


Spring 1992

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NSU Oceanographic Center

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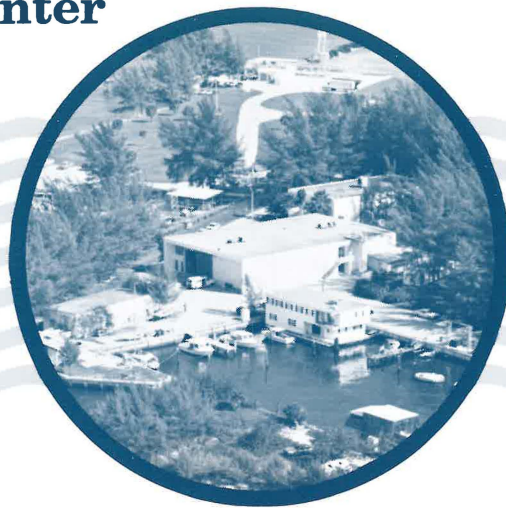
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# Currents



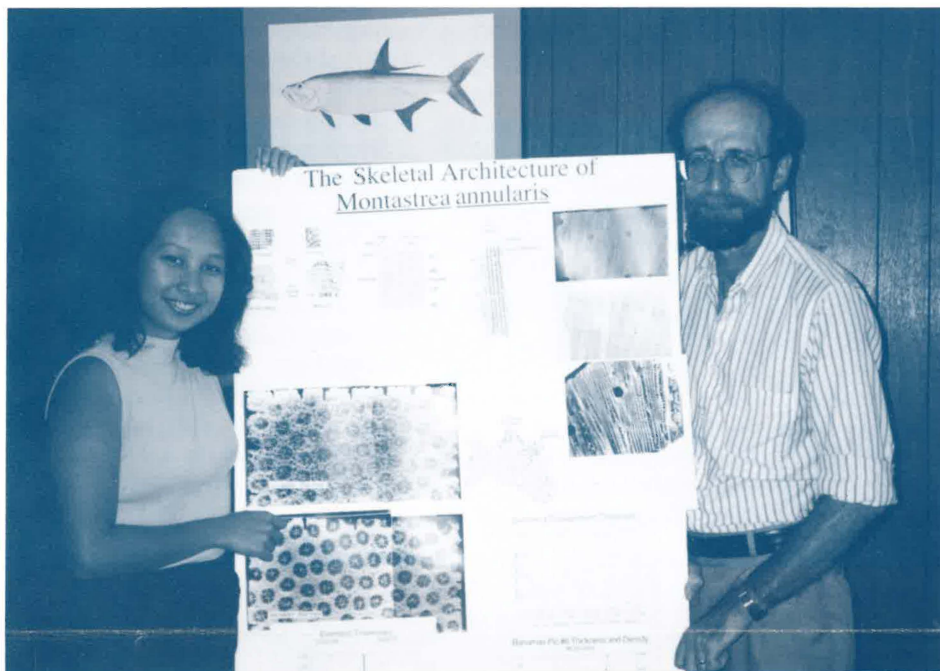
Spring 1992 Volume VI Number 2

## Coral Reef Banding Under Study at Center

Between June 22 and 26, tiny Guam will be host to "several thousand attendees" of the Seventh International Coral Reef Symposium, and **Dr. Richard Dodge**, who is Associate Center Director, Co-Director of the Institute for Marine and Coastal Studies, and coral reef expert, will be among them. The symposium, which is sponsored by the International Coral Reef Society, is held every four years. The agenda boasts five seminars a day during the weeklong gathering, as well as a large number of poster sessions.

The Oceanographic Center will be well represented at the symposium. Besides Dodge, M.S. student **Rowena Garcia** and faculty member **Dr. Charles Messing** also will attend. Messing will present a paper on comatulid crinoids (see "People on the Move," page 3), and Dodge and Garcia will display a poster entitled "Skeletal Structural Basis of Density Banding in the Reef Coral *Montastrea annularis*," which is a common star coral. Their poster material will be published in the proceedings of the symposium, along with the seminar papers.

