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# BULLETIN

APRIL 2010

## POISED FOR GROWTH; $44 MILLION EXPANSION UNDERWAY

*This new construction will add 40,000 sq. ft of laboratory and office space as part of FAU's investment in research at Harbor Branch. (image courtesy of PGAL)*

Every gardener knows the value of pruning to promote healthy growth, but nobody could have predicted how two hurricanes would eventually bring new life to Harbor Branch. The 2004 storms, which made landfall less than 30 miles away, dealt a stern blow to the aging campus. Damages far outstripped insurance remunerations, and buildings that couldn't be repaired had to be abandoned.

The turning point would come in 2007 when, after nearly a decade of active partnership, Harbor Branch and Florida Atlantic University agreed to become one. The Florida state legislature blessed the agreement with $44.6 million in campus renovation funding, and today the work – which includes removal of the abandoned structures, renovation of other buildings, and new construction – is in high gear.

Similarly, the University and its "new" marine science center are intently focused on completing the integration process. The end result will be nothing short of a campus and an organization reborn.

## IN THIS ISSUE

*The plaza, with its views down the Link Port canal, and located between the Edwin A. Link building and the new laboratory building will become the center of a renovated Harbor Branch.*



*Already underway, the renovation of the Edwin A. Link building will feature changes such as a new entrance on the west side of the building and a new cafe space. Once renovated, the Link Building will once again house Harbor Branch's library. (images courtesy of Song + Associates)*


*The renovated entrance to Harbor Branch will be wider and will promote better traffic flow for vehicles entering and leaving Harbor Branch (image courtesy of Song + Associates).*

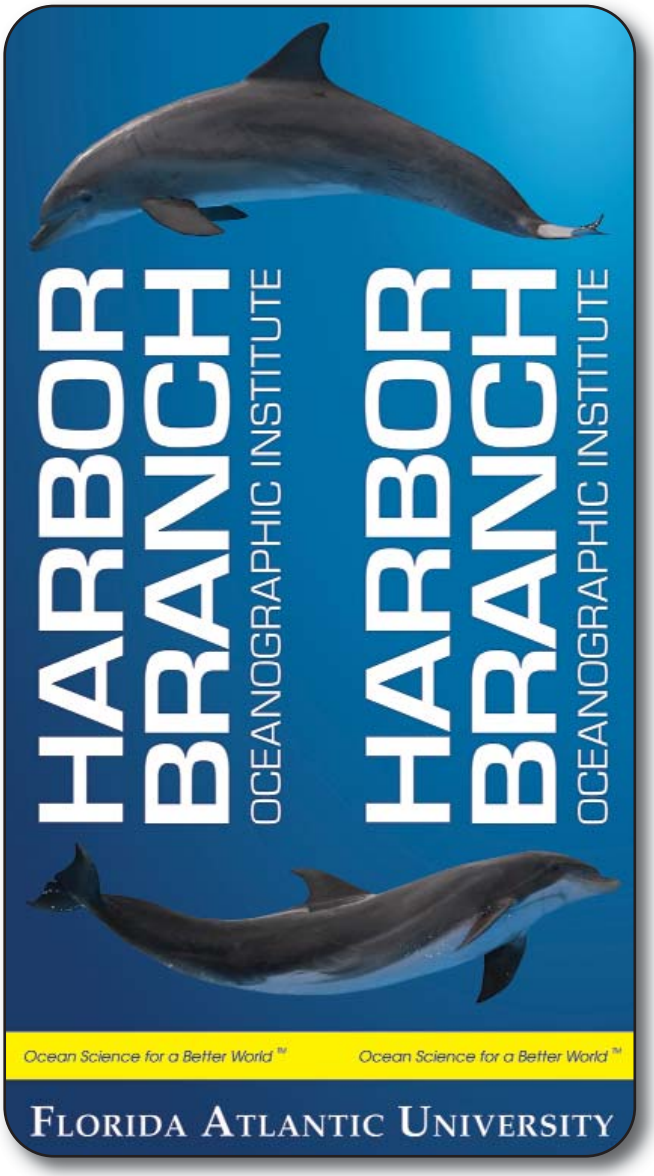
*Architects rendering of the plaza between the two buildings incorporates wave pattern found in the institute's logo.*

