

Fall 2005

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NSU Oceanographic Center

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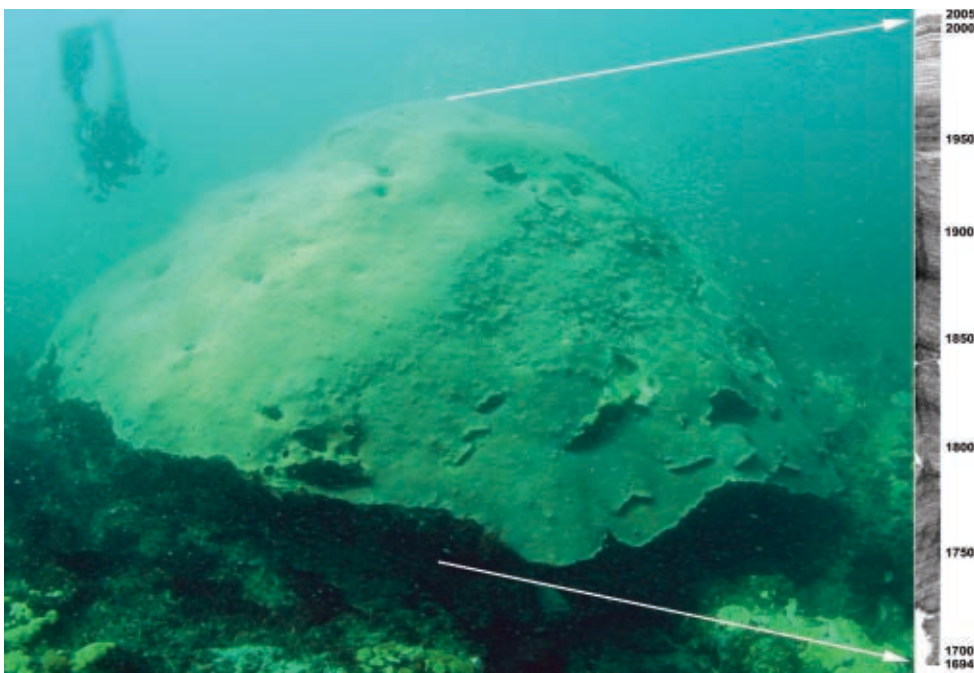
# Currents



Fall 2005 • Volume XX, Number 4

## Ancient Coral Found off Hollywood Yields 300 Years of Growth Data

A cone of ancient star coral (*Montastraea faveolata*), measuring 8 feet tall by 16 feet wide, has been discovered in the waters south of the Port Everglades Inlet. The huge coral was found by Ken Banks, a reef expert for Broward County's Environmental Protection Agency, 20 feet below the surface. He reported it to National Coral Reef Institute (NCRI) scientists at Nova Southeastern University's Oceanographic Center (NSUOC). **Richard Dodge**, Ph.D., executive director of NCRI, and Ph.D. student **Kevin Helmle**, collaborated in obtaining cores of the colony with Peter Swart of Rosenstiel School of Marine and Atmospheric Science (RSMAS) and Harold Hudson of the National Oceanic and Atmospheric Administration (NOAA), who drilled three cores from the colony. Observing the growth bands in the coral (as one would with tree rings), Helmle dated the coral to at least 1694, making it quite possibly the oldest living animal in southeast Florida.



Coral photo and x-radiograph (right) of core with chronology



Ph.D. students Pat Quinn and Kevin Helmle drill into a coral colony for a core sample.

The specimen is one of the largest, if not the largest, in the area. The fact that it was found near a large seaport, and



Kevin Helmle cuts slabs from the core of the 300-year-old coral.

obviously resistant to the pollution and other detrimental factors associated with a port, makes it especially interesting.

Helmle is studying the coral to see how increased temperatures and carbon dioxide levels in the oceans and atmosphere have affected the coral's growth. This coral also will be analyzed for valuable data on past history of climate and environmental change. The recorded history of the environment in South Florida is scant, and this coral can help to reconstruct the missing records. Preliminary work suggests the major drainage of the Everglades in Broward from the 1940s through the 1960s may have caused depressed growth in this coral reef. 🐠

## People on the Move

### NCRI scientists lead a ground-breaking trination research cruise in the Arabian Gulf

**Sam Purkis**, Ph.D., and **Bernhard Riegl**, Ph.D., recently returned from leading an international team of scientists, managers, and reporters on a research cruise for coral reef research and monitoring in the offshore waters of the Arabian Gulf. Attended by science teams from both the emirate of Abu Dhabi and the country of Qatar, the cruise was unique in bringing together researchers from two countries to work toward a common conservation goal. The cruise was conducted aboard the *Mukhtabar Albihar*, the research ship of the University of Qatar, with the purpose of installing long-term monitoring sites to address the current and future status of the coral reefs in the gulf. In addition to work in the water, data were collected to support an ongoing regional-scale satellite-mapping campaign led by the NCRI team.