Dodge explained the rationale for his interest in density banding. "Corals have annual density bands in their skeletons which are visible only through X-radiography," he said. "Corals grow to a large size; therefore, a long history of time is recorded in the coral skeleton. Growth of corals can be sensitive to climate, and consequently the study of coral growth bands can provide long series of climate data similar to what can be obtained from tree rings."



Rowena Garcia and Dr. Richard Dodge display their poster on coral reefs.

Dodge noted, however, that the coral data come from the tropics and subtropics, an area considered the heat engine of the globe. Unfortunately, the data are poorly understood in terms of long-term climate history.

"Because tree rings are unavailable from the tropics," Dodge added, "our project sought to optimize coral growth banding information. Furthermore, no one before has studied the physical structure of the skeletal architecture of annual bands in this important Caribbean species."

"Our results show that skeletal building blocks are thicker but not closer

together in the high-density band portion of the annual cycle," he said. "In addition, density structure is confined to regions of the skeleton away from the coral polyps. This means that the coral animals are preserving their living space and depositing excess calcium carbonate in the exotheca, or external polyp area." Dodge said the results also explained the physical structure of the annual bands and enhanced interpretation of information extracted from coral skeletons, for example, isotopic, chemical, and fluorescent data.

*Continued on page 2*



## Convocation Honors President Fischler

On May 9, a large crowd gathered at Fort Lauderdale's new Convention Center to honor Nova University President **Dr. Abraham S. Fischler**, who steps down in July. The convocation was convened by Nova Vice-President **Dr. Stephen Goldstein**.

Speakers included **Dr. Louis Rubin**, of the University of Illinois; **Dr. Edward Meade**, of the Ford Foundation; **Dr. Alfredo Macia**, representing the Panama Center Board of Advisers; and **Dr. Peter Armacost**, President of Eckerd College. **Fischler** spoke on "A Visionary's Look at American Education." Presentations then were made by **Joan Kovac**, of the Davie Town Council; **Richard Clark**, of the Greater Fort Lauderdale Chamber of Commerce; **John Hart**, Chairman of the Broward County Board of County Commissioners; and **The Honorable Ben Graber, M.D.**, Chairman of the Broward County Legislative Delegation. **Fischler** received final recognition from the Chairman of Nova's Board of Trustees, **Ray Ferrero, Jr.** Participating Oceanographic Center faculty (in caps and gowns) included **Drs. Julian McCreary, Richard Dodge**, and **Charles Messing**.

During the course of the convocation, the audience was treated to several selections by the Nova University Community Singers, directed by **Peggy Joyce Barber**. A champagne reception and a black-tie dinner followed.



*Incoming President Dr. Stephen Feldman, flanked by Dr. Richard Dodge and Dr. Julian McCreary.*

## Nova Selects Feldman as New President

As announced in the March 1992 *Update*: "The Board of Trustees has unanimously approved the appointment of **Dr. Stephen Feldman** as the third president of Nova University. Effective July 1, he will succeed **Dr. Abraham Fischler**, who has been president since 1970. **Fischler** will take a one-year sabbatical to write and conduct research, then return to teach at Nova.

"Feldman has been president of Western Connecticut State University in Danbury for 10 years. Before that, he was chairman of the banking, finance, and investment department at Hofstra University in Hempstead, New York."

In a recent statement to University employees, **Ray Ferrero, Jr.**, Chairman of the Board, stated that "Dr. Feldman has big shoes to fill—the work that was accomplished by Abraham Fischler during his 22-year presidency is historical. Dr. Feldman will lead Nova into the next century. He has the background, experience, and reputation to make significant contributions to American education together with the Nova family."

