

Spring 2000

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NSU Oceanographic Center

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Currents



Spring 2000 • Volume XIII, Number 4

Cape Verde Expedition

This past November, **Richard Dodge**, Ph.D., and **Dave Gilliam**, Ph.D., experienced a memorable and productive research cruise. The scene for the adventure was set two years prior when friend of the Oceanographic Center, **Randy Lenz**, invited two graduate students, **Lance Jordan** and **Dana Rankin**, to undertake a diving and crinoid sampling cruise in the Indian Ocean while Lenz's vessel was transiting there. Building on the success of that venture, Lenz again offered the use of his vessel, the *Corsta V*, a 140-ft. sailing motor yacht, sleek of design and functional in the open ocean. The *Corsta V* was scheduled to be enroute from the Mediterranean Sea to Florida. The Cape Verde Islands had research interest and the vessel was able to provide access. Dodge and Gilliam, accompanied by **Peter Swart**, Ph.D., of University of Miami RSMAS, flew from Miami to JFK and from JFK to Sal Island in the Cape Verde archipelago. There, they met the vessel at 2:00 a.m., thus beginning their adventure.

The Cape Verde Islands are located off the West African coast and are familiar to hurricane watchers in the U.S. as a major birthplace of tropical depressions that often become hurricanes. The islands are remote and of volcanic origin, yet there were scanty reports of reef-building corals being present. The scientific goal of the mission was to perform a reconnaissance for reef corals and if present, collect a representative sample. The rationale was that corals have annual growth bands within their calcium carbonate skeletons. These bands are similar to the rings in the trunks of trees. In addition, the growth of the coral and the chemistry of the skeleton can be indicative of past climate. Hence, if corals of the right species were present, and if the colonies were long lived and contained



David Gilliam, Richard Dodge, and Peter Swart sailing aboard the *Corsta V*

bands, analysis could be useful for reconstructing oceanic parameters such as temperature and salinity, both of which are useful for understanding the genesis and history of hurricane formation.

The *Corsta V* afforded a perfect platform for research reconnaissance. The diving itinerary consisted of sailing from Sal eastward to Sao Nicolau, then on to Sao Vicente and Sao Antao.

Fortunately the trade winds died for several days, which allowed a motor crossing southward to the islands of Brava and Fogo and then on to Boa Vista and Sal. Dives were made on all the islands, sometimes in the presence of massive oceanic waves. Only one shark was sighted. **Gilliam** did a fish survey of all fish encountered. Most sites surveyed contained several coral species, however, not in

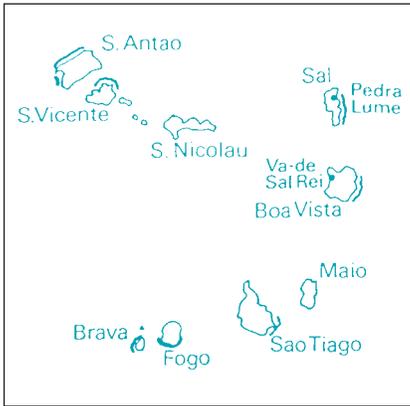
the correct size for useful analysis. Luck changed at Boa Vista and especially Sal where the scientists found large specimens of *Porites astreoides* and *Siderastrea siderea*. These later turned out to be 70 years old and valuable for analysis.

Upon returning, **Dodge** and **Swart** have used the valuable experience and information generated from the cruise to write a proposal to the National Science Foundation for continued paleoclimatic work. The proposal was measurably improved by having visited the islands and having determined that the correct mix and size of corals were present.

Vessel donor **Randy Lenz** is thanked for his kind generosity and support of research at the center. 🐠

(Continued on page 2)

(Continued from page 1)