*The research ship Mukhtabar Albihar*



*Riegl and Purkis (second row, second and third from left) stand among the local scientists and managers aboard the Mukhtabar Albihar after successfully completing their objectives.*



*Purkis (center) trains local scientists in the use of satellite data for coral reef research.*

Once complete, the project will deliver an exhaustive GIS database of coral distribution in the territorial waters of Qatar and Abu Dhabi, which will form the basis of a bination management and conservation plan. Riegl and Purkis carried out training sessions in the water for the local scientists to teach monitoring techniques combined with instruction in the use of satellite data

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*Riegl (left) teaches reef survey techniques using SCUBA.*

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for reef mapping. Sponsored by Dolphin Energy Ltd., the project will run for three years and involves collaborations among the Emirates Wildlife Society and World Wide Fund for Nature-UAE (EWS/WWF-UAE), Environmental Research and Wildlife Development Agency (ERWDA), Abu Dhabi, the Supreme Council for the Environment and Natural Reserves (SCENR), and Qatar. The executive is the National Coral Reef Institute (NCRI).

**Jim Thomas**, Ph.D., and his M.S. student, Kris Klebba, attended the 12th International Colloquium on Amphipoda at the National University of Ireland in Cork from July 24 to 26, 2005. Fifty amphipod specialists from around the world gathered to share recent developments in amphipod research. Thomas presented the "Unexplored diversity and cryptic species in leucothoid amphipods: status, progress, and needs." Klebba presented "The development and use of the *Leucothoe* amphipod taxonomic database" that she put together as part of her master's thesis.

Thomas and Klebba also spent one week at the London Museum of Natural History sorting through their collection of Leucothoid amphipods. The collections house many amphipod species dating back to the 1800s. They took many digital images and character notes for their comparative database of Leucothoids. This trip helped to locate several types of specimens needed for further research on this amphipod family.

From August 31 to September 15, Thomas conducted a research diving project in Belize at the Smithsonian's field station at Carrie Bow Caye. Graduate students Klebba and **Joe Hall** helped collect endocommensal crustaceans. Thomas served as the station manager.

Thomas also organized and led a four-day workshop, October 10–13, on the taxonomy of marine bioindicators at the Southeastern Regional Taxonomic Center, in Charleston, South Carolina. The workshop focused on developing scientific expertise in selecting and identifying



Thomas looks through a microscope, while Kris Klebba (forefront) looks on.

marine invertebrate bioindicators. Sixteen participants attended the workshop, representing academic, federal, state, and regional scientists and resource managers.

From September 2 to 8, **Edward O. Keith**, Ph.D., was in Mexico working on a variety of projects. He and his collaborator, Jane Guentzel, Ph.D., from Coastal Carolina University in Conway, South Carolina, were collecting samples in the Alvarado Lagoon System (ALS) in the state of Veracruz. The ALS is formed by the deltas of four rivers—Rio Blanco, Rio Limon, Rio Acula, and Rio Papaloapan. As these rivers approach the Gulf of Mexico about 50 km south of the city of Veracruz, Mexico, they widen and form a complex, interconnected system of lagoons and estuaries. A previous survey indicated that the waters contained baseline levels of mercury, equivalent to estuarine waters around the world, but that certain fish species, especially the Mojarra (*Eugerres plumieri*), contained enough mercury to cause concern if that species of fish were to be consumed on a daily basis. Additionally, the concentration of mercury in the water was not positively correlated with dissolved organic carbon (DOC), in contrast to most other estuaries that have been studied.

The September trip was a follow-up to a previous trip in March 2005. During these trips, water and sediment samples were collected from various locations in the ALS. The sediment samples are anticipated to provide insight into the mechanisms by which metallic mercury (Hg) is converted to bioavailable methyl-mercury, which can then undergo biomagnification as it moves up the food chain. This also may explain the inverse correlation between the concentration of methyl-mercury in the water and the DOC. Samples of fish and other seafood were purchased from local fishermen and in the fish market in the town of Alvarado, which is the point of entry into the ALS. Additionally, hair samples were collected from the human inhabitants of the region to investigate the degree of their mercury contamination. This



(L–R) Keith and Guentzel with Miguel De la Torre and Gustavo Leon, both from the Department of Applied Ecology of the Institute of Ecology in Xalapa, Mexico

study was approved by the NSU Institutional Review Board and the University of Veracruz, in Xalapa, Mexico.

While in Mexico, Keith also met with investigators from the Institute of Ecology (INECOL) in Xalapa. The investigators are working in La Popotera, a freshwater wetland adjacent to the ALS. This wetland is an extensive system of marshes, ponds, rivers, and sand dunes combined with a thick mangrove forest. The estuarine nature of the waters makes the site an ideal resting and breeding ground for numerous species. A total of 78 endangered or threatened species and an estimated 300 species of waterfowl inhabit the area. Sugar cane agriculture, cattle ranching, and poaching constitute the main potential threats to this wetland, which was declared Ramsar site No. 1462 on May 6, 2005.