*Another perspective of the Link Building which will feature a new entrance on the west side of the building and a significantly remodeled exterior.*

# Harbor Branch plus FAU: Greater than the Sum

Just as a renewed Harbor Branch-FAU campus is starting to take shape, the profile of Harbor Branch as a research institute of Florida Atlantic University is beginning to emerge. The change largely is a logical evolution because the institutions have been working together for more than 10 years. Newer and increasingly apparent to both, however, is an air of opportunity as vast as the oceans.

The best pairings tend to be those where the partnership is fueled by each party's individual strengths. In this instance the primary strengths are education and ocean science and technology research. Although FAU has earned an excellent reputation in areas of ocean research, the merger means that it now has a world-class ocean science program and an expanded ocean technology program. And while Harbor Branch has had strong educational offerings over the years, the influx of new talent – FAU students and postdoctoral investigators – will revolutionize its research and education.




*Above: New banners at Harbor Branch entrance*

"Our faculty is very enthused," says Gary Perry, Ph.D., Dean of the Charles E. Schmidt College of Science (CESCS). "We all see Harbor Branch as a terrific resource to help develop our programs, and people are ready to get down to the nitty gritty of making this happen."

Educational collaboration kicks into gear this summer when as many as five postdoctoral investigators will join Harbor Branch-FAU, with each being supervised and mentored by Harbor Branch faculty and co-mentored by FAU faculty. The 13 potential research topics for the two-year positions, which are supported by specialty license plate revenue, indicate a broad range of opportunity.

At the program level, there are a number of areas where the combination of intellectual talents, already underway in many instances, is sure to produce more than a simple sum. Harbor Branch-FAU has a continuing engagement with FAU's Center for Ocean Energy and Technology, and deeper collaboration among the respective engineering programs will lead to new thinking and stronger solutions.

"We have a long history of collaboration with Harbor Branch," says Karl Stevens, Ph.D., Dean of the College of Engineering and Computer Science, "and now our faculty members are very excited about enhanced research opportunities in areas such as energy, acoustics, offshore structures, imaging, sensors, and ecosystems."

Similarly, Harbor Branch-FAU's Marine Biomedical & Biotechnology programs will build upon relationships with the Departments of Biological Sciences and Chemistry, and develop collaborations with the emerging biotechnology cluster on FAU's Jupiter campus.

"FAU already had a strong ocean engineering program but less in terms of ocean science," said John Wiesenfeld, Ph.D., former CESCS Dean and Chair of the Harbor Branch Advisory Committee. "The merger gave FAU an opportunity to launch into ocean science in a big way."

# Aquaculture Collaborations Spawn Knowledge

Although nature has struggled to absorb the impacts that human appetites and lifestyles have had on marine life, efforts are underway at Harbor Branch to turn the tide. Two separate partnerships between Harbor Branch-FAU Aquaculture (led by Paul Wills), the US Department of Agriculture-Agricultural Research Services (USDA-ARS), and the Florida Fish & Wildlife Conservation Commission (FWC) have been working to develop and refine methods for fish farming toward goals that include satisfying the mounting demand for seafood, improving the commercial viability of aquaculture, and replenishing the supplies of Florida's most popular gamefish.

With the world's population growing and wild harvest of seafood stuck at 1980s levels, the need for sustainable fish farming is clear. The Harbor Branch-FAU partnership with USDA-ARS began in 2001 as a means of developing aquaculture technology and transferring it to industry for commercial application. By designing and refining methods of farming saltwater fish at inland locations, the program aims to aid the US agricultural sector by eliminating the need for aquaculture operations to locate on increasingly scarce coastal lands, and helping to realize the trade and food biosecurity benefits of a strong domestic aquaculture industry.

