

Fall 1999

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NSU Oceanographic Center

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First Archaeology Investigation/Field Course is held in the Dominican Republic

During the week of Saturday, October 29 through Friday, November 5, 1999, the Marine Archaeology Investigations/Field Course was held on the north coast of the Dominican Republic at Monti Cristi. Located at the North Caribbean Research (NCR) Facility, the field course was attended by students from the NSU Oceanographic Center, the NSU Graduate Program in Public Administration, the Dominican Republic Ministry of Culture, along with non-credit participants who learned of the program through various Web sites.

The concept for a marine archaeology course was first developed at NSU by the late **Captain Peter Throckmorton**, an adjunct professor at the Oceanographic Center in the late 1980s and considered to be the "conceptual father" of underwater archaeology. The course was renewed at the center and is also offered in the Master of Public Administration (MPA) Program at the Wayne Huizenga Graduate School of Business and Entrepreneurship.

The coordinator of the course is **Bob Baer, D.P.A.**, who was a student of Captain Throckmorton's and is currently an adjunct professor at the Oceanographic Center.

The focus of the 1999 field course was a shipwreck site named the Musket Ball Wreck, which was discovered in 1986 by Throckmorton and **Richard Berry**, the founder of North Caribbean Research. At the time of discovery the site was sediment-free, which allowed the NCR team to conduct a phase-one



Bob Baer and Rocco Galletta after a day at the Musket Ball Wreck

visual, nonintrusive investigation of the site. The name Musket Ball was adopted due to the number of musket balls found throughout the site. It was Throckmorton's opinion that the shipwreck, lying in a protected zone between two reef lines, would be a perfect site for a student field-school investigation.

On Saturday the 31st, a class and shipwreck site orientation was held at Las Carabelas, which was taught by Baer and **R. Duncan Mathewson III, Ph.D.**, the director of the National Center for Shipwreck Research. Mathewson was the field archaeologist who docu-

mented the search for and the discovery of the culturally rich Spanish galleons, *Atocha* and *Santa Margarita*.

On Monday morning, the field course flotilla of four vessels and 12 participants departed the Monti Cristi docking facility and wound its way through the mangrove and estuary system to open water and the site of the Musket Ball Wreck, eight miles east of Monti Cristi. The weeklong field course had been designed as a phase-two investigation: the removal of sediment overburden from the site and removal of diagnostic artifacts to the NCR con-

(Continued on page 2)

(Continued from page 1)

servation facility for further study. Excavation and artifact analysis was expected to answer the following basic research questions: What were the dimensions of the shipwreck? How was the vessel constructed? What cargo was the vessel carrying? And, as precisely as possible, in what era was the vessel built and lost at sea?

Participants included (alphabetically) **William Baxley**, an M.S. candidate in CZM and ocean engineer employed by the U.S. Navy; **Robert Benson**, an M.P.A. candidate and experienced artifact conservation specialist; **Rocco Galletta**, an M.S., CZM candidate and experienced technical diver and owner of Industrial Divers at Port Everglades; master's student, **Lieutenant Richard Wingrove**, a pollution containment specialist with the National Oceanic and Atmospheric Administration (NOAA); and **Emiliano A. Garcia-Feliu**, student representative of the Oficina Nacional de Patrimonia Cultural Subacuatico. Additional members of the excavation team were **Professor Armineo Rodriguez** of the Center for Advanced Studies for Puerto Rico, an expert in the pre-Columbian Taino Native American culture, and prospective NSU doctoral candidate in public administration; and **Juan Torres** of American Airlines, a student of undersea aircraft excavation.

Mathewson, Baer, and all the field-school participants wish to extend a special thanks to NSU patron **Hamilton Forman**, the NCR team, Rick and Wanda Berry, Rich Donato, **Dean Richard Dodge** and **Professor Andrew Rogerson** of the NSU Oceanographic Center, as well as **Cathy Mattison**, the NCR marine biology adviser, for her biological assessment of the shipwreck site. Special thanks is also extended to **Raymond Cox, Ph.D.**, of the Public Administration Program for his support of the CRM concentration. In the Dominican Republic, NCR and NSU wish to thank **Luis O. Brea Franco**, vicepresidente tecnico consejo presidencial de cultura, for his support of NCR and educational programs in the Dominican Republic. 🐠



Bill Baxley and Rocco Galletta measuring the ship's timbers

NCRI at the U.S. Coral Reef Task Force Meeting by Carol Fretwell

The **NCRI** crew (staff members of the National Coral Reef Institute with headquarters at the Oceanographic Center) recently returned from the third meeting of the U.S. Coral Reef Task Force, held in St. Croix, U.S. Virgin Islands. Past meetings have been held at Biscayne National Park and in Maui, Hawaii.

Executive director (and NSUOC dean) **Richard E. Dodge, Ph.D.**; research director **James D. Thomas, Ph.D.**; research scientist **David S. Gilliam, Ph.D.**; and coordinator of administrative operations, **Carol Fretwell**, met with approximately 200 other members of the coral reef scientific and regulatory community to plot a unified action plan for conserving coral reefs, particularly U.S. reefs.