Randy Lenz negotiating for transportation in Sao Tiago



Lowering dingy for research mission of Sal



Peter Swart, Richard Dodge, and Randy Lenz on the beach at Sal

OTHER NEWS

New faculty member arrives

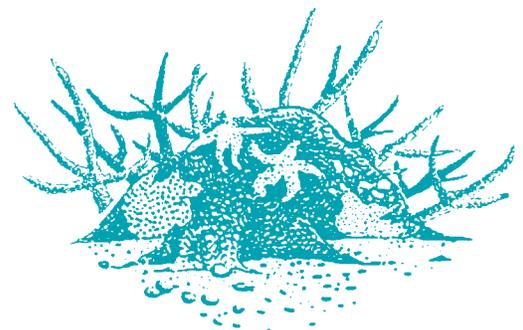
Sean Kennan, Ph.D., will join the center's physical oceanography department as assistant professor of marine science on May 1. Kennan earned his Ph.D. in oceanography at the University of Hawaii at Manoa, and is presently finishing up a post-doctorate with Peter Niüller (former of NSU) at Scripps Institution of Oceanography, UCSD, in California. We welcome him to our center. 🐠

Ruth Lazarus, bookkeeper for the center, was honored for her 25 years at the university at a luncheon on December 13 honoring 5, 10, 15, 20, and 25-year employees. Ruth received a gold bracelet as her reward. Congratulations, Ruth. 🐠

(Continued on page 4)



Ruth Lazarus and Richard Dodge (dean of the center) at NSU annual employee awards luncheon



PEOPLE ON THE MOVE

Charles Messing recently returned from New Zealand where he spent a week examining and identifying crinoids with Nadia Ameziane (Museum National d'Histoire Naturelle, Paris) at the National Institute of Water and Atmospheric Research (NIWA) in Wellington. He then attended the 10th International Echinoderm Conference at the University of Otago, Dunedin, where he delivered the following two papers. The first was titled, "Just What Is Atelecrinus?: Unique Morphology in a Living Bathyal Feather Star (Echinodermata: Crinoidea)." The second, coauthored by J. David, T.K. Baumiller, M. Roux, and N. Ameziane, was titled "Stalk Growth Rates of Isocrinidae: A Summary of a Decade of In Situ Experiments."

Messing reports that the conference banquet was held at Larnach Castle, with a thunderously beautiful view of Dunedin Harbor, and was accompanied by a piping in of the haggis. Dunedin is called the Edinburgh of the South.

More than a dozen NSU students, faculty members, and aquaculture co-op members attended the Aquaculture 2000 Conference February 2-5 in New Orleans. The NSU contingent was enhanced by five scientific presentations, published as abstracts in the *Proceedings of Aquaculture America 2000* (see Publications).

The Marine Mammal Biology Group under the guidance of **Edward O. Keith**, Ph.D., was fortunate to be able to assist in a necropsy of a rare offshore bottlenose dolphin *Tursiops truncatus*, at the National Marine Fisheries Services Laboratory on Key Biscayne on February 19. The dolphin was one of more than 20 dolphins that died after more than a hundred were stranded. The Group wishes to thank Blair Mase and veterinarian, Ruth Ewing, both of NMFS. Ewing was kind enough to host the class.

David Gilliam, Ph.D., presented a paper at the American Fisheries Society, Southern Division 2000 Mid-Year Meeting held in Savannah, Georgia, February 3-6. Master's student **Brian Ettinger** also attended the conference. Gilliam also presented a paper as part of the Society's Biology and Management of Reef Fishes Symposium, titled, "Fish Assemblages on High Latitude Coral Reefs: A Work in Progress," coauthored by Brian Ettinger, Lance Jordan, and Richard Spieler.

Center librarian, **Kathy Maxson**, attended the Southeast Affiliate of IAMIS-LIC Libraries (SAIL) meeting, where she presented a talk titled, "Procurring a Minimal Security System for a Small Research Library." The meeting was held from April 4-7 at the U.S. EPA facility in Research Triangle Park, North Carolina.

Alexander Soloviev attended the AGU Fall Meeting in San Francisco (December 1999). He presented two papers: "Model of the Air-Sea Gas Exchange Incorporating the Physics of the Turbulent Boundary Layer and the Properties of the Sea Surface" co-authored by Peter P. Schluessel (EUMETSAT, Germany), and "Environmental Array in the South Florida Ocean Measurement Center and Data Analysis," coauthored by M. Luther and R. Weisberg (USF), and J. McCreary (UH). Soloviev also attended the Ocean Sciences Meeting in San Antonio, Texas (January 2000). He presented the invited paper, "Sharp Frontal Interfaces in the Near-Surface Layer of the Tropical Ocean," coauthored by R. Lukas (UH).

