

Researchers, Graduate Students Drill for Oil Spill Answers



Dr. Peter McCarthy examines the differences in the microbial populations of sponges in clean versus polluted waters.

After the April 20, 2010, Deepwater Horizon explosion, oil gushed into the Gulf of Mexico for nearly three months before a temporary cap was in place, and it was another two months before the well was considered “effectively dead” by government officials overseeing the effort. An estimated 4.9 million barrels of crude and nearly two million gallons of chemical dispersants were introduced to the Gulf ecosystem, with implications that remain poorly understood.

Harbor Branch researchers are engaged to advance that understanding, and those whose projects received Florida Institute of Oceanography approval in August for BP rapid response research funding have been making progress. Vital support in the form of graduate student assistance has been made possible through many generous donors to the Harbor Branch Research Development Fund, established by the Harbor Branch Oceanographic Institute Foundation. *(story continues on next page)*



Dr. Susan Laramore (L) and Amber Garr prepare beakers for oil and dispersant exposure experiments.



Dr. Ed Proffitt studies the oyster reef communities on Florida's Gulf coast.

With an eye on Gulf seafood habitats, Assistant Research Professor Susan Laramore, Ph.D., and Research Associate Amber Garr are working in their lab to determine what oil and dispersant exposure does to crustaceans and molluscs (attempts by shrimp to jump out of experiment beakers suggest poor tolerance). Their graduate student is supported by the Harbor Branch Scholars Award – In Memory of Donald Antaya.

Associate Professor Ed Proffitt, Ph.D., and post-doctoral investigator Holly Nance, Ph.D., have been looking at four oyster reef communities, from the Panhandle south to Rookery Bay, to assess the abundance and size of oysters and associated reef animals. No oil has been found in oyster tissue to date, and tagged oysters and newly planted shell substrate will be checked periodically to measure growth and colonization, respectively. Graduate student assistance for this work is made possible by a Friends of Harbor Branch-sponsored Harbor Branch Scholars Award.

Going a little deeper is the research of Assistant Research Professors Sara Edge, Ph.D., and Joshua

Voss, Ph.D., who will be performing molecular diagnoses on corals to determine the sublethal effects of oil and dispersant exposure. Early-June field collections in the southern Keys will be followed by gene expression experiments in the lab. Their graduate student is being funded by the Harbor Branch Scholars Award – In Memory of John J. and Cornelia V. Gibson.

Research Professor Peter McCarthy, Ph.D., and his collaborators will be examining differences in the microbial populations of sponges in clean versus polluted waters and comparing laboratory results with field observations. Sponge samples from the Harbor Branch collection are central to this work. A second Friends of Harbor Branch-sponsored Harbor Branch Scholars Award is supporting Dr. McCarthy's graduate student.

To help advance important work such as this through the Harbor Branch Research Development Fund, please contact Janet Alford at 772-466-9876 or jmalford@hboifoundation.org.



2011 Harbor Branch Intern Program Underway

Eighteen undergraduate and graduate students from around the country have come to Harbor Branch to participate in the 2011 FAU Harbor Branch Summer Intern Program. The 10-week internships give participants a chance to design, execute, analyze, and present the results of their own original research under the mentorship of faculty from Florida Atlantic University's Harbor Branch Oceanographic Institute.

This year's participants come from as far away as Colorado, Massachusetts, New York, and Pennsylvania, and three of the 18 are FAU students. Fields of exploration include aquaculture, ocean technology, marine ecology, and marine biomedical research.

Now in its 38th year, the 2011 FAU Harbor Branch Summer Intern Program runs from May 23 through July 29. The Program is funded primarily through the generosity of the Link Foundation, with the Gertrude E. Skelly Charitable Foundation providing the support for interns in marine biomedical research.



Summer 2011 Harbor Branch Link Interns.
Back row (L to R): Amber Stubler, Mark Christian, Timothy Haines, Ian MacLeod, Peter Cohen, Heather Dupuis, Caitlin Sablotsky, and Stewart Baskin.
Front row (L to R): Natalie Harrison, Hannah Kolb, Rene Machietto, Elizabeth Fahsbender, Emily Jensen, Jignasa Patel, Kiersten Miller, and Emily Reynolds. Not shown: Maureen Williams and Kelly Maers

Executive Director's Report



Margaret S. Leinen, Ph.D.