Also in attendance was the Honorable Bruce Babbitt, secretary of the interior, who cochaired the meeting; the Honorable Tauese P. F. Sunia, governor of American Samoa; the Honorable Charles Wesley Turnbull, governor of the U. S. Virgin Islands; the Honorable Donna Christian-Christensen, U.S. Virgin Islands delegate to the U. S. House of Representa-

tives; D. James Baker, Ph.D., undersecretary for oceans and atmosphere for the Department of Commerce; and Sally Yozell, deputy assistant secretary for the Department of Commerce, National Oceanic and Atmospheric Administration.

The three-day conclave started with a technical workshop titled, "Coral Reef Ecosystem (Area) Protection: What Is It?" presented by the Center for Marine Conservation. More than a dozen scientists and resource managers characterized current protection levels of U.S. coral reefs in Florida, Hawaii, other U.S. Pacific islands, the U.S. Virgin Islands, and other U.S. Caribbean islands. Areas of concern included impacts from fishing and other extractive practices, pollution and land use, and recreation and tourism.

Dodge was one of 12 speakers who followed the workshop with a presentation to the assemblage on coral reef issues. His talk, "Coral Reef Assessment, Monitoring, and Restoration: The National Coral Reef Institute," briefly summarized the goals, mission, philosophy, projects, partnerships, accomplishments, and current research plans for the institute.

(Continued on page 3)

(Continued from page 2)

Thomas followed the next day with a five-minute briefing to members of the task force, demonstrating the connection between NCRI activities and the work of the task force.

With the opening of the official task force meeting on the second day, a presentation was made of a draft document "National Action Plan to Conserve Coral Reefs," which was adopted on the third day and will be open for public comment for the next 60 days. It provides a summary of the work of five working groups in an action plan centered on two themes: (1) understanding coral reef ecosystems; and (2) reducing the adverse impacts of human uses.

The five federal cross-agency working groups have worked for the past year on ecosystem science and conservation, coastal uses, mapping and information synthesis, water and air quality, and international issues. Members of the working groups came from a whole alphabet soup of 11 federal agencies and the governor's offices of U.S. states and territories that include coral reefs.

The task force was established by Executive Order 13089 on Coral Reef Protection, which was signed by the president during the National Ocean Conference in Monterey on June 11, 1998.

Other task force reports that were given: one on international trade issues; a Draft Guide for Management; a Draft Procedure on Oversight of Agency Actions Affecting Coral Reef Protection; the 1999 U.S. All Islands Coral Reef Initiative Strategy; as well as detailed reports from each of the five working groups. The two drafts were subsequently adopted, with the management plan open for public comment until December 1, and the oversight procedure put into immediate effect, but also open to public comment and future change. The task force, having derived no jurisdiction from the executive order, nonetheless was challenged in the executive order to oversee implementation of a new policy for federal agencies to ensure, where possible, that their actions will not degrade coral reefs. 🌿



Changing Gears: Just days after returning from the U.S. Coral Reef Task Force meeting, David Gilliam (far left) and Dick Dodge (far right) pack up for a research trip to Cape Verde, with help from fellow St. Croix travelers, Carol Fretwell and James Thomas.



David Gilliam and Dick Dodge contemplate packing up the gear they will use on their research trip to Cape Verde Islands, Western Africa.



While in St. Croix for the U.S. Coral Reef Task Force meeting, Dave Gilliam, Greg McIntosh, and Dick Dodge visit the eastern-most point in the U.S., Point Udall.

Ph.D. Degree Offered

The Oceanographic center offers a doctoral degree in oceanography. 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 course work. Required courses include the four M.S. core courses. Other upper-level course work is usually in the tutorial mode with the major professor. Tuition will be \$2,735 per quarter, beginning with the summer term. 🌿

People On the Move

Richard Dodge, Ph.D., attended the National Research Council Workshop on Marine Biotechnology and Bioremediation, which was held in Georgetown, October 5–6 and gave a talk titled, “Coral Reef Restoration: A Review.”

Dodge also attended a meeting of the Coast Guard Area Committee for the South Florida Area Contingency Plan, hosted by NOAA Florida Keys National Marine Sanctuary, on October 12. Dodge presented a talk titled, “Environmental Issues: Dispersant and Oil Effects on Coral Reefs.”

Dodge spent the week of November 14 in the Cape Verde Islands, western Africa. Also along to conduct research was **David Gilliam, Ph.D.** and Peter Swart, Ph.D., from the University of Miami. (See story in next issue.)

Barry Klinger, Ph.D., gave a talk at RSMAS in Miami on October 20, titled, “Southern Winds and Northern Sinking: Is the Problem Solved?” In November he traveled to Southampton Oceanographic Centre in Southampton, England, where he gave a talk titled, “Equatorial Pacific Response to Extra-Tropical Decadal Windstress Forcing.”

Center librarian, **Kathy Maxson**, attended the 25th anniversary conference of the International Association of Aquatic and Marine Science Libraries and Information Centers (IAMSLIC), which was held in Woods Hole, Massachusetts, October 17–25.



