v6KlaUA18Q&list=UU6YvxeMtmn-a5NbhMKvk-Jg](http://www.youtube.com/watch?v=1v6KlaUA18Q&list=UU6YvxeMtmn-a5NbhMKvk-Jg)) is another outreach tool that provides an overview of the estuary and some of the ways the institute is investigating its challenges.

The Indian River Lagoon also is an integral part of the curricula for HBOI educational programming, which includes:

- FAU College of Science and HBOI **Semester By The Sea**, a semester-long undergraduate immersion in marine science located at HBOI;
- **Graduate student training** for FAU students pursuing advanced degrees in biological and environmental sciences;
- The **Harbor Branch Summer Intern Program**, competitive program that attracts top undergraduate and graduate students worldwide for a 10-week immersion in marine science and engineering projects historically funded by The Link Foundation and the Gertrude E. Skelly Charitable Foundation and with the more recent addition of funding through the James Pomponi Memorial Internship.
- The **Marine and Oceanographic Academy**, a magnet high school program located at HBOI and created in partnership with the St. Lucie County School District;
- FAU Pine Jog's and HBOI's **H<sub>2</sub>O to Go Summer Research Institute**, a week-long, residential research institute for high school students focused on the interconnectedness and complexity of South Florida water systems and the environmental issues facing them
- The **Indian River County Junior Scientists Fellows Program**, a HBOI partnership with the Indian River Land Trust, to engage high school students in the research and care of an environmentally sensitive, 185-acre preserve located along the Indian River Lagoon.

### OUR COMMITMENTS: YESTERDAY, TODAY, TOMORROW

HBOIF looks forward to continuing to serve FAU Harbor Branch by realizing the founder's vision of fostering meaningful oceanographic research and ensuring FAU Harbor Branch remains the premier leader for

*Ocean Science for a Better World*®