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Nova Southeastern University
Oceanographic Center

Currents

Spring 2005 • Volume XIX, Number 2

NSU Oceanographic Center's National Coral Reef Institute (NCRI) Hosts NOAA Coral Reef Investigator Meeting

NSU's National Coral Reef Institute (NCRI) hosted the Third National Oceanic and Atmospheric Administration (NOAA) Center for Sponsored Coastal Ocean Research (CSCOR) Coral Reef Program Review Meeting, March 22–25, 2005, at the NSUOC.

The meeting was convened by NOAA National Ocean Service (NOS) Center for Sponsored Coastal Ocean Research (CSCOR) program officials and reviewed activities of the three major coral reef research institutes—in Puerto Rico (Caribbean Coral Reef Institute), Hawaii (Hawaii Coral Reef Initiative), and Florida (NSU's National Coral Reef Institute)—and the two Coral Reef Ecosystem Studies programs in the Caribbean and Micronesia. Previous annual meetings were in Puerto Rico and Hawaii. NCRI hosted the three-day meeting at the NSU Oceanographic Center in Dania Beach

Attendees were welcomed by **Richard Dodge**, Ph.D., executive director of NCRI and dean of the Oceanographic Center. NCRI's coral reef projects were spotlighted on March 22. Formal presentations detailing NCRI's research results and progress within the topics of assessment, monitoring, and restoration were made in the morning. NCRI's reef mapping activities were highlighted, along with outcomes of local, regional, and global monitoring work. A selection of NCRI-developed software that aids scientists and managers in processing information about coral reefs was highlighted. Reports on reef restoration projects emphasized the need to develop scientifically sound means to rehabilitate injured reef ecosystems. Many scientific posters describing NCRI's work in depth were also on display. In the afternoon, NOAA and NCRI personnel did scuba dives at a number of NCRI's local reef research sites.

Representatives from NSU's National Coral Reef Institute (NCRI) and the National Oceanic and Atmospheric Administration (NOAA)'s Center for Sponsored Coastal Ocean Research (CSCOR) take a break from deliberations. Left to right: Mike Dowgiallo, NOAA NOS CSCOR program manager; Bernhard Riegl, NSU NCRI associate director; David Hilmer, NOAA NOS CSCOR associate program manager; Rob Magnien, director NOAA NOS CSCOR; Richard Dodge, NSUOC dean and NCRI executive director; and Felix Martinez, NOAA NOS CSCOR.

On March 23 and 24, a variety of science and program presentations were made by NOAA and related programs. The meeting concluded with in-depth discussions on optimal directions for coral reef science to facilitate improved management of coral reef ecosystems.

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Scientists and administrators from Puerto Rico, Hawaii, and NSU coral reef institutes. (L-R): Richard Appledorn, executive director, Caribbean Coral Reef Institute (CCRI); David Ballantine, cochair, Management Board CCRI; Mike Hamnett, executive director, Hawaii Coral Reef Initiative (HCRI); Lillian Ramirez, program manager, CCRI; Kristine Davidson, program manager, HCRI; Richard Dodge, executive director, NCRI; Carol Fretwell, program coordinator, NCRI; and Bernhard Riegl, associate director, NCRI.

Representatives who spoke during the meeting included:

National Oceanic and Atmospheric Administration (NOAA)

National Ocean Service (NOS)

- Center for Sponsored Coastal Ocean Research (CSCOR)—Rob Magnien, Ph.D.; Mike Dowgiallo, Ph.D.; David Hilmer; and Felix Martinez, Ph.D.
- Office of Response and Restoration/Coral Reef Conservation Program—Helen Golde
- Center for Coastal Fisheries and Habitat Research (CCFHR)—David Johnson
- Center for Coastal Monitoring and Assessment (CCMA)/Biogeography Program—Mark Monaco, Ph.D.
- Center for Coastal Environmental Health and Biomolecular Research (CCEHBR)—Cheryl Woodley, Ph.D.