(L to R) Jane Barnwell from Palau is all smiles as Mary Sears (Harvard) and Kathy Maxson (NSU) enjoy their lobsters at the 25th anniversary banquet of IAMSLIC.

In December 1999, **A. Soloviev, Ph.D.**, will present a paper at the AGU '99 fall meeting in San Francisco, titled, “Model of the Air-Sea Gas Exchange Incorporating the Physics of Turbulent

Boundary Layer and the Properties of Sea Surface,” coauthored by P. Schluessel. Another paper, “Environmental Array in the South Florida Ocean Measurement Center (SFOMC) and Data Analysis” by M. Luther, R. Weisberg, A. Soloveiv, and J. McCreary will be presented by Mark Luther (USF) at the AGU session, “Global Observatories.”

Charles Messing, Ph.D., attended the Geological Society of America annual meeting in Denver, Colorado, October 25–28, where he presented a talk titled, “Morphological Differentiation in the Living Isocrinid Endoxocrinus (Echinodermata: Crinoidea): A Response to Differences in Habitat?”

Richard Spieler, Ph.D., David Gilliam, Ph.D., Pat Quinn, Lance Jordan, and Robin Sherman, attended the Seventh International Conference on Artificial Reefs and Related Aquatic Habitats, October 7–11, which was held in San Remo-Liguria, Italy.

Ph.D. candidate, **Robin Sherman**, gave an oral presentation, titled “Artificial Reef Design: Void Space, Complexity and Attractant,” coauthored by D.S. Gilliam and R.E. Spieler.

Master's student, **Lance Jordan** gave a poster presentation titled, “Reef Fish Assemblage Structure Effected by Small Scale Spatial Variations of Artificial Patch Reefs: Preliminary Results,” coauthored by D.S. Gilliam, R.L. Sherman, and R.E. Spieler.

Lance Jordan, Brian Jordan, Paul Arena, Robin Sherman, and **Richard Spieler, Ph.D.**, attended the 52nd Annual Gulf and Caribbean Fisheries Institute annual meeting in Key West, Florida, held November 1–5.

Brian Ettinger gave a poster presentation titled, “The Coral Reef Fishes of Broward County, Species and Abundance: A Work in Progress,” coauthored by **D.S. Gilliam, L.K.B. Jordan, R.L. Sherman, and R.E. Spieler.**

Robin Sherman gave an oral presentation: “Effects of Refuge Size and Complexity on Recruitment and Fish Assemblage Formation on Small Artificial Reefs,” coauthored by D.S. Gilliam and R.E. Spieler. *Sherman received a Best Student Paper Award for this presentation.*

The center's harbormaster, **Lance Robinson**, attended the 19th Annual Scientific Diving Symposium held in Santa Cruz, California, November 3–7.



(L to R) William Dent (USF), Lance Robinson (NSUOC, DSO), and Walter Jaap (FMR) at Diving for Science '99

Edward O. Keith, Ph.D., has been very busy these last few months. He attended the Fifth International Congress of Comparative Physiology and Biochemistry, August 23–28, in Calgary, Canada, and presented an abstract titled, “A Matrix Model of Metabolite Flux in Northern Elephant Seal Pups Undergoing Natural Fasting After Weaning.” The abstract was published in *Comp. Biochem. Physiol.* 124A:S100, 1999.

On the 31st, Keith was named chair of the Education Committee of the Society for Marine Mammalogy, the international society of professional marine mammalogists.

On September 25, Keith spoke to the Florida Marine Mammal Student Association, the Florida student chapter of the Society for Marine Mammalogy at the University of Miami, Coral Gables, Florida. Keith led a question-and-answer session for students. Topics ranged from his previous work with pinnipeds to the importance of attending conferences.

Keith attended the 19th International Symposium on the Separation of Proteins, Peptides, and Polynucleotides held in Delray Beach, Florida, October 31–November 3, where he presented a poster titled, “An Analysis of Tear Protein Adhesion to Contact Lenses and Lens Storage Vials.” The poster is coauthored by Sophia Suce, an undergraduate student at Haverford College in Haverford, Pennsylvania, who received a 10-week summer research stipend from the Howard Hughes Medical Institute, and by Lester E. Janoff in the NSU College of Optometry.

Lastly, Keith attended the 13th Biennial Conference on the Biology of Marine Mammals in Maui, Hawaii, held November 29–December 3, where he presented a poster titled “Stability Analysis of a Matrix Model of Metabolite Flux in Northern Elephant Seals Undergoing Natural Fasting After Weaning.”