Master's student **Amy Paine** is currently participating in a four-month internship with the Cetacean Research Unit in Gloucester, Massachusetts. As an intern, she is involved in a humpback whale matching/photo-identification project and a survey of the local seal species. She has responded to two marine mammal strandings: a pilot whale and a hooded seal. She has also attended the annual Atlantic Large Whale Take Reduction Team and Northeast Large Whale Implementation Team meetings as an observer. 🐬



Richard Dodge manning NCRI booth at U.S. Coral Reef Task Force

NCRI Goes to Washington

Richard E. Dodge, Ph.D., and **Carol R. Fretwell**, along with **Greg McIntosh** (of McIntosh Marine), recently traveled to Washington, D.C., for the fourth meeting of the U.S. Coral Reef Task Force (CRTF).

As executive director, coordinator, and Latin American affairs director, respectively, of the National Coral Reef Institute (NCRI) located here at the center, they met with more than 300 other scientists, resource managers, officers, and representatives of nongovernment organizations (NGO), as well as local, state, territorial, and federal government officials to fine tune the first-ever National Action Plan to conserve coral reefs. The CRTF, comprised of 11 federal cabinet-level agencies, as well as the governors of U.S. states and territories that border our nation's coral reefs, adopted the plan on March 2, the culmination of 18 months of work by hundreds of government officials working together across agency lines, with input from hundreds of scientists and environmentalists.

While in Washington, the NCRI contingent took the opportunity to meet with C.K. Lee, legislative assistant to Senator Connie Mack, and with Michael Harrington, legislative delegate for Congressman E. Clay Shaw, Jr., of the 22nd District. A meeting was also arranged with Barbara Best, Ph.D., marine and coastal resource adviser for the state department's U.S. Agency for International Development Global Environment Center.

At the task force meeting, they met with Anna Marie Hartman, director of the Florida Department of Environmental Protection, official representative of Governor Jeb Bush and the state of Florida, among other important government officials.

Possible future cooperative efforts were discussed with a number of potential partners. NCRI's was one of almost 30 exhibits on display in the lobby of the U.S. Commerce Building. Fully one-third of NOAA's Coastal Ocean Program exhibit also included information about NCRI and NCRI photographs. Each of NCRI's many projects support and/or complement the goals of the task force.

The text of the new "National Action Plan for Coral Reef Conservation," project tables, and other information on the Coral Reef Task Force are available on the Web at <http://coralreef.gov>. 🐬

Other News

On March 17, the **Marine Industries Association of South Florida** sponsored a table at the Manatee Magic on the Emerald Isle dinner to benefit this endangered species. The MIA graciously invited members of the Oceanographic Center to join them. They enjoyed good food, music, and a magic act, as well as a silent auction of everything from T-shirts to sports memorabilia.

A \$10,000 amendment has been received for the NSU/UH TOGA COARE subcontract "Spatial Structure of the Upper Ocean Velocity and Density Fields in the Western Pacific Warm Pool" (PI: **Alexander Soloviev**, Ph.D.).

A \$232,659 amendment has been received for the NSU/USF SFOMC project (FY2001): "Environmental Array and Data Analysis." PIs: J. McCreary (UH), **A. Soloviev** (NSU), R. Weisberg, and M. Luther (USF).

On February 23, 2000, **Edward O. Keith**, Ph.D., was named vice chair of the NSU Institutional Review Board (IRB) by Ronald Chenail, Ph.D., assistant to the president for academic affairs. On October 1, 2000, Keith will assume the duties of chair of the IRB, and he will serve in this capacity for a period of two years. The IRB reviews all human subject research at NSU and ensures that the rights and welfare of human subjects are protected.

On March 8, 2000, **Keith** received the NSU Cost Savings Award for the month of February, for getting an electrophoresis data center (EDC) donated to the university from Helena Laboratories in Beaumont, Texas. The award came with a check for \$100, a certificate of appreciation, and a private parking space for one month. Later, all of the winners for the year will have lunch with President Ferrero. There are also quarterly and annual awards chosen from the group of awards for the year. 🐡

Publications

B. Baca, T. Shuskey, J. Barrett, and D. McMahon. 2000. "An Evaluation of Vegetables and Wetland Plants for Treatment of Aquaculture Wastewater." In *Proc. Aquaculture America 2000*, World Aquaculture Soc., New Orleans, p 11.