National Environmental Satellite, Data, and Information Service (NESDIS)

National Oceanographic Data Center (NODC)—Doug Hamilton

Office of Oceanic and Atmospheric Research (OAR)

Atlantic Oceanographic and Meteorological Laboratory (AOML)—Jim Hendee, Ph.D. (NSU alumnus)

National Marine Fisheries Service (NMFS)

Southeast Fisheries Science Center (SEFSC)—Ph.D.s Jim Bohnsack and Margaret Miller

Puerto Rico

Caribbean Coral Reef Institute (CCRI) and Coral Reef Ecosystems Studies Caribbean (CRES—Caribbean), Department of Marine Sciences, University of Puerto Rico (UPR)—Ph.D.s Richard Appledorn and David Ballentine, and Lillian Ramirez

Hawaii

Hawaii Coral Reef Initiative (HCRI), Research Corporation of the University of Hawaii (UH); and Coral Reef Ecosystems Studies—Micronesia (CRES—Micronesia)—Ph.D.s Mike Hamnet and Rob Richmond, and Kristine Davidson

Florida and the Bahamas

- Perry Institute of Marine Science (PIMS) and Caribbean Marine Research Center (CMRC)—Albrey Arrington
- National Undersea Research Center (NURC), University of North Carolina/Wilmington (UNCW)—Otto Rutten

NSU

National Coral Reef Institute, NSUOC—Ph.D.s **Richard Dodge**, **Bernhard Riegl**, **David Gilliam**, **Richard Spieler**, **Bernardo Vargas Ángel**, **Samuel Purkis**, and **Mahmood Shivji**, along with **Carol Fretwell**, **Kevin Kohler**, and **Kevin Helmle**

People on the Move

James Thomas, Ph.D., presented a seminar at Old Dominion University, in Norfolk, Virginia, on April 26. His talks addressed approaches to predicting centers of evolutionary diversity in coral reef ecosystems using marine invertebrates. He was hosted by Kent Carpenter, Ph.D., a well known fisheries biologist, who is also working on methods to identify areas of evolutionary significance in coral reefs using information from his study of coral reef fish communities. After the presentation the faculty members and students met at Sullivan's wharf in Tidewater, Virginia, and sampled the local seafood.

Richard Dodge, Ph.D., and **Kevin Helmle** were invited to the "Workshop on the Impacts of Increasing Atmospheric CO_2 on Coral Reefs and Other Marine Calcifiers" held at the USGS Center for Coastal and Watershed Studies in St. Petersburg, Florida, on April 18–20.

Steffen Schmidt, Ph.D., adjunct professor at NSUOC, recently gave a presentation on distance learning strategies, techniques, and technology at the NOAA National Coastal Services Center in Charleston, South Carolina. Schmidt will be giving further seminars at NOAA on innovative teaching and training in coastal policy and is currently working on audio PodCasting, a new blog-linked way of creating and downloading MP3 education audio files to iPod players. Schmidt has a blog at *http://coastalpolicy.blogspot.com/*, which he is using as a communications tool with students and colleagues.

Schmidt, director of international programs at Iowa State University, is also involved in a coalition of environmentally aware people from several universities and institutions in the United States, Great Britain, and New Zealand who are working with Iraqi scientists at Basrah University to review and publish *Marina Mesopotamica*, the former journal of Basrah University's Marine Science Centre.

Andrew Rogerson, Ph.D., was an invited speaker at the Seatrade Cruise Shipping Convention 2005 held in March at the Miami Beach Convention Center.

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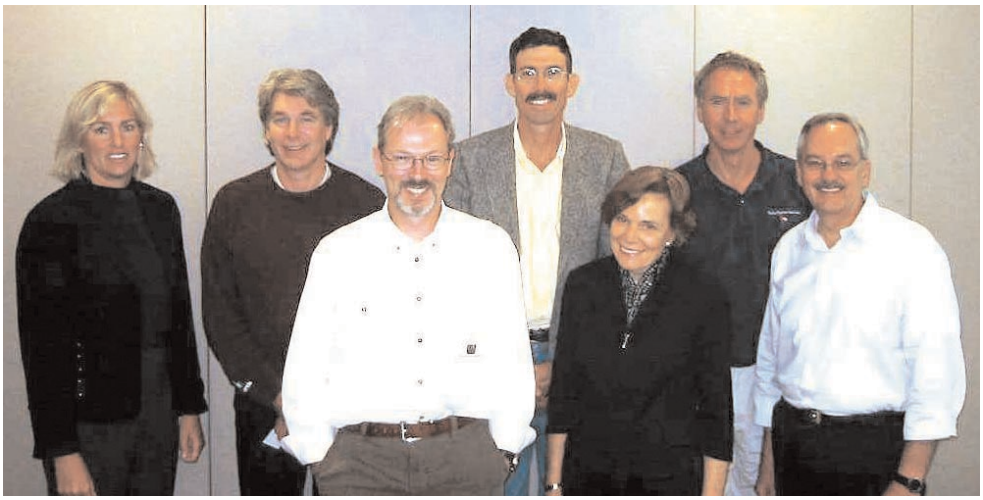