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Keith also met with Elvira Carvajal, Ph.D., who is the director of the Sistema Arrecifal Veracruzano (Veracruz Coral Reef National Park), which includes over 25 different reefs, located near Veracruz. This area was declared a marine national park in 1992 and Ramsar site No. 1346 on February 2, 2005. The reef system is rich in fauna, with 84 different coral species, 339 mollusks, 47 sponges, and 140 crustaceans. There are large sea grass beds and pioneer coastal dune vegetation, coconut palms, and mangroves are present on emerged keys.

Three main rivers have outlets in the vicinity—La Antigua, Jamapa-Atoyac, and Papaloapan—jointly discharging significant amounts of freshwater and sediments in the area, which pose a problem of turbidity. Additionally, water pollution comes from sewage and industrial waters from Veracruz and large vessels navigating close to the reefs. Overfishing also is affecting populations of lobsters, octopi, and other species. In spite of these pressures, the recovery rate of the reef is greater than that of others in the Gulf of Mexico.

At the meetings, Keith and Carvajal explored how the NSUOC could best provide some technical and educational support for this program and discussed the possibility of future meetings between the staff of the Veracruz Coral Reef National Park and NCRI at NSU.

Keith has been working in the ALS for the past six years, initially collaborating with Enrique Portilla, Ph.D., and his students from the Institute for Biological Investigations (IIB) at the University of Veracruz in Xalapa, on the biology and conservation of the Antillean manatee (*Trichechus manatus manatus*).

These efforts have focused on educational and conservation programs to

The Convention on Wetlands, signed in Ramsar, Iran, in 1971, is an international treaty that provides the framework for national and international conservation and wise use of wetlands and their resources. Further information on the Ramsar sites mentioned here can be found at [www.ramsar.org/profile/profiles\\_mexico.htm](http://www.ramsar.org/profile/profiles_mexico.htm).



Keith addresses residents of the Alvarado Lagoon System on the National Day of the Manatee in the town hall of Alvarado, Mexico.

reduce poaching, the primary cause of manatee mortality in this region, and to delineate the optimal habitat for manatees in the ALS. A governmental agency of the state of Veracruz, the Consejo de Desarrollo del Papaloapan (Papaloapan Basin Development Commission), recently constructed a concrete-lined tank suitable for manatee husbandry along the banks of the Acula River in the central ALS.

Keith and Portilla received a President's Faculty Research and Development Grant from NSU in 2005 to purchase radio transmitters that will be attached to the captive manatees upon their release into the ALS. This grant also provides funding to support an educational campaign directed toward the inhabitants of the ALS designed to increase their awareness of the endangered status of manatees in Mexico, the need to protect the manatees from poaching and other forms of human-related mortality, and their knowledge of the proposed release of manatees into the ALS.

For the culmination of his busy and productive trip to Mexico, Keith addressed a group of residents of the ALS in the city hall in Alvarado on September 7. In 2001, September 7 was officially declared the "National Day of the Manatee" in Mexico, and Portilla and others from the IIB always develop a festival in Alvarado to celebrate the manatee and educate the inhabitants of the region about the need to protect and conserve this endangered species. The title



Antillean manatee at the Veracruz Aquarium

of Keith's presentation was "El Manatí en México, especie en peligro de extinción" ("The manatee in Mexico, a species in danger of extinction").

On September 22, Keith gave a presentation to a meeting of the Interagency/Oceanaria Committee of the Florida Manatee Recovery Team in Orlando, Florida, entitled "Development of an underwater infrared camera to detect manatees." The primary known cause of manatee mortality in Florida is being hit by boats, and as the number of boats registered in Florida has increased, so has the number of manatees killed by boat collisions each year. In an attempt to reduce this mortality, the Florida Fish and Wildlife Conservation

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Commission funded two rounds of manatee-avoidance technology grants. Keith received funding to explore the potential of underwater infrared cameras to detect manatees under Manatee Avoidance Technology contract #FWC 03/04-28. Keith documented that the infrared light emitted from these cameras would not be detrimental to manatees or other aquatic organisms, and he received a permit from the United States Fish and Wildlife Service to test these cameras using captive manatees at the Lowry Park Zoo in Tampa, Florida (permit #MA080580-0). Although the underwater cameras he tested did not perform satisfactorily for the application he envisioned, there are other types of technology available, such as forward-looking fish finders, that might accomplish his objectives in a cost-effective manner.

On October 7, Keith addressed a group of architects attending the annual meeting of the American Society of Landscape Architects (ASLA) in Fort Lauderdale,

Florida. The title of Keith's presentation was "Development impacts on the nearshore environment." A tour following the meeting gave participants the opportunity to learn about Broward County's "Seagrass to Sawgrass" initiative and to explore South Florida's local ecological systems and their dynamic relationship to urban development.