Bart Baca, Ph.D., and **T.A. Richard Hubbard** traveled with the students in the marine botany class to Freeport, Grand Bahamas, for a week of snorkeling, lab work, and lectures. Lectures and lab work were conducted at the College of the Bahamas in Freeport. Snorkel trips to collect marine algae occurred at several locations. Additionally, a full day was spent at Lucayan National Park exploring caves, upland, and mangroves habitats, along with an afternoon of snorkeling to an offshore coral reef and beach activities. The class visited Lucayan Aquaculture LTD., managed by Sofia Russell (NSUOC graduate student), to observe marine algae in the shrimp ponds there. After class, some students went pleasure snorkeling to Paradise Cove and other locations, visited the shark feed at Pier One Restaurant, went on a shark dive, shopped, enjoyed various pool activities, and partook of the local food and evening festivities. ➡



AGRR team: Abaco, Bahamas L to R: Dave Gilliam (NCRI), Susan Thornton (NSU), Ken Banks (Broward DEP), Pamela Fletcher (Monroe DEP), Christian Avila (NSU/DERM), Joshua Feingold (NSU), and Nancy Gassman (Broward Water Resources)

Field Study in the Bahamas



Participants pose during this summer’s marine botany class (a one-week intensive field study in the Bahamas) in front of the College of the Bahamas, where morning lectures are held in Freeport, Grand Bahama Island.

NSU Included in Blue Ribbon Committee

Mayor Jim Naugle of Fort Lauderdale has formed the Blue Ribbon Committee to investigate water quality in the city’s waterways, particularly the north fork of the New River and Las Olas Isles. The members are Peter Scarlatos, Ph.D. (FAU), Carol Palmer, Ph.D. (NSU), Dianne Owen, Ph.D., Mayor Jim Naugle (ex officio) and **Don McCorquodale, Jr., Ph.D.** (NSU). The committee meets monthly with various city, county, and private individuals.

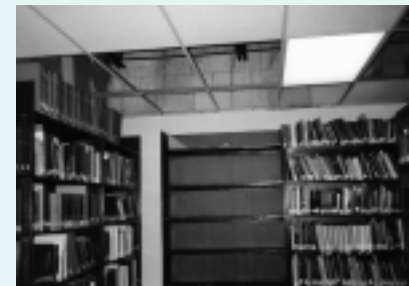
The committee invited Al DuFour, Ph.D., director for Microbiological and Chemical Exposure Assessment Research division for the USEPA in Cincinnati, Ohio, to attend a meeting and tour the areas of interest. On October 20, a tour of the New River was taken, followed by the meeting of the committee. DuFour is particularly interested in the problem of fecal indicators in coastal tropical waters. Traditional indicators do not give reliable results under tropical marine conditions. He was interested in touring the Intracoastal Waterway, Port Everglades Inlet, and the coastal Broward waters. He also wanted to know what research facilities are available in the area. On October 21 a tour of NSU’s oceanographic laboratories was conducted, followed by a cruise on the *R/V Researcher*, which provided a venue for discussing future research ideas. Aboard the boat were NSUOC’s **Dean Richard Dodge** and professors **Mahmood Shivji** and **Andrew Rogerson**, as well as Carol Palmer, Helena Solo-Gabriele, McCorquodale, and DuFour. ➡

Hurricane Irene Hits Center

On October 15, Hurricane Irene hit South Florida. The center did not go unscathed. The *R/V Researcher* was tied off for the hurricane and weathered the storm just fine, but the Forman Building, and the William S. Richardson Library it houses, did not fare as well. The roof leaked from the torrential rain and the ceiling collapsed in one corner, drenching two bookcases. ➔



Fixing the roof after Irene



Collapsed ceiling in library after Irene

Recent Publications

Dragojlovic, Veljko. "Preparation of Cyclopentenones by Benzene-seleninic anhydride Oxidation of Cyclopentanones," *J. Chem. Res. S* (4), 256–257 (1999).

"Using Overhead Projector to Simulate X-ray Diffraction Experiments," *J. of Chem. Educ.* 76, 1240–1241 (1999).

"Flame Tests Using Improvised Alcohol Burners," *J. of Chem. Educ.* 76, 929–930 (1999).

Ettinger, B.D., D. S. Gilliam, L.K.B. Jordan, R. L. Sherman, and R. E. Spieler. "The Coral Reef Fishes of Broward County, Florida, Species and Abundance: A Work in Progress." *Proc. Gulf Caribb. Fish. Instit.* (in press).

Messing, C. G., Baumiller, T. K., and David, J. 1999. "Morphological Differentiation in the Living Isocrinid *Endoxocrinus* (Echinodermata: Crinoidea): A Response to Differences in Habitat?" *Geological Society of America Abstracts with Programs* 31(7):A171.

Baumiller, T. K., Mooi, R., and Messing, C. G. 1999. "Predator-Prey Interactions Between Cidaroids and Crinoids and Their Ecological and Evolutionary Implications." *Geological Society of America Abstracts with Programs* 31(7):A172.

Sherman, R.L. and R.E. Spieler. 1998. "Examination of Gill Vasculature of the Yellow Stingray (*Urolophus jamaicensis*), by SEM Observations of Resin Casts." *Proceed. Ninth International Congress of European Ichthyologists "Fish Biodiversity."* *Ital. Journal of Zool.* 65, Suppl.: 431–434.

Sherman, R.L., D.S. Gilliam, and R.E. Spieler. 1999. "A Preliminary Examination of Depth-Associated Spatial Variation in Fish Assemblages on Small Artificial Reefs." *Jour. of Appl. Ichth.* 15(3): 116–122.

Sherman, R.L., D.S. Gilliam, and R.E. Spieler. "Artificial Reef Design: Void Space, Complexity, and Attraction." (submitted).

