Marine Science

Sand in your shoes and can't shake it out . . .

South Florida's pristine waters breed an enthusiasm for the environment – a necessary prerequisite for the good marine scientist

For marine science students, a sea of opportunity

By Brenda McHugh

Does the term "marine scientist" conjure up the image of a well-tanned veterinarian who snuggles with dolphins all day long? If so, you might be surprised at how diverse the field has become.

While a handful of marine scientists do actually don a life vest to study aquatic mammals, many more wear a business suit while negotiating contracts, or a lab coat while analyzing data.

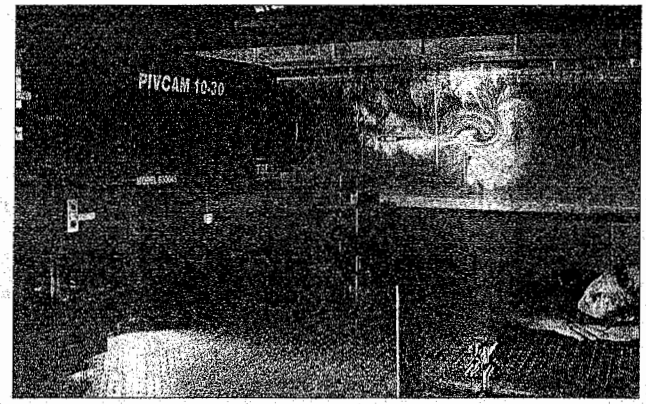
"We have a number of graduates who have gone to work for the Centers for Disease Control to map the currents of red-tide toxins and to study their connections to outbreaks of human disease," said Linda Farmer, director of the University of Miami's Marine and Atmospheric Science Program.

Another former student is working with the World Bank, helping to assess the viability of using shrimp farms as a food source for undeveloped countries. And several more have become commodities brokers specializing in fish markets.

"Marine science is a broad category that encompasses a variety of disciplines," Farmer said. Indeed, the field — which studies the relation between the oceans and our landlubber environment — covers 70 percent of the planet and feeds nearly 2 billion people.

The field includes aquatic biologists, biochemists, environmental scientists and oceanographers, among others. And their interests and skills are disparate.

For example, ocean engineers are "technicians driven by science. They must be 'marine scientists' because the two fields are interrelated. Our students become specialists at building equipment that can withstand the external pressures and elements faced under the sea," said Manhar Dhanak, chairman of Florida Atlantic University's Ocean Engineering Department.



Joe Buzzard observes the wake of an oscillating fin in a test tank at the Florida Atlantic University hydrodynamics lab.

One such piece of equipment is the Autonomous Underwater Vehicle (AUV). FAU has a fleet of these unmanned mini-submersibles at its SeaTech branch in Dania.

"AUVs survey the sub-bottom of the ocean, using acoustic sonar to measure currents, temperature, distribution and turbulence," Dhanak said. That research led to inventions that helped to detect mines that were designed to kill American soldiers coming ashore during the first Gulf War.

On a long-term basis, school officials hope the

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AUVs will become a tool to predict, more accurately, sea conditions, including hurricane paths and tsunami warnings. The data collected can also be used by biotechnologists seeking to use marine organisms in their search for cures for diseases.

Due to this array of specialties within the field, marine scientists tend to be highly trained professionals with dual areas of expertise. Some hold a bachelor's degree in marine science; others earned a BA in a primary science, then a master's or doctoral degree with a focus on marine studies.

In recent years, associate degree programs for marine science have dwindled. But that might be changing. For example, in response to renewed interest in biomedical research, Indian River Community College in Port St. Lucie recently began offering a course in biotechnology.

In 2004, marine-science technicians with minimal education could expect to start a job at $8 to $10 an hour, according to Matt Lybolt, a former employee with the Florida Marine Research Institute.

Times have changed, however, and quickly, Farmer said: "Today, job seekers who hold a bachelor's degree can earn an entry-level wage in the range of $30,000." The right experience and education might push the salary as high as $120,000 a year.

"People don't pursue this field to become millionaires," Farmer laughed. "It's a passion. Our students possess a certain gusto. They've gotten 'sand in their shoes,' and they can't shake it out."