The first stop was the Ann Kolb Nature Center. After Keith addressed the group, they went on a walking tour of West Lake Park to explore the mangrove ecosystems there. The group then visited the Secret Woods Nature Center, one of South Florida's few remaining natural upland areas, and the Fern Forest, a remnant of an ancient swamp that demonstrates the significant acreage of wetlands that once existed in the area. The tour concluded at Holiday Park on the edge of the Everglades, where the group learned how this vast freshwater marsh vitally impacts the South Florida urban area. 🐡

**Charles Messing, Ph.D.**, spent six weeks, from late August through the end of September, at a series of museums in Europe, examining original type material of crinoids (sea lilies and feather stars) housed in their collections. A week each at the Natural History Museum in London and the Zoologische Museum in Amsterdam was followed by a month at the Museum national d'Histoire naturelle in Paris. Examining type material—the original specimens on which descriptions of species are based—is critical for understanding relationships among species and where one species begins and another leaves off. In the case of crinoids (as well as many other marine organisms), the original descriptions are often vague, incomplete, or poorly illustrated (if at all). So Messing is reexamining them and compiling a database of digital photographs as a first step in reorganizing the classification of many of these animals. In Paris, he also worked with Nadia Ameziane, curator of echinoderms, and her graduate student, Marc Eleaume, on descriptions of new crinoid species from the Antarctic. When it was pointed out to him that his trip sounded more like a vacation, Messing noted that marine biologists are not absolutely required to study places like the bottom of Boston Harbor. He is currently pursuing further work on crinoid evolution and ecology in Australia. 🐡



Moss and Versteeg aboard the RV Cape Henlopen

**Connie Versteeg** (a graduate student in Andrew Rogerson's microbiology laboratory) and collaborator and cosupervisor, Tony Moss, Ph.D., of Auburn University, Alabama, recently completed a five-day research cruise on the 120-foot *RV Cape Henlopen*, operated by the University of Delaware. The research conducted was in connection with a joint NSF-funded project investigating the protistan assemblage on the surface of ctenophores.

The cruise focused on the Delaware and Chesapeake Bays and yielded numerous ctenophores rich in an unidentified amoeba and the ciliate *Trichodina*. Versteeg's research at the NSUOC is concerned with elucidating the nature of the amoebal/ctenophore association.

**David Gilliam, Ph.D.**, and **Richard Dodge, Ph.D.**, presented at the Reef Restoration Workshop held October 18–19 in Miami, Florida. Gilliam's presentation

was titled "Restoration Case Studies of South Florida," and Dodge's was titled "Habitat Equivalency Analysis."

Also in attendance at the meeting were M.S. students **Jamie Monty, Venessa Brinkhuis, Melissa Phillips, Joanna Walcznak, Erin Hodel, Beth Lacey, and Judy Robinson**; Ph.D. candidates **Pat Quinn** and **Brian Walker**; and senior programmer **Kevin Kohler**. 🐡

## Other News

### Outreach and Education Recognition for National Coral Reef Institute

Recently at the Caribbean/Atlantic Regional Coral Reef Outreach Workshop held in Fort Lauderdale, NSU Oceanographic Center's National Coral Reef Institute (NCRI) media kit was recognized as the best outreach/education vehicle in the print category among those submitted for consideration. Each organization was limited to two submissions among the four categories. Bahamas Fisheries won for best overall, while Gray's Reef National Marine Sanctuary, Consultores Educativos Ambientales from Puerto Rico, and the Virgin Islands Network of Environmental Educators won in the other three categories. The friendly competition was a networking exercise designed to facilitate the sharing of ideas among and across the three dozen agency and organization representatives in the workshop hosted by the National Oceanic and Atmospheric Administration (NOAA) Coral Conservation Program. Behavior-change communications; assessment, planning, and design for outreach and education; target audiences; appropriate



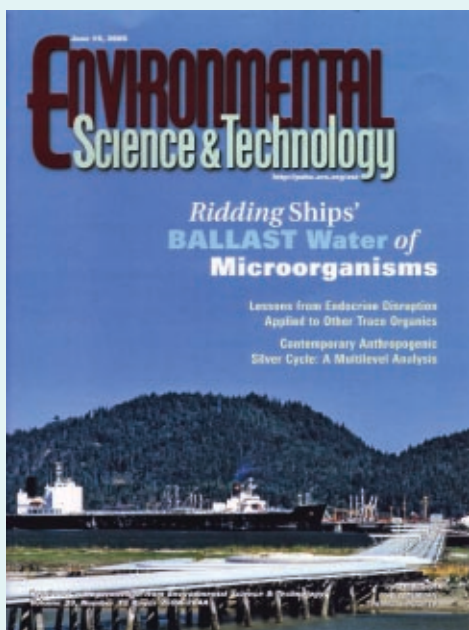
Adrienne Carter, NCRI administrative assistant, compiles media kits to accompany NCRI scientists on their next trip.