B. Hicks and B. Baca. 2000. "Artificial Spawning Induction of Captive Florida Pompano *Trachinotus carolinus*." In *Proc. Aquaculture America 2000*, World Aquaculture Soc., New Orleans, p 150.

B. Hicks, J.W. Tucker, and B. Baca. 2000. "Effect of an Experimental Diet on the Growth of Juvenile Florida Pompano *Trachinotus carolinus*." In *Proc. Aquaculture America 2000*, World Aquaculture Soc., New Orleans, p 151.

M.S. Robinson, B. Baca, and W. Falls. 2000. "The Marine Ornamental Trade: Importation Trends of the Live Rock Industry from 1994-1999." In *Proc. Aquaculture America 2000*, World Aquaculture Soc., New Orleans, p 283.

S.E. Russell, B. Baca, and S. Hopkins. 2000. "Carbon Budgets for Intensively Managed Marine Shrimp Ponds." In *Proc. Aquaculture America 2000*, World Aquaculture Soc., New Orleans, p 291.

V. Dragojlovic. "Multigram Scale Cobalt Catalyzed Photochemical Methoxycarbonylation of Alkenes." *J. Mol. Cat.*, in press.

V. Dragojlovic (1999) "Preparation of Cyclopentenones by Benzeneseleninic Anhydride Oxidation of Cyclopentanones." *J. Chem. Res. S*, 256-257.

V. Dragojlovic (1999) "Using Overhead Projector to Simulate X-ray Diffraction Experiment." *J. Chem. Educ.*, 76, 1240-1241.

V. Dragojlovic (1999) "Flame Tests Using Improvised Alcohol Burners." *J. Chem. Educ.*, 76, 929-930.

E. Armstrong, A. Rogerson, and J. Leftley. 2000. "Utilization of Macroalgal Carbon by Marine Protists." *Aquatic Microbial Ecology* 21: 49: 57.

A. Rogerson, and C. Gwaltney. 2000. "The Numerical Importance of Naked Amoebae in Planktonic Waters of a Mangrove Stand in Southern Florida." *Journal Eukaryotic Microbiology* 47 (3).

E.H. Pinn, L.A. Nickell, A. Rogerson, and R.J.A. Atkinson. 1999. "Comparison of the Mouthpart Setal Fringes of Seven Species of Mud-Shrimp (Crustacea:

Decapoda: Thalassinidea)." *Journal of Natural History* 33: 1461-1485.

A. Butler and A. Rogerson 2000. "Naked Amoebae from Benthic Sediments in the Clyde Sea Area, Scotland." *Ophelia* (in press)

E. Armstrong, A. Rogerson, and J. Leftley. 2000. "The Abundance of Heterotrophic Protozoa Associated with Macroalgae." *Estuarine, Coastal and Shelf Science* 50: (in press)

E. Armstrong, A. Rogerson, and J. Leftley. 2000. "First Recording of *Nitzschia Alba* from UK Coastal Waters with Notes on its Growth Potential." *Journal Marine Biological Association UK* (in press). 🐡

Seminars and Defenses

Robin Sherman, Ph.D., dissertation defense: "Studies on the Roles of Reef Design and Site Selection in Juvenile Fish Recruitment to Small Artificial Reefs." Committee members: Professors Richard Spieler (Chairman), Richard Dodge (Dean), Curtis Burney, and Stephen Bortone. January 3.

Kenneth Liddell, capstone review. "A Review of the Red Drum Fishery and Its Management with a Focus on Florida." March 13. Committee members: Professors Richard Spieler and Bart Baca.

Brian Ettinger, master's thesis defense: "Reef Fishes of Broward County, Florida: Species and Abundance." March 27 Committee members: Professors Richard Spieler, Curtis Burney, and David Gilliam.

Marella G. Crane, capstone review. "A Review of the Impacts Associated from Florida's Red Tide Toxic Dinoflagellate, *Gymnodinium breve*, and Suggestions for Prediction, Management, and Control." April 7. Committee members: Professors Andrew Rogerson and Curtis Burney.