Sherman, R.L., D.S. Gilliam, and R.E. Spieler. "Effects of Refuge Size and Complexity on Recruitment and Fish Assemblage Formation on Small Artificial Reefs." *Proc. Gulf Caribb. Fish. Instit.* (in press).

Soloviev, A., R. Lukas, P. Hacker, M. Baker, H. Schoeberlein, and A. Arjannikov, 1999. "A Near-Surface Microstructure Sensor System used During TOGA COARE. Part II: Turbulence Measurements." *Journal of Atmospheric and Oceanic Technology*, 16, 1598–1618.

Solviev, A., R. Lukas, and P. Hacker, 2000. "Horizontal Structure of the Upper Ocean Velocity and Density Fields in the Western Equatorial Pacific Warm Pool: Depth range from 20 to 250 m." *Journal of Physical Oceanography* (in press).

Hamlett, W.C., M.K. Hysell, J. Galvin, and R. Spieler. 1998. "Reproductive Accommodations for Gestation in the Atlantic Guitarfish, *Rhinobatos lentiginosus*." *J. Elisha Mitchell Sci. Soc.* 114 (4): 199–208.

Hamlett, W.C., M. Jezior, and R.E. Spieler. 1999. "Ultrastructural

Analysis of Folliculogenesis in the Ovary of the Yellow Spotted Stingray," *Urolophus jamaicensis*. *Annals of Anat.* 81: 159–172.

Heilman M.J. and R.E. Spieler. 1999. "The Daily Feeding Rhythm to Demand Feeders and the Effects of Timed Meal-Feeding on the Growth of Juvenile Florida Pompano, *Trachinotus carolinus*." *Aquaculture*. 180(1-2): 53–64.

Spieler R., D. Gilliam, R. Sherman, K. Banks, C. Corbett-Elder, and L. Jordan. 1999. "Artificial Reef Research in Broward County: The Last Six Years." *Florida Artificial Reef Summit '98*. Horn, W. (Ed). Florida Dept. Environ. Protection. pp 60–68.

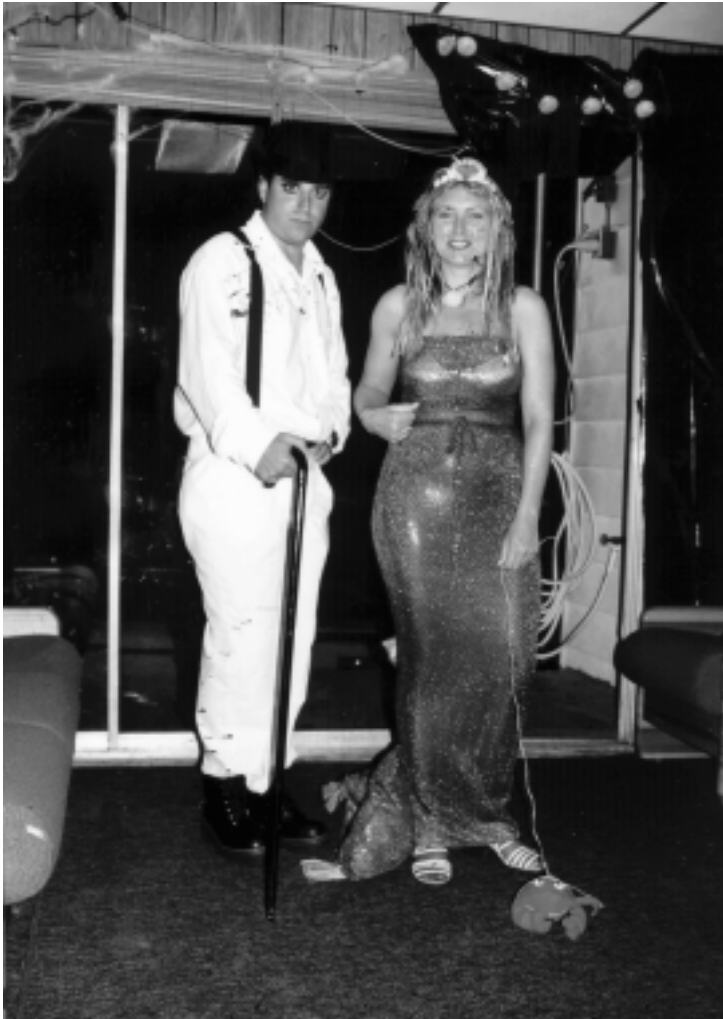
Spieler, R.E., C.A. Nelson, J.P. Huston, and R. Mattioli. 1999. "Post-Trial Administration of H1 Histamine Receptor Blocker Improves Appetitive Reversal Learning and Memory in Goldfish, *Carassius auratus*." *Neuroscience Letters*. 275:1–4.

Spieler Richard E. 2000. "Circadian Timing of Meal-Feeding and Growth in Fishes: A Review." *Proceedings IV International Symposium on Aquatic Nutrition* (in press).

Sherman, R.L., D.S. Gilliam, and R.E. Spieler. "Site-Dependant Differences in Artificial Reef Function." *Bull. Mar. Sci.* (in press).