I'm grateful for this opportunity to address you through our Bulletin, and I look forward to future chances as well. Here I will highlight the science, engineering, and education initiatives that make Harbor Branch the singular place that it is.

The primary reasons I joined Harbor Branch are the excellence of the work being done here and the depth of Florida Atlantic University's commitment to marine and environmental issues as drivers of growth in research, education, and outreach. It's not only that "Atlantic" is our middle name – it's the realization that the stretch of coastline spanned by FAU is a nexus for many of the issues that confront the oceans and, to varying degrees, coastal populations: climate change, sea level rise, ocean acidification, pollution, and over fishing.

The exciting thing is that this also is where answers to these questions are being developed. Harbor Branch and other FAU researchers are at work tapping the power of the Florida Current to generate electricity, finding better ways to grow fish for food, using marine organisms to find cures for diseases, and, as you will see in this issue, understanding and protecting deep and shallow coral reefs.

So much brilliant and necessary work is happening at Harbor Branch, and I hope you enjoy reading about some of it in these pages.



L to R: Dr. Sara Edge, Dr. Joshua Voss, Dr. Dennis Hanisak, Stephanie Farrington, John Reed, Lisa Cohen, and Natalie Harrison

Banbury Support Stimulates Corals Program Growth

Show most people \$1 million and they'll start imagining things to buy. Show it to scientists, however, and their thoughts turn to the research programs they've been building in their minds.

In 1999, Bill and John Robertson of the Banbury Fund became interested in Harbor Branch. One of their interests was to foster coral reef research, due to declines in coral reefs that were becoming apparent in the Florida Keys. Five years later, to memorialize the untimely passing of John and his wife Andreija, the Banbury Fund pledged a \$1 million unrestricted grant to establish the Robertson Coral Reef Research and Conservation Program at Harbor Branch. Developed in collaboration with Research Professor Dennis Hanisak, Ph.D., the Robertson Program is dedicated to understanding and preventing losses in shallow-

and deep-water coral communities that result from both natural and man-made causes.

The initial plan established two strategic tracks. The first focuses on deep coral research and conservation, and is led by Research Professor John Reed. A pioneer in deep coral reef studies, Mr. Reed has documented the changes that these reefs have undergone over the past 26 years toward the goal of conservation. He has leveraged Robertson Program funds to study deep-water corals with 21 funded grants since 2007. His deep-water corals expertise was instrumental in helping Harbor Branch win the 2009 competition to host NOAA's Cooperative Institute for Ocean Exploration, Research and Technology.

(story continues on next page)



*Deep coral reefs, such as this *Lophelia* discovered last summer by Harbor Branch researchers in the Gulf of Mexico, provide essential habitat for numerous organisms such as this crab.*



John Reed and Dan Rowan carrying out field work on a coral reef in the Florida Keys

Strength Through Expansion

The second track focuses on coral health and disease and was initiated with the hire of two post-doctoral investigators in 2007 to utilize molecular tools to assess coral health: Sara Edge, Ph.D., and Joshua Voss, Ph.D. Attracted by the freedom to innovate using molecular tools, the two established new areas of investigation and collaboration at Harbor Branch. Today, Dr. Edge and Dr. Voss are Assistant Research Professors, each expanding their research. They credit the Robertson Program with providing the flexibility to pursue research that is both cutting edge and promising.

Dr. Edge has used this latitude to apply her molecular diagnostics work to other marine invertebrates, most immediately sponges, and is focused on developing analytical capabilities that will enable other researchers in Florida to use advanced genomics tools to study marine systems. Dr. Voss has leveraged Robertson Program funds when applying for grants, something granting agencies like to see. He also values the wherewithal provided by the Robertson Program to participate in large multi-institutional