Christopher M. White, thesis defense. "The Initial Inquiry into the Phylogeny of the Family Comasterriidae (Echinodermata: Crinoidea) from Mitochondrial DNA Sequence Data." April 21. Committee members: Professors Charles Messing (NSU), Mahmood Shivji (NSU), and Michael R.J. Forstner, SW Texas State University.

Bernhard Riegl, seminar: "Reef Framework Processes: Where Biology Meets Geology." March 10. 🐡

MASTERCURRENTS

INSTITUTE OF MARINE AND COASTAL STUDIES

M.S. degree specialties are marine biology, coastal zone management, and marine environmental science. 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 spring term runs from April 3–June 30 (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 www.nova.edu/ocean. 🐡

Distance Education

New—Life on a Water Planet (CZMT-0630/MEVS-5130/OCMB-6335). An introduction to the realization that we do live on a water planet, and the inherent challenges and opportunities this presents, arguably now as never before. This course, among other things, will explore a brief history of the evolution of life on our water planet, urban development, and the links between coast and community; marine life and biodiversity, and our impact upon it; and population, consumption, and our ecological footprint. Weekly online discussion will form a major part of the course requirements. The student's own community and interests with regard to water will also play a role. There will also be written assignment work, submitted via email. Instructor: **Jane Dougan**.

Marine Mammal Management (OCMB-6330). The 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 second-

Spring 2000 Term Schedule

Marine Geology (OCOR-5604) (Meets Mondays, 6:30–9:30 p.m. beginning April 3.) The topics of discussion will range from fossil reefs to mid-ocean ridge basalt. Southeast Florida geology will be included in the lectures. This is a core course. **\$40 lab fee.** Instructor: **Patricia Blackwelder**, Ph.D. (center faculty).

Biostatistics II (CZMT-0765/MEVS-5100/OCMB-6091). (Meets Tuesdays, 6:30–9:30 p.m., beginning April 4.) For students who have already taken the core class Biostatistics. Measures of central tendency, dispersion, and variability testing will be discussed along with basic concepts of probability distribution, hypothesis testing, and decision making. Instructor: **Mark Farber**, Ph.D. (center adjunct).

ary 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. (adjunct professor).

Environmental Sustainability/Choices for the Future (MEVS-5001/CZMT-0665). This Web-based distance education course highlights more than 25 years (1972–present) of international discussion and debate with regard to the state of the environment and our actions toward it. Students participate in regular online closed discussion regarding issues 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. Instructor: **Jane Dougan**. 🐡

GIS and Environmental Remote Sensing (CZMT-0639/MEVS-5023). (Meets Wednesdays, 7:00–11:00 p.m. beginning April 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. Limited to 25 students. Course will be held at main campus computer lab. **\$100 lab fee.** Instructor: **Stacy Myers** (center adjunct).

Molecular Marine Biology (MEVS-5140/OCMB-7013) (Meets Thursdays, 6:30–9:30 p.m. beginning April 6.) This course covers theoretical and laboratory aspects of recombinant DNA techniques as applied to ecological, evolutionary, and physiological investigations of marine organisms. **\$125 lab fee.** Instructor: **Mahmood Shivji**, Ph.D. (adjunct faculty).

Dry Coastal Ecosystems (CZMT-0610/MEVS-5012) (Meetings Thursdays, 6:30–9:30 p.m. beginning April 6.) **\$100 lab fee.** Instructor: **Bart Baca**, Ph.D. (center faculty). 🐡

Internship

Broward County Department of Natural Resource Protection (CZMT-0662/MEVS-5029). The student will be exposed to the regulatory and policy aspects of marine, freshwater, and coastal science. Involvement in this position may also include participation in environmental restoration projects and/or sampling for enforcement cases. Time requirements: 8–10 hours per week during regular business hours for a 12-week academic quarter, schedule to be arranged. Contact program office for more information. 🐡