From left to right are the panel members: Ellen Prager, Ph.D., president of Earth2Ocean Inc.; Marlin Atkinson, Ph.D., professor at the Hawaii Institute of Marine Biology; Tom Lacher, Ph.D., executive director of applied biodiversity, Conservation International; Al Debrot, Ph.D., research department head, Carmabi Foundation; Sylvia Earle,Ph.D., executive director, marine conservation, Conservation International; Andrew Rogerson, Ph.D., associate dean, Oceanographic Center; and Charles McGee, Ph.D., supervisor sanitation, Orange County, California

He participated in a session about the environmental outlook that explored the regulatory environment for the cruise industry in terms of waste management and ballast water exchange. Rogerson is a member of an independent science panel, chaired by Sylvia Earle, Ph.D., charged with guiding the decision-making for dealing with wastewater management issues facing the cruise industry.

Rogerson also attended the fourth meeting of the science advisory panel on best practices for handling cruise ship gray and black water waste on April 9–10. The panel convened at Conservation International Headquarters in Washington, D.C. The International Council of Cruise Lines and its member partners have sponsored this independent panel to have science guide the decision-making for dealing with wastewater management.

M.S. student **Kris Klebba** participated in an amphipod crustacean workshop at Lizard Island, Australia, in late February. Jim Lowry of the Australian Museum led a group of 14 amphipodologists in researching the biodiversity of these important crustaceans on the Great Barrier Reef. Participants from around the world surveyed many habitat types at 15 stations around Lizard Island and on the outer barrier reef. Two weeks of collections yielded more than 1,000 samples including almost 200 species of amphipods. The majority of these samples contain undescribed species. Each participant has been allocated one or more families from the collection. Klebba will be working with one of the most abundant families, the Leucothoidae. The results will be published in a book discussing the biodiversity of amphipods on the Great Barrier Reef. Each chapter will focus on one family, containing a list of species collected from the reef and descriptions of any new species collected.

Sorting amphipods are (L-R) Kris Klebba and other workshop participants: Ichyro Takeuchi, Chet Rakocinski, and Rachel King.

Bernhard Riegl, Ph.D., has just returned from a field trip in the United Arab Emirates (UAE), where he conducted coral reef assessments on seven offshore islands in the emirate of Abu Dhabi and coastal sites in the emirate of Fujairah. The trip was part of a long-term commitment to capacity building within the UAE's environmental agency, the Environmental Research and Wildlife Development Agency. The effort is sponsored by UAE energy giant Dolphin Energy and administered by the WWF. During the most recent field trip, Riegl found encouraging signs of coral regeneration in the Arabian Gulf, which had suffered significant mortality in three thermal anomalies in 1996, 1998, and 2002.

The most exciting find was an area of unusually high coral cover, also devoid of coral diseases or high numbers of coral predators, in the emirate of Fujairah. The NCRI Worldwide Coral Reef Monitoring Network will attempt to use this site as a permanent monitoring site. During his endeavors, Riegl was capably assisted by his local counterpart Ashraf Al Cibahy, and management trainee and senior diver Nasser Al Shaiba.

(Continued on page 4)

Acropora arabensis, *a coral only occurring in the Arabian Sea and the Arabian Gulf*

(Continued from page 3)

In March 2005, **Edward O. Keith**, Ph.D., and Jane Guentzel, Ph.D., his collaborator from Coastal Carolina University, spent nine days in the Alvarado Lagoon System in Mexico collecting samples for mercury contaminant analysis. The Alvarado Lagoon System is a large wetland formed by the merged deltas of three rivers and is home to a large human population. Their previous work in this area had indicated that the waters in the lagoon were only minimally contaminated with mercury, but that one species of fish, the Mojarra (*Eugerres plumieri*) had levels of mercury that might pose a danger to humans who consume it on a regular basis.

Therefore, during 2005, Keith and Guentzel collected water, sediment, and human hair samples to more clearly elucidate the cycling of mercury in the lagoon ecosystem and to determine the level of threat to the human inhabitants, if any. Guentzel is currently analyzing the samples, and the team is planning a return trip to the area in September 2005 to assess the seasonal dynamics of mercury. This study was approved by the NSU Institutional Review Board and is supported by an NSU President's Faculty Research and Development Grant awarded to Keith.