*Redfish, a popular sportfish in Florida, can be raised for stock enhancement*

*Cobia is a fast-growing species that adapts readily to aquaculture conditions.*

Among the many successes of the USDA-ARS program are the development of spawning techniques for Florida pompano, numerous advances in feeding and water recirculation techniques, and growout of Florida pompano and cobia to market size in large-scale production systems.

The FWC collaboration began in 2006 and has been working on the Florida Marine Fisheries Enhancement Initiative, a plan to create a network of marine enhancement eco-centers at locations statewide (including Harbor Branch-FAU) to support the $9.4 billion Florida sport fishing industry by producing red drum, snook, and spotted sea trout. To date the program has demonstrated that red drum can be grown from eggs to market size in water reuse or recirculating systems, and, in collaboration with USDA-ARS scientists, has engineered a prototype recirculating system with special attention paid to optimizing production and cost efficiencies.

The two partnerships also have served to foster collaboration between Harbor Branch-FAU Aquaculture and other organizations including Mote Marine Laboratory and the University of Florida Institute of Food and Agricultural Studies, leading to shared knowledge and better solutions. When it comes to preserving marine life, the more humans working on the side of nature, the better.

*Florida Pompano, a tasty saltwater fish, can be grown in tanks in near fresh-water*

# New Landers Destined for Down Under

Who in life hasn't wanted to be an invisible observer at one time or another? This idea is the concept behind a new type of autonomous lander designed and built by Harbor Branch-FAU engineers to capture images of deep sea life that would tend to avoid the noise and lights of submersibles. Successful sea trials were conducted in early March with a prototype in the Florida Keys in preparation for eventual deployment of two units off the coast of Australia or New Zealand.

Although the concept is not new – project manager Lee Frey was the lead engineer on the Eye in the Sea project that first put an autonomous lander on the ocean floor to shoot video in the dark – this configuration, called Medusa, is. University of Queensland's Justin Marshal, Ph.D., was interested in a lower-cost, modular system that could be deployed without an underwater vehicle and function in the midwater as well as on the bottom. Harbor Branch, founded on innovation, delivered.

The Medusa lander is designed to be deployed on the seafloor as deep as 2,000 meters or, after removing the legs and adding a length of line to the drop weight and a fin for stability, higher in the water column. Each unit is equipped with an ultra low-light video camera, water and light sensors, and far-red LED lighting that cannot be seen by many creatures. Modular sensor and battery housing design will allow researchers to experiment with different types of equipment.

*From left to right: Harbor Branch ocean engineering team, Lee Frey and Andy Sherrell get ready to show University of Queensland's Adrian Flynn, Ph.D. what Medusa can do.*

Medusa can function continuously at full power for approximately 72 hours per set of battery packs. Retrieving the unit is accomplished via an acoustic signal sent from the surface that causes the lander to jettison its drop weight and ascend. On the surface, its yellow syntactic foam flotation and strobe light make it easy to spot. Additionally, a transponder on the unit relays acoustic position information.

Developed to study the biodiversity and behavior of organisms in the deep sea, Medusa will be deployed on filming missions to the seafloor or open ocean for several days, potentially capturing footage of never-before-seen marine life. Imagine what you might see if you were invisible.

*Medusa is an underwater camera system that can float in the water column or sit on the ocean floor to get video of organisms that will not approach noisy underwater vehicles.*

# Harbor Branch Welcomes New FAU President

*Dr. Mary Jane Saunders, soon to become Florida Atlantic University's sixth president.*

What started with 43 candidates from four countries came down to a scientist with strong administrative credentials and a stated dedication to research and innovation: Cleveland State University provost Mary Jane Saunders, Ph.D., soon to become Florida Atlantic University's sixth president. She was selected from three finalists on March 3 by popular vote of the 13-member FAU Board of Trustees.

Before becoming provost, Saunders was the founding dean of the CSU College of Science, which comprises the Biology, Geology, Environmental Sciences, Chemistry, Mathematics, Physics, Psychology, and Health Sciences Departments. She also had been director of the university's Biomedical and Health Institute. Saunders previously was a deputy division director and program officer at th e National Science Foundation, director of University of South Florida's Institute for Biomolecular Science, and assistant professor in the Louisiana State University Botany Department. She did her postdoctoral work in botany at the University of Georgia.