Center faculty and staff were able to meet informally with Feldman in the Richardson Library on May 8 to get to know each other and to exchange ideas about our future together. He was presented with a White Paper on the Center's goals and objectives, as well as an Oceanographic Center mug, two T-shirts, two baseball caps, numerous issues of *Currents*, and a Friends bumper sticker.

## Coral Reef Banding Under Study at Center

*Continued from page 1*



*Rowena Garcia with a coral-cutting rock saw.*

Dr. Dodge's study is sponsored by the National Science Foundation, in conjunction with **Drs. Alina Szmant** and **Peter Swart** of the University of Miami.

Rowena Garcia did the measurements of the skeletal structure for this project. She will broaden the study to look at corals from two different sites: Broward County and St. Croix. Recent literature suggests that there are actually three different species of the coral. Examination of the different types will provide useful information for paleontologists who may be unable to distinguish morphotypes in other fossil collections.

For the project, Garcia has had to learn X-radiography, as well as coral sectioning, using a number of different rock saws. She has also mastered a

variety of computer image processing techniques to accomplish measurements of the skeletal structure. Another aspect of the study has been to investigate different polyp living spaces over an annual growth cycle. The ultimate goal is to develop coral skeletal investigation as a reliable climate hindcaster. The resulting data from the study will prove invaluable to physical oceanographers who need ocean model validation.

The wide background that Garcia has acquired might lead to future research, if she chooses to extend her work to other Caribbean and Pacific species. She hopes to go on for her Ph.D. in Marine Biology after she finishes her M.S. work (hopefully this fall)—that is, if her native Philippine Islands do not beckon her to return.



## PEOPLE ON THE MOVE

**Kathy Maxson**, Center Librarian, attended the Second Annual SAIL (Southeast Affiliate of IAMSILIC Libraries) Conference, held at Skidaway Institute of Oceanography in Savannah, Georgia, March 11-13. She was among 25 marine science information specialists from the Southeast and Caribbean regions. The purpose of the workshop was to share information on library technology and to strengthen networking, especially among the marine science libraries. Next year, the conference will be hosted jointly by the NOAA/NMFS Laboratory in Beaufort, North Carolina, and the Duke University Marine Laboratory.

During the second and third weeks of March, **Dr. Gary Kleppel** and M.S. students **Carol Burkart** and **Kevin Carter** participated in a research cruise in the Gulf of Mexico. They sailed aboard the R/V *Suncoaster* with **Dr. Carmelo Tomas**, of the Department of Natural Resources (DNR), and **Dr. Gabe Vargo**, of the University of South Florida. The cruise was part of a DNR-funded project to study and understand the biological production of the West Florida continental shelf, especially as it relates to recruitment of important fishing and food webs leading to fish production and nuisance plankton blooms.

**Kleppel** visited **Dr. John Ogden**, Director of the Florida Institute of Oceanography, and attended the "Workshop on the West Florida Shelf" May 6-8. Physical, chemical, and geological oceanographers were brought together "to discuss what we know and don't know about that region and its impact on Florida's resources and economy," said Kleppel. The workshop was cohosted by DNR, the Environmental Protection Agency, and NOAA/National Underwater Research Program.

**Kleppel** will participate in another research cruise June 9-22 aboard the R/V *Iselin* (University of Miami). He will work with Chief Scientist **Dr. Ed Houde**, of the University of Maryland, and **Dr. Elizabeth Clarke**, of the University of Miami, to study larval tunas and factors influencing their survival. The cruise will cover areas of the Gulf of Mexico, the Florida Straits, and the east coast of Florida as far north as Palm Beach.

**Dr. Charles Messing**, accompanied by **Dr. Curtis Burney**, **Kevin Kuta**, **Ghislaine Llewellyn**, **Barbara**



*Information specialists at the SAIL Conference, from left: Nova's Kathy Maxson, Linda Pikula from NOAA/AOML in Miami, Kay Hale from RSMAS/University of Miami, and host Tom Turner from Skidaway Institute.*

**Maloney**, and **Robert Miller**, traveled to West End, Bahamas, May 17-19. There they participated in a deep dive aboard the Johnson Sea Link Submersible as part of a continuing study of crinoids in the area.