During February and March 2005, Keith was host to Ryoko Amano from Japan. Amano is a student at the NSU Language Institute. Although she was here primarily to improve her English language skills, she has a long-standing interest in manatees, and wanted to participate in Keith's research program at the NSU Oceanographic Center. She was able to accompany Keith and his students in their weekly survey of Port Everglades for manatees, which congregate at the Port Everglades FPL power plant because it discharges warm water. Amano also assisted Keith and his master's degree student Laura Wright with their research under the Manatee Avoidance Technology Program, on a project funded by a grant from the Florida Fish and Wildlife Conservation Commission. Amano traveled to the Lowry Park Zoo in Tampa, where Keith and Wright were testing the ability of underwater infrared cameras to detect manatees at various distances and water depths. Amano even extended her stay in the United States so that she could accompany Keith and his ornithology class on a field trip to Sea World in Orlando. Although Sea World is primarily known for its marine mammal exhibits, the park does maintain a large population of diverse avian species from around the world. Amano was able to return to Japan with her interest in manatees increased and her knowledge and understanding of this fascinating species expanded.

Ryoko Amano

From April 7–10, Keith and a large group of his graduate students attended the Marine Mammal Health Conference II, held in Gainesville. This biannual conference, organized by the University of Florida College of Veterinary Medicine Marine Mammal Program, had as its theme the health and well being of the four principal species of wild marine mammals found in Florida waters: manatees, bottlenose dolphins, pygmy sperm whales, and Northern right whales.

Laura Wright, Jillian McCarty, Melinda Bigelow, Nicole Justice, and Walter Justice in front of their posters.

Four of Keith's students presented posters at the conference. **Melinda Bigelow** presented the initial results of her thesis project examining "Levels of polycyclic aromatic hydrocarbons in subcutaneous blubber samples from the Florida manatee (*Trichechus manatus latirostris*)." Polycyclic aromatic hydrocarbons are persistent organic pollutants that have significant effects due to biomagnification as they move up the food chain.

Nicole Justice presented some preliminary studies of the vascular anatomy of cetacean kidneys, using a novel plastic injection and tissue removal technique. Her poster was entitled "A corrosion casting study of the structure of cetacean kidneys." The kidneys of cetaceans and other marine mammals have an unusual lobulated structure, where each kidney is itself composed of multiple miniature kidneys known as reniculi. Exactly how the blood gets to and from each reniculus has never been elucidated, nor has how the urine leaves each reniculus to enter the ureter.

Jillian McCarty presented a poster describing her initial analysis of a large body of data gathered from stranded pygmy and dwarf sperm whales (genus *Kogia*). The incidence of Kogia strandings has increased over the past five years, and McCarty's analysis examines the potential influence of El Niño and lunar cycles on this enigmatic problem.

(Continued on page 5)

The Oceanographic Center benefits from Guy Harvey mural at airport terminal.

Renowned marine wildlife artist and conservationist **Guy Harvey**, Ph.D., has painted a mural at Terminal 1 of the Fort Lauderdale-Hollywood International Airport. The three-story high artwork, measuring approximately 40' x 60' and extending from the floor to the ceiling, was unveiled on Tuesday, April 19, after nearly one year of work.

The image Harvey created includes the skyline of downtown Fort Lauderdale and an underwater scene featuring a sunken freighter, which functions as an artificial reef, with an assortment of marine species indigenous to South Florida's waters. The process of creating this scale of artwork required covering the airport terminal wall with sheets of metal in order to create a "canvas." At that point, the metal sheets were covered with vinyl on which Harvey painted an underwater scene that emulates the beauty of our oceans.

A portion of the proceeds received for the mural will be donated to the Guy Harvey Research Institute at NSU's Oceanographic Center to support its internationally recognized research in marine conservation. Information on studies being conducted at the Guy Harvey Research Institute can be found at *www.nova.edu/ocean/ghri/*.

Guy Harvey (left) stands on scaffolding as he finishes up his mural.

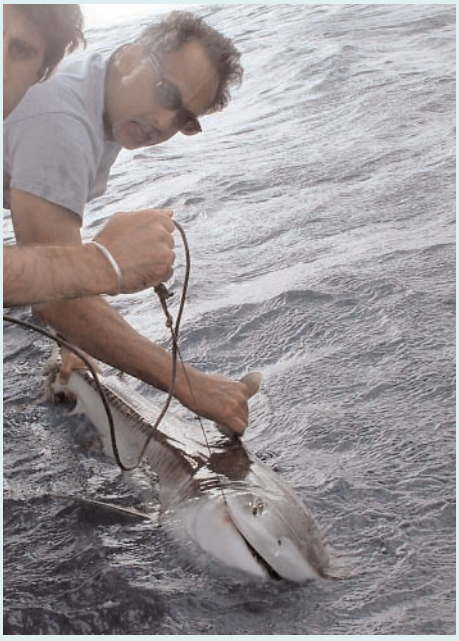
(Continued from page 3)

Laura Wright presented a poster describing the evaluation of two different underwater infrared cameras, examining their ability to detect inanimate objects and manatees at various distances and depths. Her project is funded by a grant from the Florida Fish and Wildlife Conservation Commission, under their Manatee Avoidance Technology Program. This program is seeking new technological solutions to the primary known cause of manatee mortality: boat strikes. A system is envisioned that would consist of a camera mounted in the bow of a boat, under the waterline, with the images captured by the camera displayed on a small screen at the helm of the vessel. If a manatee were to be detected in front of the vessel, the operator would have a chance to slow down or take evasive action.

