Fall 1998

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NSU Oceanographic Center

Nova Southeastern University
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End of an Era: Farewell To Jan Witte

After 28 years at the Oceanographic Center, Jan Witte, research associate, retired on August 3. Her retirement was celebrated with a party held in her honor.

Jan began her career as a technical typist at the center on August 31, 1970. In the summer of 1969, Jan visited old friends, Dr. Russell and Jody Snyder in Fort Lauderdale. Russ, a researcher at the center, suggested she talk to the director of the lab, Dr. William (Bill) Richardson, about a job. She did so, and with her bathing suit dripping water all over the library floor, she was interviewed by Richardson. The next spring she was offered the job, which she gladly accepted. She left her teaching position and arrived here that summer.

The lab then consisted of a houseboat located on SE 15th Street in Fort Lauderdale, at the site of Lauderdale Marina. During Jan's time with the lab, many boats have been donated to the lab. The most notorious, the *R/V Gulf Stream*, and the most recent, the *Lucy Forman*.

Jan has seen many changes over the years. People have come and gone, and come again, such as Laszlo Nemeth, the lab machinist and photographer. Laszlo took both underwater and aerial pictures (from Comanche and Navaho airplanes that the lab leased) to measure current speed in the Gulf Stream. After a short hiatus at the University of Miami, he returned in 1986 to manage machine-shop operations once again.

Dr. Dennis Moore, former director of the lab, had worked with Jan on many scientific programs, and the two of them have enjoyed a long friendship. In 1980, Dennis left for Hawaii, leaving President Abraham Fischler in charge of the lab. Dr. Julian (Jay) McCreary, who had arrived from Scripps Institution of Oceanography a few years earlier, assumed the directorship in 1981. Other notable scientists that she has worked with are Dr. Peter Neiler, now at Scripps Institution of Oceanography, and Mike Spillane and Irv Brooks, who both went on to work in the private sector.

Jan Witte enjoying last day at work

In the fall of 1970, the houseboat was moved from 15th Street to its current location. Jan's office was on the houseboat until Hurricane Andrew forced the houseboat staff to move to the renovated Schure Building, which had recently been acquired from NYIT. After the hurricane it seemed reasonable to leave everything where it was, so the move became permanent. Jan's new office provided a nice view of the Port Everglades inlet.

Jan's love of cats and Fords are known to everyone. Cat pictures adorned her office and a Mustang or a T-Bird always sat in the parking lot.

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One of Jan's favorite pastimes is football. She is a season-ticket holder to the Miami Dolphins games, and frequently invited someone from the Center to accompany her.

Originally from Indiana, Jan got her B.S. from Indiana University and her M.A. in English from Purdue University. She went on to teach English in California and also worked at Scripps for four years.

Jan's duties at the lab involved preparing the budget, organizing conferences, and other administrative duties. She has been the editorial assistant to Dr. McCreary for two major journals, *Journal of Geophysical Research / Oceans* (AGU), and *Journal of Physical Oceanography* (AMS) for the past nine years and was the technical editor for *TOGA Notes*. She coordinated more than 25 meetings, workshops, and conferences everywhere from the lab in Dania, to Hawaii, to India. She has compiled and edited nine publications, was involved as technical editor for 12 others, and has been the editor of *Currents* since its inception in the summer of 1987.

On her last day at the lab she was asked what her plans were and she said, "Absolutely nothing! It's wonderful!" As it turns out, however, her "absolutely nothing" consists of many future travel plans. Have a great retirement, Jan!

Jan with old friend and ex-lab employee, Linda Smith

Jan's party with many friends

Jan cutting her cake while Jay McCreary watches

Jan's cake

Dr. Charles Messing sang a song to honor Jan at her retirement party. It is a song about our houseboat.

The Ballad of Witte's Pride

Lyrics by Charles Messing

[NOTE: I wrote these lyrics several years ago to celebrate a mythical voyage appropriate to our oceanographic lab in traditional sea chantey style. I then set it aside and never completed the tale. (The first six verses and a last verse bracket the unwritten voyage itself.) However, it seemed at least partly appropriate for the occasion of Jan's retirement, so I trotted it out (for what we all hope was a one-time performance) and, at the last minute, added a final verse to wish Jan the best. The lyrics below differ very slightly from the performed version, which fell out of meter at one or two points (although that may have been me). The piece should be sung to "The Wreck of the Athens Queen" by the late, great Canadian folk singer, Stan Rogers.]