Spieler R., D. Gilliam, and R. Sherman. "Artificial Substrate and Coral Reef Restoration: What Do We Need to Know to Know What We Need?" *Bull. Mar. Sci.* (in press). ➔

Halloween Party Pictures



Rick DeVector with mermaid Susan Thornton



Three maids in a row: Christine Hudak, Dawn Miller, and Alexia Morgan



Prize winner, Michael Hoke as robot



Joshua Fiengold and wife, Laurie

MASTERCURRENTS

INSTITUTE OF MARINE AND COASTAL STUDIES

Winter Term Schedule

M.S. degree specialties are marine biology, coastal zone management, and marine environmental sciences. Each course carries three credit hours or may be audited. Tuition is \$417 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 fall term runs from January 3 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) 262-3600 or 800-396-2326, or email imcs@ocean.nova.edu. More information can be found at the Web site: <http://www.nova.edu/ocean>.

Concepts in Physical Oceanography (CORE) (OCOR-5601) (meets Wednesdays, 6:30–9:30 p.m. Begins January 5). Introduction to how wind, radiation, gravity, friction, and the Earth's rotation determine the ocean's temperature and salinity patterns and currents. Conceptual models (geostrophy, Ekman transport, Rossby waves, etc.) explain physical features of the ocean ranging from microscopic turbulence to global circulation. Prerequisite: algebra. The course is a core course for both specialties. Instructor: Barry Klinger, Ph.D. (center faculty)

Biostatistics (OCOR-5606) (Meets Tuesdays, 6:30–9:30 p.m. Begins January 4). This is a basic course on the practical applications of descriptive and inferential statistics with emphasis on principles and methods of summarizing biological data. Measures of central tendency, dispersion, and variability testing will be discussed, along with basic concepts of probability distributions, hypothesis testing, and decision making. Topics will also include simple statistical tests (including nonparametric tests), analysis of variance through factorial analysis, simple and multiple regression, and correlation. Examples

and problems will come from ecology and aquatic toxicology. Instructor: Mark Farber, Ph.D. (center adjunct)

GIS and Remote Sensing (CZMT-0639) (MEVS-5023) (Meets Wednesdays, 7:00–10:45 p.m. Begins January 5). This course provides hands-on training with the latest techniques in geographic information systems and remote sensing. Course work includes lecture and hands-on computer training. Areas covered (utilizing both ERDAS Imagine 8.3 and ESRI Arcview 3.0) include: GIS/remote sensing theory, image georeferencing and mosaicking, image enhancement and classification procedures, accuracy assessment procedures, importing GPS polygons, establishing database and multimedia hot links, importing tables, joining, building queries, charting, and map creation. Class instruction will be centered on application of these techniques to actual environmental case studies. Instructor: Stacy Myers (center adjunct).

Note: This course is limited to 25 students and will be held in the main campus Parker Building MicroLab. There is a lab fee of \$100.

Aspects of Marine Pollution (CZMT-0790) (MEVS-5100) (Meets Mondays, 6:30–9:30pm. Begins January 3). This course deals with various forms of environmental pollution as they affect both the land and maritime environment. Focus on the role of microorganisms as causes and indicators of toxicity. Sources, measurement, and control of pollution in marine and coastal environments are discussed. Instructor: Don McCorquodale, Ph.D. (center adjunct).

Marine Mammals (OCMB-6340) (Meets Thursdays, 6:30–9:30 p.m. Begins January 6). This course provides an overview of the anatomy, biomedicine, evolution, husbandry, natural history, pathology, and physiology of the

cetaceans, pinnipeds, sirenians, and allies. The course consists of lectures, laboratory exercises, field trips, and a research paper. Instructor: Edward Keith, Ph.D. (center faculty).

Ecology of the Belize Barrier Reef (OCMB-8100) (One week: February 26–March 5) A field course to be held at South Water Caye, Belize. This course will be an intensive hands-on learning experience at the magnificent barrier reef system of Belize. Limited to 14 students. Instructor: James Thomas, Ph.D. (center faculty). Lab fee. ➡

Spring Term

The spring term runs from April 3–June 29, 2000. Look for additional courses and descriptions in the winter issue of *Currents*.

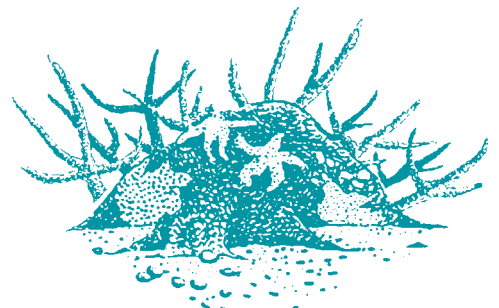
Biostatistics II: CMB 6091/CZMT 0765/MEVS5100: M. Farber

Marine Geology: COR-5604 (CORE): P. Blackwelder, Ph.D.

Marine Mammals: CMB-6330 (Distance Ed.): K. Ronald, Ph.D.

Environmental Sustainability/Choices for the Future: CZMT-0665/MEVS-5001 (Distance Ed): K. Ronald, Ph.D.