Other News

Oceanographic Center faculty member and Guy Harvey Research Institute director **Mahmood Shivji**, Ph.D., and his Ph.D. student **Demian Chapman** were interviewed by several media outlets to discuss the aggregation of sharks off southeast Florida this spring. Shivji's interviews were carried by the *Miami Herald*, WSVN Channel 7 news, and the Fox national television network. Chapman's interview was aired by NBC Channel 6 and in several additional markets nationwide, bringing widespread attention to NSU research.

Shivji is also collaborating with researchers from the University of Rhode Island (URI) to identify and characterize nursery areas for newborn sharks in the U.S. Virgin Islands. Shark populations are being overfished worldwide to supply the shark fin trade, raising serious concerns about the effects that the removal of top predators is having on the health of marine ecosystems. Shivji and URI scientist, Brad Wetherbee, Ph.D., are initiating a follow-up study to understand the movement patterns and habitat use of newborn sharks, and to determine if protecting these nurseries from fishing by the establishment of Marine Protected Areas is necessary to improve newborn shark survival.



Mahmood Shivji with a tiger shark caught on one of their research expeditions

Awards

David McMahon received the alumni award at NSU's annual Celebration of Excellence held January 27. McMahon, who got his M.S. degree from NSUOC in 1998 and his Ph.D. in oceanography in December 2004, is owner of the largest commercially viable aquaculture facility in the United States, producing USDA-certified organic shrimp. His business, Ocean Boy Farms, is located in Clewiston, Florida.

David McMahon with Richard Dodge, OC dean, at the awards ceremony

Kevin Kohler, coordinator of computing services, won third prize in the professional category in the NSU Eighth Annual Technology Fair, held April 15. The title of his entry was "The Use of Automated Systems in Collaborative Scientific Research: Design and Implementation." The prize came with a check for $75.

Kevin Kohler sits next to a laptop displaying his winning entry.

The Sixth Annual Student Life Achievement Awards (Stueys) Ceremony was held April 19. This university event acknowledges the achievements of students, administrators, deans, and faculty and staff members. Nominees for awards are judged on the basis of core values: responsibility, leadership, scholarship, service, commitment, integrity, and involvement. **Andrew Rogerson**, Ph.D., the director of the Institute of Marine and Coastal Studies program at the center, was awarded Administrator of the Year, and M.S. student **Jamie Monty** won Oceanographic Center Student of the Year. Other nominees from the center included **Richard Dodge**, Ph.D., who was a finalist in the Dean of the Year category, and **Mahmood Shivji**, Ph.D., who was finalist for Professor of the Year.

Andrew Rogerson receiving the Administrator of the Year award from Ray Ferrero, Jr., NSU president

Nicole Justice, an M.S. student at the NSU Oceanographic Center, won second prize for her poster entitled "Preliminary Investigations of the Structure of Cetacean Kidneys," which was presented at the Southeast and Mid-Atlantic Marine Mammal Symposium, held March 18–20 2005, in Wilmington, North Carolina. The prize came with a check for $50. The poster describes Justice's master's degree thesis work (under the direction of Edward O. Keith, Ph.D.), which involves the use of a novel plastic injection technique to elucidate the unusual structure of dolphin and whale kidneys.

O.P. Dwivedi

Participants at the gathering of distance learning instructors (see story page 9) were delighted to learn that distance learning adjunct professor **O.P. Dwivedi**, Ph.D., has been awarded Canada's highest honor, the Order of Canada. The Order of Canada recognizes outstanding achievement and service, and members are appointed at the direction of an advisory council chaired by the chief justice. Dwivedi, who teaches the Oceanographic Center's online course, "Water: Cross-cultural, Scientific, and Spiritual Perspectives," was nominated for his "contributions that span continents and cultures." Dwivedi's work on environmental policy and stewardship is recognized worldwide, as is his humanitarian work. He has taught at the University of Guelph (Canada) since 1967, and is currently senior research scholar in the Globalization Research Center at the University of South Florida. He is considering developing another distance learning course for the Oceanographic Center, this time on international environmental law.