Oh, the outlook wasn't rosy for the Nova lab that year.
The funding for computers had dried up and disappeared.
They needed data to pursue their oceanography,
*so **McCreary** chose to take the Nova houseboat out to sea.*
*And he named her **Witte's Pride**.*

He said, "What luck. A floating lab sits right beside our dock.
A solid, stable platform, and we won't go into hock."
*A winch and A-frame he persuaded **Laszlo** to agree*
to construct them out of chicken wire, tape and PVC.
*To install on **Witte's Pride**.*

Now equipment was a problem for the number-crunching boys.
***Pijush** had no CTD's among his research toys.*
They turned the warehouse upside down, but pickings there were few,
just a dusty bathythermograph of vintage World War Two.
*For the houseboat **Witte's Pride**.*

*They sent **Ruth** to the beach at lunch to see what could be seen.*
She said the ocean's surface was a calm and glassy sheen.
When Jay then asked her if she'd like to come and join the tour,
Ruthie opted for a quick and early move into the Schure.
*Firmer ground than **Witte's Pride**.*

Now power was a question too, not lightly tossed aside.
The houseboat had no engines, at the dock 'twas always tied.
*But **Russ** tied up his sailboat to the starboard forward cleat*
*and the Lucy Forman lashed to port with **Gary** in the seat.*
*They would pull Jan **Witte's Pride**.*

***Curt**, **Dick**, and **Rich** cast off the lines, then to their labs returned.*
With corals, fish and chemistry this tale is not concerned.
Pat was down at RSMAS and of Cole we'll speak e'er long.
*As for **Messing**, he was missing, but he gets to sing this song.*
*All about Jan **Witte's Pride**.*

(Last verse)
In the long years since that fateful cruise, the big bucks ne'er returned.
But the guys keep papers rolling out with tricks that they have learned.
***Alex**, **Jay**, and **Barry** show their colleagues what to do with a pencil, paper, slide rule and an abacus or two.*
*And a ride on **Witte's Pride**.*

(Final verse)
*Now, **Jan** herself did not accompany this fateful trip.*
She had seen such madness in her years before at Scripps.
At Nova she saw changes and directors pass as well.
So, at least we'll wish her bon voyage and also fare ye well.
It's Jan Witte's final ride.

Jan with Ph.D. student, Weiqing Han, standing in front of pages from a giant "special" issue of Currents

Old friends, Rick and Linda Donato, who at one time lived on a houseboat themselves, in the lab's boat basin

Jan and ex-lab employee, Helene (Taylor) Appleman

Jan explaining significance of picture to student, Brenda Ertan

People on the Move

The American Society of Ichthyologists and Herpetologists' 78th Annual Meeting, which was held July 16-23 at the University of Guelph, Ontario, Canada, drew a host of researchers and students alike from the Center.

David Gilliam (who recently defended his Ph.D. dissertation), presented a paper titled "The Role of Transient Predators in Regulating Juvenile Reef Fish Abundance on Small Patch Reefs: a Preliminary Examination," which he co-authored with Robin Sherman and Richard Speiler.

Gilliam also contributed to a poster presentation titled, "Temporal Reef Recruitment Patterns off Southeast Florida." Others involved in this presentation were Sherman and M.S. student **Lance Jordan**.

Another poster titled, "Structural Differences in Gill Vasculature Among Batiod Elasmobranchs: A Work in Progress," was presented by Ph.D. candidate, **Robin Sherman**.

Also in Guelph were **Dr. Mahmood Shivji**, along with his students, **Heather Balchowsky** and **Brenda Ertan**.

Balchowsky presented a talk at the American Society of Ichthyologists and Herpetologists' Meeting, titled, "Quick and Accurate Identification of Triggerfishes (Balistidae) using PCR with Species-diagnostic Mitochondrial (12S/16S) primers," while Dr. Shivji and Ertan presented talks at the American Elasmobranch Society's Annual meeting.

Shivji's talk was titled, "Structure and Evolution of Shark Ribosomal DNA Internal Transcribed Spacers." Ertan's presentation was titled, "Characterization of Blue Shark (Prionace glauca) Mitochondrial Genome control region sequences for population genetic studies."

Both societies met at the University of Guelph.

Masters student, **Dan Fahy**, and graduates **Pat Quinn** and **Suzanne Piccini** also attended the meetings.

Also of note: **Shivji** and **Balchowsky** were accepted into a "highly competitive" workshop on Molecular Evolution being held at Woods Hole Oceanographic Institute for two weeks, August 3-14. Balchowsky and 14 other people were invited to stay an additional week to work on their data using the WHOI resources.