Students Attend Hawaii Conference

Marine biology graduate students, **Michael S. Robinson** and **Richard L. Hubbard** attended the First International Conference on Marine Ornamentals held at the Hilton Waikoloa Village in Kailua—Kona, Hawaii, from November 16–19, 1999. The theme of the conference was the “Collection, Culture, and Conservation” of marine ornamentals in the saltwater aquarium trade. Representatives from: indigenous collectors, exporters, importers, wholesale and retail sales, manufacturers, scientific, and nature conservation groups came together to discuss sustainable collection and mariculture techniques. At the conclusion of the conference everyone present submitted relevant goals, collection techniques, and habitat protection methods that will allow for the continuation of jobs for indigenous fishermen, the marine aquarium trade, and livestock for marine aquarists, while protecting the environment and biodiversity. These suggestions were subsequently reduced, by vote, to 30 priorities that will be investigated over the next two years and will be the focus of the next conference, to be held in Orlando, Florida, in 2001.

A trip to the big island of Hawaii would be incomplete without visiting the natural wonders that abound there. Trips to Volcano National Park, the incredible rain forests, Suisan fish market and farmer’s market, the ancient fish ponds, Hawaii Tropical Botanical Gardens, the astronomical observatories

at 14,000 feet on top of Mauna Kea, the breathtaking waterfalls (the 442-ft. Akaka Falls and nearby 400-ft. Kapuna Falls deep in a rain forest are spectacular), horseback riding on the plains and valleys of Waipio on the north end, and diving (of course) are excursions not to be missed. 🌿



Richard L. Hubbard and Michael S. Robinson preparing for another dive across the bay from the “temple of refuge” in Pu’uhonua O Honaunau National Historical Park (big island of Hawaii).

Report on Salton Sea Project

“The Salton Sea is a beautiful, valuable, and critically threatened environmental resource. The political will to save it is now greater than ever before”

—Congressman George Brown Jr.

The Salton Sea Symposium, organized by the Salton Sea Authority, was held January 13–14, 2000, at Palm Springs, California. **Andrew Rogerson**, Ph.D., and master’s student **Gwen Hauer** were invited to participate. The aim of this meeting was to share the results of a biodiversity study with politicians, scientists, and local interested parties and to discuss five plans for the restoration of this inland water body. The sea, located about 45 minutes south of Palm Springs, is under threat. The combination of ‘salty’ water inflows from irrigation runoff and high evaporation rates have steadily increased the salinity of the sea over the past few decades. Today, it stands at 44 g per liter and it is only a matter of time until levels start to impact the rich biota of this productive water body. Particularly worrying is the potential die off of birds and fish. It is an important feeding ground for migratory birds and is considered to be one of the most productive fishery grounds worldwide.

Senator Dianne Feinstein D-California, Congresswoman Mary Bono, R-Palm Springs, and acting deputy secretary David Hayes were among the politicians who attended the symposium. After hearing from members of the Salton Sea Authority, the general conclusion voiced after the first day was that there needed to be some testing of proposed evaporation ponds and evaporation towers before an official solution could be proposed. The second day addressed “New Scientific Information and Discoveries.” The audience heard factual information on the physical and biological environment of the sea. In addition to the impressive 350 bird species that visit the sea, details on the less obvious biota emerged. In just a few years of study, the number of cyanobacterial, algal, protozoan, and invertebrate species has gone from about 70 to about 360 and is still climbing. At least a couple dozen of these species are completely new to science, not just to the Salton Sea. Rogerson and Hauer reported on the naked amoebae component of the sea. In a six-month study, they found 45 different species of amoebae. Around 40 percent of these are probably new species.

The Salton Sea Authority was formed to bring together the many stakeholders interested in understanding the sea’s challenges and potential. The authority believes restoration of the sea is a unique opportunity to improve the environment and enjoy economic benefits in doing so. The outcome of this symposium was unanimous agreement that the Salton Sea needs immediate action if its unique properties are to be saved. Money will be sought from Congress to undertake pilot remediation studies, however, full restoration is likely to cost \$400 million to \$1 billion. 🌿

Aquaculture 2000



Ph.D. candidate David Z. McMahon inspecting the raceway design at Til-Tec, an aquaculture facility outside New Orleans

Dolphin Necropsy



L-R: Graduate students Eduardo Koenig, Jennifer Hartwig, and Dawn Miller; Ph.D. candidate David McMahon; and Ruth Ewing

Summer 2000 Term (12 weeks)