Walt and Nichole Justice in front of her poster

MASTERCURRENTS
INSTITUTE OF MARINE AND COASTAL STUDIES

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 summer term runs from June 27–September 16 (unless otherwise specified). Registration ($25 nonrefundable fee) begins two weeks prior to the start of classes. For further information, call Andrew Rogerson, Ph.D., or Melissa Dore at (954) 262-3610 or 800-396-2326, or email *imcs@nsu.nova.edu*. More information can be found at the Web site *www.nova.edu/ocean*.

Summer Term 2005
June 27–September 16

Marine Chemistry
OCOR-5605
A core course, marine chemistry explores the properties and composition of seawater, emphasizing the importance of relationships and cycling of major nutrients and dissolved gasses. Instructor: Curt Burney, Ph.D., associate professor, *burney@nsu.nova.edu*

Tropical Marine Fish Ecology
CZMT-0690/MEVS-5000/OCMB-6120
This field course to the Florida Keys runs from July 31–August 6. Emphasis is on identification and natural history of local species. **Fee: $375**. Instructor: Richard Spieler, Ph.D., professor, *spielerr@nsu.nova.edu*

Scientific Diving and Coral Reef Assessment
OCMB-9700
Now offered in a field course format, this course is designed to teach basic scientific diving techniques, especially as applied to coral reef assessment. Upon completion of the course, the student will meet the requirements to be a scientific diver at the OC. Field trip dates are August 15–22. **Fee: $350**. Instructors: David Gilliam, Ph.D., Lance Robinson, research scientist/dive master, *gilliam@nsu.nova.edu*, *lancerob@nsu.nova.edu*

Topics in Chemical Ecology
CZMT-0660/MEVS-5040/OCMB-6210
This course is an introduction to the chemical ecology of marine natural products, biosynthesis, and marine animals. Instructor: Veljko Dragojlovic, Ph.D., associate professor, *veljko@nsu.nova.edu*

Coastal Observing Systems
MSPO-5220
This course is intended to give students an overall view of the existing and planned coastal ocean observing systems. Students will gain an appreciation for the challenges of observing ocean processes and knowledge of the potential uses for many user groups. Instructor: Alexander Soloviev, Ph.D., associate professor, *soloviev@nsu.nova.edu*

Concepts in Ocean Engineering
MSPO-5230
This course covers fundamentals of ocean engineering. Topics include the quantitative description of forces which act on engineering structures and the relationship between force, stress, strain, and strength of materials. Instructor: William Venezia, Ph.D., adjunct professor, *imcs@nsu.nova.edu*

Fall Term 2005
September 26–December 16

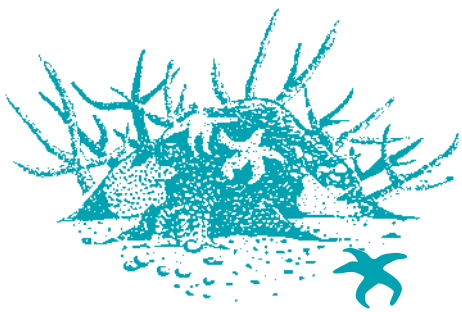
Marine Ecosystems
OCOR-5602
A core course focusing on marine ecological processes and functions. Emphasis will be devoted to coastal marine communities. Instructor: Curt Burney, Ph.D., associate professor, *burney@nsu.nova.edu*

Biostatistics I
OCOR-5603
A core course, Biostatistics I is a basic course on the practical applications of descriptive and inferential statistics with emphasis on principles and methods of summarizing and analyzing biological data. Instructor: Mark Farber, Ph.D., adjunct professor, *mfarber@nsu.nova.edu*

Physical Oceanography
OCOR-5607
A core course, Physical Oceanography covers basic ocean physics with a focus on the large scale circulation of the oceans and their relation to weather and climate. Students are required to take either this course or OCOR-5601 as a core course. Instructor: Sean Kennan, Ph.D., assistant professor, *skennan@nsu.nova.edu*

Concepts in Fluid Mechanics
MSPO-5000
A core in the physical oceanography M.S. program, this course introduces the principles of continuity, momentum, and energy applied to fluid motion. Instructor: Alexander Soloviev, Ph.D., associate professor, *soloviev@nsu.nova.edu*

Waves in the Ocean
MSPO-5250
The course will focus on gravity, inertial-gravity and vorticity waves, mechanisms of their generation, and their role in the variability of hydrophysical fields in the ocean. Instructor: Alexander Yankovsky, Ph.D., assistant professor, *sasha@nsu.nova.edu*



Distance Education

The following courses are scheduled. Please check our Web site at *www.nova.edu/ocean/disted.html* for updates. For more information about our distance education program, please contact Jane Dougan at *douganj@nsu.nova.edu*.