Back Row: David Gilliam, Dan Fahy, Dr. Mahmood Shivji, Brenda Ertan, Lance Jordon and Pat Quinn Front Row: Heather Balchowsky, Suzanne Piccini and Robin Sherman
(Photo courtesy of Brenda Ertan)

M.S. thesis student **Chris White** spent three weeks at the American Museum of Natural History in New York City. There he learned theory and techniques in molecular phylogenetics and systematics from AMNH staff, Dr. Ward Wheeler and Dr. Daniel Janies.

Dr. Alexander Soloviev attended the International Geoscience and Remote Sensing Symposium in Seattle, Washington, on July 6-10, where he presented a paper titled, "Diurnal Cycle of SST in the Tropical Ocean." Co-author on the paper is Dr. Roger Lukas of University of Hawaii.

On July 7-14, Soloviev attended the TOGA Core workshop in Boulder, Colorado where he presented a paper titled "Fine Thermohaline Structure and Turbulent Mixing in Near-surface Layer of the Tropical Ocean," co-authored with Lukas, P. Hacker, M. Baker, H. Schoeberlein, and A. Arjannikov.

Dr. Soloviev contributed to two posters, titled, "An Approach to Parameterization of the Oceanic Turbulent Boundary Layer in the Western Pacific Warm Pool," and "Horizontal Structure of the Upper Ocean Velocity and Density Fields in the Western Equatorial Pacific Warm Pool," co-authored by Lukas and Hacker of the University of Hawaii.

Dr. Julian McCreary attended the Monsoon Workshop held in St. Michaels, Maryland, July 29-31, and was a member of the organizing committee. The purpose of the meeting was to bring together interested scientists to develop a strategic plan for studying Asian monsoons. McCreary's Ph.D. student, **Weiqing Han** also attended the meeting.

Prior to the meeting, McCreary visited the Horn Point Environmental Laboratory (HPEL) at the University of Maryland in Cambridge, where he presented a seminar titled, "A Coupled Ocean-Atmosphere Model of Pacific Decadal Variability." While at HPEL he also worked with Raleigh Hood on plans to extend their effort to model the Arabian Sea ecosystem.

It's off to Iceland for **Kathy Maxson**, center librarian. She will be attending the joint IAMSLIC/PLC meeting in Reykjavik, September 20-25. Kathy is the regional representative to IAMSLIC (International Association of Marine Science Libraries and Information Centers). At the meeting, she will present a report on the regional meeting she hosted at the center in April.

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From June 9-12, **Dr. Debbie Weissman-Berman** traveled to Stockholm, Sweden, for the Fourth International Conference on Sandwich Construction to present a paper on the newly defined modulus of residual stiffness, a controlling parameter in sandwich analysis that she has defined over the last two years. In addition, she celebrated her 60th birthday at the podium, where she was presented with a bouquet of roses by the chairman, Dr. Karl-Axel Olsson, organizer of the conference and chair in composites at the Royal Institute of Technology, Stockholm.

Dr. Weissman-Berman then traveled to Gainesville, Florida, June 21-26, for the 13th U.S. National Congress of Applied Mechanics held at the University of Florida. She presented a paper on the development of a bi-geometrical sandwich construction and the subsequent derivation of a scaling law from coupon-size specimens to full-scale beam loading. This is the first time that such a scaling law has been presented for sandwich construction.

Dr. James Darwin Thomas, center faculty member and a former curator at the Smithsonian, returned in June from Australia, where he was an instructor in the Australian Coral Reef Course held in Far North Queensland, Australia.

This was an intensive, hands-on course designed for sophomore and junior biology and science education majors. Students stayed at a pristine Great Barrier Reef location, Orpheus Island Research station. Class enrollment was limited to 14 students.

Images taken in Australia and log files detailing the students' activities were transmitted back to the Center and published on the Center's web page, using software written by **Kevin Kohler**.

In addition to the two weeks spent at the reef, students traveled to other natural heritage sites on land, including the Daintree River, Atherton Tablelands; Kuranda, a small town nestled deep in the rainforest north of Cairns; and Ingham, another small town in the sugar district north of Townsville. Dr. Given Harper, an avian ecologist, also accompanied the trip and provided a bird's-eye view of the many fascinating and colorful species of flora and fauna found in Australia.

Publications Update

Sherman, R.L., D.S. Gilliam and R.E. Spieler. "A Preliminary Examination of Depth-associated Spatial Variation In Fish Assemblages on Artificial Reefs." *J. Applied Ichtyology* (accepted).