tools for multiple stakeholders; translating science and research for coral reef users and nontechnical audiences; improving the connectivity of coral reef outreach and enforcement; monitoring and evaluation

for outreach and education; and an “open space” forum were the main topics covered in the two-day workshop, facilitated by Environmental Systems Solutions and Conservation International. 🐠

### Oceanographic Center Professor's Article Featured as Cover Story of Well-Respected Environmental Journal

**Andrew Rogerson**, Ph.D., professor and associate dean of the Oceanographic Center, has published an article that made the cover of the recent edition of *Environmental Science & Technology*. This potentially influential article, coauthored with F. Dobbs, Ph.D., of Old Dominion University, questions the need to rid ship's ballast water of all microorganisms. This is a timely article that could help shape U.S. standards on ballast water treatment. 🐠



### Publications

Katsaros, K. B., A. V. Soloviev, R. H. Weisberg, and M. E. Luther. “Reduced Horizontal Sea Surface Temperature Gradients under Conditions of Clear Sky and Weak Winds,” *Boundary-Layer Meteorology* 116 (2005): 175–185.

Jordan, L. K. B., D. S. Gilliam, and R. E. Spieler (2005) “Reef Fish Assemblage Structure Affected by Small-Scale Spacing and Size Variations of Artificial Patch Reefs,” *Journal of Experimental Marine Biology and Ecology* 326 (2005) 170–186. 🐠

### New Student Government Officers Elected

The new SGA officers are **Laura Wright** as president and **Eileen Kelly** as vice president. Abe Smith said he was looking forward to passing the reins over to the ladies and felt sure they would do an excellent job. 🐠

# MASTERCURRENTS

## INSTITUTE OF MARINE AND COASTAL STUDIES

### Winter Term 2006 January 2–March 24

(See [www.nova.edu/ocean](http://www.nova.edu/ocean) for classes and descriptions.)

#### Tentative classes being offered:

- Plankton Ecology
- Aspects of Marine Pollution
- Concepts of the Ocean
- Ocean Circulation (MSPO core course)
- Air-Sea Interaction
- Satellite Oceanography

### Distance Learning News

#### New distance class offered

##### International Coastal Zone

##### Restoration: The Marshlands of Iraq

Learn about the catastrophic destruction of southern Iraq—the Mesopotamian marshlands and the indigenous marsh dwellers who lived there. Participate in the global effort to restore the region's ecosystems, culture, and livelihoods. Become an “electronic intern” and help investigate, analyze, and report on problem and restoration efforts. Assist Iraqi scientists and others to create a center for southern Iraq restoration studies at Basrah University. To view the syllabus, contact [leiderma@nova.edu](mailto:leiderma@nova.edu).

NSUOC distance-learning student **Tom Kunneke** is definitely in the right place at the right time; sustainable coastal design has been a passion of his for the last few years and has been a constant theme in his coursework. Kunneke works for HDR Engineering, a full-service provider of engineering and environmental solutions to the public and private sector throughout the United States and Canada. The environment and resource management (E&RM) division includes environmental science, planning, water resources, and community design. An E&RM companywide, two-day conference is held every two years; this year over 400 participants were represented. There is a current initiative

M.S. degree specialties are marine biology, coastal zone management, marine environmental science, and physical oceanography. Each course carries three credit hours or may be audited. Tuition is \$595 per credit hour (50 percent less for audit). Classes meet once a week from 6:30 to 9:30 p.m. at the Oceanographic Center (unless otherwise specified). The winter term runs from January 2 to March 24 (unless otherwise specified). Registration (\$25-nonrefundable fee) begins two weeks prior to the start of classes. For further information, call Andrew Rogerson or Melissa Dore at (954) 262-3610 or 800-396-2326, or email [imcs@nsu.nova.edu](mailto:imcs@nsu.nova.edu). More information can be found at the NSUOC Web site: [www.nova.edu/ocean](http://www.nova.edu/ocean).



Kunneke stands in front of his posters.

at the corporate level to promote environmentally sustainable design.

NSUOC-based projects formed the basis for his two poster presentations—“Sustainable Coastal Design” and “Integrated Coastal Management in Cuba.”

Kunneke reports that his posters got a lot of interest, from the standpoint of being a new initiative whose time had come. He has since been given the green light to promote sustainable coastal design and the environmental applications that encompass the HDR initiatives. 🐟

### Annual Wave Awards

The Wave awards are presented by the NSUOC student association to the faculty member and student who they feel contributed the most to the Oceanographic Center during the year. Student **Nicole Stephens** (who was not present at the ceremony) and director of the Institute for Marine and Coastal Studies **Andrew Rogerson**, Ph.D., were this year's winners.

Other student nominees were Abe Smith, Erin Hodel, Connie Versteeg,

Brian Buskirk, Jennifer Magnussen, Demien Chapman, Lauren Shuman, and Tina Gwaltney.