During the period May 25 to June 21, **Messing** will pay a second visit to the Christensen Research Institute in Papua New Guinea. He will continue work begun last year on the taxonomy, ecology, and evolution of shallow-water crinoids, or feather stars (see *Currents*, fall 1991).

On his way back from his Papua New Guinea visit, **Messing** will stop at Agana, Guam, to attend the Seventh International Coral Reef Symposium June 21-26. The symposium is sponsored by the International Coral Reef Society. He will present a paper entitled "Diversity and Ecology of Comatulid Crinoids (Echinodermata) at Madang, Papua New Guinea."

**Dr. Richard Dodge** and M.S. student **Rowena Garcia** also will attend the Seventh International Coral Reef Symposium in Guam. They will present a paper in the form of a poster (see story page 1), which will become part of the proceedings. Its title is "Skeletal Structural Basis of Density Banding in the Reef Coral *Montastrea annularis*."

**Dr. Pijush Kundu** traveled to Montreal, Canada, May 12-16 to attend the spring meeting of the American Geophysical Union. He presented a talk entitled "Internal Waves Generated by Moving Wind."

On May 27, Ph.D. candidate **Zuojun Yu** presented a seminar at Scripps Institution of Oceanography in

La Jolla, California. The title of her talk was "Tropical Instability Waves in a 2½-Layer Model."

**Dr. Pat Blackwelder** will travel to Johnson State College in Johnson, Vermont, July 12-17, to attend the "1992 Johnson Conference: ASTM Committee D-22 on Sampling and Analysis of Atmospheres."



*Dr. Charles Messing prepares for his journeys.*

## Seminars Presented at Center

On May 6, **Dr. Ian Young**, of the Department of Civil Engineering of the Australian Defence Force Academy, presented a seminar for faculty and students on his work with ocean waves off the Great Barrier Reef.

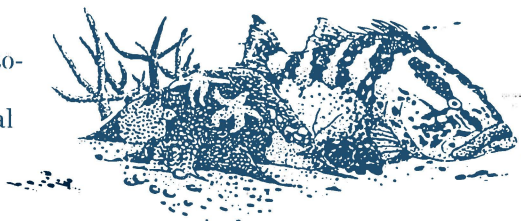
On May 15, **Dr. Laurie Richardson**, of the Department of Biology and the Drinking Water Research Center at Florida International University in Miami, presented a seminar entitled "Motility Responses of *Phormidium coralliticum* Associated with Black Band Disease in Corals."