Sherman, R.L. and **R.E. Spieler**. "Examination of the Gill Vasculature of the Yellow Stingray, *Urolophus Jamaicensis*, by SEM Observations of Resin Casts." In: Proceedings of the Ninth International Congress of European Ichtyologists (CEI 9) "Fish Biodiversity," Trieste, Maritime Station, August 24-30 1997, *The Italian Journal of Zoology* (accepted).

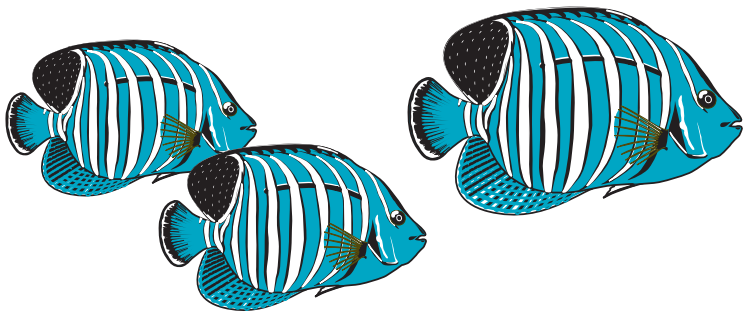
Sherman, R.L., **D.S. Gilliam** and **R.E. Spieler**. "Differences in Count and Length Estimates in fish Census Data Among Experienced Researchers." In: Proceedings of the International Workshop: Fish Visual Census in Marine Protected Area, *The Sicilian Naturalist* (accepted).

Weissman-Berman, D., "Systems Approach In Sandwich Hull Design," Office of Naval Research, *U.S.-Pacific Rim Workshop on Composite Materials for Ships and Offshore Structures*, April 1998 (in press).

Weissman-Berman, D., and **Horsmon, A.**, "Systems Approach in Sandwich Design – With COREDESTM Computer Code," Office of Naval Research, *U.S.-Pacific Rim Workshop on Composite Materials for Ships and Offshore Structures*, April 1998 (in press).

Weissman-Berman, D., "Sub-structure and Yield Design in Sandwich Beams," *Fourth International Conference on Sandwich Construction, EMAS, Conference Edition, Vol. I*, Solisbury, England (in press).

Dr. James Thomas and students on way to reef site in Australia (Photo courtesy of Dr. Thomas)



Grants Awarded

June 16, 1998—The Fort Lauderdale City Commission voted unanimously to accept a grant agreement from the Florida Department of Environmental Protection (FDEP) - Special Waterways Projects Program. The grant funds an Ocean Systems Development Corporation Waterway Expert Traffic System (WETS) research proposal, submitted by the Nova Southeastern University Oceanographic Center to the Florida Marine Patrol. The WETS will be deployed in a monitored experiment as a waterway and watercraft data collection and observation tool. The research site may be viewed live from the OSDC home page (*http://www.osdc.com/wets_lead_in.htm*).

The Office of Naval Research has funded a joint project between the University of South Florida and Nova Southeastern University's Oceanographic Center. The Environmental Array and Data Analysis Project will involve deploying a three-dimensional mooring array in the Gulf Stream for the purpose of collecting data to try to answer the following questions: What are the dominant modes of interaction between the nearby Gulf Stream and the shelf/nearshore circulation? What are the structures and timescales of upwelling and downwelling events? Are these events driven by the wind, Gulf Stream meanders, propagating continental shelf waves, or near-shore eddies? What is the structure and temporal variability of the internal-wave field within the range?

Describing and mapping phenomena like these, and identifying the processes that cause them, is the underlying scientific justification for the proposed array. The principal investigators involved are Drs. Julian McCreary and Alexander Soloviev of NSU, and Robert Weisberg and Mark Luther of USF.

Seminar

On July 23, Dr. Alexander Yankovsky, from the University of Delaware, presented a seminar titled, "Meso-Scale Eddies on the Shelf Trapped by Topographic Features."

The Aquaculture Update

Reported by Dr. Bart Baca

The record cold winter, record hot spring, and continued hot summer is keeping us busy at the Aquaculture Research Center (ARC) in Davie, as we begin our second year of operations. Maintenance of water quality has been the number-one problem; fortunately, however, sales of fish have been brisk. Sales exceeded 14,000 pounds for July, our best month to date. We were selling 300 pounds per day for a while, but sales have leveled off to approximately 400 pounds per week. Students from all fields at the Oceanographic Center have been doing the harvesting with cast nets—quite a workout! We are selecting an automatic harvester, which will allow us to sell 8,000-10,000 pounds at a time.