In her introductory letter to the FAU community, Saunders writes of working "to build a new prototype for the university of the 21st century, one that is characterized more by innovation than tradition," and that she "can think of no more worthy goal for a university to pursue than to become a center of cutting-edge scientific discovery. FAU is clearly on that path, and continued emphasis on development of the University's research capabilities will be a strong focus of [her] presidency." HBOI-FAU looks forward to working with Dr. Saunders to realize FAU's considerable potential.

# Dr. John Byrne honored for 35 years of Service!

The Harbor Branch Oceanographic Institution Foundation, recently honored John Byrne, Ph.D., for over 35 years of volunteer service to various boards and committees at Harbor Branch Oceanographic Institute. Byrne is the retired president of Oregon State University and past Administrator of the National Oceanic and Atmospheric Administration.

*John Byrne, Ph.D., long time supporter and Harbor Branch board member accepts a memento of his service from HBOIF chairman, Jim Seitz.*

# Ocean Science Lecture Series

*continues through the Summer:*

- Wednesday, May 5, at 7 p.m. - ***Semester By The Sea: Training the Next Generation***
- Wednesday, June 23, at 7 p.m. - ***Trials and Tribulations of Collecting Algae in Panama,*** Mark and Diane Littler, Smithsonian Institution

# NOAA Cooperative Institute Breeds Collaboration, Innovation, Opportunity

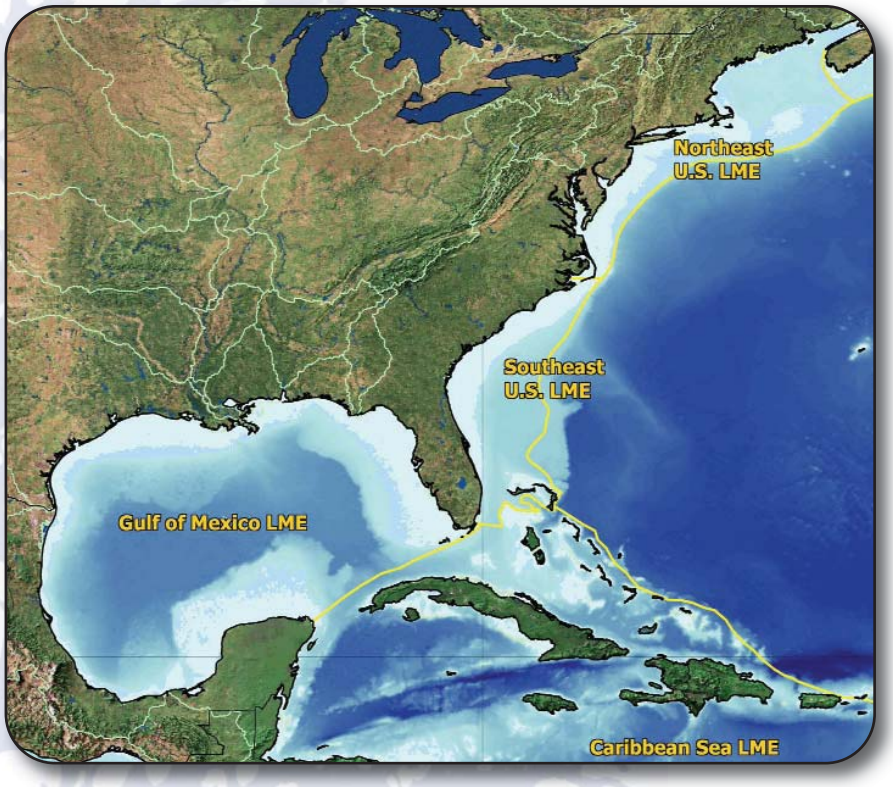
Last year, Harbor Branch and University of North Carolina Wilmington were awarded a National Oceanic and Atmospheric Administration grant to establish a cooperative research and education institute (CI) based at Harbor Branch. This year, Harbor Branch scientists and engineers are pursuing the research objectives that helped garner the prize. Projects include:

- **Deep coral sense** – John Reed was part of a team that deployed a prototype lander to collect some of the first detailed data on deep (1200-2400 feet) coral mounds off Florida's east coast.
- **Where plankton and corals meet** – Tammy Frank and colleagues will study plankton biodiversity and factors affecting this primary food source as a means of characterizing relationships between coral and mid-water ecosystems.
- **Coral reefs in the twilight zone** – Reefs between the lowest depth most divers can reach (90-120 feet) and where light no longer enables photosynthesis (>450 feet) are the target of a team that includes Reed, Joshua Voss, and Sara Edge. The first year involves extensive mapping and molecular-based analysis of these vulnerable ecosystems.
- **Finding new drugs** – Amy Wright and her co-investigator will be analyzing the biodiversity in habitats explored by CI in search of new treatments for a variety of human diseases.
- **Research technology development** – Voss and Dennis Hanisak are part of a team developing and deploying new technologies to study ocean acidification and its implications.
- **Students at sea** – Hanisak, Frank, and colleagues are providing students ocean-going experiences in exploration of the eastern seaboard.

Although as much as $22.5 million in funding over a five-year period is associated with the assignment, the fact that the CI strengthens Harbor Branch-FAU's ability to develop other funded collaborations with and beyond NOAA may be of more significant benefit.

*Shirley Pomponi, Ph.D., executive director, leads the cooperative institute on land and under water.*

"NOAA made clear the premium it places on innovation for this CI," said Shirley Pomponi, Ph.D., HBOI-FAU Executive Director of Science, Technology, and Development, and CI Principal Investigator and Executive Director. "Our great heritage of innovation helped us win this opportunity, and we will continue to build on that."




*The area above shows the principal locations where the cooperative institute is conducting research.*

# NOSB 2010: High-Scoring High Schoolers with Water on the Brain?

On March 5th and 6th FAU Harbor Branch Oceanographic Institute hosted the east Florida regional round of the 2010 National Ocean Science Bowl (NOSB). NOSB is a high school academic team competition that uses a quiz-bowl format to test students on their knowledge of marine biology, oceanography, and other aspects of ocean science.

Fifteen teams representing nine east Florida schools participated in this year's event. Perennial powerhouse schools such as Miami-Dade's Mast Academy returned this year. They were joined by several NOSB newcomers like Brevard County's Heritage High School. This also marks the third year of participation for St. Lucie County Marine and Oceanographic Academy (MOA) whose students attend class daily at the Harbor Branch site.


*1st Place MAST A: Michael Ronzetti, Shanique Martin, Maya Becker, Joe Andreoli, Mitchell Rosenstein, and standing in as head coach for Mark Tohulka, is Henny Gröschel.*

Marine and Oceanographic Academy's A Team, coached by Scott McMillen, played the role of potential spoilers, advancing to the final round to face another dominant Masters Academy A team. In the end, the MAST team, coached by Mark Tohulka and Henrike Gröschel-Becke, came out on top, breaking a tied game in the final round of the competition with a correct answer as the buzzer signaled the end of the competition.

Next stop for the winning team: St. Petersburg, Florida, and the 2010 NOSB national finals in April.

The NOSB is sponsored by the Consortium for Ocean Leadership which is made up of leading national oceanographic institutions, universities, and public aquariums. The annual competition was launched in 1998 in honor of the International Year of the Ocean and has grown to include 25 regional competition locations with 300 schools and over 2,000 students participating each year.

*2nd Place Marine and Oceanographic Academy A: Coach Scott McMillen, Sam Jones-Bangston, Tommy Yannoupoulous, Josh Hackett, Coral Levy, Zoe Tucker.*


*3rd Place South Broward A*


*4th Place MAST B*

# Wachovia Wells Fargo Foundation Funds Giant Squid Exhibit at FAU Harbor Branch

At Florida Atlantic University's Harbor Branch Oceanographic Institute, thanks to an educational grant from the Wachovia Wells Fargo Foundation, a preserved giant squid specimen will soon find new life as an educational display at the Harbor Branch Ocean Discovery Center. "The Ocean Discovery Center is a great educational asset for Florida Atlantic University, and the Wachovia Wells Fargo Foundation supports the efforts of Harbor Branch to inform the public about ocean conservation, science, and emerging technologies," said Wachovia Bank Area President Joe Lembo.