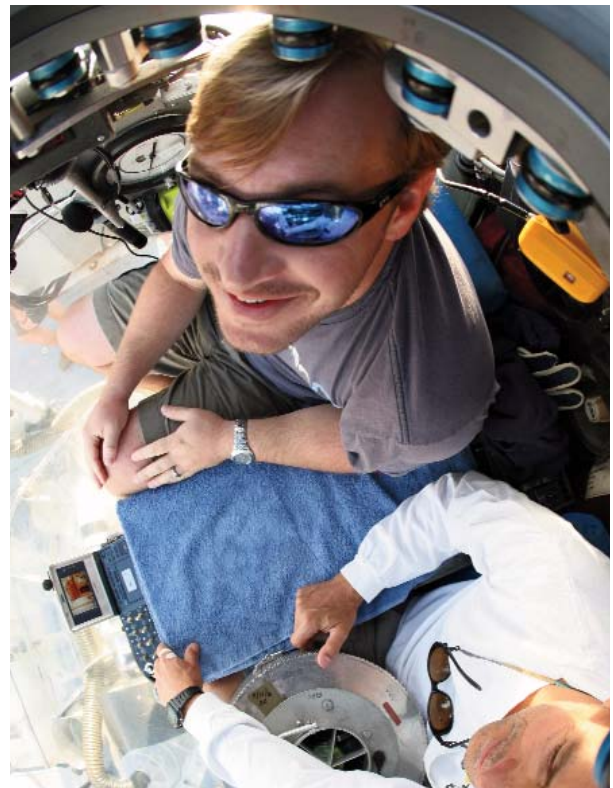


Diseased coral

research programs, such as this summer's work in the Flower Garden Banks National Marine Sanctuary in the Gulf of Mexico.

Robertson Program funds have also enabled the addition of skilled positions, including Biological Scientists Stephanie Farrington, a geographic information systems expert, and Lisa Cohen, a molecular biologist. Their expertise has significantly increased the productivity of the Program.

"The support of the Banbury Fund has been instrumental to building a world-class research program and enabling a number of truly important conservation initiatives," says Dr. Hanisak. "The support of the Robertsons is making a significant difference: identifying and protecting previously unknown deepwater coral reefs, developing new ways of assessing coral health, and fostering the development of new scientists who will devote their careers to this important research."



Dr. Joshua Voss and sub pilot Phil Santos just before the submersible hatch is shut and secured prior to their dive

Summer Research Immersions

Ask Floridians how they beat the summer heat and invariably they'll tell you about the time they spend on and/or in the water. Harbor Branch researchers are no exception, as shown by the following list of current scientific and technological endeavors.

AQUACULTURE

- Research Associate Amber Garr and Biological Scientist Helen Lopez are making research trips to the Loxahatchee Impoundment Landscape Assessment, an 80-acre model of the Everglades ecosystem located west of Delray Beach, to monitor the egg production of apple snails released by the researchers in March. Part of an effort to conserve the Florida snail kite, an endangered bird that feeds almost exclusively on the apple snail, this work is supported by the Aquaculture Florida specialty license plate.



OCEAN TECHNOLOGY



- June sea trials of two Deep Worker human-occupied vehicles under the direction of Senior Engineer Lee Frey are planned for just off Florida's east coast near Fort Pierce in advance of exploratory work in Australian waters later in the year. The crew will dive the one-person submersibles near sections of the deep-water *Oculina* coral reef, using the opportunity to obtain video documentation of reef conditions.



- More tow tests of a new moored telemetry buoy, built for the Southeast National Marine Renewable Energy Center (SNMREC) at FAU, will take place in June under the direction of Director of Marine Operations and SNMREC Chief Engineer Bill Baxley, P.E., and SNMREC Executive Director Susan Skemp. The buoy will be used to report sea conditions in the Gulf Stream, which SNMREC researchers plan to use for power generation.

Summer Research Immersions

MARINE ECOSYSTEM HEALTH

- Following up on May water sampling in the Shark and the Caloosahatchee Rivers, Research Professor Brian Lapointe, Ph.D., and his team will conduct shallow SCUBA and water column sampling operations in the Florida Bay/Shark River/Everglades region as part of NASA-funded research to track harmful algal blooms in the Gulf of Mexico.

- In June, Marine Mammal Research and Conservation Program (MMRC) staff will conduct the two-week Health and Environmental Risk Assessment (HERA) field study in the Indian River Lagoon near Titusville and Fort Pierce. Under the direction of MMRC Program Manager and HERA Collections Manager Steve McCulloch, the objective is to safely capture, sample, and release approximately 25 Atlantic bottlenose dolphins. The data will be added to an extensive repository created when HERA operations began in 2003. This work is supported by the Protect Wild Dolphins Florida specialty license plate.



- Assistant Research Professors Joshua Voss, Ph.D., and Sara Edge, Ph.D., and Biological Scientist Lisa Cohen travel to the Mote Tropical Research Lab on Summerland Key in June as part of BP-funded work to determine the susceptibility of different coral populations to disease, oil, and dispersants (see cover story).