Summer events at the ARC include several public tours and youth volunteer days. The tours acquaint the public with goings-on at the ARC, and youth days allow 10-17-year-olds the opportunity to catch fish and learn about aquaculture. There is no charge for youth day and we furnish drinks and pizza, but the saleable fish caught and the happy kids make up for it.

The July tour ended with a Tilapia Cookoff at the Oceanographic Center, where faculty and student chefs competed. Librarian Kathy Maxson won with her Mystery Spice Tilapia, a richly flavored oriental baked dish.

The Freeport, Bahamas shrimp farm we are involved with is progressing also. During the summer, we harvested our first crop and stocked two other ponds. In July, I went over to help farm manager and former master's student, Sofia Russell, stock one of the ponds with 750,000 larval shrimp. We have two 2.5-acre ponds stocked with a total of 1.5 million shrimp, and they seem to be doing fine. Each pond is capable of producing more than 12,000 pounds of shrimp in six months or so.

The aquaculture trailer is full of activity, with graduate students Eric DeMicco on algal culture for seafood nutrition research; Richard Hubbard in the culture of larval marine fish foods; and David McMahon in reproduction of native pink shrimp *(Penaeus duorarum)*. David has just completed his M.S. research on tilapia culture in seawater. David will defend his thesis titled, "The Effects of Various Salinities On the Growth, Physiology and Reproduction of Blue Tilapia *(Oreochromis aureus)*," within the month.

Elizabeth Lu just completed and successfully defended her M.S. Capstone paper on the culture of the popular clownfish.

David McMahon holding native pink shrimp (Penaeus duorarum)

Davie aquaculture facility

Eric DeMicco's algae mass culture research

Richard Hubbard with his algae culture used in the feeding of marine fish larvae

(Photos courtesy of Bart Baca and Richard Hubbard)

Dr. Bart Baca at Freeport Bahamas shrimp facility

Center master's student Rashmee Sabbatah with Dylan Maxson, grandson of Kathy Maxson, holding tilapia fingerling

MASTERCURRENTS
INSTITUTE OF MARINE AND COASTAL STUDIES

Fall 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 $397 per credit hour (50 percent less for audit). Classes meet once a week from 6:30-9:30 p.m. at the Oceanographic Center (unless otherwise specified). The fall term runs from September 26 through December 18. Registration ($25 nonrefundable) begins two weeks prior to the start of classes. For further information, call **Melissa Dore** at (954) 920-1909.

Marine Ecosystems *(OCOR-5602):* One of four core courses that is common to both specialties. Focuses on marine ecological processes and function. An overview of the basic concepts of marine ecology will be provided along with more detailed elements of the discipline, including diversity of organisms, feeding relationships, ecological roles, growth, and reproduction. Emphasis will be devoted to coastal marine communities. Instructor: **Dr. Curtis Burney** (center faculty). Begins Monday, September 28.

Functional Morphology & Physiology of Fish *(OCMB-6220):* Introductory course to the study of fish. Topics will include a survey of the major groups of fishes, current systematics, anatomy, physiology, ecology, reproduction, and behavior. Underlying themes will be functional morphology and the integration of the animal with its environment. Instructor: **Dr. Richard Spieler** (Center faculty). Begins Tuesday, September 29.

Environmental Conflict (Resolving Environmental & Public Dispute) *(CZMT-0675; MEVS-5035)*: The purpose of this course is to examine many of the practical and theoretical considerations regarding third-party intervention into public disputes (environmental being the most dynamic and controversial). Instructor: **Dr. Polkinghorn** (to be held on east campus, Wednesday 6:00-9:00 p.m., from September 9 – December 9, 1998.

Aquaculture Systems *(OCMB-6205; CZMT-0810; MEVS-5010):* Designed to survey the field of aquaculture, this course will provide direct, practical, hands-on training in the latest methods of commercial shrimp, fish, and other animal cultures. Course work includes activities with live animals in each life-history stage, and instruction in hatchery design and management, culture of larval foods, larval culture techniques, stocking and growout, disease and problems, sourcing of breeders, maturation, as well as marketing and finances. Modern and classical methodologies will be discussed. Instructor: **Dr. Bart Baca** (center staff). Begins Friday, October 2.

Cultural Resource Management *(CZMT-0670; MEVS-5030):* Introductory survey course dealing with the assessment and management of cultural/historic resources in the coastal zone terrestrial and marine environments. Focus will be on the preparation of the cultural resource assessment (comparable to the better known environmental impact assessment), which is the product of CRM study. Case problems in the field environment and the preparation of field studies will be addressed, as well as the macro-management of cultural resources in both the public and private sectors. Instructor: **Dr. Robert Baer** (NSU Business School faculty). Begins Friday, October 2.