Stephens was nominated for her tremendous effort at filling shoes bigger than her coworkers ever anticipated. In addition to diving two to three days each week for beach renourishment, she has excelled as a boat captain and project manager. Her positive attitude and work ethic are integral parts of the success of her group each and every week.

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The faculty and staff nominees included Andrew Rogerson, Sam Purkis, Bernard Riegl, Mark Farber, Ed Keith, Sasha Yankovsky, and Missy Dore. Rogerson was nominated for being extremely involved with every aspect of education and research at NSUOC. He wears many hats and does everything from undergraduate teaching to graduate teaching, from research to administrative duties. Rogerson has an open-door policy, enabling students and faculty members alike to come and discuss anything of concern. He listens to all suggestions and then makes things happen for the better whenever possible. He has a positive vision for the graduate program and continues to be an advocate for the center in the larger NSU venue. He maintains his passion for microbial research and boasts a successful record of master's graduates who have gone on to pursue Ph.D.s, demonstrating his dedication to the level of training his graduate students receive. His energy is boundless, and we are all the richer for it.

On another note, Lance Robinson received many nominations. However, since the award was for faculty members, he was not eligible. So, in recognition for



Rogerson is congratulated for winning the 2005 Wave award.

Robinson's contributions to the center, he was given a personalized cap. It has been suggested that the Wave awards be expanded next year to include an award for the staff members who help keep the center running.

**Tina Gwaltney** is thanked for all her hard work in getting the new plaques for the Wave awards, and it is hoped everyone will appreciate them in the years to come. 🐡



Stephens is working hard.



Robinson shows off his new hat.

## Alumni News— Where Are They Now?

**Ray Wolcott** (M.S., marine biology) left for California to be near his family and retire; however, he was offered a job as adjunct professor of oceanography at Palomar College in San Marcos, California. Wolcott accepted and put an end to his life of leisure. He hasn't cut his ties with NSUOC, either. He has been working on a paper with Charles Messing, Ph.D., that will appear in the *Bulletin of Marine Science*. He also is attempting to organize an Oceanographic Center alumni association. Wolcott's thesis was titled "A comparison of aeration methods and diets for larval culture of the edible sea urchin *Triplaneustes ventricosus* (Echinodermata: Echinoidea)."

**Peggy VanArman** (Ph.D., ocean science) was the 2005 recipient of the Charles and Hazel Corts Award for Outstanding Teaching at Palm Beach Atlantic University. VanArman is an associate professor of biology in the



Ray Wolcott (class of 2002) is still busy at work.

university's School of Arts and Sciences. She belongs to several organizations, including the American Association of University Women, Florida Academy of Scientists, Florida Association of



Peggy VanArman (class of 2003) accepts her degree with Joseph A. Kloba (left), chief academic officer, and David W. Clark, university president.

Environmental Professionals, International Association Astacologists, and Sigma Xi Research Society. She actively participates in educational and applied environmental activities, such as Envirothon, Pathfinder

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Awards, science fair judging, and community service projects. VanArman's dissertation was titled "Biology and ecology of epigeal crayfish that inhabit Everglades environments *Procambarus alleni* (Faxson) and *Procambarus fallax* (Hagen)."

**Marella Crane's** (M.S., marine biology) capstone project was titled "A review of impacts associated with the Florida red tide toxic dinoflagellate, *Gymnodinium breve*: suggestions for prediction, management, and control." Utilizing her degree, Crane went on to become a marine agent with Florida Sea Grant and the University of Florida IFAS Cooperative Extension Service in Miami-Dade County. As an outreach officer, she works with scientists, resource managers, industry, teachers, students, and the general public to promote ways to protect the coastal environment. Crane teaches fish venting at boat shows and fishing clubs, and was mentioned in an October 16 *Miami Herald* article regarding catch-and-release problems, especially with regards to deeper sea-dwelling fish. Using the venting technique properly allows the fish to sink back down to their habitat.

**Kevin Carter** (M.S., marine biology) is a natural resource specialist (level III) with the Broward County Department of



Marella Crane (class of 2000)



Kevin Carter (class of 1995)

Planning and Environmental Protection's Environmental Monitoring Division. He has been with Broward County for more than 10 years, graduating from Nova Southeastern University in 1994. Prior to moving to Florida in 1990, Kevin received his B.S. in agriculture from Ohio State University in 1989. He primarily works with surface water quality assessment. His major projects have included North Fork New River Restoration and National Pollutant Discharge Elimination System monitoring. He also coordinates with other local, state, and federal agencies on issues

such as total maximum daily loads, water quality criteria development, coastal water quality, and Everglades restoration. Carter is an adjunct professor at Broward Community College and a national and state member of the American Water Resources Association. Carter's thesis was titled "The egg production of calanoid copepods in coastal waters of Florida and its relation to the nutritional environment." 🐟

Alumni, please go to page 11 for more information on submitting to this section.

## Seminars and Defenses

### Thesis

**John G. Foster**, "Response of *Montastrea cavernosa* to elevated temperature and reduced irradiance." Committee members: Bernhard Riegl, Ph.D.; Richard Dodge, Ph.D.; and Curtis Burney, Ph.D. October 6.