The animal was captured by commercial longline fishermen one hundred miles offshore from Port Canaveral and was donated to the center. The specimen measures approximately 10 feet. Missing from the specimen, however, are the two long predatory tentacles that would have likely put the living animal at just over 20 feet total length. The delicate tentacles were separated from the rest of the animal during capture.

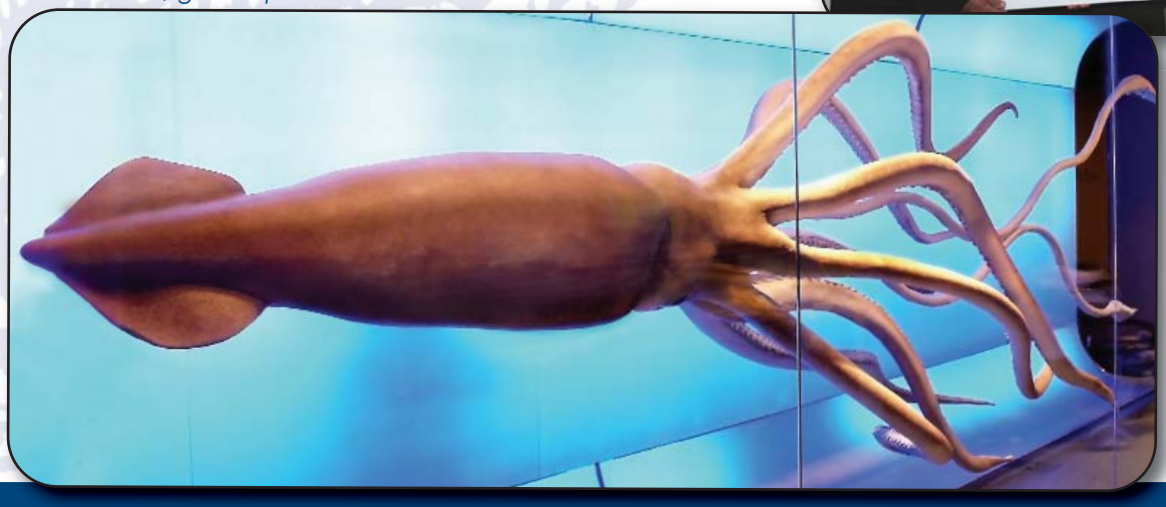
The grant from The Wachovia Wells Fargo Foundation will help pay for a specimen case and interpretive display. "Fewer than 600 giant squid encounters have been reported," said Jim Masterson, Ph.D., director of the Ocean Discovery Center. "They have been found in fishing nets, washed up on beaches, or in the stomachs of sperm whales. A small number of animals have been preserved, and still fewer are on public display. Little is known about these animals, and our exhibit will raise awareness that these spectacular animals are out there."

"The addition of this exhibit represents a major enhancement to the center's offerings and will give visitors a chance to see an animal that few people get to encounter. We are grateful to the Foundation for supporting the Ocean Discovery Center," said Masterson.

Serving as a public gateway to Harbor Branch, the center houses interactive exhibits, live animal displays, a video theater, and other displays exploring the marine environment and depicting Harbor Branch research. Exhibit content is developed in close coordination with Harbor Branch scientists by award-winning educators and media specialists.

The Harbor Branch Ocean Discovery Center, US Highway 1, between Ft. Pierce and Vero Beach, is open to the public at no charge from 10 a.m. – 5 p.m. Monday through Friday, and Saturday 10 a.m. to 3 p.m. Displays are continually evolving to showcase the ongoing research and conservation efforts of Harbor Branch and to give visitors a close-up look at the emerging technologies used by the marine research community.