Children often possess a strong curiosity about

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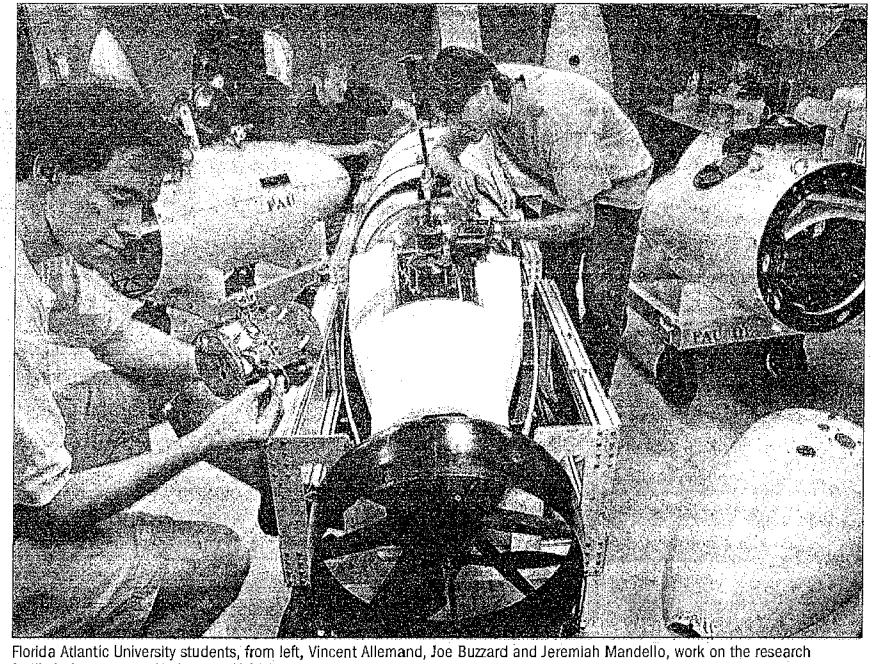

Florida Atlantic University students, from left, Vincent Allemand, Joe Buzzard and Jeremiah Mandello, work on the research facility's Autonomous Underwater Vehicles.

Opportunities abound for marine science studies

Here is a partial listing of primary and secondary schools offering marine-science programs in South Florida.

Florida Atlantic University
Department of Ocean Engineering
Boca Raton
(561) 297-3430
www.oe.fau.edu

Florida State University Marine Laboratory
St. Teresa
(850) 697-4095
www.gulfbase.org

Harbor Branch Oceanographic Institute
Fort Piece
(772) 465-2400
www.hboi.edu

Palm Beach Maritime Academy
West Palm Beach
(561) 547-3775
www.pbmm.org

PIMS – Perry Institute for Marine Sciences
Caribbean Marine Research Center
Jupiter
(561) 741-0192
www.perryinstitute.org

Smithsonian Marine Center
Fort Pierce
(772) 465-6630
www.si.edu

University of Florida
Seahorse Key Marine Laboratory
Gainesville
(352) 392-1101
hbl@zoo.ufl.edu

University of Miami
Marine and Atmospheric Science Program
Coral Gables
(305) 284-2180
www.miami.edu

Photo by Brenda McHugh

Palm Beach Maritime Academy science instructor Desiree Sasko, kneeling, and student Brian Musgrave, test waters and track marine life in a Palm Beach County waterway. The West Palm Beach academy is hoping to direct students' natural curiosity via a general curriculum with a marine-science backdrop.

Love for the ocean inspires FAU student along career path

The word "can't" does not exist in Stephanie Brown's vocabulary. "I wanted to do the most challenging thing that I could do in college," said the 21-year-old Texan. "So I chose engineering."

As a competitive swimmer, Brown first attended the U.S. Naval Academy on a sports scholarship. She said the academy was a natural choice because she has four brothers in the Navy. "We're a very patriotic family," she said.

At the Naval Academy, she attended seminars in marine science and oceanography. "We got to play in the wave tanks to test the breakers. It was a lot of fun, and it was hands-on in the water. When it came time to sign her contract, committing to a career in the Navy, Brown opted to pursue ocean engineering."

Brown spent her sophomore year at Indian River Community College. "I heard that they had the best swim team of all the community colleges," she said. So she packed her belongings and drove cross-country to Port St. Lucie, a city she had never seen before.

The risk proved worth it: IRCC's swim team won the nationals. Brown considers that the pinnacle of her swimming career. She earned her associate's degree in engineering, then "retired" from her favorite sport to focus on her studies.

She recently completed her junior year at Florida Atlantic University in Boca Raton. FAU helped her to secure scholarships and grants, based on her academic achievements. She is one of the top three in her class.

Brown is excited about her future: "This summer, I'll intern at the Naval Surface Warfare Center in Bethesda, Md. I've been dreaming of this internship for a very long time."

'My ultimate goal is to build a ship. I want to see something that I designed in my head become a reality.'

Stephanie Brown
Ocean Engineering
Florida Atlantic University
Boca Raton

In the fall, Brown will begin her senior year at FAU's SeaTech campus in Davie, which she describes as a "fascinating laboratory right on the beach." Once she graduates, she hopes to work for the U.S. Navy as a civilian. "It would be great to have my family all working toward a common goal. We're all high achievers, and we want to help our country."

Brown said that the Navy also funds specialty training. "I'd love to pursue my master's through their education program. I can go on to learn a number of subjects. There are so many opportunities in marine science and ocean engineering that the sky is really the limit, and I'll never be bored.

"My ultimate goal is to build a ship. I want to see something that I designed in my head become a reality."

This former swimming champ is well on her way to reaching her goal. She appreciates the power of good education. For Stephanie Brown, there is nothing that she "can't" learn to do.

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