(New) **Life on A Water Planet** (Distance Ed.–Web-Based): K. Ronald, Ph.D., and J. Dougan. ➡



Distance Education

Marine Mammal Management (OCMB-6330). This course is designed to serve as a source of information and ideas providing an introductory awareness of a diversity of issues including the morphology, physiology, adaptation, and behavior of these species and their interaction with humans and other predatory mammals. A secondary objective is how marine mammal species are interconnected to the rest of the natural environment. A third objective is to help the student to begin to consider the linkages between the ways in which we regard marine mammals, and

our actions toward them. Two papers are required. Instructor: Keith Ronald, Ph.D. (center adjunct)

Environmental Sustainability/Choices for the Future (MEVS-5001) (CZMT-0665) This Web-based distance education course highlights more than 25 years (1972 to present) of international discussion and debate with regard to the state of the environment and our actions toward it. Key considerations and voices are included from both the developed and developing world. Students participate in regular online closed discussion regarding is-

ues such as limits to growth, ecology and the structure of the international system, prospects for international environmental cooperation, the case for and against free trade, the sustainable development debate, the potential for ecological conflict, empowerment, and questions of ecological justice. The emphasis is on presenting an international range of perspectives and case studies, linking already timely issues to up-to-the-moment occurrences and helping students to share and develop their own local responses to these issues. Instructor: Keith Ronald, Ph.D. (center adjunct). 🐟

Seminars and Defenses

Susan L. Thornton, thesis defense: "Depth Distribution, Growth Rates, and Photoacclimation of the Green and Brown Color Morphotypes of the Scleractinian Coral *Porites astreoides*." Committee: Professors Joshua Feingold, Richard Dodge and Erich Mueller (Mote Marine Laboratory) October 22.

Sean Kennan, Scripps Institute of Oceanography. Seminar: "Upper Ocean Dynamics in the Western Equatorial Pacific." September 8. 🐟



Susan Thornton after her thesis defense, flanked by two of her committee members, Erich Mueller (l) of Mote Marine Lab and Joshua Feingold (r) of NSU.

Students to Study Belize Barrier Reef

For one week in February, students will be attending a field course in South Water Caye, Belize. They will spend a majority of their time actually diving on the reef and waters of the lagoon and back reef. Students will experience firsthand the great natural biodiversity of the pristine reef system of Belize. Registration is open to undergraduate science majors, graduate students, and to others by permission of instructor. Prerequisites: Invertebrate Zoology, Marine Ecology, or equivalent.

Students will need a valid passport or certified copy of a birth certificate and will be required to pass a swim test prior to departure. Students will undertake individual projects related to their thesis/dissertation topic. All students intending to participate in this class will be required to sign a

performance contract with the instructor before final registration. Housing and accommodations on the island are rustic but adequate. Food is local and adequate. Special diets cannot be accommodated. We will work primarily on reef environments adjacent to the island, with boat trips to adjacent areas. Preparation: The class will meet three times before departing for Belize to provide written material and background on the course. Attendance is mandatory.

Cost: \$690 plus airfare (approximately \$300). Price includes all taxes, transfers, and lodging and is limited to 14 students by permission of instructor.

James Thomas, associate professor at the Oceanographic Center, will instruct. 🐟

New Winter Term Students

Ray Wolcott, University of Minnesota. M.S. Marine Biology

Scott Taylor, University of Tampa, M.S. Marine Biology

Abul Bashar Mohammed Tulukder, Nagoya University M.S. Marine Environmental Science 🐟

Diver Training Held at Center

From November 13–14, Brian Ettinger held a CPR, First Aid, and Emergency Oxygen Training Course. The course is required for NSUOC/AAUS scientific diver rating. The CPR class had 11 participants, the first aid class had 15, and the oxygen training had 17. 🐟

UNDERCURRENTS

Joint Science Program (Undergraduate)

Need a course to fill up that dreaded science requirement?

Does the mere mention of the word “physics” give you zits?

Do you or does any member of your family own a dog, cat, goldfish, stuffed animal, potted plant, or moldy sneakers?

Do you miss The Far Side?

If you answered yeeaaughh, or simply “yes” to these questions, you clearly need to register for

Amoebas to Zebras

Life on Earth (BIOL 1060)

Winter II: Begins March 7

Tuesday/Thursday: 8:00–10:30 a.m.

This course tiptoes through the tulips, tiger sharks, tapeworms, toadstools, and tarantulas, touching on all major groups of living things, from bacteria to yaks, and introducing basic concepts in scientific methods, ecology, and evolution.

Take this course and never again will you suffer the following embarrassments:

- While reorganizing the Renoirs in your wealthy great aunt’s attic, you’re bitten by a brown recluse spider. You say an insect just stung you and she cuts you out of her will.
- At the beer blast, after your third pitcher, you let your guard down and admit you don’t really know what a truffle is. Your buddies never invite you again.