July 10–September 22, 2000

Marine Chemistry (OCOR-5605)
Instructor: Curt Burney

Principles of Coastal Zone Management
(CZMT-0609)
Instructor: Stacy Myers

Wetlands Ecology (CZMT-0791/MEVS-5011)
Instructor: Bart Baca

Taxonomy of Marine Invertebrates
(OCMB-6085)
Instructor: Charles Messing

Field Courses:

Tropical Marine Fish Ecology (CZMT-0690/OCMB-6120)
Instructor: Richard Spieler. 🐠



Belize 2000 Trip was a Splash

James D. Thomas, Ph.D., and teaching assistant Stacie Crowe accompanied nine graduate students and four MST undergrads to South Water Caye, Belize, for the Belize Coral Reef Ecology course. Days were spent in lectures and much water time. They visited a number of reef and mangrove habitats, and by the end of the week all participants had a greater depth of understanding regarding the structure and function of coral reefs.

The trip was an experience for all, including the four-hour bus trip from Belize City to a jungle river where they then made their way out to the reef late on Saturday afternoon in a speedy local vessel. Food was abundant and tasty, and after-lunch activity involved numerous hammocks.

Stay tuned for a houseboat presentation and photo/video fest of the trip. Those students interested in taking this course in the future should plan to attend. 🐠

L-R: Enjoying the Manatee Magic from NSU are Barbara Dodge, Charles Messing, Alexander Soloviev and wife Tatiana, and to the right, Edward Keith and Kathy Maxson. In the middle are Mary Jo Herald and husband Frank who is the executive director of MIASEF, and John Rude, director of Broward Urban River Trails.

Aquaculture Short Courses:

Culture of Marine Shrimp for Food and Bait, May 1–5

Freshwater Aquaculture,
May 22–26

One-Day Workshops:

Tilapia, April 15

Marine Shrimp, May 13

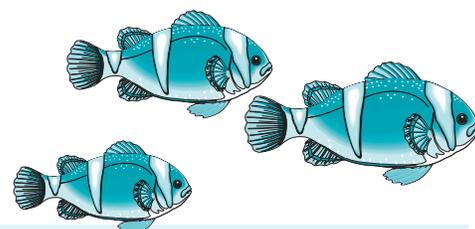
Recirculating Systems, June 24

Aquaculture Wastewater Treatment,
July 8

For more information call
(954) 797-1185 or (954) 262-3605. 🐠

Ninth International Coral Reef Symposium Web Site

Nova Southeastern University's Oceanographic Center is hosting the Web site for the Ninth International Coral Reef Symposium. The symposium will be held in Bali, Indonesia, from October 23–27, 2000. For more information on the conference go to www.nova.edu/ocean/9icrs. 🐠



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. 🐠

UNDERCURRENTS

Joint Science Program (Undergraduate)

On December 2, 1999, Edward O. Keith, Ph.D., was notified that Helena Laboratories would donate an Electrophoresis Data Center, consisting of a scanning densitometer and data acquisition and analysis computer, for use in the biochemistry teaching laboratories at the Farquhar Center for Undergraduate Studies. This instrument has a catalog price of \$26,295. The unit arrived in early February, and it will be used for the first time in early March.

For the first time, Nova Southeastern University's Oceanographic

Center is offering three courses for undergraduate credit: Marine Mammal Management, Environmental Sustainability, and Life on a Water Planet. Because Nova Southeastern University is fully accredited by the Southern Association of Colleges and Schools (SACS), the credits earned for these courses are likely to be transferable to your institution, dependent upon local policies.

Note: Modified versions of these courses are also available for graduate credit. 🐠

Currents, Spring 2000

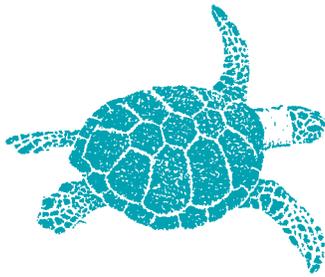
Oceanographic Center
8000 North Ocean Drive
Dania Beach, Florida 33004-3078



The Corsta V



Sail 2000. Among attendees were Kathy Maxson (bottom left) and meeting host, Evelyn Poole-Kober (top right).



Editor: Kathy Maxson



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