# CONTRACTS AND GRANTS:

## Award Update

- C. Burney/C. Mattison:** "Sea Turtle Monitoring Project," Broward County (4/4/92-4/3/93). \$45,485
- C. Burney/G. Kleppel:** "Tilapia Wastewater," private funds (11/1/90-open). \$34,201
- R. Dodge:** "Effects of Beach Restoration on the Stony Corals of Southeast Florida," Florida Sea Grant (9/15/90-9/14/92). \$37,433
- R. Dodge/C. Messing:** "Port Everglades Macroinvertebrate Study," Port Everglades Authority (8/1/91-7/30/92). \$29,000
- R. Dodge/B. Baca:** "Tilapia Stocking," private funds (3/15/91-open). \$12,054
- G. Kleppel:** "Carotenoid Pigments in Microzooplankton: Characterization and Relation to Biomass," National Science Foundation (8/15/91-1/31/94). \$90,689
- G. Kleppel:** "Copepod Feeding Measurement Research," Department of Natural Resources (4/15/91-open). \$12,500
- G. Kleppel:** "The Gulf Stream Front, Its Role in Larval Fish Survival and Recruitment in Florida," Florida Sea Grant (4/1/91-3/31/92, year 2). \$38,866
- P. Kundu:** "A Study of Coastal Richardson Numbers, and How They Are Affected by Wind-generated Waves," National Science Foundation (5/1/91-10/31/93, year 1). \$165,000
- J. McCreary:** "Mixed Layer Parameterizations in Models of the Indian Ocean," Office of Naval Research (7/1/91-6/30/92). \$21,800
- J. McCreary:** "Dynamics of Equatorial and Coastal Oceanographic Circulation," National Science Foundation (8/1/91-1/31/93, year 3). \$185,000
- J. McCreary/J. Proehl:** "Dynamics of Ocean Circulation: Coastal Instabilities and Mid-latitude Subduction," Office of Naval Research (10/1/91-9/30/92, year 3). \$145,771
- J. McCreary/J. Witte:** "Publication of a TOGA Quarterly Bulletin," NOAA (3/1/92-2/28/93, year 3). \$47,629
- J. McCreary/J. Witte:** "Journal of Geophysical Research Office," American Geophysical Union (10/1/91-9/30/92, year 3). \$35,537
- J. McCreary/P. Kundu:** "Modelling Tropical Western Boundary Circulation," National Science Foundation (1/1/91-6/30/92, year 3). \$124,000
- J. McCreary/J. Proehl:** "Dynamics of Equatorial, Coastal and Subtropical Ocean Circulations," National Science Foundation (7/1/92-12/31/93, year 1). \$300,000
- J. Proehl:** "Modelling the Tropical Instability Waves," National Science Foundation (6/15/91-11/30/92, year 1). \$90,000
- R. Spieler/B. Baca:** "Bass Study: Rinker," EAS Engineering, Inc. (4/7/92-4/6/93). \$39,799



*Dr. Pat Blackwelder at Nova's Transmission Electron Microscope (TEM).*

## SEM AND TEM NEWS

**Dr. Pat Blackwelder**, of the Center's faculty, has been working with **Dr. Larry Brand** and **Dr. Jack Fell**, of the Rosenstiel School at the University of Miami, on a project sponsored by the National Institutes of Health. The work is entitled "Cultivation of Marine Protista," which are single-celled marine organisms. Her technique involves looking at the cell ultra-structure of species isolated by Brand and Fell, by means of electron microscopy.

Blackwelder also is working on a NOAA-funded project called the NOAA Coastal Ocean Program. She is participating in retrospective analyses, looking at cores in an attempt to document anthropogenic input and hypoxia in the Gulf of Mexico. In other words, she is investigating the effects of man's dumping habits in the Mississippi River on sea life in the Gulf.



# SEA WATER SYSTEM AT CENTER BECOMING A REALITY

**Dr. Richard Spieler**, the Center's expert on fish, finally can begin to see the light at the end of the pipe. Nearing completion is a three-part seawater system that will supply highly filtered sea water directly from the Intracoastal Waterway at the entrance to Port Everglades to waiting filters at the Center's north seawall.

Dr. Spieler anticipates pumping in about 70 gallons/minute, "giving us a state-of-the-art biological research facility," he said. Once the seawater reaches the outdoor concrete platform, it travels through gravel, sand, charcoal and finally ultraviolet filters. "This should give us extremely high-quality seawater," Spieler added. He anticipates the outdoor pad area's being used for aquaculture research, class demonstrations, and other projects that do not require a controlled environment.

Seawater also will be pumped into the adjacent Mellon Building, which houses a classroom/laboratory. The seawater will be used there for various class projects. A special room has been set up in the same building for a chronobiology lab. "Here we will have control of the light-dark cycle," Spieler explained. "There will be a wet lab for research on biorhythms of fishes, as well as some toxicological studies."