Summer Term 2005
June 27–September 16

Coastline Environmental Security
CZMT-0677

Introduction to Physical Oceanography
OCOR-5608

Life on a Water Planet
CZMT-0630

Internship in Coastal Policy
CZMT-0664

Fall Term 2005
September 26–December 16

Coastal Policy
CZMT-0612

Marine Geology
OCOR-5604

Water: Cross-cultural, Scientific, and Spiritual Perspectives
CZMT-0710-DE1

Environmental Remote Sensing (RS) and Geographic Information System (GIS)
CZMT-0655-DE1

Biology of Sharks and Rays
OCUG-3400

Undergraduate and General Interest Credit Only

Internship in Coastal Policy
CZMT-0664
CZMT-0664

Seminars and Defenses

SEMINARS

Toshiaki Shinoda, Ph.D., research scientist with the Climate Diagnostics Center, CEIS, University of Colorado. "Subseasonable air-sea interaction in the tropical Indian Ocean and its relation with dipole variability." April 7

Igor Kamenkovich, Ph.D., research associate professor, Department of Atmospheric Sciences, University of Washington, "The role of daily surface forcing in setting the stratification and mixed layer structure of the Southern Ocean." March 30

THESIS DEFENSE

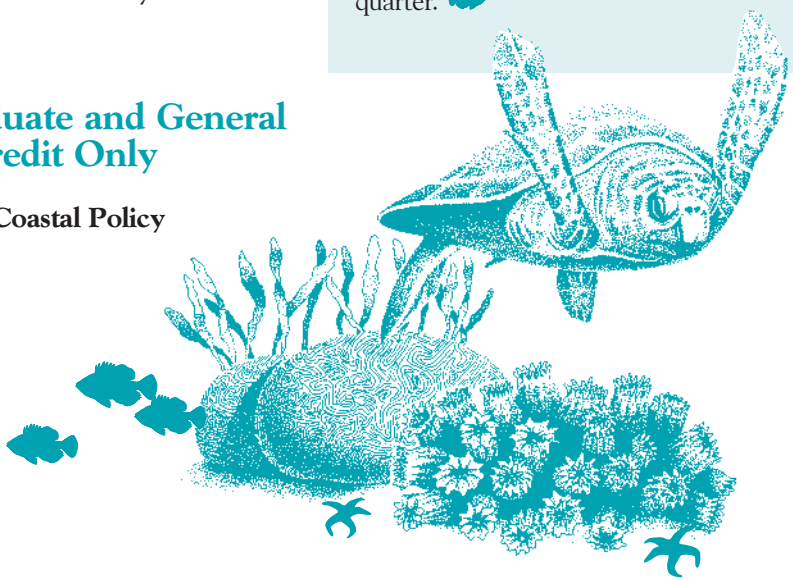
Christian L. Avila, "Offshore Reef Fish Assemblages of Miami-Dade County, Florida, Effects Associated with Dredging for Beach Renourishments." Committee members: Richard E. Spieler, Ph.D.; David S. Gilliam, Ph.D.; and Stephen M. Blair, M.S. (Miami-Dade County DERM). May 20

CAPSTONE

Kevin Rock, "Water Availability in Florida." Committee members: Don McCorquodale, Ph.D., and Stacy Meyers. April 29

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.



Publications

Purkis, S.J., and **B. Riegl**. (2005) Spatial and temporal dynamics of Arabian Gulf coral assemblages quantified from remote-sensing and in situ monitoring data. *Marine Ecology Progress Series* 287:99–113.

Riegl, B., and **S.J. Purkis**. (2005) Detection of shallow subtidal corals from IKONOS satellite and QTC View (50, 200 kHz) single-beam sonar data (Arabian Gulf; Dubai, UAE). *Remote Sensing of Environment* 95:96–114.

Walker, R.J., **E.O. Keith**, **A.E. Yankovsky**, and D.K. Odell. (2005) Environmental correlates of cetacean mass stranding sites in Florida. *Marine Mammal Sci.*, 21(2), 327–335.