*From left to right: Karl Steene, Harbor Branch Oceanographic Institution Foundation; Kimberly Mullins, Wachovia Bank vice president/relationships manager; Jim Masterson, Ph.D., director of the Harbor Branch Ocean Discovery Center; and Joe Lembo, Wachovia Bank Area President*



*A dead squid specimen. Very few intact and preserved specimens of giant squids exist, and few, if any, pictures exist of live, giant squids in their environment.*

*Standing: William J. Stewart, Michael Minton, John McConnell, Chairman James, L. Seitz, Chairman, Karl Steene, John Byrne. Sitting: Pam Houghten, Sherry Plymale, Marilyn Link. (also on the Board, but not pictured here: John B. Dodge, C. Amos Bussmann, Joseph Duke, William Barrows.*

# Harbor Branch Oceanographic Institution Foundation, Inc. Elects Members

Four new members were elected to the Harbor Branch Oceanographic Institution Foundation, Inc. Board of Directors at the annual fall meeting on October 29, according to chairman Jim Seitz. Elected to two-year terms were William Barrows, Pam Houghten, and Karl Steene, all of Vero Beach, and Michael Minton of Ft. Pierce.

As a direct support organization for Harbor Branch-FAU, the Foundation exists to garner private support for the Institute's mission and programs.

William Barrows is a retired executive from Fusite Corporation International Operations and has been associated with Harbor Branch for many years, including as a long-time member of the Friends of Harbor Branch. Locally he has served as president of the Anchor Property Owners' Association, and is a member of the Moorings Club and a supporter of the Environmental Learning Center. Barrows is a graduate of the University of Cincinnati.

Pam Houghten is the Director of Education & Community Outreach for Torrey Pines Institute for Molecular Studies in Port St. Lucie. She also is the president of the St. Lucie County Education Foundation and is on the Workforce Solutions and St. Lucie County Chamber of Commerce Boards of Directors. Houghten is a graduate of Mira Costa College, University of Texas at Tyler, and Tyler Junior College.

Karl Steene is past director of community relations for RBC Bank and has worked for Riverside Bank, Provident Bank, Coral Gables Federal, Citibank, and First Union. He currently is president of the Rotary Club of Vero Beach Oceanside. Past honors include 2007 Cultural Council of Vero Beach Philanthropist of the Year, 2008-09 District 6930 Rotarian of the Year, and Assistant District Rotary Governor. Steene is a graduate of Florida Atlantic University.

Michael Minton is president of the commercial law firm Dean, Mead, Minton & Zwemer. He is the past vice chairman of the Governing Board for the South Florida Water Management District. He was awarded Special Merit by the Florida Bar Tax Section 2009 and has received Outstanding Tax Attorney citations from Florida Trend magazine's Legal Elite, Chambers USA: America's Leading Lawyers for Business, Best Lawyers in America, and Florida Super Lawyers magazine. He is a graduate of University of Florida and the UF College of Law.

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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 serving 28,000 regularly enrolled, degree-seeking students through its 10 colleges.

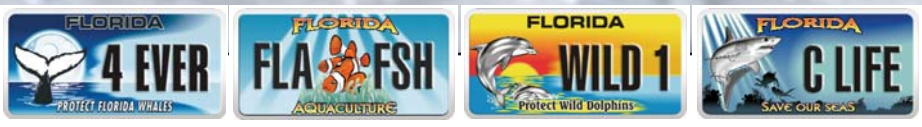
FAU's Harbor Branch Oceanographic Institute is dedicated to exploring the world's oceans—integrating the science and technology of the sea with the needs of humankind. Harbor Branch is involved in research and education in the marine sciences; biological, chemical, and environmental sciences; marine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

# Visit the Harbor Branch Ocean Discovery Center!

## Mark your calendars for
## National Estuaries Day 2010 – September 25th.
## Free public event at Harbor Branch!

*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:*** *772-465-2400, ext. 293.*
*Group tours please call ext. 417 for scheduling.*

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***support*** *research, conservation and education.*