Dolphin License Plate

A new automobile tag is being offered that will support research on dolphins. Proceeds from the sale of “Protect Wild Dolphin” specialty license plates will provide care and assistance to stranded wild dolphins, and will provide the means to collect, analyze, and archive scientific data for the conservation of Florida’s wild dolphin populations. 🐬



Fall-Term Student Party

Once again, the annual Fall-Term Student Party to welcome new students was a success. Held on September 24, the students, faculty, and staff were treated to an outdoor barbecue of grilled fish (tilapia), chicken, hot dogs, and hamburgers. 🐟



Here’s the fish: Bart and Pat Baca cooking talapia



Chefs extraordinaire: Dave Gilliam and Lance Robinson



John Braker and Cathy Mattison, old students and old friends



(Pictures continued on page 11)

Alumni News

Glenda Kelley Receives Distinguished Alumni Award

Fishing is in Glenda Kelley's blood. She and her husband, Patrick, love deep-sea fishing and have been members of the International Game Fish Association (IGFA) since 1992. In 1990 she received her master of science degree from Nova's Institute of Marine and Coastal Studies. The title of her capstone paper was "A Review of Fish Trapping." Kelley is the biologist in residence at the E.K. Harry Library of Fishes, part of the IGFA Fishing Hall of Fame and Museum in Dania Beach. Along with aiding the librarian with her collection development, she writes for and edits the *IGFA World Record Game Fishes* and *International Angler* and *Junior Angler* publications. As biologist for the IGFA, her responsibilities are never the same from day to day. She verifies species for world records, does research for exhibits, answers questions for media and IGFA members, takes part in fisheries management councils, helps develop curricula for the education department, trains volunteers, and lately, supervises the John A. Morris Wetlands adjacent to the IGFA Hall of Fame and Museum, which became part of the Coastal America as a Coastal Learning Center in late November. Kelley is looking forward to the increasing role the IGFA will have in promoting environmental education and conservation through our extensive education programming. She says one of the most enjoyable parts of



Glenda Kelley holding snook she caught.

her job is the opportunity to meet and share ideas with people from the entire world.

The IGFA museum and library aren't the only projects to keep Kelley busy. Her community involvement includes the Museum of Science and Discovery and the Bonnet House Alliance (she is a founding member of both), as well as being involved in the following:

- CCA (Coastal Conservation Association), board member
- Children's Fishing Clinic, volunteer, state of Florida
- Florida Cystic Fibrosis, board

- member in various positions
- Islamorada Fishing Club, tournament director
- IIWFA (International Women's Fishing Association) scholarship chairman, tournament director, board of directors
- Ladies Let's Go Fishing, instructor
- PEO, president and other board positions
- Pine Crest School, president of Mother's Club
- Pine Crest School, chairman of Founder's Council
- ZTA fraternity
- 1998 Juliette Gordon Lowe Society, World of the Out of Doors Award for contributions to the protection and appreciation of the environment and nature
- American Fisheries Society
- Florida Marine Fisheries Enhancement, board of advisers

Because of her many achievements, Kelley was named one of NSU's Distinguished Alumni Achievement Award winners and received her award on December 2 at the 1999 Celebration of Excellence, which also celebrated the university's 35th anniversary. She is the third alumni award winner from the Oceanographic Center. The others recipients were Don McCorquodale, Ph.D., and Weiging Han, Ph.D., both of whom received their awards in 1998. 🐟



Professor Ed Keith and wife with their offering



Where's the beef?

Currents, Fall 1999

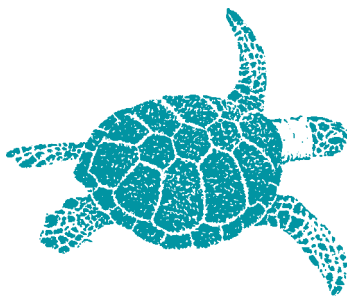
Oceanographic Center
8000 North Ocean Drive
Dania Beach, Florida 33004-3078



Susan Thornton on a dive in the Bahamas



The NSU gang aboard the George Washington in Port Everglades on October 17

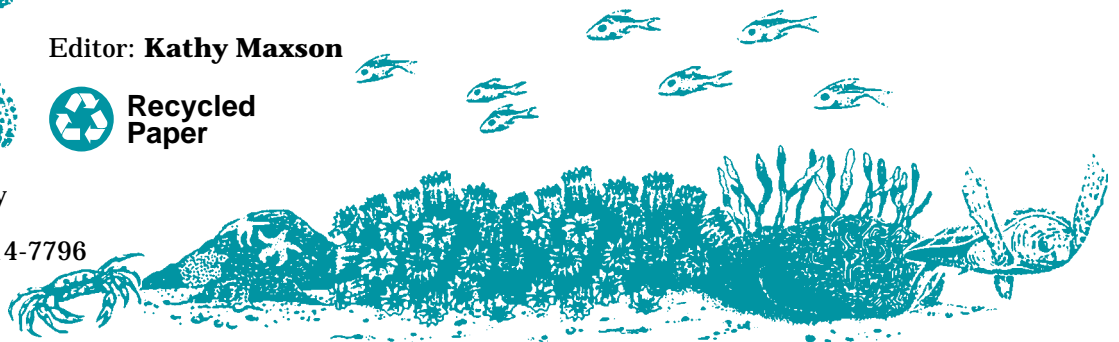


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