Distance Learning Group Comes Together

The distance-learning program at the Oceanographic Center continues to expand, and instructors gathered recently to network, share ideas about future directions, and learn about the latest distance-learning tools and technologies available from the University's I-Zone. Led by Coordinator of Distance Learning **Jane Dougan**, the pool of enthusiastic established and potential instructors came from across the campus (the Oceanographic Center, the Law Center, the Health Professions Division), across states (Iowa State University), and across national borders (University of Guelph, Canada). There was discussion of more collaborative efforts between the NSU schools, as well as about further promoting and strengthening the distance programs. The Oceanographic Center offers a number of distance courses and programs including an online M.S. degree in coastal zone management, a graduate certificate in coastal studies, an M.S. degree in education with a specialization in environmental education (offered through the Fischler School of Education and Human Services), and an M.A. degree in cross-disciplinary studies with a concentration in environment and society (offered through the Graduate School of Humanities and Social Sciences). Our distance ed students come from across the United States, Canada, Europe, Japan, Australia, Iceland, and the Caribbean. For more information, please visit *www.nova.edu/ocean/disted.html.*

Photograph from left to right: Diane Lippe, director, the I-Zone; Teri Goodchild, I-Zone manager of instructional design and development; Steffen Schmidt, Ph.D., Iowa State University; Andrew Rogerson, Ph.D., director of graduate programs; Kevin Kohler, senior programmer and coordinator of computing services; Patrick Hardigan; Ph.D., Richard Dodge, Ph.D., dean of the Oceanographic Center; O.P. Dwivedi, Ph.D., University of Guelph, Canada; Jane Dougan, Jeanmarie Pinto, Ph.D., Sam Purkis, Ph.D., Alex Soloviev,Ph.D., Brion Blackwelder, J.D., and Keith Ronald, Ph.D.

NCRI research assistants visit AQUARIUS habitat

Five NCRI research assistants (see picture below) had the opportunity to dive and visit AQUARIUS, the world's only undersea laboratory, located 20 meters beneath the surface. The dive was led by Otto Rutten, associate center director of NURC/UNCW. Other dive participants included Mark Monaco, Ph.D., NOAA NOS CCMA; Mike Dowgiallo, Ph.D., NOAA NOS CSCOR program manager; and Felix Martinez, Ph.D., NOAA NOS CSCOR.

Originally conceived by NOAA's Undersea Research Program (NURP), AQUARIUS was built in 1986 and has supported over 70 missions involving more than 250 scientists from the United States and other countries. With sophisticated research capabilities and comfortable living quarters, AQUARIUS allows "aquanauts" to explore and investigate an environment hostile to human habitation. Underwater research that would normally take months to complete from the surface can be accomplished in ten days from AQUARIUS.

NCRI research assistants (left to right) Jamie Monty, Adrienne Carter, Lauren Shuman, Luz Raquel Hernández-Cruz, and Joanna Walczak in front of the AQUARIUS Life Support Buoy located 4.5kilometers off of Key Largo. The Life Support Buoy is linked to AQUARIUS by a 45-meter long umbilical that supplies air, power, and communication cables.

Owned by NOAA and managed by the University of North Carolina at Wilmington (UNCW), the AQUARIUS habitat is an 82-ton double-lock pressure vessel approximately 14 meters long by 4 meters in diameter.

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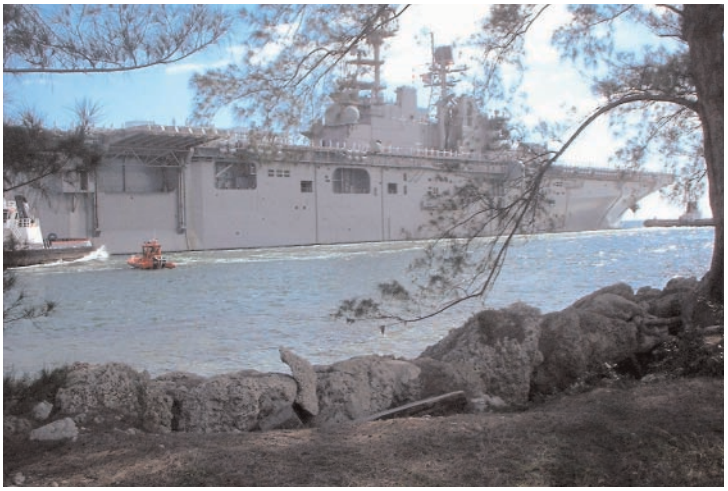
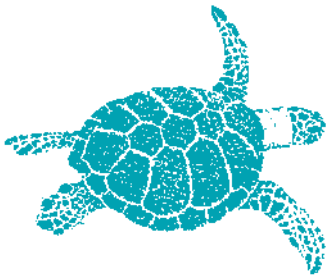
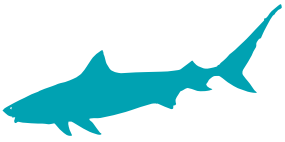
Currents, Spring 2005

Jaime Monty receiving Oceanographic Center Student of the Year from NSU President Ray Ferrero, Jr.



USS Bataan leaves Port Everglades after a week in port for Fleet Week.





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