- In August, Dr. Voss will serve as co-principal investigator on a NOAA-funded research cruise to the Flower Garden Banks National Marine Sanctuary in the Gulf of Mexico to characterize shallow benthic habitat, coral health, and fish communities. The project is a continuation of May work aimed at similar characterization of deeper habitats.



OCEAN EXPLORATION

- Research Professor John Reed will serve as co-chief scientist on a NOAA-funded research cruise in early June that also will include Biological Scientist Stephanie Farrington. With the help of a remotely operated vehicle, the South Atlantic Deep Coral Survey will map and sample deep coral habitats off the coast of Florida and adjacent waters, primarily in an area known as the Miami Terrace.



CIOERT

- NOAA's Cooperative Institute for Exploration, Research and Technology, headquartered at Harbor Branch under the direction of Research Professor Shirley Pomponi, Ph.D., has a full calendar of summer field research projects in the Caribbean, Gulf of Mexico, Atlantic Ocean, and Lake Huron. Missions include coral reef health assessment, invasive lionfish studies, and marine archaeology.

Foundation News



L to R: Sister of Edwin Link and HBOI Foundation Board Member Emerita Marilyn Link, FAU President Mary Jane Saunders, FAU Trustees Robert J. Stilley and Dr. Jeffrey P. Feingold, HBOI Executive Director Margaret Leinen, and medical doctor for Ed Link's Man in Sea Program, ocean explorer, author, and lecturer Dr. Joseph MacInnis

EDWIN A. LINK BUILDING REDEDICATION



On May 10th, nearly 200 Harbor Branch supporters joined FAU Board of Trustees Chair Robert J. Stilley and FAU President Mary Jane Saunders, PhD. to rededicate the Edwin A. Link Building on the Harbor Branch campus, capping off a \$ 9.2 million

renovation of the institute's largest building. Named for the inventor of flight simulation technology who, together with J. Seward Johnson, Sr., developed Harbor Branch after his research interests turned to ocean exploration, the 35-year old building was virtually gutted and re-engineered to maximize energy efficiency and flexibility. The renovations were designed for compliance with U.S. Green Building Council LEED Gold level standards.

comprehensive renovation of the institute's largest building. Named for the inventor of flight simulation technology who, together with J. Seward Johnson, Sr., developed Harbor Branch after his research interests turned to ocean exploration, the 35-year old building was virtually gutted and re-engineered to maximize energy efficiency and flexibility. The renovations were designed for compliance with U.S. Green Building Council LEED Gold level standards.

"This renovation is a virtual reinvention of a facility that always has been about innovation," noted Harbor Branch Executive Director Margaret Leinen, Ph.D. "The building that bears the Edwin A. Link name in many ways



HBOI Foundation Board member John Warner, Jennifer Johnson Duke, HBOI Foundation Board Vice Chair Joe Duke, and HBOI Foundation Executive Director Janet Alford

Foundation News

LINK FOUNDATION RENEWS INTERNSHIPS SUPPORT

We are pleased to announce that the Link Foundation is continuing its support of the FAU Harbor Branch Summer Internship Program through a \$48,000 grant to fund student stipends and other marine science education programs for summer 2011. This is the 38th year that the Foundation has supported this popular program for undergraduate and graduate internships in ocean engineering and marine science.



Link Foundation Chair Thomas F. Kelly and Link Foundation special advisor Dr. Richard Murray

NEW FOUNDATION BOARD MEMBERS ELECTED

The Harbor Branch Oceanographic Institute Foundation is pleased to announce the election of two new board members: Richard M. Carnell, Jr., of Vero Beach and Dean Saunders of Lakeland, Florida.

Mr. Carnell is Senior Vice President/Director and General Counsel of Bernard Egan and Company, one of the largest independently owned citrus marketers in the world, and the second largest citrus marketer in the United States.

Mr. Saunders comes from a sixth-generation Florida agricultural family and owns a real estate brokerage firm that specializes in land and conservation easements.

These gentlemen join fellow board members James L. Seitz, Joe Duke, John McConnell, Jr., William J. Stewart, C. Amos Bussmann, Sherry Plymale, Pam Houghten, Michael D. Minton, Karl M. Steene, John Warner, FAU President Mary Jane Saunders, Ph.D., Marilyn C. Link (Emerita), and HBOI Executive Director Margaret Leinen, Ph.D. (Ex Officio).