**Kristi A. Foster**, "Responses of zooxanthella within *Montastrea cavernosa* to reduced light and elevated temperature stress." Committee members: Bernhard Riegl, Ph.D.; Richard Dodge, Ph.D.; and Donald S. McCorquodale, Ph.D. October 7.

**Marcy L. Henning**, "Highly streamlined PCR-based genetic identification of carcharhinid sharks (family Carcharhinidae) for use in wildlife forensics, trade monitoring, and delineation of species distribution." Committee members: Mahmood Shivji, Ph.D.; Andrew Rogerson, Ph.D.; and Richard Spieler, Ph.D. October 14.

**Vince Richards**, "Genetic connectivity throughout Florida and the Caribbean: Comparative phylogeography of diverse reef taxa with contrasting reproductive strategies." Committee members: Mahmood Shivji, Ph.D.; James Thomas, Ph.D.; and Charles Messing, Ph.D. October 21.

### Capstone

**Sara B. Uhl**, "Cetaceans and acoustics: the effects of anthropogenic sound pollution." Committee members: Don McCorquodale, Ph.D., and Stefan Harzen, Ph.D. September 9.

**Nicole Marine Roddy**, "The effect of temperature on loggerhead sea turtles, *Caretta caretta*, with emphasis on nesting in Broward County, Florida." Committee members: Curtis Burney, Ph.D., and Edward O. Keith, Ph.D. September 15.

**Steve Kish III**, "The golden crab (*Chaceon fenneri*), with particular emphasis on the southeast Florida fishery." Committee members: Donald S. McCorquodale, Ph.D., and Richard Spieler, Ph.D. September 23.

**David Radtke**, "Organochlorine residues in Asian coastal marine organisms and the toxicological effects on them and humans that consume them." Committee members: Donald S. McCorquodale, Ph.D., and Curtis Burney, Ph.D. October 12.

**Dana Wingate**, "A review of the biology and ecology of molluscan corallivores." Committee members: Joshua Feingold, Ph.D.; Charles Messing, Ph.D.; and Bernhard Riegl, Ph.D. November 11.

## Hurricane Wilma, October 24

Preparing for the umpteenth hurricane of the season required not only putting up shutters and covering bookcases and computers, but also securing the seven NSUOC research vessels. The larger boats were tied off in the boat basin, and the smaller RV *Lucy Forman* was brought into the warehouse. The efforts proved successful, as none of the research vessels were damaged.

The houseboat and other buildings did sustain some damage, however. The Forman Building, housing the library (which thankfully was unscathed), sustained roof damage on the south side of the building, giving the physical oceanographers who had offices there a view of the sky. The Mellon Building also lost its roof. The houseboat received major structural damage and has sadly seen its last days. 🐡



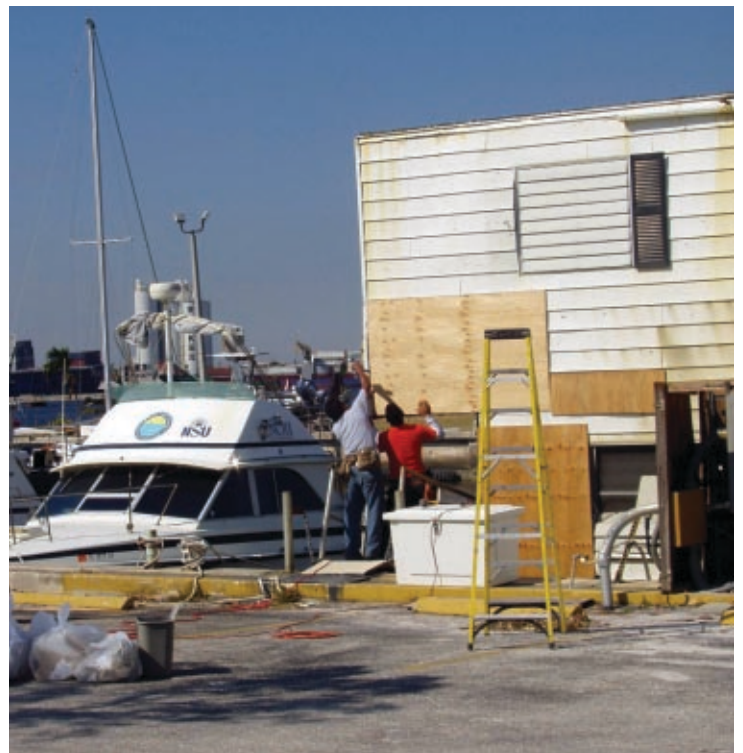
Kirk Kilfoyle readies rope, while Pat Quinn is at the helm of the RV *Panacea*. (Clockwise from top: Researcher, Explorer, *Panacea*, and Researcher II. Not shown: *Lucy Forman*, *Ranger*, and *Voyager*).