Environmental Futures and Human Choices *(CZMT-0665; MEVS-5001):* An in-depth distance-education course that examins a fast-changing environment in a stressed universe, with emphasis on the ecological prospect for change and human survival. Two papers are required. Instructor: **Prof. Keith Ronald** (Center adjunct). Begins week of September 28.

Marine Mammals Management *(OCMB-6330):* A distance-education course 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. (See page nine for a more detailed description). Two papers are required. Instructor: **Prof. Keith Ronald** (Center adjunct). Begins week of September 28.

New Students for Fall Semester

The Institute of Marine and Coastal Studies welcomes the following new students:

Sean Ahern, Roger Willams University
Jacquelin K. Carpenter, Greenville College
Jason Crompton, Eastern Illinois University
Judith Dennis, Webster University
Luz Escobar, Universidad del Valle
Fleur Harttung, Eckerd College
Jennifer Hartwig, Austin Peay State University
Rhonda Hord, Hampton University
Michllen Lajti, Whittenberg University
Kristina Mann, Northern Illinois University
Jillian McCarty, Millersville University of Pennsylvania
Dawn Miller, Murray State University
Gretel Porcaro, Hamilton College
Rachel A. Sagan, Winona State University
Nicholas Straccione, Richard Stockton College of New Jersey

New Marine Mammal Management Course

Nova Southeastern University Oceanographic Center announces the first offering of a distance-education course in **Marine Mammal Management**. An interdisciplinary graduate course, it is open to everyone who has an interest in marine mammals and their management. This course presents a demanding approach to examining the present state of the relationship between marine mammals, people, and the environment (as it has evolved over time, as it stands today and as it is likely to be for the future, whether by default or by design).

The marine mammals/environment relationship is extremely complex and fluid. It changes depending on place and time, and the rate of this change is accelerating along with related developments such as human populations and economic growth, technological capacity, and our expanding use of the world's oceans and waterways.

Although this course in many ways resists categorization, for the sake of simplicity it might be said to relate more to social processes and philosophical considerations. We will look at the position and influence of marine mammals within the environment, as well as the development of physical conditions, values, and economic activities, that have lead to their current situations.

The course objective is to help one begin to develop an understanding that the marine mammal management concerns are multifaceted and involve:

- a scientific dimension
- a local dimension
- a social dimension
- a global dimension
- an economic dimension
- a cultural dimension
- an ecological dimension

The course instructor is **Professor Keith Ronald**.

Winter-Term Schedule

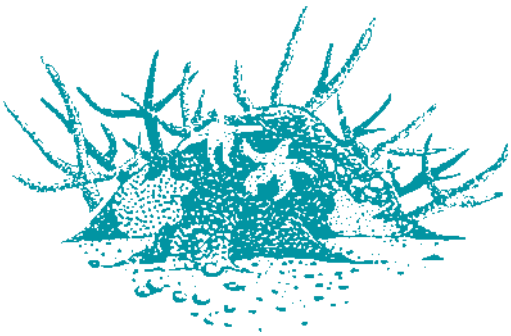
The winter term runs from January 4 through March 26 (unless otherwise specified). Look for course descriptions in the next issue of *Currents*. (The following is a tentative list of courses that will be offered.)

Concepts in Physical Oceanography (OCOR-5601) Instructor: **Dr. Barry Klinger** (Center faculty).
Plankton Ecology (OCMB-5606)
Marine Microbiology (OCMB-6055)
Coastal and Environmental Policy (MEVS-5004) Instructor: **Mr. Stacey Myers**
GIS & Remote Sensing: (CZMT-0639, MEVS-5023) Instructor: **Mr. Stacey Myers**
Environmental Futures (CZMT-0665;MEVS-5001). A distance-education course Instructor: **Prof. Keith Ronald**

Sleek new stairway and entrance to Forman Building

Ph.D. Degree Offered

The Oceanographic Center offers a Ph.D. 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 coursework is usually in the tutorial mode with the major professor. Tuition will be $2,605 per quarter, beginning with the summer term.



Defenses and Student Papers

Kevin P. Helmle, "Relationships Between Skeletal Architecture and Density Banding in the Reef Coral Diploria Strigosa, from X-radiography, X-ray Computer Tomography and Image Analysis Techniques." M.S. Thesis Defense Committee: Drs. R.E. Dodge (Chm.), C. Messing, and P. Swart, RSMAS, July 1.