VOLUNTEER REUNION ATTRACTS MORE THAN 100

More than 100 Harbor Branch volunteers dating back to the 1980s were welcomed back to campus on April 15 for a special reunion event. While addressing the group, Executive Director Margaret Leinen, Ph.D., commended Harbor Branch for developing a program that engages volunteers in research and outreach activities, and voiced her commitment to maintaining the program as a valued part of the organization. Friends of Harbor Branch Program Assistant Patti Gibbons welcomed the guests, and the Friends sponsored a social hour that featured photographs and other materials from past years. The event also included tours of the newly renovated Edwin A. Link Building. "This was a great opportunity to see old friends and thank our current volunteers," said Gibbons. "We hope to have them further engaged with the Friends of Harbor Branch and plan more of these events in the future."



Friends of Harbor Branch Program Assistant Patti Gibbons, former Harbor Branch receptionist Nancy Pascarelli and former Harbor Branch employee and volunteer coordinator Pauline Crahan

PLANNED GIFTS

Friends of Harbor Branch now have the ability to complete planned giving programs through the FAU Foundation, which can provide assistance in the construction of trusts, wills, gift annuities, named beneficiary programs, and other options. Among the several planned gifts received during the past year are those from Eleanor Sexton and Ben Robinson, M.D., which will benefit the Harbor Branch Research Development Fund. Printed information on planned giving is available through the Harbor Branch Development Office, and a planned-giving seminar will be held in November. For more information, call 772-466-9876.

FRIENDS FOR THE PARK CAMPAIGN

The Friends of Harbor Branch is promoting a campaign for naming opportunities associated with the new marine science building. Scheduled to open this fall, this \$22 million, 40,000 sq. ft. research facility is designed to accommodate 18 laboratories and associated offices and meeting areas. Also part of the project is an expansive park area connecting the new structure, the Edwin A. Link Building, and the Harbor Branch channel. The park space will consist of a brick paver area with tables and seating, a large grass expanse, landscaping, and viewing areas for manatees, dolphins, waterfowl, and other Harbor Branch fauna. Named opportunities include \$5,000 for landscaped area, \$2,500 for seating area, \$1,000 for a bench/seat, and \$500 for inclusion on a named recognition display. Multiple gifts may be accepted for naming areas. Additional opportunities within the new building are available, and may be structured as part of permanent endowments or research programs. For more information, visit <http://fauf.fau.edu/friendspark> or call 772-466-9876.



MARINE & OCEANOGRAPHIC ACADEMY SENIOR CLASS GRADUATES

Harbor Branch has long been an inspirational place to launch a marine science career, but what about the young people who have yet to choose a college major? Since August 2007, Harbor Branch has been home to Westwood High School's Marine and Oceanographic Academy (MOA), a magnet school with a diverse student body from across the St. Lucie County School District. MOA's first senior class has just graduated. The school, formed through a partnership between Harbor Branch and the school district, infuses a marine and oceanographic focus into the core high school curriculum. For the first two years, classes were held in portable trailers, Harbor Branch teaching laboratories, and a variety of makeshift spaces.

"The close-knit atmosphere has been there from the very beginning," observed MOA math teacher Robert Ayres. "There were no custodians, bells, or intercoms, so the students handled everything as a family – cleaning up after themselves, taking out the garbage – and formed a real sense of belonging to their school and to Harbor Branch."

In 2009, MOA moved into new accommodations at the north end of campus, and although the facilities have been upgraded, the same sense of community remains. Senior Claudia Jean notes, "MOA is a small learning community where everyone knows each other, and it brings out a stronger sense of family not found at other high schools."

(story continues on next page)

“THE EXPOSURE TO HARBOR BRANCH SCIENTISTS AND EDUCATORS HAS TAUGHT ME TO LOVE LEARNING NEW THINGS.”

– VICTORIA HERRICK, GRADUATING MOA SENIOR



“THE EXPERIENCE HERE IS UNLIKE ANY OTHER.”

– ROBERT BOURNE, GRADUATING MOA SENIOR

Claudia, who will study international business at the University of Pennsylvania on full scholarship, was the top-ranked student in both the MOA program and Westwood High. In fact, seven of the top 10 Westwood 2011 seniors are MOA students.