Sam Purkis, sidestepping smashed pictures, heads to his office after the storm.



This is some of the damage to the houseboat.



Workmen make temporary repairs to the houseboat after the hurricane.

## Twenty-Nine New Students

The fall new student orientation and barbeque on September 24 drew a large crowd once again. Twenty-nine new students enrolled for the fall term. Following orientation and tours, old and new students, and faculty and staff members were treated to a barbeque. Unlike last year when everyone huddled under the tent as it rained, this year the weather was perfect. 🌊



Lance Robinson (left), boat captain, and David Gilliam, research scientist, cook up a storm for the 2005 Fall Student Barbeque.



The line for the food (background) gets heavy as everyone starts to arrive for the barbeque.

## Holiday Luncheon

Faculty and staff members of the center came together for a luncheon on December 9 to celebrate the holidays. Center librarian, Kathy Maxson, organized the luncheon, which was held in the decorated library. 🌊



Digging in! (L-R) Abby Renegar, Peggy Oelrich, Missy Dore, Erin Hodel, Kevin Helmle, and Pat Quinn get ready to enjoy the fare.



Clockwise from left: Abby Renegar, Kevin Helmle, Kathy Maxson, Jane Naraine, and Carol Fretwell relax after having their fill.

## Ph.D. Degree Offered

The Oceanographic Center offers a doctoral degree in oceanography/marine biology. The program requires a minimum of 90 credits beyond the baccalaureate. At least 48 credits must consist of dissertation research, and at least 42 credits must consist of upper-level coursework. Required courses include the four M.S. core courses. Other upper-level coursework is usually in the tutorial mode with the major professor. Tuition is \$4,074 per quarter. 🌊

**Notes to all ALUMNI:** The Oceanographic Center is exploring the feasibility of forming an alumni association. If you are interested in participating as a member of the organizing committee, please contact Ray Wolcott (2041 Via Alexandra, Escondido, CA 92026, phone: (760) 839-5392, email: [wolcott@nsu.nova.edu](mailto:wolcott@nsu.nova.edu)).

Also, if you are interested in being featured in the Alumni News section, please send your information and photo to Kathy Maxson at [maxson@nova.edu](mailto:maxson@nova.edu).

Finally, we are trying to obtain CDs (or PDFs) of all theses and capstones done at the Oceanographic Center. If you haven't turned one in, please send one to Kathy Maxson in the library. 🌊



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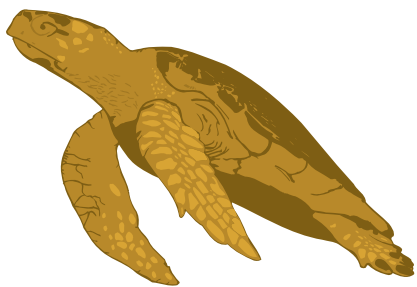
*Currents, Fall 2005*



*Is this a future oceanographer? Sam Purkis and wife Lotte bring a new addition to the NSUOC family, Isis Norah.*



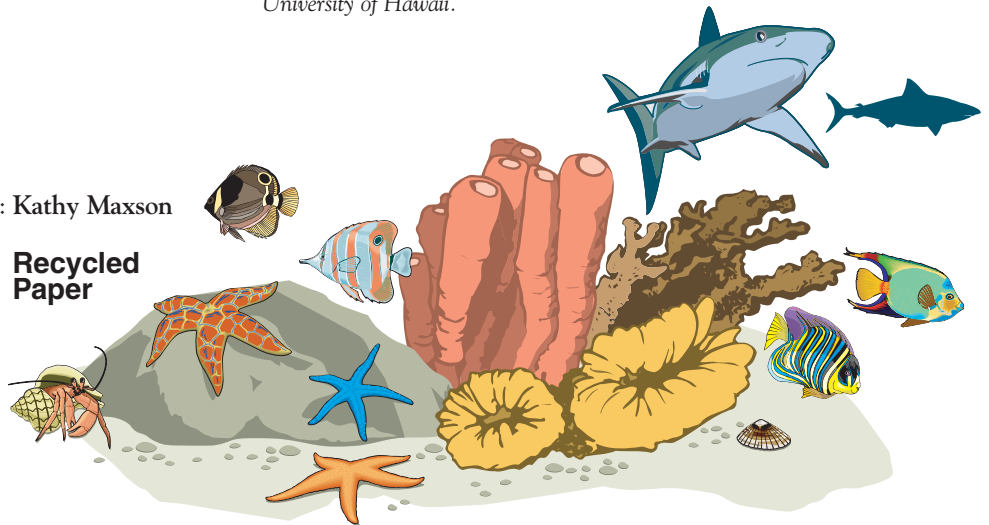
*Bernardo Vargas-Angel (center), flanked by Carol Fretwell and dean Richard Dodge, at his going-away party. Vargas-Angel has taken a position at the University of Hawaii.*



Editor: Kathy Maxson



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