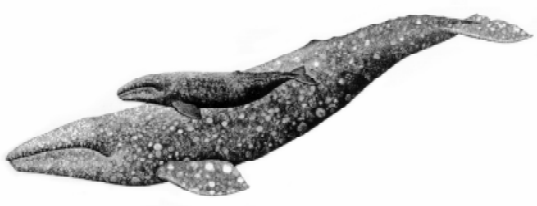
Gary R. Milano, "Restoration of Coastal Wetlands in Miami-Dade County, Florida." M.S. capstone review paper. Committee: Drs. R.E. Dodge and B. Baca, July 3.

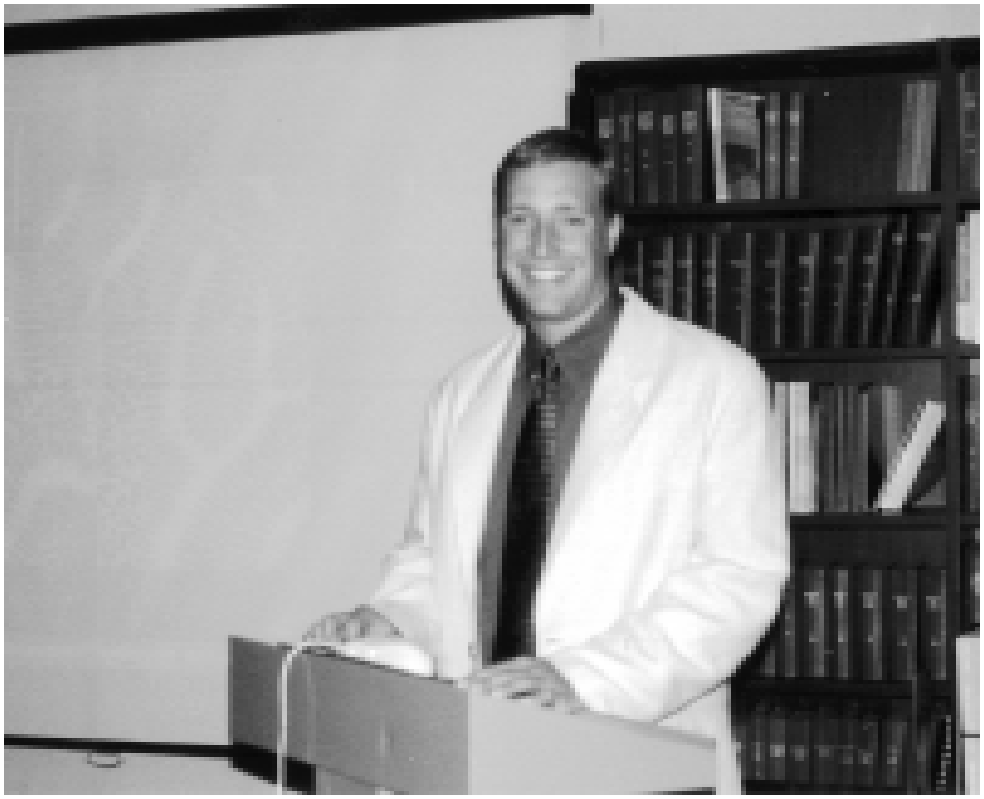
Roy Leavitt, "Remote Sensing Use in Coastal Zone Management: With Emphasis on Identification of Nearshore Hardbottom Communities and Sensitive Marine Communities." M.S. capstone review paper. Committee: Drs. R.E. Dodge and B. Baca, and Mr. S. Meyers, July 7.

Kevin J. Petrovsky, "Considerations for Developing and Implementing a Prescribed Fire-Management Plan for Southeast Florida Coastal Scrub Ecosystems." Committee: Drs. R.E. Dodge and B. Baca, July 9.

Steve Christensen, "A Review of Mercury in the Aquatic Environment: Mercury in Fish." Committee: Drs. M.C. Burney and R.E. Spieler, July 17.

Elizabeth M. Lu, "Summary of Current Information of Anemone-Fishes (General Amphirpron and Premnas)." Committee: Dr. B. Baca, M. Moe, and G. Barriere, July 28.





Kevin Helmle at his thesis defense

On July 1, **Kevin Helmle** defended his M.S. thesis, titled "Relationships Between Skeletal Architecture and Density Banding in the Reef Coral, Diploria Strigosa, from X-radiography, X-ray Computer Tomography, and Image Analysis Techniques." His committee included **Dr. Richard Dodge** (chairman), **Dr. Charles Messing**, **Associate Professor**, and **Dr. Peter Swart**, chairman of the Division of Marine Geology and Geophysics at University of Miami, Rosensteil School. A pizza party followed Helmle's successful defense.