Spieler regards this as a "Nova-wide project—a number of faculty members were involved in the design of the project." Three of his students are involved in the actual construction of the facility: **David Gilliam**, **Pat Quinn**, and **James Sulikowski**. **Dr. Charles Messing** and a horde of other M.S. students (spurred on by a stack of pizzas) helped out with some of the early construction and painting of the roof overhang. Spieler was most vocal about our man from Physical Plant, **Diego Rodriguez**. "His help was absolutely critical in this," said Spieler "He has been magic, unbelievable!" High praise, indeed.



*Dr. Richard Spieler (right) makes his point with David Gilliam and Pat Quinn during construction.*



*David Gilliam and Pat Quinn with a myriad of filters.*



*Grady Construction team feeds breakwater.*

## The Taming of the Surge

With a lot of help from our friends, the basin breakwater was reinforced this spring. **Shaw Trucking Service** donated an enormous load of rocks and transported it to the Center, and Board of Governors member **John Grady** donated his machinery and labor to set the rocks in place. It was quite an operation. It is hoped that the strengthened breakwater will calm the wicked waves and tidal surges that regularly enter the basin. Ordinary workdays on the houseboat should become considerably calmer as well.

## Student Association Goes to Market

The Center's Student Association once again thanks **Lewis Marine Supply, Inc.**, of Fort Lauderdale for its generous donation of merchandise sold at the Dania Marine Flea Market this spring. Many students and staff participated in the venture, including **Dan Anderegg**, **John Braker**, **Kevin Carter**, **Missy Dore**, **Rowena Garcia**, **David Gilliam**, **Gilly Llewellyn**, **Bill Margolis**, **Cathy Mattison**, **Bob Miller**, **Stephanie Morris**, **Gayle Stone**, **James Sulikowski**, and **Brant Touchette**. Thanks also go to **Dr. Richard Dodge**, who helped finalize the delivery of goods, to **Jay Rand**, for his expert advice on "marketing strategy," and to **Terry Thompson** and **David Stout** for hauling the sale items.



# UNDERCURRENTS

## INSTITUTE OF MARINE AND COASTAL STUDIES

### SUMMER TERM SCHEDULE

M.S. degree specialties are **Marine Biology** and **Coastal Zone Management**. Each course carries three credit hours or may be audited. Tuition is \$250 per credit hour (50 percent less for audit). Classes meet once a week from 6:30 to 9:30 P.M. at the Center. The summer term extends from July 6 through September 18, 1992. For further information, call Bonnie at (305) 920-1909.

*Coastal Water Resource Impacts (CZMT-0622)*: Emphasizes development impacts on coastal ground and surface waters. Topics include residential, commercial, industrial, airport, port, and marina development; power plant siting; waste disposal facilities; flood protection; and wetlands loss. Guest lectures will be given by experts on aversion, minimization, and mitigation of impacts. Instructor: **Mr. Stacy Meyers** (Center adjunct; South Florida Water Management District). Begins Monday, July 13.

*Marine Ichthyology (OCMB-6230)*: Centers on the systematics, ecology, behavior, and resource management of marine fishes, with emphasis on the inshore fishes of the tropical Atlantic. A self-paced laboratory and some field work will be integral to the course. Instructor: **Dr. Richard Spieler** (Center faculty). Begins Tuesday, July 7.

*Marine Chemistry (OCOR-5605)*: One of four CORE courses for either specialty. Reviews properties and composition of seawater; the importance, distribution, relationships, and cycling of major nutrients; dissolved gases; trace metals; and organic compounds. A self-paced laboratory and problem solving, supplemented with interactive microcomputer work, are part of activities. Prerequisite: undergrad-

uate-level Introductory Chemistry. Instructor: **Dr. Curtis Burney** (Center faculty). Begins Wednesday, July 8.

*Wetlands Ecology (CZMT-0791)*: Basic ecology of coastal (marine and fresh water) wetlands. Includes intensive field work in the identification, delineation, and evaluation of wetlands and wetland indicator species. Area wetlands are visited for instruction in delineation based on vegetation, soils, and hydrology. A minimum of four Saturday field trips will be required in place of some lectures. Instructors: **Dr. Bart Baca** (Center adjunct) and **Dr. Andrew Cole** (Center faculty). Begins Thursday, July 9.