MOA integrates ocean literacy into a high-school education. The unique Harbor Branch environment allows MOA faculty and students to learn about oceanography and marine science at a working oceanographic research institution. Harbor Branch scientists and educators provide 20% of the scientific programming, and many students cite the hands-on laboratory and field activities as a highlight. MOA instructors agree, noting that students develop a true knowledge and respect for their local marine environments through these experiences.

Harbor Branch educator Tracy Griffin is quick to point out that MOA's success is a team effort. “After working with the students and teachers, you realize that they're the ones who set their school apart by all the things they do. Teachers go above and beyond to ensure the success of each student, providing them with activities inside and outside the classroom to really inspire and motivate them.”

Six of the graduates have been accepted to Florida Atlantic University for the fall term. One of

these, Moriha Henderson, has been awarded an \$8,000 scholarship to the Harriett L. Wilkes Honors College, where she plans to major in marine science. Asked if she would recommend the MOA program to future high school students, she affirmed, saying, “If you love the ocean and science, there really isn't a better program to be a part of.”

Two weeks before the official graduation, seniors and their families and teachers came together for a “MOA Senior Night” to celebrate the success and accomplishments of the inaugural MOA class. Reflections shared by students, teachers, parents, St. Lucie County Schools Superintendent Michael Lannon and Assistant Superintendent Owen Roberts, Ph.D., and inspirational remarks from FAU Harbor Branch Executive Director Margaret Leinen, Ph.D., were among the highlights of a memorable and emotional program.

Research Professor Dennis Hanisak, Ph.D., who has led the Harbor Branch portion of this partnership since MOA's conception, says, “We are lucky to have a school board in St. Lucie County that is supporting some very innovative education initiatives, such as MOA. It is wonderful to see our pioneering group of students graduating after four years, which flew by! I am sure that students in this first graduating class will do well in their future academic endeavors and that they will always remember their four years at Harbor Branch.”

“BEING INTRODUCED TO REAL SCIENTISTS HAS ENHANCED MY HIGH SCHOOL EXPERIENCE BY PROVIDING ROLE MODELS THAT INSPIRE ME TO LEARN.”

– SAMANTHA BOLDOC, GRADUATING MOA SENIOR

HARBOR BRANCH

FLORIDA ATLANTIC UNIVERSITY*

Ocean Science for a Better World®

5600 US1 North
Fort Pierce, FL 34946

Florida Atlantic University, a member of Florida's State University System, was established by legislative act in 1961. In addition to its original 850-acre campus in Boca Raton, FAU has campuses in Fort Lauderdale, Davie, Dania Beach, Jupiter, Port St. Lucie and Fort Pierce. Fully accredited by the Southern Association of Colleges and Schools, FAU is currently servicing 28,000 regularly enrolled, degree-seeking students through its 10 colleges.

FAU's Harbor Branch Oceanographic Institute is dedicated to exploring the world's oceans—integrating the science and technology of the sea with the needs of humankind. Harbor Branch is involved in research and education in the marine sciences; biological, chemical, and environmental sciences; marine biomedical sciences; marine mammal conservation; aquaculture; and ocean engineering.

Visit the Harbor Branch Ocean Discovery Center!



Gift Shop and Friends of Harbor Branch program office located on site.

Hours: Monday-Friday, 10 a.m. to 5 p.m.; Saturday 10 a.m. to 2 p.m.

Phone: 772-242-2293 • For group tours, please call 772-242-2417 for scheduling.

Harbor Branch
Florida **specialty license plates**
support research, conservation,
and education.
Visit hboi.fau.edu for details.



SHOW A SIGN OF SUPPORT!



You can help fund dolphin research by sponsoring a dolphin research public information sign, with proceeds benefiting marine mammal research programs at Harbor Branch. The signs give information about bottlenose dolphins to promote public awareness for dolphin health and safety. Each 2' x 3' sign can be placed outdoors posted at a dock, or indoors, and installation can be funded for an additional charge. Sponsors of \$1,000 or more will be recognized by name or

logo. "Our first placements will be near the Indian River Lagoon, but we can customize the message to any dolphin habitat," said Marine Mammal Research and Conservation Program Manager Steve McCulloch. "We encourage our friends in communities along the Indian River Lagoon to become sign sponsors and promote the dolphin message." For more information, contact the Harbor Branch Development Office at 772-466-9876 or jmalford@hboifoundation.org.