Helmle started working for Dodge as part of NSF project analyzing sub-annual growth from stained corals. His duties included coral sectioning and analysis, X-radiography, image processing, and growth measurements.

Helmle also contributed to a report for National Oceanic and Atmosperic Administration/The National Undersea Research Center, which will present collection information and data about corals cored across the Florida Keys.

Most of Helmle's time was spent analyzing coral skeletal structure by X-ray computed tomography. He developed computer generated density band reconstructions, 3-D skeletal reconstructions, and animations passing through the coral skeleton.

For his thesis, Helmle analyzed the relationships between skeletal architecture and density banding for Diploria strigosa (brain coral).

Helmle has been at the lab since July 1994 and spent a term as student association president and represented the Oceanographic Center as a member of the Student Advisory Council. He also worked at the Museum of Discovery and Science and taught a summer class at BCC.

He has been accepted as a Ph.D. candidate at the University of Houston. After his thesis defense, Kevin was asked if he would miss it here and he said, "Certainly, I will miss the Oceanographic Center and all of the people. It's been interesting to see the place change over the years. I've enjoyed living in South Florida tremendously. Houston was an excellent opportunity in that it allows me to continue similar coral research (Pacific species) with respect to El Niño events. I will be working for Dr. G. M. Wellington in the ecology and evolution program of the biology department."

Helmle left for Houston in August. We wish him well.

UNDERCURRENTS
JOINT SCIENCE PROGRAM (Undergraduate)

Fall Term

The Joint Science Program between the Farquhar Center for Undergraduate Studies and the Oceanographic Center is happy to announce that it will once again admit the largest class in the Farquhar Center Professional and Liberal Studies College. The majors offered through this program are life science (pre-med), ocean studies, science and the law, and science and the business environment.

Students in this year's entering class have excellent academic credentials and their standardized test scores are the highest in the history of the Center. Forty-nine of the confirmed students have secured dual-admission status with the Nova Southeastern Health Professions Division, and two students have been dually admitted in the masters program of the Oceanographic Center. Students granted dual-admissions have their seats in the graduate and professional schools reserved for them as long as they maintain certain academic standards. Some of these programs are accelerated and students work on both degrees concurrently.

Students majoring in life science and ocean studies continue to be active members of the campus community. The Pre-Med Society is the largest undergraduate organization on campus. The Nature Club, strongly supported by ocean studies majors, was named Club of the Year for the 1997-98 academic year, and our own Dr. Jim Thomas was chosen Advisor of the Year.

Dr. James Thomas' undergraduate oceanography class (Photo courtesy of Dr. Thomas)

New Faculty

The Oceanographic Center welcomes four new faculty members:

Dr. Andrew Rogerson, associate professor in biology whose specialties are microbiology and amoebas. A graduate of The University of Stirling in Scotland, he came to us from the South Dakota School of Mines & Technology, where he was an associate professor in biology. Along with continuing his research, Dr. Rogerson will be teaching part time in the undergraduate Joint Science Program (JSP).

Dr. Ed Keith, associate professor in biology, whose specialty is marine mammals, was hired by the Center to teach in the JSP. He will begin in January. Dr. Keith is an associate professor of biochemistry at NSU's Health Professions Division, and an adjunct assistant professor at the Department of Biochemistry of the University of Miami's Medical School. He is also an adjunct lecturer at Florida Atlantic University. Dr. Keith got his Ph.D. in Biology from the University of California, Santa Cruz.

Dr. Venkaesh Shanbhag, assistant professor in chemistry whose specialty is analytical chemistry of environmental compounds. Dr. Shanbhag is a graduate of Texas A&M University, and was a visiting assistant professor at Mississippi State University before joining us to teach in the JSP.

Dr. Veljko Dragojlovic, assistant professor in chemistry whose specialty is organic chemistry. Dr. Dragojlovic is a graduate of the University of British Columbia and was a chemistry instructor at Northwest Community College in Terrace, British Columbia, before joining us.

(The program is searching for an additional biologist.)

NOVA SOUTHEASTERN UNIVERSITY

Currents, Fall 1998

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

Dr. Joshua Fiengold's Coral Reef Ecology class in Key Largo, comparing percent of coral cover between White Banks Patch Reef and Brian's Patch Reef (Photo courtesy of Susan Thornton)

Jan Witte at retirement party

Editor: **Kathy Maxson**

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