### FALL TERM SCHEDULE

Twelve weeks: September 28-December 18, 1992

*Marine Ecosystems (OCOR-5602)*: CORE course. Instructor: **Dr. Curtis Burney** (Center faculty).

*Marine Phytoplankton (OCMB-6060)*: Instructor: **Dr. Gary Kleppel** (Center faculty).

*Principles of Coastal Zone Management (CZMT-609)*: Instructor: **Dr. Stephen S. Light** (Center adjunct; South Florida Water Management District).

*Marine Invertebrates (OCMB-6080)*: Instructor: **Dr. Charles Messing** (Center faculty).

### Season's Activities Were Mouth-watering!

Dieting was very difficult this season. One major activity took the form of a pig roast in the Everglades on February 16. The combination was overwhelming, thanks to **Richard Donato**, a member of the Center's Board of Governors, who sponsored and arranged the affair. We enjoyed not only the pig and other delicacies, but also tours of an Indian reservation and free airboat rides. We found the park site, which is just at the edge of the Everglades (and civilization) in Broward County, very compelling. And, yes, we did spot some gators and abundant wildlife as we explored one tiny portion of the "sea of grass."

The second major activity was a fish fry, which was held at the Center April 9. The occasion was the Second Annual Marine Industries Association of South Florida (MIASF)/Nova Cookout. About 300 MIASF members and Nova staff, students, friends, and guests attended (who could pass it up?). The crowd was entertained by pirates and wenches, who romped among the crowd and sang sea chanteys and traditional Celtic songs, to everyone's delight. The evening was capped by student-conducted tours through the Center's laboratories and other work areas. We are already looking forward to the *Third Annual MIASF/Nova Cookout!*





*Dr. Curtis Burney (foreground) joins in the quest for wildlife in the Everglades.*



*Find the alligator in this picture and win a bumper sticker!*



*Part of the throng enjoying the MIA SF fish fry.*

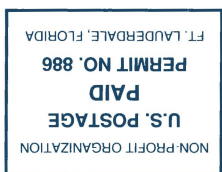


*Dr. Julian McCreary and Dr. Jeffrey Proehl, enjoying two merry wenches.*



*Dr. Charles Messing (center) and fellow musicians entertain the guests.*





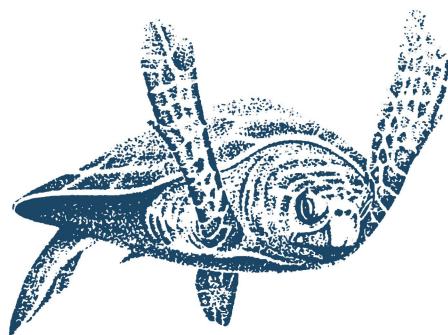
**NOVA UNIVERSITY**  
*Currents, Spring 1992*  
Oceanographic Center  
8000 North Ocean Drive  
Dania, Florida 33004

## The Spanish Are Coming, the Spanish Are Coming!

Sometimes the sightseeing from our laboratory seawall is truly breathtaking! In honor of the arrival of a certain Genoan on these shores (or at least on nearby ones) 500 years ago, the Spanish government has sent to the United States fabulous touring replicas of Columbus's three ships. In early May, they visited Fort Lauderdale for several days; the photo at right captures something of the size and the grandeur of the largest of the vessels, the *Santa Maria*, as she leaves Port Everglades.



*A host of natives escorts the flagship Santa Maria from Port Everglades.*



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Nova University is accredited by the Commission on Colleges of the Southern Association of Colleges and Schools to award bachelor's, master's, educational specialist, and doctoral degrees. Nova University admits students of any race, color, and national or ethnic origin.